



Western Michigan University
ScholarWorks at WMU

Dissertations

Graduate College

6-2009

Technical Adequacy of Curriculum-Based Measures of Vocabulary Growth for Preschool English Language Learners

Kathleen M. VanTol
Western Michigan University

Follow this and additional works at: <https://scholarworks.wmich.edu/dissertations>



Part of the Disability and Equity in Education Commons, and the Special Education and Teaching Commons

Recommended Citation

VanTol, Kathleen M., "Technical Adequacy of Curriculum-Based Measures of Vocabulary Growth for Preschool English Language Learners" (2009). *Dissertations*. 698.
<https://scholarworks.wmich.edu/dissertations/698>

This Dissertation-Open Access is brought to you for free and open access by the Graduate College at ScholarWorks at WMU. It has been accepted for inclusion in Dissertations by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.



**TECHNICAL ADEQUACY OF CURRICULUM-BASED MEASURES OF
VOCABULARY GROWTH FOR PRESCHOOL ENGLISH
LANGUAGE LEARNERS**

by

Kathleen M. VanTol

**A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Education
Department of Special Education and Literacy Studies
Advisor: Kristal Ehrhardt, Ph.D.**

**Western Michigan University
Kalamazoo, Michigan
June 2009**

TECHNICAL ADEQUACY OF CURRICULUM-BASED MEASURES OF VOCABULARY GROWTH FOR PRESCHOOL ENGLISH LANGUAGE LEARNERS

Kathleen M. VanTol, Ed.D.

Western Michigan University, 2009

The purpose of this study was to design and establish the technical adequacy of curriculum-based measures (CBMs) of vocabulary acquisition for use with preschool children. This study sought to establish the technical adequacy of two tools that can be used for measuring benchmarks of vocabulary acquisition for both native English speakers and for English language learners (ELLs) who are native Spanish speakers. In order to address the instructional needs for students who are Spanish speakers, a Spanish version of the CBM expressive language measure was created.

In this study, CBMs of expressive and receptive vocabulary were developed based upon the Houghton Mifflin preschool curriculum, *Where Bright Futures Begin* (Houghton Mifflin, 2008). A multiple stage procedure was used to design these assessments to ensure content validity. Concurrent validity was then measured by evaluating the correlation between the CBM receptive language measure and the Peabody Picture Vocabulary Test-III (PPVT-III) (Pearson, 2008) and between the CBM expressive language measure and the Get It, Got It, Go (GGG) assessment (University of Minnesota, 2006). Concurrent validity for the Spanish language version of the CBM measure and the Spanish language version of the GGG assessment was measured.

Tests of reliability were also conducted, including inter-rater reliability and test-retest reliability. These evaluations were conducted with both native English-speaking children and ELLs. The utility of the measure was determined by having the literacy coaches complete an acceptability rating scale.

The correlation between the English version of the expressive vocabulary measure and the English GGG was moderate while the correlation between the Spanish expressive vocabulary measure and the Spanish GGG was weak. The correlation between the reception vocabulary measure and the PPVT-III was marginal. For English measures, the relationship between the score on the initial evaluation and the retest of that measure was strong; for the Spanish CBM the relationship was moderate. Inter-rater reliability was 100% for the CBM receptive language measure and 98% for the CBM expressive language measure, indicating excellent inter-rater reliability. The literacy coaches completed an acceptability survey and all indicated high acceptability for the measure.

Copyright by
Kathleen M. VanTol
2009

UMI Number: 3364689

INFORMATION TO USERS

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.



UMI Microform 3364689

Copyright 2009 by ProQuest LLC

All rights reserved. This microform edition is protected against unauthorized copying under Title 17, United States Code.

ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106-1346

ACKNOWLEDGMENTS

I would like to begin by thanking those who encouraged me in this endeavor, especially the members of my committee. First, I would like to thank George Haus. You were my mentor in this process from the very beginning. I would also like to thank Esther Newlin-Haus for allowing me to work with the Early Reading First group. While your support was invaluable throughout the project, I especially appreciated your willingness to provide encouragement when I particularly needed it. I would also like to thank Al Poling for always being a calming influence and particularly for your help in developing the methods for this research. Carmen Cornieles, thank you for your help with the Spanish and especially for your warm encouragement. You were a great cheerleader. Finally, I need to thank Kristal Ehrhardt for chairing the committee and spending time helping me with every stage of the work. We brought this study to fruition together. Next I would like to thank Norm Hoekstra and Jim Peterson for your help with technical aspects of this project, Sean Laraway for your invaluable assistance with the statistical analysis, and Jane VanderBeek, Amanda Brouwer, Katie Klosky, and Beatriz Dunai for your assistance in getting the Spanish translations just right. Lastly, I need to thank my family for all your understanding and support as I spent time on this project that I could have been spending with you.

Kathleen M. VanTol

TABLE OF CONTENTS

ACKNOWLEDGMENTS	ii
LIST OF TABLES	vi
CHAPTER	
I. INTRODUCTION.....	1
Purpose and Background Information.....	2
Research Questions	9
II. REVIEW OF THE LITERATURE.....	11
Introduction	11
Oral Language.....	13
Vocabulary Acquisition.....	15
English Language Learners	21
Curriculum Based Measurement.....	27
Conclusion	39
III. METHOD.....	41
Introduction	41
Subject Recruitment and Informed Consent.....	42
Research Procedures	43
Methodology.....	43
Risks and Costs.....	45
Confidentiality	45

Table of Contents - Continued

CHAPTER

Project Design.....	46
Procedural Reliability.....	54
Evaluation of Validity and Reliability	55
IV. RESULTS	59
Overview	59
Research Questions	61
Content Validity.....	62
Concurrent Validity.....	64
Test-Retest Reliability.....	68
Inter-rater Reliability.....	70
Acceptability.....	71
V. DISCUSSION.....	74
Summary of the Results	74
Content Validity.....	74
Concurrent Validity.....	76
Test-Retest Reliability.....	78
Inter-rater Reliability.....	79
Literacy Coach Acceptability	79
Benefits of the Research.....	79
Limitations of the Study	81

Table of Contents - Continued

CHAPTER

Implications for Future Research.....	83
---------------------------------------	----

REFERENCES.....	86
-----------------	----

APPENDICES

A. HSIRB for Project Number: 08-10-15.....	101
B. HSIRB for Project Number: 07-04-21	103
C. Literacy Coach Consent Form.....	105
D. Vocabulary Word List with Spanish Translations and Picture Sources	108
E. Pictures Used for Development of Vocabulary Measures.....	114
F. Creative Commons Licensing.....	121
G. Word Combinations Used for Receptive Language Cards	129
H. CBM Expressive Vocabulary Word List	131
I. Sample CBM Expressive Language Vocabulary Card	133
J. Sample CBM Receptive Language Vocabulary Card.....	135
K. Script for Administration of the English Expressive Language Measure...	137
L. Script for Administration of the Spanish Expressive Language Measure...	141
M. Script for Administration of Receptive Language Measure.....	145
N. Checklist for Administration of Vocabulary Measures	148
O. Vocabulary Measure Acceptability Survey.....	150

LIST OF TABLES

1. Summary of All Measures for Students as a Group.....	60
2. Mean Scores for English Measures for ELLs and Non-ELLs	61
3. Results for Concurrent Validity	65
4. Results for Test-Retest Reliability	69
5. Results of Vocabulary Measure Acceptability Survey.....	72

CHAPTER I

INTRODUCTION

In 2005, 28.8% of children enrolled in Head Start spoke a language other than English at home (U.S. Department of Health and Human Services, 2006). The research on preschool-aged English language learners (ELLs) is limited and there is a need to gather data on the rate of development of the precursors to literacy and language development for this particular group of students. Vocabulary acquisition, an important precursor of literacy and language skills for all children, has been shown to be of particular importance for ELLs (Coppola, 2005; Gersten & Geva, 2003; Swanson & Howerton, 2007).

When children who are ELLs have struggles with learning tasks, it can be very difficult to determine whether the struggles are related to acquisition of a second language or to a learning disability. Curriculum-based measurement (CBM) is a method that allows a teacher to assess critical indicators of academic success, e.g., oral reading fluency or mathematics computation, quickly and accurately. There is a substantial body of research, dating back to the mid-1980s, on the use of CBM with school-age students. More recently, CBM has been demonstrated useful with early childhood populations in evaluating the acquisition of early literacy skills (McConnell, 2000). Some researchers have stated that CBM measures show promise in helping to determine the difference between a disability-related learning struggle and the struggles normally related to learning a new language for children (Barrera,

2006). Well-respected sources (e.g., Domingues de Ramirez & Shapiro, 2006) have cited the need for more research in the area of curriculum-based measurement of early literacy skills for young English language learners.

To help meet this need, curriculum-based measures of vocabulary acquisition for use with students in local Head Start programs that are using the Houghton Mifflin preschool curriculum *Where Bright Futures Begin* (Houghton Mifflin, 2008) were constructed. The intention was that these would serve as tools for measuring benchmarks of vocabulary acquisition for all the children, including the English language learners from this population who are Spanish speakers. The assessments consist of two separate measures of vocabulary. One measure assesses receptive vocabulary of target English words. The other measure assesses expressive vocabulary. In order to address the specific needs related to instruction for the English language learners in this group of students, a Spanish and an English version of the expressive vocabulary measure were created. All measures utilized pictorial representations of target vocabulary words.

Purpose and Background Information

Primary Objective

The primary objective of this study was to design and establish technical adequacy of curriculum-based measures of vocabulary acquisition for use with students in local Head Start programs that are using the Houghton Mifflin preschool

curriculum *Where Bright Futures Begin* (Houghton Mifflin, 2008). This study was approved under HSIRB Project Number 08-10-15 (Appendix A) and carried out as part of a larger project approved under HSIRB Project Number 07-04-21 (Appendix B). In particular, this study sought to establish technical adequacy of assessment tools that can be used for measuring benchmarks of vocabulary acquisition for all students including the English language learners from this population, all of whom are Spanish speakers. In order to address the specific needs related to instruction for the English language learners in this population, Spanish and English versions of the expressive language measure were created.

Problem

The research on preschool ELLs is limited and there is a need to develop assessments to be used for gathering data on the rate of development of the precursors to literacy for this particular group of students. According to the National Clearinghouse for English Language Acquisition (2006), in the past 15 years the number of ELLs in the public schools has more than doubled. Currently, the rate of enrollment for ELLs has been increasing seven times faster than the rate of total student enrollment. At this time, in grades pre-K through 12, ELLs represent 10.5% of the total population. In 2005, 28.8% of children enrolled in Head Start spoke a language other than English at home (U.S. Department of Health and Human Services, 2006).

Early childhood education is becoming increasingly important as an opportunity for children to increase their readiness for learning, especially in the area of reading. Three important precursors to literacy that are a focus of early childhood education are phonological awareness, concepts about written language, and vocabulary acquisition. In regards to the acquisition of these skills for ELLs, some investigation of the transfer of early literacy skills for these children from their first language to their second language has been conducted.

Research has shown that ELLs are able to transfer to a second language those phonological awareness skills that they had learned in their native language (Coppola, 2005, Gersten & Geva, 2003, Leafstedt & Gerber, 2005). Research has also shown that ELLs use their knowledge of their first language when completing writing tasks in English and their movement through the developmental stages of writing followed a pattern similar to their English-speaking peers (Coppola, 2005).

Vocabulary learning is the third precursor to literacy that is emphasized at the preschool level. The size of a child's vocabulary is an especially crucial factor in forming a foundation for preparing a child for learning to read as well as for preparing a child for learning in all academic areas (White House Initiative on Educational Excellence for Hispanic Americans, 2007). Anderson and Nagy (1992) have stated that vocabulary size is the single biggest predictor of reading success. Vocabulary acquisition has been shown to be of particular importance for ELLs in terms of preparation for learning to read and for academic success (Coppola, 2005; Gersten & Geva, 2003; Swanson & Howerton, 2007).

A child's early language and emergent literacy skill development is important to later success in school. The possible outcomes for children who do not develop adequate early literacy skills are bleak, including failing to achieve grade-appropriate benchmarks, grade retention, and eventual special education placement. Cunningham and Stanovich (1997) have shown that early acquisition of reading skills, including vocabulary acquisition, affects a student's achievement throughout their school experience, demonstrating a strong link between 1st grade reading measures and 11th grade outcomes even when cognitive ability was factored out.

One area of concern with ELLs is the difficulty in distinguishing between those students whose learning struggles are related to second language acquisition and/or lack of fluency in English, and those who require special education services due to a disability. Research has shown that ELL students will demonstrate a slower rate of literacy and English language growth than their English-speaking peers (Dominguez de Ramirez & Shapiro, 2006). This makes it difficult when assessing ELLs who are exhibiting academic difficulties to distinguish language differences from learning disabilities as the source of the problem (McCardle, Mele-McCarthy, Cutting, Leos, & D'Emilio, 2005).

Second language learners often exhibit a severe discrepancy between their academic achievement and their potential, similar to the discrepancy seen in students with learning disabilities (Barrera, 2006; Dominguez de Ramirez & Shapiro, 2006). These discrepancies can even be mistakenly attributed to cognitive deficits. Thus, the development of assessment procedures for students with limited English that can help to determine the difference between a disability-related learning struggle and the

struggles normally related to learning a new language is of great importance (Barrera, 2006). While a database tracking the normal course of development of literacy skills for English-speaking students has been developed through research, there are few studies examining the typical pattern of development for ELLs (Dominguez de Ramirez & Shapiro, 2006). Therefore, it is necessary to create measures that can be used to determine the appropriate benchmarks for this group of students so that their teachers will be able to monitor their achievement over time (Fugate, 2007).

Curriculum-based measurement is a process that may have promise in helping to determine the difference between a disability-related learning struggle and the struggles normally related to learning a new language (Barrera, 2006). However, while CBMs have been shown to be a valid method for assessing student growth and a database tracking the normal course of development of literacy skills for English-speaking students has been developed through research over the past 30 years, there are few studies examining the typical pattern of development for ELLs (Dominguez de Ramirez & Shapiro, 2006). The purpose of this study is to establish the technical adequacy of two CBM vocabulary measures for use with preschool populations including both native English speakers and English language learners.

CBMs have been shown to be valuable in monitoring the acquisition of early literacy skills in preschool children, including ELLs (Bryan, Ergul, & Burstein, 2008). They have been used successfully in early childhood education to determine the effectiveness of early literacy interventions (Deno, 2003). In addition, use of frequent, repeated assessments with preschoolers using a CBM that has technical adequacy has been shown to provide teachers with valuable information about rate of

development of the target skill over time (Bryan et al., 2008). These researchers found that preschool children who were administered CBMs outperformed children who were not administered the assessments. This held true for typically developing children, as well as for those with disabilities, and for ELLs. The teachers in this study felt that use of the CBMs made them more aware of each individual student's needs.

It is important that technical adequacy be established for each CBM (Salinger, 2002). Technical adequacy is evaluated in terms of the reliability and the validity of the instrument. Reliability measures the degree to which consistent results can be produced with the instrument when administered by different evaluators or in different settings. Validity assesses the accuracy with which the instrument measures what it is designed to measure.

One area of validity that should be evaluated is content validity. Content validity refers to the extent to which a test is representative of the materials and ideas it is designed to assess (AllPsych Online, 2004). In developing a CBM, it is important that the designers have a clear vision of the specific skill they want the assessment to measure (Salinger, 2002). It is also important that the teachers who will be using the measure feel that it assesses what they are teaching. If teachers feel that the content validity of the measure is strong, they are more likely to view it as a valuable tool and to feel that its use merits the time and effort they and their students will invest in using it (Salinger, 2002).

Salinger (2002) recommends that a pilot test be done with the CBM to determine that it is appropriate for its intended use. A pilot test can reveal whether the

measure is too easy or too challenging. It can also reveal whether there is a mismatch between the teaching practices currently in place and the assessment measure. The information gathered at this stage allows the developer to modify and improve the CBM so that it will better meet the intended goal.

Another area of validity to examine is concurrent validity. Concurrent validity examines the extent to which the results of one assessment tool display direct variation with the results of a second assessment tool which is designed to measure the same construct (AllPsych Online, 2004). Concurrent validity for the CBM can be measured by conducting a correlational study between the CBM measure and a norm-referenced measure of the same construct (Allinder & Eccarius, 1999).

In addition, the reliability of the instrument should be measured. In order for the measure to be reliable, a system for precise and objective scoring of the CBM needs to be developed. In this way, anyone familiar with the assessment measure, even if unfamiliar with the specific child assessed, will interpret the results in the same way (Salinger, 2002). A common way to evaluate reliability of a measure is to have a second evaluator score the results from a sample group of students. A comparison of these scores will provide a measure of the inter-rater reliability of the CBM (Salinger, 2002). In addition, evaluating test-retest reliability provides information on the internal consistency of the measure (Ruffino, Mistrett, Tomita, & Hajare, 2006). An assessment is considered reliable if it provides consistent results given that the target behavior has not changed (Poling, Methot, & LeSage, 1995).

It is also important to keep in mind guidelines for evaluating members of diverse populations. The assessment needs to correlate well with other measures that

test similar characteristics (Geisinger, 1998). In terms of content validity, Geisinger (1998) states that, "In general, when identical test forms are used with both the majority group in the population and any special populations, then content validity, if present for the majority group, also should be present for the special population" (p. 26). Making the assessment available in different languages constitutes an adaptation to the test. In this situation, then the test items in the adapted measure should be reviewed by members of the special population for which it has been adapted (Geisinger, 1998).

Research Questions

There is a need to develop assessments specifically targeted to monitoring the acquisition of early literacy skills in preschoolers, including ELLs. The use of CBMs to accomplish this goal has shown promise, but additional research is needed. The primary objectives in this study are to evaluate measures of reliability and validity of curriculum-based measures developed to assess vocabulary growth related to the Houghton Mifflin Pre-K program *Where Bright Futures Begin* (Houghton Mifflin, 2008). Both receptive and expressive assessment measures are included.

The study was conducted with students in a local Head Start program. This program uses the Houghton Mifflin preschool curriculum and the target words for the assessments have been chosen to match that curriculum. The measures have been designed for use with both English-speaking children and ELLs in this setting. All of the ELLs in the Head Start Program where this study was conducted are speakers of

Latin American Spanish. Thus, in order to address the specific needs related to instruction for this group of students, a Spanish and an English version of the expressive vocabulary measure were created. The Spanish version has been created to be appropriate for speakers of Latin American Spanish.

The research questions addressed in this study include the following:

1. What is the content validity of the curriculum-based measures?
2. What is the concurrent validity of the curriculum-based measures?
3. What is the test-retest reliability of the curriculum-based measures?
4. What is the inter-rater reliability of the curriculum-based measures?
5. What is the acceptability of the curriculum-based measures for the literacy coaches?

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The primary objective in this study was to evaluate the technical adequacy of CBMs of vocabulary developed for use with preschool children, including English language learners. Specifically, this study investigated the following as relates to both the expressive and the receptive curriculum-based measures of vocabulary that were developed: (a) the content validity, (b) the concurrent validity, (c) the test-retest reliability, (d) the inter-rater reliability, and (d) the acceptability of the curriculum-based measures for the literacy coaches.

This chapter begins with a short discussion on the importance of oral language and its relation to vocabulary. A summary of the general pattern of vocabulary acquisition in children and a review of the literature on the importance of vocabulary acquisition for children, both for achieving literacy and for overall academic success, follows. Next, information is presented on the increasing numbers of English language learners being educated in American schools and the gap that exists between the achievement level of this group and that of their English-speaking peers. The importance of vocabulary acquisition for this group of students is highlighted. Also, the need to develop appropriate assessments for use with English language learners is explored. Finally, an overview of the topic of CBM is presented, including research

on the use of curriculum-based measures with both preschoolers and English language learners. Advantages and limitations of the use of CBMs are provided and the requirements for establishing technical adequacy of CBMs is addressed.

Technical adequacy data on some measures used in this study (e.g, the Picture Naming assessment of the Get, Got It, Go and the Peabody Picture Vocabulary Test – Third Edition) are provided.

The research on preschool-aged ELLs is limited and there is a need to gather data on the rate of development of the precursors to literacy and language development for this particular group of students. Vocabulary acquisition, an important precursor of literacy and language skills for all children, has been shown to be of particular importance for ELLs (Coppola, 2005; Gersten & Geva, 2003; Swanson & Howerton, 2007). As the number of ELLs in preschool increases, so does the need to learn more about meeting the needs of this group of students. In 2005, it was reported that 28.8% of children enrolled in Head Start spoke a language other than English at home (U.S. Department of Health and Human Services, 2006).

When a child who is an ELL struggles with learning tasks, it can be very difficult to determine whether the struggles are related to acquisition of a second language or to a learning disability. CBM is a method that allows a teacher to assess critical indicators of academic success quickly and accurately. CBM measures show promise in helping to determine the difference between a disability-related learning struggle and the struggles normally related to learning a new language for ELLs (Barrera, 2006). Well-respected sources (e.g., Domingues de Ramirez, & Shapiro,

2006) have cited the need for more research in the area of curriculum-based measurement of early literacy skills for young English language learners.

For this study, measures of both expressive and receptive vocabulary have been created. These assessments were specifically created as curriculum-based measures designed to evaluate student learning related to the Houghton Mifflin Pre-K curriculum *Where Bright Futures Begin* (Houghton Mifflin, 2008). Both an English and a Spanish version of the expressive vocabulary measure were created in order to better meet the needs of the ELLs in this population.

Oral Language

Four key components of language that are necessary for children to become good communicators are phonology, vocabulary, grammar, and pragmatics. Together these key components make up oral language and the acquisition of these skills has a strong effect on later academic success (Justice & Vukelich, 2008; University of Texas at Austin, 2002). Phonology is the awareness of the units of sound that make up language. This awareness forms the foundation for understanding that the letters in written words represent the sounds heard in spoken words. Grammar refers to the rules for putting words together to form phrases and sentences in a way that communicates meaning and makes sense. Pragmatics is the appropriate use of language to communicate, including culturally specific verbal interactions such as rules for politeness and story telling. Vocabulary is a particularly crucial component of oral language. Vocabulary refers to the knowledge of the meaning of words and is

one of the most important predictors of literacy acquisition (University of Texas at Austin, 2002). The vocabulary component of oral language is the focus of this study.

A child's oral language development is related to success in acquiring literacy skills and research has supported the theory that if oral language comprehension can be strengthened, then reading comprehension will also be improved (Finn, 1985; Pullen & Justice, 2003). In general, children who display early difficulties in development of vocabulary knowledge and grammar skills are more likely to experience later literacy struggles than those children who acquire oral language skills at the expected rate (Kirkland & Patterson, 2005; Pullen & Justice, 2003).

Children also need to be successful at the concrete level of oral language before they can begin applying this knowledge to higher levels of thinking. The concrete level of oral language includes such tasks as labeling, describing, and word recall, while the higher level skills include activities such as identifying similarities and differences, predicting, and explaining (Massey, 2004). Assessment of receptive and expressive vocabulary knowledge is a way to measure the concrete level of oral language for preschool children (Coppola, 2005). It is thought that a critical window of opportunity for the development of oral language exists during the preschool years and research has shown that the pace of oral language acquisition slows after this age (Pullen & Justice, 2003).

Environmental input is critical for development of oral language and adults play an important role in the oral language acquisition of young children (Massey, 2004; Pullen & Justice, 2003). Children learn grammar, vocabulary, and conversational skills from their observations of and interactions with adults (Massey,

2004). Teachers can explicitly structure classroom activities so that children are involved in engaging, meaningful activities which provide them opportunities to actively attend to the structure of oral language (Kirkland & Patterson, 2005; Pullen & Justice, 2003). In the preschool classroom, book reading and conversations during play times and meal times are also good ways to promote the development of oral language skills (Massey, 2004; Pullen & Justice, 2003).

Vocabulary Acquisition

As regards the development of reading skills, areas identified by the National Reading Panel (NRP) that predict literacy success are phonemic awareness, phonics, reading comprehension, vocabulary, and reading fluency (National Institute of Child Health and Human Development, 2000). Of these, the NRP identified vocabulary as “critically important” to reading instruction (p. 13): “The larger the reader’s vocabulary (either oral or print), the easier it is to make sense of text” (p.13). The Early Childhood Research Institute on Measuring Growth and Development (1998c) has identified vocabulary as an important component of the outcomes for communication for children between the ages of three and five.

The term vocabulary refers to a child’s knowledge of the meanings of words. There is a strong correlation between the size of a child’s vocabulary at three years of age and his or her scores on assessments of reading comprehension at the end of third grade (Christie, 2008). Research shows that the greatest vocabulary growth occurs through direct instruction of target words and through the provision of opportunities

for the child to experience target words in different contexts (Christie, 2008). Direct instruction means that a child does not have to infer new knowledge, but rather new knowledge is explicitly shared through clear instruction, modeling, and feedback related to the instructional target (Allor, Gansle, & Denny, 2006).

It is suggested that direct instruction is effective because as the children interact with the adults in their learning environment through direct instruction, the adults help them to build connections between ideas so that they can accurately construct their understanding of new concepts (Woolfolk, 2001). In early childhood, direct instruction may mean that a parent or care provider offers a strong, responsive language model and ample opportunity for a child to hear able adult speakers and, most important, to engage in conversation with them, or what Girolametto and Weitzman (2002) call “interaction-promoting responses” (p. 270). As Ezell and Justice (2005) state “professionals who balance explicit teaching activities with child-oriented, interaction-promoting and language –modeling behaviors may be creating the ultimate experience for young children” (p. 14).

Vocabulary Development

The general pattern for language development in children is that during the first year children begin to babble, speaking their first words near the end of their first year. From one to two years of age, children use simple, functional language, relying on nouns and verbs, developing an expressive vocabulary of about 20 to 50 words.

From two to three years of age, their expressive vocabulary expands to approximately 300 to 1000 words and language becomes increasingly sophisticated (Morrow, 1989).

Receptive language ability refers to the ability to comprehend incoming information while expressive language ability refers to the ability to produce outgoing messages (Phelps-Terasaki, Phelps-Gunn, & Stetson, 1983). In general, children reach receptive language milestones prior to reaching the corresponding expressive language milestones. For example, a child will develop an understanding of two word sentences prior to being able to produce two word sentences and comprehension of three word sentences will precede production of three word sentences (Luinge, Post, Wit, & Goorhuis-Brouwer, 2006). At every age, a child's receptive language ability exceeds their expressive language ability (Harris & Liebert, 1987).

A child's vocabulary grows quickly during preschool years. Typically, children learn to use plurals and regular verbs accurately between three and four years of age and, generally, by age six, children understand that a word can have more than one meaning and can use language to be humorous and creative (Morrow, 1989).

After three years of age, middle class children learn approximately 2000 words per year so that by the time they enter kindergarten they know about 5000 words.

Research shows, however, that working class and poor children generally enter kindergarten knowing fewer words than their middle class peers and that English language learners may have very little English vocabulary at the time that they enter kindergarten (Hart & Risley, 1995; McGee, 2007). Vocabulary, however, plays a critical role in learning to read and write (McGee, 2007) and research supports the

theory that an effort to increase a child's vocabulary in preschool results in positive long-term effects on reading ability later (Missall et al., 2007).

An attempt at developing benchmarks for assessing vocabulary acquisition as a measure of early literacy in preschoolers has been made. McGee (2007), in her work with four-year-olds, has identified the following guidelines for expressive vocabulary as being appropriate for preschoolers. Children who achieve 85% or greater of the standard score on a standardized measure of expressive vocabulary should be considered age-appropriate. Children who achieve 71-84% of the standard score are at risk for later difficulties in learning to read and write. Achieving 70% of the standard score or less places a child at high risk for these difficulties. She notes that these benchmarks may be somewhat challenging for all children, but are especially challenging for children from low-income families who have little literacy exposure. Her research did not include potential benchmarks for ELLs nor was it related to a specific curriculum.

Researchers continue to emphasize a need to develop assessments and formulate benchmark scores that can be used with children from a broad range of backgrounds (Early Childhood Research Institute on Measuring Growth and Development, 2007; Missall et al., 2007). One area that is particularly unexamined is the expected rate of learning for certain subgroups of students, including ELLs, children with disabilities who are native English speakers, and children with disabilities who are ELLs (Barrera, 2006). Recent research is showing that establishing benchmarks for ELLs can provide valuable information related to early literacy and the need for intervention (Graves, Plasencia-Peinado, Deno, & Johnson,

2005). It should be noted, however, that preschool children may experience widely differing early learning environments and this variety poses a challenge to developing meaningful benchmarks for these children (McConnell, Priest, Davis, & McEvoy, 2000; VanDerHeyden, Snyder, Broussard, & Ramsdell, 2007).

Importance of Vocabulary Acquisition

Anderson and Nagy (1992) have stated that vocabulary size is the single biggest predictor of reading success. Increasing a child's vocabulary in preschool resulted in increases in early reading skills in kindergarten (Missall et al., 2007). Additionally, a child's vocabulary level in preschool was found to be one of the strongest predictors of reading three years later, second only to phonological awareness, even when the results were controlled for intelligence (Scarborough, 1989). Receptive language ability at the beginning of first grade showed a strong link to reading performance at the end of grade one as well as at the end of grade three (Sénéchal & LeFevre, 2002). In addition, Gersten and Geva (2003) found that first grade ELLs had higher reading achievement when placed in classrooms with teachers who emphasized vocabulary instruction.

Building a child's vocabulary is not only an important aspect of preparing a child for literacy, but also of preparing a child for academic learning across all content areas (Goldstein, 2004; White House Initiative on Educational Excellence for Hispanic Americans, 2007). According to Neuman (2006), "Children who acquire a substantial vocabulary are often able to think more deeply, express themselves better,

and actually learn new things more quickly” (p. 9). Measures of children’s receptive vocabulary scores at 36 months of age were predictive of verbal intelligence measured at both age five and at age eight as well as of reading ability at age eight (Fewell & Deutscher, 2002).

Cunningham and Stanovich (1997) have shown that early acquisition of reading skills, including vocabulary acquisition, affects a student’s achievement throughout their school experience, demonstrating a strong link between 1st grade reading measures and 11th grade outcomes even when cognitive ability was factored out. This suggests that preschool children who are behind in vocabulary development could be considered at risk for later reading problems as well as for academic difficulties (Cunningham & Stanovich, 1997; Scarborough, 1989).

Socio-economic status (SES) is one of the general factors that has been shown to influence school outcomes. The academic differences between children from lower SES families and middle class children is already evident in preschool (Rush, 1999) and this difference continues to be apparent in elementary school. On measures of school readiness, children from families with lower SES enter kindergarten one to one-and-a-half years behind their middle-class peers (Stipek, 2006). Researchers have suggested, however, that by intentionally focusing on vocabulary development in preschool, early childhood education can help to compensate for the background knowledge that these children seem to lack (Coppola, 2005; Lewis, 2006).

While children from lower SES families have been shown to have lower performance on language tasks in elementary school, SES status alone is not enough to predict accurately which students are at risk for academic failure. When

information on the child's receptive vocabulary level was added to the information on family SES, however, the ability to predict academic outcome was significantly improved, again demonstrating the importance of vocabulary development for these children (Walker, Greenwood, Hart, & Carta, 1994).

English Language Learners

English language learners are students who speak a language other than English as their primary language and who have not yet developed proficiency in the English language (Sáenz, 2008; Zehler, 1994). It has been noted that the number of ELLs enrolled in public schools has increased greatly in recent years (National Clearinghouse for English Language Acquisition, 2006). This increase in enrollment for ELLs has also been seen in Head Start. In 2005, 28.8% of children enrolled in Head Start spoke a language other than English at home (U.S. Department of Health and Human Services, 2006).

The ELLs in the Battle Creek Head Start Program are mainly Latinos of Mexican origin. The Latino population is one of the fastest growing groups of ELLs in the United States, with Latinos of Mexican origin comprising more than 50% of the total Latino population (Chapa & De La Rosa, 2004). Although the number of Latino children living in poverty has decreased over recent years, Latinos are still more than twice as likely to live in poverty as non-Latinos (Chapa & De La Rosa, 2004). Many Latinos retain their fluency in Spanish even after they begin learning

English, 78% of Latinos over 5 years of age speak Spanish; however, 15% of school-age Latinos have limited English proficiency (Chapa & De La Rosa, 2004).

The Achievement Gap Between ELLs and their Native-English Speaking Peers

Children who are not native speakers of the majority language of the school begin their educational career at a deficit as compared to their majority language peers. Researchers have found that ELLs begin preschool academically behind their English-speaking peers (Missall, McConnell, & Cadigan, 2006), a deficit that continues to follow them into elementary school. Pagani, Jalpert, Lapointe, and Hérbert (2006) found that upon entry to junior kindergarten, children who were not native speakers lagged significantly behind in both second language acquisition and in pre-math skills. However, the deficits in the area of math skills were found to be statistically accounted for by the lack of language proficiency. Their research showed that a teacher focus on improvement of receptive vocabulary skill for linguistic-minority children during junior kindergarten was linked to improved academic outcomes, allowing these children to achieve similar academic results as their linguist-majority peers by the end of first grade (Pagani et al., 2006).

Helman (2005) found a wide gap between the reading achievement of first-grade native English-speaking children and their peers who were Spanish-speaking ELLs. In her research, conducted in 52 high-poverty schools in Nevada over 3 years, she found that 29% of the native English-speaking children were beginning readers compared to 46% of the Spanish-speaking ELLs. In contrast 66% of the native

English-speaking children were reading above the beginning level, but only 28% of the ELLs were at that level. Her work also suggested that a focus on vocabulary development would help to address the difference in achievement between the two groups.

In general, the rate of growth in reading of Spanish-speaking ELLs is slower than that for general education students (Barrera, 2006; Domínguez de Ramírez & Shapiro, 2006; Sáenz, 2008). ELLs also generally lag behind their native English-speaking peers on state and national assessments (Sáenz, 2008; Short & Echevarria, 2005; White House Initiative on Educational Excellence for Hispanic Americans, 2008). Even though ELLs as a group generally fall behind their native English speaking peers academically, ELLs with disabilities are even further behind, especially in the area of vocabulary (Barrera, 2006).

Often second language learners look very much like their native English speaking peers with learning disabilities, academically speaking, in that a severe discrepancy is generally seen between their apparent academic potential and their achievement levels (Barrera, 2006; Klingner & Artiles, 2006). This fact can lead to a delay in identifying those ELLs who do have learning disabilities (Wagner, Francis, & Morris, 2005) and this impediment to identification may prevent some ELLs from receiving the early intervention services to which they are entitled as a student with a disability, a situation which is no longer ethically justifiable (Gersten & Geva, 2003). On the other hand, these same similarities may lead some ELLs to be misidentified as having learning disabilities, a situation which is also inappropriate (Abedi, 2006).

Challenges in Assessment of English Language Learners

When evaluating ELLs who are exhibiting academic difficulties, research has shown that school personnel find it difficult to distinguish between language difficulties and learning disabilities as the source of the problem (Klingner, Artiles, & Barletta, 2006; McCardle et al., 2005; Paneque & Barbetta, 2006; Wagner et al., 2005). Commercially available tests have not been adequate as tools to meet this challenge. Most commercially available tests draw on a background knowledge which is based in American culture in structuring the questions on the tests. Also, most commercially available tests have not included a range of ELLs as part of the norm sample (Barrera, 2006; Deno, 2003; Gunderson & Siegel, 2001).

Acquisition of a second language can be influenced by many factors including social, cultural, and motivational issues (Abu-Rabia & Feuerverger, 1996; Jitendra & Rohena-Diaz, 1996). The results on standardized assessments may also be influenced by these same factors. Often questions on standardized tests require background information which is culturally-bound, placing many ELLs at a disadvantage. Also, these tests generally require a knowledge of English which may not have been attained by the ELLs being assessed. These are important factors that make standardized tests inappropriate for use with ELLs (Abedi, 2006; Figueroa & Newsome, 2006; Gunderson & Siegel, 2001; Klingner & Artiles, 2003; Wagner et al., 2005). Another factor supporting the need for alternative assessments for use with ELLs is that norm-referenced tests are generally not intended for the purpose of improving student outcomes or providing instruction (Domínguez de Ramírez &

Shapiro, 2006). Thus, it is important that an alternative assessment to standardized tests be developed for use with ELLs (Klingner et al., 2006).

Curriculum-based measurements may be able to provide an alternative means for assessing this group of students (Barrera, 2006; Domínguez de Ramírez & Shapiro, 2006; Jitendra & Rohena-Diaz, 1996). While there are very few studies examining the use of CBM with ELLs, those that have been conducted are promising. CBM has been shown to be appropriate for use with third-grade and fifth-grade ELLs as both a screening measure and for progress monitoring (Wiley & Deno, 2005). CBM has also been shown to be appropriate for measuring fluency and benchmarking thresholds for literacy skills in first-grade ELLs (Graves et al., 2005).

In order to design instruction that will meet the needs of ELLs, teachers must have access to assessments that can provide a careful analysis of the struggles as well as the strengths of these students (Gunderson & Siegel, 2001). It is also important that educators be able to determine whether ELLs are making adequate progress in the curriculum (Li & Zhang, 2004). However, to do this it is necessary first to develop assessments that will allow appropriate benchmarks for ELLs to be established. These instruments need to be user friendly so that teachers can use them for both assessing achievement and for monitoring progress for this group of students (Deno, 2003; McCardle, Mele-McCarthy, & Leos, 2005). It is also important that these assessments accurately reflect the student's instructional experience (Wagner et al., 2005).

Importance of Vocabulary Acquisition for ELLs

Vocabulary acquisition is an important measure of early literacy for all students and vocabulary acquisition has been shown to be of particular importance for ELLs (Coppola, 2005; Gersten & Geva, 2003; Swanson & Howerton, 2007).

Research shows that ELLs require explicit instruction in developing English language skills and particularly benefit from explicit instruction in vocabulary (Abrams & Ferguson, 2005; Brice & Roseberry-McKibbin, 2001; Haager & Windmueller, 2001; Swanson & Howerton, 2007; Tran, 2006). Interestingly, research also shows that these children benefit from explanations of target vocabulary words provided in English even if the child's development of English is low (Coppola, 2005).

Learning of vocabulary for English language learners can be divided into five stages: (1) The word is unknown; (2) The word sounds familiar to the child, but the meaning is not known; (3) The child can translate the word into his or her native language; (4) The child is able to use the word correctly in a sentence; and (5) The child understands the meaning of the word in different contexts and can use it correctly in various contexts both grammatically and semantically (Gass & Selinker, 2001).

The rate of development at which this process occurs for ELLs has been understudied. Thus it is important to gather data so that generalizable patterns can be established and interventions developed (McCardle et al., 2005). For assessing vocabulary in ELLs, it will be important to consider the function the assessment is intended to serve. If measuring vocabulary size in English is the goal, then an

assessment in English only will be sufficient. If a more global estimate of vocabulary knowledge is desired, then a combination of assessments in the first and second language will be necessary (McCardle, Mele-McCarthy, & Leos, 2005; Sáenz, 2008). Domínguez de Ramírez and Shapiro (2007) have shown a strong correlation between reading skills in Spanish and reading skills in English for native Spanish-speaking children, which supports the idea of using a more global estimate of literacy. As regards vocabulary development, the research of Barrera (2006) suggests that the important variable in differentiating between ELLs with language related struggles and those with learning disabilities is whether or not the student is able to acquire a sufficient vocabulary.

Curriculum Based Measurement

Curriculum-based measurement is a method of assessment that measures student growth in the school curriculum (Fuchs, Fuchs, Hamlett, Phillips, & Bentz, 1994). The focus of CBM is to assess student progress in achieving the long-term instructional goal rather than on achievement of individual short-term objectives (Fuchs & Deno, 1992; McConnell et al., 2000). To accomplish this, a CBM is made up of sample tasks representative of the curriculum and that correspond to desired year-end performance (Fuchs & Deno, 1994; McConnell, 2000). Student behavior is evaluated at regular intervals during the school year using equivalent test forms and the results are graphed over time to establish a slope or trend line for individual

student progress (Fuchs, 2004; Fuchs, Fuchs, & Compton, 2004; McConnell et al., 2000; Sáenz, 2008).

Deno (1985) has identified four important design characteristics of good CBMs. First, the measures should be reliable and valid. Second, the measures should be simple and efficient to administer. Third, the results should be easy to understand and communicate. Finally, the measures should be inexpensive to administer because repeated measures are required. The Early Childhood Research Institute on Measuring Growth and Development (ECRI-MGD) (1998d) adds that the measures should be sensitive to growth over time and be able to measure the effects of intervention. In addition, ECRI-MGD (1998a) notes that these measures should be culturally sensitive and appropriate for use with the diversity of children being served in the educational setting.

There are five main steps to developing CBM. First, it is important to identify the target outcome. Next the key components of the target outcome must be determined. The third step involves choosing a data collection format. This format must be appropriate for the child's age and be engaging for the child. After the measures are developed, a pilot should be conducted and the measure adjusted accordingly. Finally, it is important to establish technical adequacy for the measure (ECRI-MGD, 1998b).

Advantages of Using Curriculum-Based Measures to Assess Achievement

CBM offers a promising alternative for measuring student achievement for a number of reasons. One advantage is that the measures are curriculum referenced, measuring learning in the local school curriculum. Another advantage is that they are individually referenced, providing information on each student's rate of progress. Also, the measures are peer referenced, allowing a student's performance to be compared to his or her actual peers (Deno, 1985; Hall, Kovalesski, & Miklos, 1993). In addition, researchers have found that CBMs can be accurately administered by both teachers and paraprofessionals, making CBM an efficient and economical method for monitoring student achievement (Allor et al., 2006).

CBMs have been shown to be valuable in monitoring the acquisition of early literacy skills in preschool children, including ELLs (Bryan et al., 2008). CBM is not unfamiliar to preschool teachers and in a survey on preschool curriculum and assessment, Head Start teachers reported using CBM assessments which had been provided as part of their curriculum (Pretti-Frontczak, Kowalski, & Brown, 2002). The use of frequent, repeated assessments with preschoolers using a CBM that has technical adequacy has been shown to provide teachers with valuable information about rate of development of the target skill over time (Bryan et al., 2008).

Repeated assessment is part of the CBM process. This means that frequent monitoring of progress occurs and the need for intervention can be identified (ECRI-MGD, 1998d; McAllister, 1991; McConnell et al., 2000; VanDerHeyden et al., 2007). The curriculum-based nature of the assessment provides a clear inventory of which

things the child has mastered and which things the child has yet to learn (Bagnato, Neisworth, & Capone, 1986). Ongoing assessment allows the team to evaluate the effectiveness of the interventions and make adjustments as necessary. For some children, these assessments will indicate that the problem has been resolved or that, while the problem is not resolved yet, the child's progress indicates that performance will meet expectations at some later point in time given the intervention is continued. For some students, however, these assessments will indicate that progress is not sufficient and adjustments must be made to the intervention plan to achieve the desired long-term outcome (ECRI-MGD, 1998d; McConnell, 2000; McConnell et al., 2000). The goal is to put in place interventions before a pattern of failure is established (Good, Kaminski, Simmons, & Kame'enui, 2001).

Researchers have found that when CBM data were used to design class-wide instructional strategies, student achievement improved (Fuchs et al., 1994). CBMs have also been used successfully in early childhood education to determine the effectiveness of early literacy interventions (Deno, 2003). Also, children in special education whose teachers made instructional decisions based on CBMs had higher achievement than those whose teachers used other means of assessment (Fuchs, Deno, & Mirkin, 1984; Fuchs, Fuchs, & Hamlett, 1989a; Fuchs, Fuchs, & Hamlett, 1989b). Moreover, teachers who used CBMs could more accurately identify their students' goals (Deno, 2003).

CBM is particularly well suited for use with young children with disabilities (Bagnato et al., 1986). CBM can be an effective tool for gathering the baseline data needed to design an Individualized Educational Plan (IEP) and establishing goals that

are functional and measurable (Hall et al., 1993). Regular monitoring also allows for adjustments to be made in interventions as needed (Allor et al., 2006). However, it should be noted that it is especially important that technical adequacy be established for CBMs that are used for the purpose of screening and determining eligibility for special education (Shinn, 1988).

There are many benefits to using CBM with ELLs. One benefit is that local norms can be used to establish benchmarks, thus allowing for decision making which takes into account the cultural and language factors related to the group being evaluated (Baker & Good, 1994; Deno, 2003; National Association for the Education of Young Children, 2004). This reduces bias and allows comparison of individual student performance to that of other students in the same classroom. Another advantage of CBM data is that they are sensitive to the effects of change over a short period of time, allowing for regular monitoring of progress (Deno, 1985; Espin, Shin, & Busch, 2005). Another benefit is that when progress is below target levels, interventions can be implemented and the CBM used to evaluate the effectiveness of the intervention (Deno, 2003; Fuchs & Fuchs, 1998; Macy & Hoyt-Gonzales, 2007).

Limitations to Using CBM to Assess Achievement for preschool ELLs

It should be kept in mind that assessing preschoolers can be a difficult task. There are a variety of reasons that a preschool child could have a low score on an assessment other than the need for additional instructional support. The child might misunderstand the task, be shy or uncomfortable around an unfamiliar adult, be ill, or

have had a bad experience on the playground (Good et al., 2001). As regards assessing preschool ELLs, Sáenz (2008) has noted that the biggest limitation to using CBM to assess ELLs is that there are very few research studies on the use of this type of assessment with this population. It is possible that CBM will not be sensitive to the growth rate demonstrated by ELLs. Also, benchmarks have not been established for this population. While CBM has shown promise as an appropriate assessment for use with ELLs, there is a need for additional research in this area, as Sáenz (2008) points out.

Establishing Technical Adequacy for Curriculum-Based Measures

Assessments to be used with young children should meet a number of criteria. They should be technically adequate, meaning that they are reliable and valid. They should be useful for planning instruction and intervention. They should also be conducted and scored as intended by the designer of the assessment (Grisham-Brown, Hallam, Pretti-Frontczak, 2008). In addition, they should not be prohibitive to administer in terms of time, cost, or training needed for personnel (Rous, McCormick, Gooden, & Townley, 2007).

It has been noted that it is important that technical adequacy be established for each CBM (Deno, 2003; Foegen, Jiban, & Deno, 2007; Fuchs, 2004; Rous et al., 2007; Salinger, 2002; Shinn, 1988). Technical adequacy is evaluated in terms of the reliability and the validity of the instrument. Reliability measures the degree to which consistent results can be produced with the instrument when administered by different

evaluators or in different settings. Validity assesses the accuracy with which the instrument measures what it is designed to measure. It is necessary that the reliability and validity be measured using a sample representative of the diversity of students, teachers, and programs for which the assessment is intended (Grisham-Brown et al., 2008; Rous et al., 2007).

In developing a CBM, it is important that the designers have a clear vision of the specific skill they want the assessment to measure (Salinger, 2002). It is also important that the teachers who will be using the measure feel that it assesses what they are teaching (Salinger, 2002). In a survey of 586 preschool teachers in Ohio, researchers found that the majority considered CBM to be acceptable as a means of assessment (Pretti-Frontczak et al., 2002). Fuchs et al. (1994) also found a high degree of teacher satisfaction with CBM.

In using the same test for various subgroups, if the measure has content validity for the majority population, it should have content validity for the subgroups (Geisinger, 1998). Making the test available in different languages constitutes an adaptation to the test, however. In this situation, the test items in the adapted measure should be reviewed by members of the special population for which it has been adapted (Geisinger, 1998). A pilot test should also be conducted to determine whether the measure is appropriate for its intended use (Salinger, 2002).

Concurrent validity can be measured by conducting a correlational study between the CBM measure and a norm-referenced measure (Allinder & Eccarius, 1999). While there are no firm rules for interpreting the strength of reliability and validity coefficients, guidelines have been published by researchers in the field. One

such guideline suggests that a strong relationship is indicated by a correlation coefficient of .70 and above, a correlation coefficient of .50 to .70 indicates a moderate relationship, a correlation of .5 is a chance agreement, and a correlation coefficient below .50 indicates a weak relationship (Wayman et al., 2007).

In addition, it is important that the measure be reliable. A common way to evaluate reliability of a measure is to have a second evaluator independently score the results from a sample group of the students assessed. A comparison of these scores will provide a measure of the inter-rater reliability of the CBM (Salinger, 2002). In addition, evaluating test-retest reliability provides information on the internal consistency of the measure (Ruffino et al., 2006). An assessment can be considered reliable if it provides consistent results given that the target behavior has not changed (Poling et al., 1995).

A database documenting the normal course of development of reading skills of native English-speaking students has been developed over the past 10 years. However, there are few studies examining the typical development of students who are ELLs (Artiles & Klingner, 2006; Domínguez de Ramírez & Shapiro, 2006; Sáenz, 2008). Collecting these data will allow practitioners to establish the rate of progress that can be expected over time. Specifically, the development of a database of the growth benchmarks for Spanish-speaking ELLs would be widely useful in identifying those students whose progress falls below benchmark targets for growth and who are not experiencing success under typical instructional conditions (Domínguez de Ramírez & Shapiro, 2006; Sáenz, 2008).

The Get It, Got It, Go Picture Naming Test and The Peabody Picture Vocabulary Test
– Third Edition

The expressive vocabulary assessment measures created for this study followed the format used on the Picture Naming test of the Get It, Got It, Go (GGG) (University of Minnesota, 2006). This is a test of expressive vocabulary appropriate for use with preschoolers. On the GGG, as on the expressive vocabulary measures created for this study, the child is asked to identify as many pictures as possible in one minute. The receptive vocabulary assessment created for this study followed the format of the Peabody Picture Vocabulary Test – Third Edition (PPVT-III) (Pearson, 2008). The PPVT-III is a standardized measure of receptive vocabulary which can be administered to preschool children. Both the Picture Naming test and the PPVT-III differ from the measures created for this study in that the measures in this study are curriculum-based, the target words having been chosen specifically from the Houghton Mifflin curriculum used in the Head Start program where the children assessed in this study are enrolled.

In a study involving a sample of 29 preschoolers, test-retest reliability for the Picture Naming test of the GGG across three weeks was $r = .67, p < .01$. This study also found correlations between the Picture Naming test and the PPVT-III ranging from $r = .56$ to $.75, p < .001$. (Early Childhood Research Institute on Measuring Growth and Development, 2004). In a second study, correlations between the Picture Naming test and the PPVT-III ranged from $r = .47$ to $.69$. (McConnell et al., 2000).

Pearson Assessments reports a test-retest reliability for the PPVT-III of .91 to .94 with a median of .92. Average correlation for the PPVT-III with the OWLS Listening Comprehension scale was .69 and with the OWLS Oral Expression scale it was .74. Correlations for the PPVT-III with measures of verbal ability on the WISC-III were .91 (Pearson, 2008).

The Picture Naming test is not a standardized test like the PPVT-III; however, a number of studies have used it to provide sample scores for students at a variety of ages and from various backgrounds. The Minneapolis public schools have been giving the GGG, including the Picture Naming test, to their incoming kindergarten students for a number of years. The average score on the Picture Naming test for children entering kindergarten in Minneapolis public schools is 25 pictures identified in 1 minute (University of Minnesota, 2006). This study did not differentiate between subgroups of children.

However, a number of research studies have been conducted which provided the results for various subgroups. In a research study involving 90 preschoolers, performance at 66 months of age yielded an average Picture Naming score of 26.90 for typically developing children, 19.01 for children from low-income families, and 16.88 for children with identified disabilities. In another research study of 69 preschoolers, performance at 59 months yielded an average Picture Naming score of 16.97 for typically developing children, 16.51 for children living in poverty, 14.13 for children with identified speech and language disabilities, and 2.64 for Spanish-speaking ELLs (Early Childhood Research Institute on Measuring Growth and Development, 2004).

Data were also collected on the scores on the Picture Naming test of the GGG in a study involving 69 children aged 44 to 68 months who were in their final year of preschool. All the children in this study were enrolled in kindergarten the following year. Within this sample, 26 children had mild disabilities and qualified for services as a child with a speech and language impairment, 12 children were from Head Start, 19 children were ELLs with a primary language of Spanish, and 12 children were from early childhood family education classrooms (ECFE). The children in the ECFE classrooms constituted the control group. Median age for all of the children involved was 59 months. The results of the Picture Naming test for the full sample was 17.1 pictures with a slope of .823. Breaking the scores down by subgroups showed that the average score on the Picture Naming test for the ECFE control group was 22.2 pictures, for the Head Start children the average score was 22.6 pictures, for the children with disabilities the average score was 18.9 pictures, and for ELLs the average score was 7.2 pictures (Missall et al., 2006).

For ELLs in the previous study, there was a strong correlation between Picture Naming and verbal behavior with peers and teachers. While ELLs had lower intercepts for the number of pictures identified on the Picture Naming test, the rate of growth was similar for all groups of children. Overall, ELLs did have lower oral language and vocabulary as compared to the other groups. For Head Start students, the strongest correlation with Picture Naming scores was to pre-academic activities and instructional materials. Engaging in instructional activities resulted in an increase in Picture Naming scores, thus demonstrating that providing these preschool children

with language rich learning environments should significantly improve their literacy growth (Missall et al., 2006).

In another study that involved administering the Picture Naming test of the GGG, the preschool children had a median age of 53.92 months. Overall, the average score on the Picture Naming test for the group as a whole was 15.09 pictures with a mean rate of increase of .61 pictures per month. Data gathered over time with this group showed that at 50.5 months of age, the mean picture naming score was 12.1 pictures with a standard deviation of 9.7 pictures. At 53.6 months of age, the mean picture naming score was 14.9 pictures with a standard deviation of 10.2 pictures. At 55.7 months of age, the mean picture naming score was 17.1 with a standard deviation of 10.4. The mean score for the ELLs at the same ages was significantly lower, but the rate of growth was about the same as that of the other students. The researchers concluded that this indicated that these preschoolers were making good progress at acquiring English, although it was noted that some of the children were learning English at a greater rate than others (Early Childhood Research Institute on Measuring Growth and Development, 2007).

Another study included a sample of 398 preschool children, 143 of whom remained in the study through kindergarten. Of the children who completed the study, 58% qualified for free or reduced price lunch. Also, 15 of the students who completed the study were ELLs. The average picture naming score for all students at the beginning of preschool was 18 pictures. In the winter, the average picture naming score was 20.5 pictures. In the spring the average picture naming score grew to 21.7 pictures. When these students were tested at the beginning of kindergarten the

average score was 28.5 pictures and the increase was an average of 6 pictures in one school year. (Missal et al., 2007).

Studies have also been conducted with older children using the Picture Naming test of the GGG. In a study of 42 children ages 5 to 7, the average picture naming score was 14.97 with rate of growth of .71 pictures per week. For native English speakers, the average was 22.78 pictures with rate of growth of .387 pictures per week. For ELLs, the average was 11.64 pictures with rate of growth of .84 pictures per week (Early Childhood Research Institute on Measuring Growth and Development, 2004).

Conclusion

It is commonly recognized that in young children development of oral language skills such as vocabulary acquisition are important for achieving literacy and overall academic success. Vocabulary development, in particular, is an especially important component of literacy acquisition for ELLs (Coppola, 2005; Gersten & Geva, 2003; Swanson & Howerton, 2007). An achievement gap exists between ELLs and their native English speaking peers that begins in early childhood and continues into elementary school (Barrera, 2006; Domínguez de Ramírez & Shapiro, 2006; Missall et al., 2006; Sáenz, 2008). Many times these young ELLs look like their peers with learning disabilities in that there is a discrepancy between their apparent academic ability and their academic achievement (Barrera, 2006; Klingner & Artiles, 2006). Thus, there is a need to develop assessments for use with all children including

ELLs that are specifically targeted to monitoring the acquisition of early literacy skills in preschool so intervention can begin before these children get even further behind (Early Childhood Research Institute on Measuring Growth and Development, 2007; Missall et al., 2007). The use of CBMs to accomplish this goal has shown promise, but additional research is needed (Bryan et al., 2008). The primary objectives in this study are to evaluate the technical adequacy of CBMs of vocabulary that have been developed for use with preschool children including English language learners.

CHAPTER III

METHOD

Introduction

There is a need to develop assessments specifically targeted to monitoring the acquisition of early literacy skills in preschool children, including ELLs. The use of CBMs to accomplish this goal has shown promise, but additional research is needed. The primary objectives in this study were to evaluate measures of reliability and validity for assessments of vocabulary growth developed for use with the Houghton Mifflin Pre-K curriculum *Where Bright Futures Begin* (Houghton Mifflin, 2008). An expressive and a receptive measure have been developed. The expressive measure includes a Spanish version as well as an English version.

The study was conducted with students in a local Head Start program in a mid-sized Michigan city. This program uses the Houghton Mifflin preschool curriculum *Where Bright Futures Begin* (Houghton Mifflin, 2008) and the target words for the assessment were chosen to match that program. The measures were designed for use with both English-speaking children and ELLs. All of the ELLs in the Head Start Program where the research for this study was conducted are speakers of Latin American Spanish. Thus, in order to address the specific needs related to instruction for this group of students, a Spanish and an English version of the expressive

vocabulary measure were created. The Spanish version has been created to be appropriate for speakers of Latin American Spanish.

The research questions addressed in this study were:

6. What is the content validity of the curriculum-based measures?
7. What is the concurrent validity of the curriculum-based measures?
8. What is the test-retest reliability of the curriculum-based measures?
9. What is the inter-rater reliability of the curriculum-based measures?
10. What is the acceptability of the curriculum-based measures for the literacy coaches?

Subject Recruitment and Informed Consent

The participants were Head Start students and coaches from the Battle Creek Head Start Program. The children were between three and six years of age, including both ELLs and native English-speaking students. This project was approved under HSIRB Project Number 08-10-15 (Appendix A) and carried out as part of the Western Michigan University Early Reading First (ERF) project, "I Can Read," approved under HSIRB Project Number 07-04-21 (Appendix B). That project has already been granted a waiver of consent for the children in the project due to the fact the "I Can Read" project trains teaching staff to use common educational practices, i.e., routine literacy assessments to evaluate student progress and research-based instructional strategies, and the difficulties inherent in obtaining parental consent from this at risk population. This project was also granted a waiver of consent for the

same reasons. All three Early Reading First coaches and the Early Reading First director were invited to participate in the study. The coach consent form can be found in Appendix C. All teaching staff in the Battle Creek Head Start Program were informed of the Early Reading First project, of which this study is a component. Coaches were informed of this research study by Dr. Esther Newlin-Haus, project director, and all verbally agreed to participate.

Research Procedures

Development of the vocabulary acquisition measure occurred during the spring and summer of 2008. In October 2008, Early Reading First staff members were trained in administration of the measure. In November 2008 the measure was piloted. Measures of validity and reliability were conducted later in November and in December 2008. In January 2009 the data were compiled and in February 2009 the data were shared with the coaches and a survey of coach acceptability was completed.

Methodology

This research was completed in two stages. First, the CBM measures were developed. This required careful examination of the Houghton Mifflin preschool curriculum *Where Bright Futures Begin* (Houghton Mifflin, 2008). From the curriculum, a list of the vocabulary words to be assessed was generated and visual representations, i.e., photographs, for identified words were chosen (see Appendix D

for the word list, including Spanish translations, and picture sources; see Appendix E for thumbnail representations of pictures used). Color pictures were chosen for the stimulus items to avoid the ambiguity that can occur with the use of line drawings as well as to make the stimulus items more visually engaging. All photos chosen were available through the internet-based photo-sharing program Flickr (*flickr.com*, 2008) and were available for public use under Creative Commons attribution licensing (see Appendix F for Creative Commons licensing terms).

Assessment measures were created for both expressive and receptive vocabulary. Receptive vocabulary is understanding of a spoken word and can be assessed, for example, by presenting the child with a set of pictures and having the child point to the one picture that matches the vocabulary word spoken by the assessor. Expressive vocabulary involves having the child generate the word in response to a prompt. One way to assess expressive vocabulary is to show a picture to a child and have the child name the word that corresponds to the picture (Spear-Swerling, 2006).

In order to assess expressive vocabulary, a vocabulary assessment card for each of the identified words was created. Each of these cards was coded with the English vocabulary word as well as possible Spanish translations for that word. To assess receptive vocabulary, assessment cards displayed four pictures (see Appendix G for vocabulary combinations used on receptive assessment cards). One picture corresponded to the target word and the other three pictures served as distracters. All four pictures corresponded to vocabulary taught as part of the curriculum.

In the second stage of this study, some additional technical characteristics of the CBM measures were evaluated. These include concurrent validity, test-retest reliability, inter-observer agreement, and acceptability of the measure. This will be discussed later in this chapter.

Risks and Costs

There were no known risks involved. Participants left their classroom with a child-friendly and trained person when the assessments were administered. Participants did miss a small amount of instructional time, but assessment is also an important component of high-quality instruction. Therefore, the assessments will potentially result in improved instruction. Assessments were administered in the hall or in another room in the Head Start center so the setting was familiar to the participants. No criticism or corrections followed the children's responses, and assessment procedures required that any child that appeared uncomfortable or resistant would be promptly returned to his/her classroom.

Confidentiality

All data were presented confidentially and individual data were only shared with the child's teachers and parents. Possible presentations and publications will not have real names. Pseudonyms, descriptors such as gender and age, or the term "subject" are used with no identifying school or personal name. Data were kept on

computers that were password protected and only accessed by grant participants. Child data are kept in a file cabinet in a locked office. All personnel involved have completed HSIRB training modules. Graduate students have already passed HSIRB training and have been trained in confidentiality procedures by Dr. Kristal Ehrhardt and Dr. Esther Newlin-Haus. Graduate students invited to participate in this research included Max Woodliff, Jessica Manning, Rashell Bowerman, Cashmier Broten, Shellie Dorman, Jennifer Meyer, and Heather Wagner. Data were transported from Head Start only by project staff and brought directly to the cabinet in the locked ERF office at #1202 Sangren Hall and will be archived with I Can Read Data for at least three years. Transcription to the computer was done by project personnel. Consent documents were also brought directly to the cabinet in the locked ERF office at #1202 Sangren Hall and archived with I Can Read Data for at least three years.

Project Design

Participants and Setting

Participants were 51 students enrolled in the Battle Creek Head Start program and their teachers. The students were three to five years of age. Of the 51 student participants, 21 were ELLs and 30 were native English speakers. Students who had already been identified as having a disability or who were identified by their teachers as displaying a significant impairment in expressive language were excluded from the

study. Battle Creek Head Start is the recipient of an Early Reading First grant and this study was an extension of the work related to implementation of that project.

Due to the limited number of ELLs in this Head Start program, all the ELLs who were present when the assessment was being administered were included in the study. A matched sample of non-ELLs was also included in the study. The sample of non-ELLs was chosen to match the ELL sample based on teacher, age, and gender. In cases where there were only one or two ELLs in a classroom, a matched set of two or three English-speaking students was chosen from that classroom in order to provide a sample size of at least four students from every class that was included in the study.

All ELLs included in the study were identified as Spanish speakers by Head Start personnel and were included regardless of Spanish language proficiency. Battle Creek Head Start personnel identified 22 children as ELLs and 21 of them were included in the study. Although efforts were made to include all ELLs in the study, one student identified as an ELL was absent throughout the time when the study was conducted, thus it was not possible to include this student. All ELLs were administered the Spanish version of the CBM Expressive Language Vocabulary measure in addition to the English CBMs.

Content

The CBM vocabulary assessments consisted of two components, a measure of receptive language and a measure of expressive language. The final versions of the assessments used for the study comprised a 56-item assessment designed to measure

receptive language and a 77-item assessment designed to measure expressive vocabulary. These instruments were developed as tools that teachers may use to measure student learning related to the Houghton Mifflin preschool curriculum *Where Bright Futures Begin* (Houghton Mifflin, 2008). In addition to the English CBM measures, a CBM expressive measure of Spanish was included for Spanish speakers as research has shown a strong correlation between Spanish fluency and English fluency for native Spanish speakers (Domínguez de Ramírez & Shapiro, 2007).

Development

The stimulus items in the assessment were picture cards. The measure of expressive vocabulary consisted of stimulus cards containing only one picture each. On the front of the card was a picture corresponding to one of the vocabulary words in the curriculum. On the back of the card was printed the target word in both English and Spanish. The target words were chosen directly from the Houghton Mifflin curriculum *Where Bright Futures Begin* (Houghton Mifflin, 2008). For a list of the target words used in the final version of the measure see Appendix H.

The measure was designed so that the same stimulus cards could be used to assess expressive vocabulary growth in English or in Spanish. The goal for total number of cards for the expressive vocabulary portion of the assessment measure was set at 70. The size of each card was 5.5 inches by 8.5 inches. The back of each card contained the correct responses in both English and Spanish. For example, a picture of a butterfly was presented on the front of card and on the back was printed both the

word butterfly and the word mariposa, the Spanish word for butterfly. A sample of the expressive language vocabulary cards can be seen in Appendix I.

The stimulus cards for the receptive vocabulary portion of the assessment were 8.5 inches by 11 inches. Each card contained four pictures. One of the four pictures corresponded to the target vocabulary word and the other three pictures were distracters. For example, a stimulus card displayed pictures for the following vocabulary words: hammer, saw, scissors, door. The child presented with this stimulus card would be asked to point to the hammer as an assessment of receptive vocabulary for that word. The target word was identified on the back of the stimulus card. This is similar to the presentation used on the Peabody Picture Vocabulary Test-III (Pearson, 2008). All four words were chosen from the unit vocabulary words of the Houghton Mifflin preschool curriculum *Where Bright Futures Begin* (Houghton Mifflin, 2008). The goal for total number of cards for the receptive vocabulary assessment was set at 50. A list of the word combinations used on the receptive language cards can be found in Appendix G and a sample card can be seen in Appendix J.

In order to ensure that the translations were appropriate for the target population, a method described as “back translation” was used to ensure appropriate word choices for the Spanish language version (Geisinger, 1998). Twelve native speakers of Latin American Spanish were asked to translate each target vocabulary word from the English to the Spanish language. A second task required that the same 12 native speakers of Latin American Spanish make the translation from the Spanish

back to the English. All discrepancies were resolved by adding acceptable Spanish alternatives for vocabulary words.

After the items were generated, literacy coaches using the curriculum were asked to evaluate each item as it related to the curriculum in terms of word choice and picture representation and identify those that they did not consider valid. This feedback was used to make modifications to the assessments. The standard was set that modification would be made to the stimulus items until 80% agreement was reached on appropriateness of the word choice and the picture representation. However, 100% agreement was reached on all stimulus items. The assessment measure was then piloted with a small group of students.

Pilot Study

Next, a pilot study of the measures was conducted with preschool children in the Battle Creek Head Start Program. The sample size for the pilot was 10. The children in the pilot study were administered both the expressive and the receptive language measures. One purpose of the pilot study was to validate the appropriateness of the stimulus cards. During each administration, an observer recorded the child's responses to each of the items presented. This information was used to identify additional acceptable alternatives for some stimulus pictures. For example, "world" was suggested as an acceptable alternative response to the stimulus picture for "earth" based on the responses children gave during the pilot study.

The evaluators also provided feedback on the procedures for administration. This feedback from the pilot study was used to identify changes in the procedure that could result in overall improvement to the assessment measure. During the pilot study, some of the children appeared to struggle with understanding the task for the Expressive Language Vocabulary measure based on the limited exposure to the sample items provided in the original administration method. Although this is the method used on the GGG, the children in this pilot study seemed to need additional direction.

Based on the information from the pilot study, the administration procedure was altered to include providing feedback related to the sample items to ensure that the child understood the task before beginning the assessment. For consistency, this change was made for both the receptive and the expressive measures. Guidelines for the provision of this feedback were added to the administration procedures and reviewed with the assessors. A description of the administration procedure follows. Administration scripts are found in Appendices K, L, M. Using feedback from the pilot study as well as that provided by the literacy coaches, modifications to the evaluation measures resulted in an assessment consisting of 77 expressive language cards and 56 receptive language cards.

Administration and Scoring

Prior to administering the vocabulary assessment tool, assessors received training in the administration procedure. The procedure for administering the

expressive vocabulary assessment followed that used when administering the GGG Picture Naming Test (University of Minnesota, 2006) with the exception that feedback was provided on the sample items. For the English assessment, the assessor places four sample cards on the table in front of the student. The assessor directs the student to look at the cards and says, "I am going to name these pictures." The assessor then points to each picture and identifies it by name in English. Next the assessor asks the child to name each of the four pictures in the sample. If the child names the four pictures correctly, the assessor continues on with the assessment. If the child does not name the pictures correctly, the assessor provides feedback by demonstrating the correct response and providing additional practice to ensure the child understands the task. This is a one-minute timed task. The sample items are not included in the final score. See Appendix K for the script for administration of the English Expressive Language measure.

After the sample items have been administered and the child has demonstrated an understanding of the task by correctly naming the pictures in the sample items, the assessor says, "Now I want you to name these pictures as fast as you can." The assessor then presents the cards one at a time. If the child does not respond to a stimulus card within three seconds, the assessor verbally prompts the child to identify the picture. If the child does not respond within two more seconds, the assessor moves on to the next card. At the end of one minute, the assessor stops showing cards to the child and records the total number of correctly identified cards. If items are correctly identified in Spanish rather than English, the assessor also records this

number. These do not count, however, as part of the total of correctly identified pictures in English. The stimulus cards are shuffled after each administration.

The format for the Spanish version of the assessment is exactly the same, except that Spanish is the language used for instructions and student responses. For the script provided to assessors for the administration of the Spanish Expressive Vocabulary measure see Appendix L.

Administrators of the expressive language assessments kept track of both the number of correct responses and those that were determined to be near correct. Responses that were not specifically identified as correct, but which the evaluator determined were close, were counted as near correct. Administrators were provided with instructions for determining near correct responses prior to beginning the study. For example, in response to the stimulus picture for “rooster,” a response of “chicken” would be counted as near correct. A rooster is a male chicken, but chicken was not identified on the stimulus card as a correct response and could not be counted as such. It could, however, be counted as near correct.

For the receptive vocabulary portion of the assessment, the assessor presents the student with the sample stimulus card. The assessor directs the student to look at the pictures and says, “I am going to name these pictures.” The assessor then points to each picture and identifies it by name in English. Next the assessor asks the child to point to the target picture from the four pictures in the sample. If the child correctly identifies the target picture, the assessor continues on with the assessment. If the child does not identify the target item correctly, the assessor provides feedback by demonstrating the correct response and providing additional practice to ensure the

child understands the task. This is a one-minute timed task. The sample item is not included in the final score.

After the sample item has been administered and the child has demonstrated an understanding of the task by correctly responding to the sample prompt, the assessor then says, "Now I will tell you a word and I want you to point to the correct picture for that word on the picture card as fast as you can." The assessor then presents the cards one at a time and asks the child to point to the picture that corresponds with the target word. If the child does not respond to the stimulus within three seconds, the assessor verbally prompts the child by again asking the child to point to the picture for the target word. If the child does not respond within two more seconds, the assessor moves on to the next card. At the end of one minute, the assessor stops showing cards to the child and records the total number of correctly identified cards. The stimulus cards are shuffled after each administration. For the script provided to assessors for the administration of the receptive vocabulary measure see Appendix M.

Procedural Reliability

All assessors were graduate student researchers involved in the Battle Creek Head Start program as part of the Early Reading First grant. Assessors were given oral and written instructions in conducting the assessments. Two graduate students participated in the administration of the CBM measures. They each reviewed the information provided and then discussed it with the experimenter. Next, they were

paired with a trained assessor to practice administration of the assessment with preschool children. During the session, a procedural checklist was completed by the observer. The checklist was used to provide feedback on the administration of the measure. This checklist is provided in Appendix N. Following the practice session, inter-rater agreement was calculated by the researcher. Agreement was calculated by dividing the number of agreements by the total number of agreements plus disagreements and multiplying by 100. Personnel were provided with feedback and error correction and additional practice opportunities until agreement reached a criterion of 80% or greater. This process was repeated midway through the study to ensure fidelity to the administration procedures.

Evaluation of Validity and Reliability

What is the content validity of the measures?

Literacy coaches who were using the curriculum in the Head Start program in Battle Creek were asked to provide feedback on the validity with which the vocabulary assessments reflected the curriculum taught. Each member of this group was asked to look at each of the stimulus cards and identify any that they felt were not valid for any reason. All comments were recorded and used to make modifications to the stimulus cards. This process was repeated until a minimum of 70 expressive vocabulary stimulus cards and 50 receptive vocabulary stimulus cards

were identified as being valid by the coaches at a rate of 80% or greater. In actuality, it was possible to achieve 100% agreement on the stimulus items.

At this time, a native Spanish speaker from Venezuela also validated the Spanish translations. Once the content of the stimulus cards was finalized, 12 native Spanish speakers from Mexico were asked to complete the back translation process. The Spanish speakers in the Battle Creek Head Start speak Latin American, and specifically Mexican, Spanish; the back translation assured that the Spanish translation would be appropriate for this population.

Concurrent Validity of the CBM Measures

Concurrent validity was measured by examining the relation between scores on the GGG and scores on the CBM expressive vocabulary assessment tools. The GGG is designed to be a general outcome measure of expressive vocabulary and has been administered in the past to all students in the Head Start program as part of the Early Reading First initiative. The expressive vocabulary CBM assesses expressive vocabulary specifically related to the Houghton Mifflin preschool curriculum *Where Bright Futures Begin* (Houghton Mifflin, 2008). Both measures have an English version and a Spanish version. Concurrent validity for the English version of the vocabulary assessment tool was calculated by examining the Pearson Correlation Coefficient between scores on this CBM measure and scores on the English version of the GGG for all subjects. Concurrent validity for the Spanish version of the vocabulary assessment tool was calculated using a Pearson Correlation Coefficient

with the scores ELLs earned on the Spanish version of the GGG. For all comparisons, a correlation was considered as statistically significant if $p < .05$.

The concurrent validity for the receptive vocabulary assessment was measured in relation to the Peabody Picture Vocabulary Test-III also using a Pearson Correlation Coefficient. The PPVT-III is a norm-referenced general measure of receptive vocabulary (Pearson, 2008). The receptive vocabulary assessment in the study measures receptive vocabulary specifically related to the Houghton Mifflin preschool curriculum. The PPVT-III is administered to all students in the Head Start Program as part of the Early Reading First Initiative.

Test-retest Reliability of the CBM Measures

As a way of evaluating the internal consistency of the measures, the test-retest reliability was examined. To assess test-retest reliability, the assessors repeated the evaluation with 20 students, 10 from the sample of ELLs and 10 from the non-ELLs, within 15 school days of the initial administration. The correlation between the scores earned in each evaluation was calculated using a Pearson correlation coefficient.

Inter-rater Reliability of the CBM Measures

Inter-rater reliability was assessed by having a second evaluator observe the administration of the measures to 15 of the children assessed. The evaluator and the observer computed their scores independently for each session. The percent

agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100.

Literacy Coach Acceptability of the CBM Measures

To gauge the utility of the vocabulary assessment measures, the literacy coaches were asked to complete an acceptability rating scale. The coaches were asked to rate the acceptability, appropriateness, usefulness, efficiency, and value of the assessment. Questions for this rating scale were chosen based on questions used for other acceptability rating scales designed specifically to evaluate the acceptability of CBMs (Faykus & McCurdy, 1998). Response options were presented as a five-point Likert-type scale. Coaches were also given the opportunity to write comments. The acceptability survey responses were anonymous. This was done at the end of the study in February 2009. The acceptability survey is included in Appendix O.

CHAPTER IV

RESULTS

Overview

The primary objective of this study was to design and to establish the technical adequacy of curriculum-based measures of vocabulary acquisition for use with students in a small Midwestern Head Start program that is using the Houghton Mifflin preschool program *Where Bright Futures Begin* (Houghton Mifflin, 2008). Further, this study sought to establish the technical adequacy of two tools that can be used for measuring benchmarks of vocabulary acquisition for both native English speakers and ELLs from this population, all Spanish speakers. These tools consisted of a CBM Expressive Language Vocabulary measure and a CBM Receptive Language Vocabulary measure. In order to address the specific instructional needs of students who are Spanish speakers, a Spanish version of the CBM Expressive Language Vocabulary measure was also created.

Table 1 summarizes the results of the study for the subjects as a group. In general, the students achieved mean scores on the CBM Expressive measures that were similar to mean scores on the corresponding GGG measures. Mean scores on the English measures were higher than mean scores on the Spanish measures for both the CBM and the GGG. The difference between the mean correct score and the mean correct plus near correct score on both the English CBM and the Spanish CBM was

approximately one. There were, however, large individual differences across students in all measures, as indicated by the size of the standard deviations.

Table 1

Summary of All Measures for Students as a Group

Assessment	Mean	Standard Deviation
English Expressive Language Vocabulary Measure – Correct	8.12	4.93
English Expressive Language Vocabulary Measure- Correct Plus Near Correct	9.53	5.25
Spanish Expressive Language Vocabulary Measure – Correct	5.95	4.57
Spanish Expressive Language Vocabulary Measure – Correct Plus Near Correct	6.67	4.81
English Receptive Language Vocabulary Measure	10.18	4.40
English GGG	11.31	6.23
Spanish GGG	4.43	4.37
PPVT-III	78.45	20.33

Note: On all English measures and the PPVT-III n=51, on Spanish measures n=21.

In Table 2, mean scores are provided for the two groups, ELLs and non-ELLs, on the English measures of vocabulary. As would be expected, non-ELLs had higher scores than ELLs on all measures. Standard scores on the PPVT-III were somewhat low for both groups. The average score for non-ELLs on the PPVT-III was

approximately one standard deviation below the mean and for ELLs it was approximately two standard deviations below the mean.

Table 2

Mean Scores for English Measures for ELLs and Non-ELLs		
Assessment	ELL	Non-ELL
English Expressive Language Vocabulary Measure – Correct	6.67	9.13
English Expressive Language Vocabulary Measure- Correct Plus Near Correct	7.62	10.87
English Receptive Language Vocabulary Measure	8.42	11.40
English GGG	7.95	13.67
PPVT-III	70.90	83.73

Note: On all measures n=51.

Research Questions

The following are the research questions addressed in this study:

11. What is the content validity of the curriculum-based measures?
12. What is the concurrent validity of the curriculum-based measures?
13. What is the test-retest reliability of the curriculum-based measures?
14. What is the inter-rater reliability of the curriculum-based measures?
15. What is the acceptability of the curriculum-based measures for literacy coaches?

Content Validity

As described in the methods section, the content for all CBM measures was drawn directly from the vocabulary lists of the *Where Bright Futures Begin* preschool curriculum (Houghton Mifflin, 2008). Feedback from the literacy coaches and project director (n=4) was used to refine the CBM vocabulary measures and to ensure that they were an accurate reflection of the curriculum taught. At the same time, adjustments were made to the Spanish translation based on the input of a native Spanish speaker and back translations. The majority of the work to establish content validity was completed during the development phase of this project. However, in order to analyze the validity of the child responses, these responses were recorded so that correct and “near correct” answers could be determined. In the following, a description of these responses is provided.

During 40 administrations of the CBM English Expressive Language Vocabulary measure, a record was made of all student responses. This record showed a good pattern of responses to almost all of the stimulus cards. However, there were no correct responses to four of the stimulus cards, the ones for chrysalis, lightning, market, and rooster.

In response to the stimulus picture for chrysalis, 2 students said “corn,” 1 student said “caterpillar,” and 1 student said “leaf.” However, it is noteworthy that 7 out of 11 students, or 64% of the time, the respondent simply indicated that he or she did not know the name of the item. Of the 7 students presented with the stimulus

picture for lightning, only 1 student responded with “I don’t know.” Two students said “tornado,” 1 said “raining,” 1 said “storm,” 1 said “storming,” and 1 said “sky.”

Of the 5 students presented with the stimulus picture for market, only 1 student responded with “I don’t know.” Other incorrect student responses to this stimulus item included 1 student response of “buying stuff,” 1 student response of “apples,” 1 student response of “store,” and 1 student response of “food.” In response to the stimulus picture for rooster, 6 out of 9 students presented with this item, or 67% of the students, said, “chicken.” Only 1 child responded with “I don’t know.” One student said “bird” and 1 student said “turkey.”

There were also 5 stimulus cards that had a low correct response rate, less than 40% of responses to these items were correct. These were the stimulus cards for baker, bakery, bridge, earth, and plant. While there were some correct responses to these items, these were greatly outweighed by the number of incorrect responses. Review of the transcripts shows that student responses to these items widely varied. Responses to baker included 1 student each who said “mom,” “baking,” “bake,” “bread,” “food,” “cooking,” and “cookie” and two students who responded with “pizza” out of a total of 12 respondents. The most common response to bakery was “food,” which was given by 5 of the 10 students who responded to this item. In addition, 1 student said “grocery store” and 1 student said “cage.” Responses to bridge included 2 students who said “road,” 1 who said “cars,” 1 who said “parking lot,” and 2 students who said “I don’t know,” out of a total of 10 students who responded to this item. The most common response to earth was “moon,” which was given by 3 out of 10 respondents. Two students responded “I don’t know” and 1

responded “sun.” Responses of 11 students presented with the stimulus item for plant included 1 response of “seeds,” 2 responses of “grass,” 2 responses of “garden,” and 2 responses of “I don’t know.”

In light of the responses, for 8 of the items new photos should be selected and additional pilot testing should be completed on new pictures. New photos for chrysalis, lightning, market, baker, bakery, bridge, earth, and plant should be selected. The card for rooster should be revised to include chicken as a correct alternative responsive. This may improve the content validity of the measure. This will be addressed further in the discussion section.

Concurrent Validity

Concurrent validity for the English version of the CBM Expressive Language Vocabulary measure was calculated by examining the Pearson correlation coefficient between scores on this measure and the English version of the GGG Picture Naming Test. Concurrent validity for the Spanish version of the CBM Expressive Language Vocabulary measure was calculated similarly by correlating scores on this measure with scores on the Spanish version of the GGG Picture Naming Test. Concurrent validity for the Receptive Language Vocabulary measure was assessed by examining the relationship between scores on this measure and scores on the Peabody Picture Vocabulary Test – Third Edition, also using a Pearson correlation coefficient.

Table 3 provides a summary of the results for concurrent validity. For all comparisons, a correlation was considered as statistically significant if $p < .05$. The

correlation between the English version of the CBM Expressive Language Vocabulary measure and the English version of the GGG was significant, $p < .0001$, while the correlation between the Spanish version of the CBM Expressive Language Vocabulary measure and the Spanish version of the GGG for student participants who are native Spanish speakers approached significance, $p = .07$ and $p = .06$. The correlation between the Receptive Language Vocabulary measure and the receptive vocabulary score on the PPVT-III was significant, $p = .0003$.

Table 3

Results for Concurrent Validity	
Measures Being Compared	Pearson Correlation Coefficient
English GGG and English Expressive Vocabulary Correct	$r(49) = .62, p < .0001$, two-tailed, $r^2 = .38$
English GGG and English Expressive Vocabulary Correct Plus Near Correct	$r(49) = .68, p < .0001$, two-tailed, $r^2 = .46$
Spanish GGG and Spanish Expressive Vocabulary Correct	$r(19) = .41, p = .07$, two-tailed, $r^2 = .16$
Spanish GGG and Spanish Expressive Vocabulary Correct Plus Near Correct	$r(19) = .41, p = .06$, two-tailed, $r^2 = .17$
PPVT-III and English Receptive Vocabulary Measure	$r(59) = .49, p = .0003$, two-tailed, $r^2 = .24$

Note: On all English measures and the PPVT-III $n=51$, on Spanish measures $n=21$.

Concurrent Validity for Expressive Language Vocabulary Measures

Using Pearson's r , moderate correlations were found between the English GGG and the English Expressive Language Vocabulary measure. Mean scores ($n=51$) were 11.31 ($SD = 6.23$) on the English version of the GGG and 8.12 ($SD = 4.93$) on the English Expressive Language Vocabulary measure. These measures were significantly related using the Pearson correlation coefficient, $r(49) = .62, p < .0001$, two-tailed, $r^2 = .38$. The relationship between the English GGG and the English Expressive Language Vocabulary measure of correct plus near correct responses ($M = 9.53, SD = 5.25$) was also significant using a Pearson correlation coefficient, $r(49) = .68, p < .0001$, two-tailed, $r^2 = .46$.

An evaluation using Pearson's r indicated only a weak correlation between the Spanish GGG and the Spanish Expressive Language Vocabulary measure. The relationship between the Spanish GGG ($M = 4.43, SD = 4.37$) and the Spanish Expressive Language Vocabulary measure ($M = 5.95, SD = 4.57$) approached significance ($n=21$) using the Pearson correlation coefficient, $r(19) = .41, p = .07$, two-tailed, $r^2 = .16$. Similarly, the relationship between the Spanish GGG and the Spanish Expressive Language Vocabulary measure of correct plus near correct responses ($M = 6.67, SD = 4.81$) approached significance ($n=21$) using the Pearson correlation coefficient, $r(19) = .41, p = .06$, two-tailed, $r^2 = .17$.

Responses Not in the Target Language

Responses in Spanish on the English Expressive Language Vocabulary measure and responses in English on the Spanish Expressive Language Vocabulary measure were not counted as either correct or near correct. However, these responses were noted on the recording form. Interestingly, ELLs ($n=21$) were more likely to give an English response on the Spanish Expressive Language Vocabulary measure if they did not know the target word in Spanish than they were to give a Spanish response on the English Expressive Language Vocabulary measure when they did not know the target word in English.

On the Spanish Expressive Language Vocabulary measure, 12 of the 21 students, 57%, gave at least some responses in English. When directed to respond in Spanish, these students indicated that they did not know the Spanish word for the target item. This could be related to the fact that this was a curriculum-based measure and all instruction of the stimulus words had occurred in English. Only 6 of the 21 students, 29%, gave some Spanish responses on the English Expressive Language Vocabulary measure. All of these students also gave at least some correct responses in English, although 3 students, 14% of the total ELLs ($n=21$), gave a larger number of Spanish responses that were correct (except for language) in response to the stimulus items than English responses that were correct.

Concurrent Validity for Receptive Language Vocabulary Measure

Using Pearson's r , a marginal correlation was found between the PPVT-III and the Receptive Language Vocabulary measure. The students ($n=51$) as a group had a mean score of 78.45 ($SD = 20.33$) and 10.18 ($SD = 4.40$) on the PPVT-III and the Receptive Language Vocabulary measure, respectively. Students who scored higher on the PPVT-III tended to score higher on the Receptive Language Vocabulary measure, with a Pearson correlation coefficient of $r(59) = .49, p = .0003$, two-tailed, $r^2 = .24$.

Test-Retest Reliability

To assess test-retest reliability, the assessors repeated the evaluation with 20 students, 10 from the sample of ELLs and 10 from the non-ELLs, within 15 school days of the initial administration. The Pearson correlation coefficient between the scores earned in each evaluation was calculated. For all comparisons, a correlation was considered as statistically significant if $p < .05$. As shown in Table 4, there was a significant relationship for all measures between the scores students earned in the initial evaluation and the scores students earned in retests administered a few days later. Values for the English CBM measures indicated a strong relationship and values for the Spanish CBM measure indicated a moderate relationship for test-retest reliability.

Table 4

Results for Test-Retest Reliability	
Measure Evaluated	Pearson Correlation Coefficient
English Expressive Vocabulary – Correct	$r(18) = .77, p < .0001$, two-tailed, $r^2 = .60$
English Expressive Vocabulary – Correct Plus Near Correct	$r(18) = .76, p < .0001$, two-tailed, $r^2 = .58$
Spanish Expressive Vocabulary – Correct	$r(8) = .64, p = .05$, two-tailed, $r^2 = .41$
Spanish Expressive Vocabulary – Correct Plus Near Correct	$r(8) = .66, p = .04$, two-tailed, $r^2 = .43$
English Receptive Vocabulary Measure	$r(18) = .70, p = .001$, two-tailed, $r^2 = .48$
Note: On all English measures $n=20$, on Spanish measures $n=10$	

The relationship between the initial English Expressive Language Vocabulary measure and the retest of the English Expressive Language Vocabulary measure ($M = 8.65$, $SD = 4.69$) was significant ($n=20$) using the Pearson correlation coefficient, $r(18) = .77, p < .0001$, two-tailed, $r^2 = .60$. This indicates a strong correlation.

Initial scores on the English Expressive Language Vocabulary measure of correct plus near correct responses and on the retest of the English Expressive Language Vocabulary measure of correct plus near correct ($M = 9.85$, $SD = 5.02$) were also significantly ($n=20$) related using the Pearson correlation coefficient, $r(18) = .76, p < .0001$, two-tailed, $r^2 = .58$. This also indicates a strong correlation.

The relationship between the initial Spanish Expressive Language Vocabulary measure and the retest of the Spanish Expressive Language Vocabulary measure ($M =$

7.30, $SD = 4.27$) was significant ($n=10$) using the Pearson correlation coefficient, $r(8) = .64, p = .05$, two-tailed, $r^2 = .41$. This indicates a moderate correlation.

The relationship between the initial Spanish Expressive Language Vocabulary measure of correct plus near correct responses and the retest of the Spanish Expressive Language Vocabulary measure of correct plus near correct responses ($M = 7.70, SD = 4.32$) was significant ($n=10$) using the Pearson correlation coefficient, $r(8) = .66, p = .04$, two-tailed, $r^2 = .43$. This also indicates a moderate correlation.

The relationship between the initial English Receptive Language Vocabulary measure and the retest of the English Receptive Language Vocabulary measure ($M = 9.45, SD = 4.86$) was significant ($n=20$) using the Pearson correlation coefficient, $r(18) = .70, p = .001$, two-tailed, $r^2 = .48$. This indicates a strong correlation.

Inter-rater Reliability

Evaluators all followed the same procedures in administering the measures. A procedural reliability checklist was used with all evaluators to ensure that the procedures were followed as designed (Appendix N). Inter-rater reliability for the scoring was completed by the graduate students who assisted with administering the measures and was assessed by having a second evaluator observe the administration of the measure to 15 of the children assessed. The evaluator and the observer computed their outcome scores independently for each session. The percent agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. Inter-rater reliability for the

Receptive Language Vocabulary measure was 100% and for the Expressive Language Vocabulary measure was 98%, indicating excellent inter-rater reliability for the measures.

Acceptability

Literacy coaches and the project director (n=4) were asked to rate the acceptability, appropriateness, usefulness, efficiency, and value of the measures. Response options were presented as a five-point Likert-type scale. Coaches were also given the opportunity to write comments. Table 5 summarizes their responses to the questions contained in the Acceptability Questionnaire (see Appendix O). With the exception of one response of “neutral” to the statement “The vocabulary assessment is an acceptable way to measure vocabulary growth for ELL children,” all responses to all statements were either “agree” or “strongly agree.” These responses show that the measure has a high level of acceptability.

Table 5

Results of Vocabulary Measure Acceptability Survey				
Question	Responses:			
The vocabulary assessment is an acceptable way to measure vocabulary growth for English-speaking children.	1	2	2	2
The vocabulary assessment is an acceptable way to measure vocabulary growth for ELL children.	1	2	3	2
I would recommend using the vocabulary assessment to measure vocabulary growth to other teachers.	1	1	1	2
The vocabulary assessment is an appropriate assessment technique for measuring vocabulary growth for a variety of students.	1	2	2	1
The vocabulary assessment is a time efficient way to continuously monitor student vocabulary growth.	1	1	1	1
I would be willing to use the vocabulary assessment on a regular basis to measure student growth in vocabulary.	2	2	2	2
The vocabulary assessment provides useful information for planning instruction for English-speaking children.	1	1.5	2	2
The vocabulary assessment provides useful information for planning instruction for ELL children.	1	1.5	2	2
Note: 1=Strongly Agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Strongly Disagree				

The average rating score on acceptability of use with English speaking children was 1.75 and with ELLs it was 2. The coaches gave an average rating of 1.25 on whether they would recommend this assessment to other teachers for

measuring vocabulary growth. The average rating for the appropriateness of the assessment was 1.5. All coaches said that they strongly agreed that the measure was time efficient and all said that they agreed that they would use the measure on a regular basis to measure student growth in vocabulary. The average rating was 1.625 for both the statement that the measure provides useful information for planning instruction for English-speaking children and the statement that it provides useful information for planning instruction for ELLs.

The coaches were also invited to make comments. One coach said, "Great pictures!" Another coach also commented on the pictures and wrote, "The pictures are beautiful – I like that they are realistic instead of the oddly styled drawings of the PPVT." An additional comment was, "This is a time-efficient way of testing to see if children are acquiring targeted vocabulary in the curriculum." Both the ratings and the comments show strong support for the acceptability of the measure.

CHAPTER V

DISCUSSION

Summary of the Results

The results of this study indicated that both the Expressive and Receptive Language Vocabulary measures created for this study demonstrate reliability and validity for use with this population. Evaluations conducted as part of this research study indicated content validity, test-retest reliability, inter-rater reliability and literacy coach acceptability for both measures. The evaluation of concurrent validity showed that the English Expressive Language Vocabulary measure had a moderate correlation with the English GGG Picture Naming Test. The relationship between the Spanish Expressive Language Vocabulary measure and the Spanish GGG Picture Naming Test, however, was weak. The Receptive Language Vocabulary measure showed a marginal relationship for concurrent validity with the PPVT-III.

Content Validity

As part of the study, a record was made of student responses during 40 administrations of the English Expressive Language Vocabulary measure. This record showed a good pattern of responses to almost all of the stimulus cards; however, there was cause for concern in terms of content validity for 9 of the stimulus items.

Specifically, there were no correct responses to 4 of the items and a low correct response rate for 5 of the items, less than 40% of the time did students provide correct responses to these items.

There were no correct responses to the pictures for chrysalis, lightning, market, and rooster, and a low correct response rate for baker, bakery, bridge, earth and plant. There are a number of factors that could lead to this result. It could be because these words were from units that had not been taught yet or, if the unit had been covered, it is possible that this particular vocabulary word had not been included in the instruction. Students may also have been taught the word and forgotten it. Finally, the pictures for these stimulus items may not have conveyed the target word as clearly and accurately as desired.

It should be noted that there are additional factors unrelated to instruction or the assessment materials that could also affect these results. One such factor is that a particular vocabulary word may be less common in the daily language to which these children are exposed and therefore be less familiar to them. For example, in this area many people do not typically use the word “market” when speaking of shopping for food. It may be more common to refer to “going to the grocery store” or even to simply say, “we are going to Meijers or we are going to the grocery,” rather than saying “we are going to the market.” Also, some of the concepts represented by certain words may have been more difficult for the children. For example, “chrysalis” is a fairly complex concept in comparison to many of the other words included on the vocabulary lists for this curriculum. This could have resulted in a higher miss rate for this item.

The measures should be revised to address the concerns related to these items. For eight of the items, new photos should be selected, new stimulus cards should be created, and additional pilot testing should be completed. New photos for chrysalis, lightning, market, baker, bakery, bridge, earth, and plant should be selected. The stimulus card for rooster should be revised to include chicken as a correct alternative responsive. This may improve the content validity of the measure.

Concurrent Validity

There was a moderate correlation between the English version of the Expressive Language Vocabulary measure and the English version of the GGG, $r = .62$ to $.68$, $p < .0001$. These results are similar to the statistical results found for correlations between the English GGG and the PPVT-III. One set of studies found correlations between the English Picture Naming test of the GGG and the PPVT-III ranging from $r = .56$ to $.75$, $p < .001$ (Early Childhood Research Institute on Measuring Growth and Development, 2004); while in a second set of studies, correlations between the English GGG Picture Naming test and the PPVT-III ranged from $r = .47$ to $.69$. (McConnell et al., 2000).

The correlation between the Receptive Language Vocabulary measure and the receptive vocabulary score on the PPVT-III was marginal, $r = .49$, $p = .0003$. Students who scored higher on the PPVT-III also tended to score higher on the Receptive Language Vocabulary measure. This is similar to the lower range of scores found by McConnell et al., as mentioned above (2000).

The relationship between the Spanish GGG and the Spanish Expressive Language Vocabulary measure was weak, $r = .41$, $p = .06$ to $.07$. An expressive measure of Spanish was included for Spanish speakers as research has shown a strong correlation between Spanish fluency and English fluency for native Spanish speakers (Domínguez de Ramírez & Shapiro, 2007). While the Spanish GGG was also developed for the purpose of assessing Spanish vocabulary knowledge in preschoolers, no measures of reliability and validity have been conducted on this assessment (University of Minnesota, 2006). In establishing concurrent validity, it is important that a high-quality established measure of the same domain be available for comparison purposes. This is a serious limitation of this work and limits the usefulness of the Spanish Expressive Language Vocabulary measure.

It should also be noted that the GGG measures are all general outcome measures (GOM) and not CBMs. GOMs are designed to measure student growth and development over time in reference to identified developmental outcomes (University of Minnesota, 2006). Both CBMs and GOMs are used for progress monitoring and benchmarking student achievement. Both are also designed to be used as repeated measures. GOMs, however, are curriculum neutral while CBMs are based upon a specific curriculum. The PPVT-III is also not designed to measure student progress in relation to a specific curriculum. The fact that the GGG and the PPVT-III are not designed to be used as CBMs may have weakened the concurrent validity for the researcher designed CBMs.

Test-Retest Reliability

There was a significant relationship for all measures between the scores students earned in the initial evaluation and the scores students earned in retests administered a few days later. Values for the English CBM measures indicated a strong relationship, $r = .70$, $p = .001$, for the receptive CBM measure and $r = .76$ to $.77$, $p = .0001$, for the expressive CBM measure. Values for the Spanish CBM measure indicated a moderate relationship, $r = .64$ to $.66$, $p = .04$ to $.05$, for test-retest reliability. These results are similar to measures of test-retest reliability for the GGG. In a study involving a sample of 29 preschoolers, test-retest reliability for the Picture Naming test of the GGG across three weeks was $r = .67$, $p < .01$ (Early Childhood Research Institute on Measuring Growth and Development, 2004).

The high test-retest reliability obtained in the present study is an important finding because it indicates that these measures yield consistent reliable results. Given that, due to the nature of the evaluation, the student will be presented with different target items at each administration of each measure, it is important that the measures display a sufficient degree of internal consistency. The strong results for test-retest reliability indicate that teachers can feel confident that even though each child will be presented with a different set of randomly selected target items at each test administration, the scores should be comparable.

Inter-rater Reliability

Inter-rater reliability for the Receptive Language Assessment was 100% and for the Expressive Language Assessment was 98%, indicating excellent inter-rater reliability for the measures. This gives teachers confidence in the scores regardless of who administers the testing provided the CBM administration procedures are followed as designed.

Literacy Coach Acceptability

A survey completed by the literacy coaches indicated high coach acceptability of the measure. The coaches also made comments indicating that they liked the pictures used for the assessment and that they found this to be a good way to assess vocabulary learning. Both the ratings and the comments showed strong support for the acceptability of the measure.

Benefits of the Research

On a local level, the creation of curriculum-based measures of vocabulary acquisition for the Houghton Mifflin preschool curriculum *Where Bright Futures Begin* (Houghton Mifflin, 2008) will allow the teachers of all students, including the English language learners, in the Head Start programs using this curriculum to monitor the progress of these students on vocabulary learning. Preschool children at

Battle Creek Head Start are assessed using the PPVT-III as required by the U.S. Department of Education, Early Reading First program. A limitation of this norm-referenced tool for classroom evaluation is that it is not based upon the curriculum from which the children are instructed; therefore, it is difficult to measure vocabulary growth as relates to instruction. Additionally, for the English language learners, it can be very difficult to determine whether a child's struggles are related to acquisition of a second language or to a learning disability. The CBM measures created in this project will allow the teachers to assess quickly and easily each student's rate of progress in the area of vocabulary acquisition related to instruction.

Over time, teachers and researchers will eventually be able to determine appropriate benchmarks for rate of learning for this population. As these data are gathered, they can be charted and trend lines established so teachers can easily see a student's rate of progress throughout the year. This will allow teachers to determine which students are falling behind so that instruction for these students can be adjusted accordingly.

From a national perspective, sources (e.g., Domingues de Ramirez, & Shapiro, 2006) have cited the need for more research in the area of CBM of early literacy skills for young English language learners. As described in the introduction, this population is increasing tremendously, and in order to provide effective instruction to this population of students, valid and reliable assessments are needed. These measures were developed with this population in mind and ELLs were included in the subject sample. Just like with their native English-speaking peers, these students can be regularly assessed with these measures and the data charted over time so that their

teachers can evaluate their rate of progress. In this way, teachers will be able to target interventions to those students who are not making satisfactory progress.

Limitations of the Study

One limitation of this study is the small sample size. The sample only included 51 children, 21 of whom were ELLs. Also, all of the participants were drawn from the same geographic area and there was not a broad representation of socio-economic groups. Future studies might include a larger number of participants sampled from a broader geographic area. In addition, there was little diversity amongst the ELLs in terms of native language. All the ELLs included in this study have a similar language background. While the present measures were created for ELLs whose native language is Spanish, and specifically Mexican Spanish, there are many other ELL groups in the United States. It will be useful to know if these measures will be reliable and valid with ELLs from other backgrounds.

It should be noted that level of Spanish language proficiency of the ELLs in this study was not measured. This is an additional limitation of the study. This information could have added a valuable component for evaluating the usefulness of the Spanish Expressive Language Vocabulary measure. Also, because we know that research has shown a strong correlation between Spanish fluency and English fluency for native Spanish speakers (Domínguez de Ramírez & Shapiro, 2007), it would have been a valuable piece of information in evaluating the responses of ELLs on the

English measures as well. It is recommended that future researchers in this area consider measuring this component.

However, there are few standardized assessments designed to assess Spanish vocabulary development in preschoolers. One test that could be used for this is the Woodcock-Muñoz Language Survey–Revised (Riverside Publishing, 2006). This is a norm-referenced test designed for assessing English language proficiency in children who are native Spanish speakers. This test can be administered in Spanish and does have a picture naming section, although like most other tests normed for use with a wide range of ages, in this case 2 years of age to 90 years of age, there are very few items at each level. While this makes it less than ideal for the purposes of this study, it is a potentially useful possibility as there are few other assessments to choose from in this area.

Another limitation is that a Spanish version of the receptive vocabulary measure was not included. As the present assessments were created to be used as CBM measures and instruction is only provided in English, a decision was made not to create a Spanish version of this measure. However, given that children can understand language before they can express it, this is a limitation of this study. Future investigations might consider including the development of such a measure.

Finally, a review of student scores on the PPVT-III indicates a low general level of vocabulary development for the group. The mean PPVT-III score for the group as a whole was 78, nearly 1.5 standard deviations below the mean. The average score for non-ELLs was a little higher at 83.73, approximately 1 standard deviation below the mean, while for ELLs it was a little lower at 70.90, approximately 2

standard deviations below the mean. According to the guidelines provided by McGee (2007), these scores put these children at risk for later difficulties in learning to read and write. While this demonstrates the importance of an instructional focus on vocabulary for students in this population, it adds a limitation to the study. It will be valuable to determine if these measures are also reliable and valid with students who have a higher level of vocabulary development.

Implications for Future Research

Looking forward, it will be valuable to continue gathering data using these vocabulary assessments. These data could be used to begin establishing benchmarks for the local ELL and non-ELL populations in the area of vocabulary growth. The Expressive Language and the Receptive Language Vocabulary CBM measures could be administered to all students in the preschool three times a year, mostly likely in the fall, winter, and spring. Those programs that run a full year could also add a summer assessment. As data are gathered each year, it will be possible to determine the expected benchmarks for growth on these assessments. Benchmarks for ELLs could also be established. In this way, teachers would be able to quickly determine which students are not making the expected rate of growth and identify these students for intervention in this area.

As previously mentioned, there are limitations to using the PPVT-III to monitor student vocabulary development. The CBM measures developed in this project address those shortcomings and provide a valid and reliable method for

assessing student growth in the area of vocabulary acquisition. Thus these CBM measures have practical application for Early Reading First projects and for early childhood educators.

This study should be viewed as a preliminary work. Future work will be needed to refine the measure and to investigate the use of this measure with more children. Administration of this measure to preschoolers in other demographic groups would yield valuable information on the adequacy of this assessment for use with these populations. Also, the addition of a Spanish Receptive Language Vocabulary measure would add to the value of these measures for use with the Spanish-speaking ELL population. Finally, in this study, the measures were always administered by trained graduate students. An additional area of investigation would be to evaluate the fidelity with which these measures can be administered by teachers and to measure the acceptability of the measures to this group.

As noted earlier, multiple sources have established the importance of vocabulary acquisition for oral language and literacy development for all children. There is a need to develop reliable and valid curriculum-based measures of oral language for use with preschoolers including ELLs. This study establishes the preliminary work for determining the technical adequacy of two such measures designed to assess expressive and receptive vocabulary. These measures demonstrated good content validity, test-retest reliability, inter-rater reliability, and acceptability. Curriculum-based measures such as these can provide useful tools in determining which students need additional intervention. For ELLs, these measures can provide useful information in determining whether a student's struggles are the

result of acquisition of a second language or indications of a learning disability. This work has the potential for improving early childhood education by providing measures that can be used to monitor the progress of all students including ELLs in the important area of vocabulary learning.

REFERENCES

- Abedi, J. (2006). Psychometric issues in the ELL assessment and special education eligibility. *Teachers College Record*, 108, 2282-2303.
- Abrams, J., & Ferguson, J. (2005). Teaching students from many nations. *Educational Leadership*, 62(4), 64-67.
- Abu-Rabia, S., & Feuerverger, G. (1996). Toward understanding the second language learning of Arab students in Israel and Canada. *Canadian Modern Language Review*, 52, 359-385.
- Allinder, R. M., & Eccarius, M. A. (1999). Exploring the technical adequacy of curriculum-based measurement in reading for children who use manually coded English. *Exceptional Children*, 65, 271-283.
- Allor, J. H., Gansle, K. A., & Denny, R. K. (2006). The stop and go phonemic awareness game: Providing modeling, practice, and feedback. *Preventing School Failure*, 50(4), 23-30.
- AllPsych Online (2004). *Research methods – validity and reliability*. Retrieved on April 27, 2009 from <http://allpsych.com/researchmethods/validityreliability.html>
- Anderson, J. C., & Nagy, W. E. (1992). The vocabulary conundrum. *American Educator*, 16, 44-48.
- Artiles, A. J., & Klingner, J. K. (2006). Forging a knowledge base on English language learners with special needs: Theoretical, population, and technical issues. *Teachers College Record*, 108, 2187-2194.

- Atwill, K., Blanchard, J., Gorin, J. S., & Burstein, K. (2007). Receptive vocabulary and cross-language transfer of phonemic awareness in kindergarten children. *The Journal of Educational Research*, 100, 336-345.
- Bagnato, S. J., Neisworth, J. T., & Capone, A. (1986). Curriculum-based assessment for the young exceptional child: Rationale and review. *Topics in Early Childhood Special Education*, 6, 97-110.
- Baker, S. K., & Good, R. (1994, April). *Curriculum-based measurement reading with bilingual Hispanic students: A validation study with second-grade students*. Paper presented at the Annual Meeting of the Council for Exceptional Children.
- Barrera, M. (2006). Roles of definitional and assessment models in the identification of new or second language learners of English for special education. *Journal of Learning Disabilities*, 39, 142-156.
- Brice, A., & Roseberry-McKibbin, C. (2001). Choice of languages in instruction. *Teaching Exceptional Children*, 33, 10-16.
- Bryan, T., Ergul, C., & Burstein, K. (2008). Curriculum-based measurement of preschoolers' early literacy skills. In L. M. Justice & C. Vukelich (Eds.), *Achieving excellence in preschool literacy instruction* (pp. 317-338). New York: The Guilford Press.
- Chapa, J., & De La Rosa, B. (2004). Latino population growth, socioeconomic and demographic characteristics, and implications for educational attainment. *Education and Urban Society*, 36, 130-149.
- Christie, J. F. (2008). The scientifically based reading research approach to early

- literacy instruction. In L. M. Justice & C. Vukelich (Eds.), *Achieving excellence in preschool literacy instruction* (pp. 25-40). New York: The Guilford Press.
- Coppola, J. (2005). English language learners: Language and literacy development during the preschool years. *The New England Reading Association Journal*, 41(2), 18-23.
- Creative Commons* (n.d.). Retrieved on April 12, 2009, from <http://creativecommons.org/licenses/by/3.0/legalcode>
- Cunningham, A. E., & Stanovich, K. E. (1997). Early reading acquisition and its relation to reading experience and ability 10 years later. *Developmental Psychology*, 33, 934-945.
- Deno, S. L. (1985). Curriculum-based measurement: The emerging alternative. *Exceptional Children*, 52, 219-232.
- Deno, S. L. (2003). Developments in curriculum-based measurement. *The Journal of Special Education*, 37, 184-192.
- Domingues de Ramirez, R., & Shapiro, E.S. (2006). Curriculum-based measurement and the evaluation of reading skills in Spanish-speaking English language learners in bilingual education classrooms. *School Psychology Review*, 35, 356-369.
- Domínguez de Ramírez, R., & Shapiro, E. (2007). Cross-language relationship between Spanish and English oral reading fluency among Spanish-speaking English language learners in bilingual education classrooms. *Psychology in the Schools*, 44, 795-806.

Early Childhood Research Institute on Measuring Growth and Development (1998a).

Accountability systems for children between birth and age eight (Technical Report #1). Minneapolis, MN: Center for Early Education and Development, University of Minnesota.

Early Childhood Research Institute on Measuring Growth and Development (1998b).

Research and development of individual growth and development indicators for children between birth and age eight (Technical Report #4). Minneapolis, MN: Center for Early Education and Development, University of Minnesota.

Early Childhood Research Institute on Measuring Growth and Development (1998c).

Selection of general growth outcomes for children between birth and age eight (Technical Report #2). Minneapolis, MN: Center for Early Education and Development, University of Minnesota.

Early Childhood Research Institute on Measuring Growth and Development (1998d).

Theoretical foundations of the early childhood research institute on measuring growth and development: An early childhood problem-solving model (Technical Report #6). Minneapolis, MN: Center for Early Education and Development, University of Minnesota.

Early Childhood Research Institute on Measuring Growth and Development (2004).

Psychometric characteristics of individual growth and development indicators: Picture naming, rhyming, and alliteration (Technical Report #8). Minneapolis, MN: Center for Early Education and Development, University of Minnesota.

Early Childhood Research Institute on Measuring Growth and Development (2007).

- Monitoring emergent literacy development of immigrant preschoolers who speak Somali, Spanish, or Hmong* (Technical Report #9). Minneapolis, MN: Center for Early Education and Development, University of Minnesota.
- Espin, C. A., Shin, J., & Busch, T. W. (2005). Curriculum-based measurement in the content areas: Vocabulary matching as an indicator of progress in social studies learning. *Journal of Learning Disabilities*, 38, 353-363.
- Ezell, H.M., & Justice, L.M. (2005). *Shared storybook reading*. Baltimore, MD: Paul Brookes Publishers.
- Faykus, S. P., & McCurdy, B. L. (1998). Evaluating the sensitivity of the maze as an index of reading proficiency for students who are severely deficient in reading. *Education and Treatment of Children*, 21, 1-21.
- Fewell, R. R., & Deutscher, B. (2002). Contributions of receptive vocabulary and maternal style: Variables to later verbal ability and reading in low-birthweight children. *Topics in Early Childhood Special Education*, 22, 181-190.
- Figueroa, R., & Newsome, P. (2006). The diagnosis of LD in English learners: Is it nondiscriminatory? *Journal of Learning Disabilities*, 39, 206-214.
- Finn, P. J. (1985). *Helping children learn to read* (pp. 34-177). New York: Random House, Inc.
- Flickr* (2008). Retrieved June, 2008, from <http://www.flickr.com/>
- Foegen, A., Jiban, C., & Deno, S. (2007). Progress monitoring measures in mathematics. *The Journal of Special Education*, 41, 121-139.
- Fuchs, L. S. (2004). The past, present, and future of curriculum-based measurement research. *School Psychology Review*, 33, 188-192.

- Fuchs, L. S., & Deno, S. L. (1992). Effects of curriculum within curriculum-based measurement. *Exceptional Children*, 58, 232-243.
- Fuchs, L. S., & Deno, S. L. (1994). Must instructionally useful performance assessment be based in the curriculum? *Exceptional Children*, 61, 15-24.
- Fuchs, L. S., Deno, S. L., & Mirkin, P. K. (1984). The effects of frequent curriculum based measurement and evaluation on pedagogy, student achievement, and student awareness of learning. *American Educational Research Journal*, 21, 449-460.
- Fuchs, L. S., & Fuchs, D. (1998). Treatment validity: A unifying concept for reconceptualizing the identification of learning disabilities. *Learning Disabilities Research and Practice*, 13, 204-219.
- Fuchs, L. S., Fuchs, D., & Compton, D. L. (2004). Monitoring early reading development in first grade: Word identification fluency versus nonsense word fluency. *Exceptional Children*, 71, 7-21.
- Fuchs, L. S., Fuchs, D., & Hamlett, C. L. (1989). Effects of alternative goal structures within curriculum-based measurement. *Exceptional Children*, 55, 429-438.
- Fuchs, L. S., Fuchs, D., & Hamlett, C. L. (1989b). Effects of instrumental use of curriculum-based measurement to enhance instructional programs. *Remedial and Special Education*, 10, 43-52.
- Fuchs, L. S., Fuchs, D., Hamlett, C. L., Phillips, N. B., & Bentz, J. (1994). Classwide curriculum-based measurement: Helping general educators meet the challenge of student diversity. *Exceptional Children*, 60, 518-537.
- Fugate, C. (2007). *Vonnegut warned us*. *Phi Delta Kappan*, 89, 71-72.

- Gass, S. M., & Selinker, L. (2001). *Second language acquisition: An introductory course* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Geisinger, K. F. (1998). Psychometric Issues in Test Interpretation. In J. Sandoval, C. L., Frisby, K. F., Geisinger, J. D., Scheuneman, & J. R. Grenier (Eds.), *Test interpretation and diversity: Achieving equity in assessment* (pp. 17-30). Washington, DC: American Psychological Association.
- Gersten, R., & Geva, E. (2003). Teaching reading to early language learners. *Educational Leadership*, 60(7), 44-49.
- Girolametto, L., & Weitzman, E. (2002). Responsiveness of child care providers in interactions with toddlers and preschoolers. *Language, Speech, and Hearing Services in Schools*, 33, 268-281.
- Grisham-Brown, J., Hallam, R. A., & Pretti-Frontczak, K. (2008). Preparing head start personnel to use a curriculum-based assessment. *Journal of Early Intervention*, 30, 271-281.
- Goldstein, P. (2004). Helping young children with special needs develop vocabulary. *Early Childhood Education Journal*, 32, 39-43.
- Good, R. H., Kaminski, R. A., Simmons, D., & Kame'enui, E. J. (2001). Using dynamic indicators of basic early literacy skills (DIBELS) in an outcomes driven model: Steps to reading outcomes. *OSSC Bulletin*, 44, 1-24.
- Graves, A. W., Plasencia-Peinado, J., Deno, S. L., & Johnson, J. R. (2005). Formatively evaluating the reading progress of first-grade English learners in multiple-language classrooms. *Remedial and Special Education*, 26, 215-225.

- Gunderson, L., & Siegel, L. S. (2001). The evils of the use of IQ tests to define Learning disabilities in first- and second-language learners. *The Reading Teacher*, 55, 48-55.
- Haager, D., & Windmueller, M. P. (2001). Early reading intervention for English language learners at-risk for learning disabilities: Student and teacher outcomes in an urban school. *Learning Disability Quarterly*, 24, 235-250.
- Hall, R. E., Kovalski, J. F., & Miklos, M. (1993, April). *Continuous assessment and monitoring of preschool progress*. Paper presented at the Annual Convention of the National Association of School Psychologists.
- Harris, J. R., & Liebert, R. M. (1987). *The child* (2nd ed., p. 230). Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore: Paul H. Brookes Publishing Co.
- Helman, L. A. (2005). Using literacy assessment results to improve teaching for English language learners. *The Reading Teacher*, 58, 668-677.
- Houghton Mifflin (2008). *Where bright futures begin*. Retrieved on March 16, 2008, from <http://www.eduplace.com/prek/index.html>
- Jitendra, A. K., & Rohena-Diaz, E. (1996). Language assessment of students who are linguistically diverse: Why a discrete approach is not the answer. *The School Psychology Review*, 25, 40-56.
- Justice, L. M., & Vukelich, C. (2008). *Achieving excellence in preschool literacy instruction* (pp. 321-322). New York: The Guilford Press.
- Kirkland, L. D., & Patterson, J. (2005). Developing oral language in primary

- classrooms. *Early Childhood Education Journal*, 32, 391-395.
- Klingner, J. K., & Artiles, A. J. (2003). When should bilingual students be in special education? *Educational Leadership*, 61(2), 66-71.
- Klingner, J. K., & Artiles, A. J. (2006). English language learners struggling to learn to read: Emergent research on linguistic differences and learning disabilities, part 2. *Journal of Learning Disabilities*, 39, 386-398.
- Klingner, J. K., Artiles, A. J., & Barletta, L. M. (2006). English language learners who struggle with reading, language acquisition or LD? *Journal of Learning Disabilities*, 39, 108-128.
- Leafstedt, J., & Gerber, M. (2005). Crossover of phonological processing skills: A study of Spanish-speaking students in two instructional settings. *Remedial and Special Education*, 26, 226-235.
- Lewis, A. C. (2006). We think we can... *Phi Delta Kappan*, 88, 3-4.
- Li, X., & Zhang, M. (2004). Why Mei still cannot read and what can be done. *Journal of Adolescent and Adult Literacy*, 48, 92-101.
- Luinge, M. R., Post, W. J., Wit, H. P., & Goorhuis-Brouwer, S. M. (2006). The ordering of milestones in language development for children from 1 to 6 years of age. *Journal of Speech, Language, and Hearing Research*, 49, 923-940.
- Macy, M., & Hoyt-Gonzales, K. (2007). A linked system approach to early childhood special education eligibility assessment. *Teaching Exceptional Children*, 39, 40-44.
- Massey, S. L. (2004). Teacher-child conversation in the preschool classroom. *Early Childhood Education Journal*, 31, 227-231.

- McAllister, J. R. (1991). Curriculum-based behavioral interventions for preschool children with handicaps. *Topics in Early Childhood Special Education*, 11, 48-58.
- McCardle, P., Mele-McCarthy, J., Cutting, L., Leos, K., & D'Emilio, T. (2005). Learning disabilities in English language learners: Identifying the issues. *Learning Disabilities Research & Practice*, 20, 1-5.
- McCardle, P., Mele-McCarthy, J., & Leos, K. (2005). English language learners and learning disabilities: Research agenda and implications for practice. *Learning Disabilities Research and Practice*, 20, 68-78.
- McConnell, S. R. (2000). Assessment in early intervention and early childhood special education: Building on the past to project into our future. *Topics in Early Childhood Special Education*, 20, 43-48.
- McConnell, S. R., Priest, J. S., Davis, S. D., & McEvoy, M. A. (2000). *Best practices in measuring growth and development for preschool children*. Manuscript prepared for Early Childhood Research Institute on Measuring Growth and Development, University of Minnesota.
- McGee, L. M. (2007). *Transforming literacy practices in preschool*. New York: Scholastic.
- Missall, K. N., McConnell, S. R., & Cadigan, K. (2006). Early literacy development: Skill growth and relations between classroom variables for preschool children. *Journal of Early Intervention*, 29, 1-21.
- Missall, K., Reschly, A., Betts, J., McConnell, S., Heistad, D., Pickart, M., et al. (2007). Examination of the predictive validity of preschool early literacy

- skills. *School Psychology Review*, 36, 433-452.
- Morrow, L. M. (1989). *Literacy development in the early years*. Englewood Cliffs, NJ: Prentice Hall.
- National Association for the Education of Young Children. (2004). Early childhood curriculum and assessment. *Scholastic Early Childhood Today*, 18(6), 12-13.
- National Clearinghouse for English Language Acquisition. (2006). Retrieved on December 1, 2007, from <http://www.ncela.gwu.edu>
- National Institute of Child Health and Human Development. (2000). Report of the National Reading Panel. *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4769). Washington, DC: U.S. Government Printing Office.
- Neuman, S. B. (2006). Building vocabulary to build literacy. *Scholastic Early Childhood Today*, 21(2), 9.
- Newlin-Haus, E., Ehrhardt, K.E., Rao, S., & Thomas, K. (2006, October). *Early reading first: I can read!* U.S. Department of Education.
- Pagani, L. S., Jalbert, J., Lapointe, P., & Hébert, M. (2006). Effects of junior kindergarten on emerging literacy in children from low-income and linguistic minority families. *Early Childhood Education Journal*, 33, 209-215.
- Paneque, O. M., & Barbetta, P. M. (2006). A study of teacher efficacy of special education teachers of English language learners with disabilities. *Bilingual Research Journal*, 30, 171-192.
- Pearson (2008). *Peabody Picture Vocabulary Test – Third Edition*. Retrieved

June 1, 2008, from <http://ags.pearsonassessments.com/>

Phelps-Terasaki, D., Phelps-Gunn, T., & Stetson, E. G. (1983). *Remediation and instruction in language: Oral language, reading, and writing* (pp. 36-176).

Rockville, MD: Aspen Systems Corporation.

Pretti-Frontczak, K., Kowalski, K., & Brown, R. D. (2002). Preschool teachers' use of assessments and curricula: a statewide examination. *Council for Exceptional Children*, 69, 109-123.

Poling, A., Methot, L. L., & LeSage, M. G. (1995). *Fundamentals of behavior analytic research*. New York: Plenum Press.

Pullen, P. C., & Justice, L. M. (2003). Enhancing phonological awareness, print awareness, and oral language skills in preschool children. *Intervention in School and Clinic*, 39, 87-98.

Riverside Publishing (2006). *Woodcock-Muñoz Language Survey-Revised*. Retrieved April 5, 2008 from <http://www.riversidepublishing.com/products>

Rous, B., McCormick, K., Gooden, C., & Townley, K. F. (2007). Kentucky's early childhood continuous assessment and accountability system: Local decisions and state supports. *Topics in Early Childhood Special Education*, 27, 19-33.

Ruffino, A. G., Mistrett, S. G., Tomita, M., & Hajare, P. (2006). The universal design for play tool: Establishing validity and reliability. *Journal of Special Education Technology*, 21(4), 25-38.

Rush, K. L. (1999). Caregiver-child interactions and early literacy development of preschool children from low-income environments. *Topics in Early Childhood*

Special Education, 19, 3-14.

Sáenz, L. (2008, March 11). National Center on Student Progress Monitoring. *Using CBM to progress monitor English language learners*. Webinar retrieved

from www.studentprogress.org/library/webinars.asp#ELLReading

Salinger, T. (2002). Assessing the literacy of young children: The case for multiple forms of evidence. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (pp. 390-404). New York: The Guilford Press.

Scarborough, H. S. (1989). Prediction of reading disability from familial and individual differences. *Journal of Educational Psychology*, 81, 101-108.

Sénéchal, M., & LeFevre, J. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development*, 73, 445-460.

Shinn, M. R. (1988). Development of curriculum-based local norms for use in special education decision-making. *School Psychology Review*, 17, 61-80.

Short, D., & Echevarria, J. (2004). Teacher skills to support English language learners. *Educational Leadership*, 62(4), 8-13.

Spear-Swerling, L. (2006). Vocabulary assessment and instruction. *LD OnLine*.

Retrieved on October 9, 2008, from

<http://www.ldonline.org/spearswerling/8089>

Stipek, D. (2006). Accountability comes to preschool: Can we make it work for young children? *Phi Delta Kappan*, 87, 740-747.

Swanson, E., & Howerton, D. (2007). Influence vocabulary acquisition for English language learners. *Intervention in School and Clinic*, 42, 290-294.

Tran, A. (2006). An approach to basic-vocabulary development for English-language learners. *Reading Improvement*, 43, 157-162.

University of Minnesota (2006). *Get it got it go!* Retrieved March 16, 2008, from <http://ggg.umn.edu/>

University of Texas at Austin. (2002). *Kindergarten phonemic awareness: Oral language and vocabulary development - definition and description*.

Retrieved April 5, 2009, from

<http://searchlight.utexas.org/content/Kinder/slides/k1030001/kotra-phonemic-awareness-definition-and-description/oral-language-and-vocabulary-development>

U.S. Department of Health and Human Services. (2006). *Biennial report to congress: The status of children in head start programs*. Washington, DC: Author.

VanDerHeyden, A. M., Snyder, P. A., Broussard, C., & Ramsdell, K. (2007).

Measuring response to early literacy intervention with preschoolers at risk.

Topics in Early Childhood Special Education, 27, 232-249.

Walker, D., Greenwood, C., Hart, B., & Carta, J. (1994). Prediction of school outcomes based on early language production and socioeconomic factors. *Child Development*, 65, 606-621.

Wagner, R. K., Francis, D. J., & Morris, R. D. (2005). Identifying English language learners with learning disabilities: Key challenges and possible approaches. *Learning Disabilities Research and Practice*, 20, 6-15.

Wayman, M. M., Wallace, T., Wiley, H. I., Tichá, R., & Espin, C. (2007). Literature

synthesis on curriculum-based measurement in reading. *The Journal of Special Education*, 41, 85-120.

White House Initiative on Educational Excellence for Hispanic Americans. (2007). *How Spanish-speaking children learn to read in English*. Washington, DC: Author.

White House Initiative on Educational Excellence for Hispanic Americans. (2008). *A summary of activities, accomplishments and Hispanic education attainment: 2001-2008*. Washington, DC: Author.

Wiley, H. I., & Deno, S. L. (2005). Oral reading and maze measures as predictors of success for English learners on a state standards assessment. *Remedial and Special Education*, 26, 207-214.

Woolfolk, A. (2001). *Educational psychology* (8th ed., pp. 496-500). Boston: Allyn and Bacon.

Zeller, A. (1994). Working with English language learners: Strategies for elementary and middle school teachers. *National Clearinghouse for Bilingual Education Program Information Guide Series*, 19.

Appendix A

HSIRB for Project Number: 08-10-15



Date: October 24, 2008

To: Kristal Ehrhardt, Principal Investigator
Kathleen VanTol, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair

A handwritten signature in black ink that reads "Amy Naugle".

Re: HSIRB Project Number: 08-10-15

This letter will serve as confirmation that your research project entitled "Technical Adequacy of Curriculum-based Measures of Vocabulary Growth for Preschool English Language Learners" has been **approved** under the **expedited** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: October 24, 2009

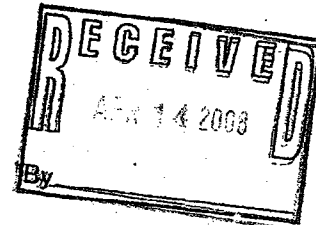
Appendix B

HSIRB for Project Number: 07-04-21

WESTERN MICHIGAN UNIVERSITY



Human Subjects Institutional Review Board



Date: April 7, 2008

To: Esther Newlin-Haus, Principal Investigator
Shaila Rao, Co-Principal Investigator
Kristal Ehrhardt, Co-Principal Investigator

From: Amy Naugle, Ph.D., Chair

A handwritten signature in cursive script, appearing to read "Amy Naugle".

Re: Changes to HSIRB Project Number 07-04-21

This letter will serve as confirmation that the changes to your research project "Early Reading First I CAN READ!" requested in your memo received April 7, 2008 (co-principal investigator Warren Lacefield added; student investigators Jessica Manning, Jennifer Knapp, Rashell Bowerman, Maria Bucelli and Nora Fox added; collaborating investigators Howard Steiner, Cynthia Phillips and Lisa Knowlton added) have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: March 28, 2009

Appendix C

Literacy Coach Consent Form

Western Michigan University
Department of Special Education and Literacy Studies

Principal Investigator: Kristal Ehrhardt

Student Investigator: Kathleen VanTol

Project Title: Technical Adequacy of Curriculum-Based Measures of Vocabulary Growth for Preschool English Language Learners

Dear Coaches:

I am conducting a study to develop curriculum-based measures of vocabulary acquisition for use with preschoolers. While this study is particularly focused on English Language Learners, students who are not English Language Learners will also be involved. The goal of this study is to develop two curriculum-based measures (CBM) that can be used to improve instruction and learning for students. Both assessments will be very quick and easy to administer to students. In the first brief assessment, we will assess how well students can verbally identify vocabulary taught in the Houghton-Mifflin literacy resource. The other measure will look at whether your students can point to pictures of vocabulary words (i.e., receptive language skills). The study will begin in October 2008 and will be concluded by the end of the school year.

To develop and evaluate the measure, input from the coaches will be sought. During the development process, you will be asked to provide feedback on the accuracy with which the measure reflects the curriculum. This will involve viewing the assessment measure and identifying those items which do not seem appropriate for the curriculum or which do not seem to be accurate representations of the target vocabulary word. This activity should take less than 30 minutes. Coaches may also be asked to complete a survey on the acceptability and usefulness of the measure at the end of the study.

Your responses will be completely confidential. No individual data from coaches will be reported to any Head Start staff members or administrators. Answers will never be reported in any way that could identify an individual without prior written consent of the coach. The benefits to participation include assistance with the development of a quick and easy vocabulary assessment that might be very useful in the classroom. Risks for participation are extremely minimal and include the loss of time it will take to complete questions about the CBM measures.

You may ask to withdraw your consent for participation or refuse to answer any questions, without consequences, at any time. Regardless of whether you choose to participate in this project, you will continue to be involved in the "I Can Read" grant. Kathleen VanTol (616-990-4218; add email address) or Dr. Kristal Ehrhardt (269-387-4478; Kristal.ehrhardt@wmich.edu) can be contacted if you have any questions about this study. You may also contact the Chair, Human Subjects Institutional Review Board (269-387-8293) or the Vice President for Research at Western

Michigan University (269-387-8298) if questions or problems arise during the course of the study.

This permission document has been approved for use for one year by the Human Subjects Institutional Review Board as indicated by the stamped date and signature of the board chair in the upper right corner. Do not participate if the stamped date is more than one year old.

Your signature below indicates that you agree to the use of the data from the processes listed above for research purposes.

Print Name

Sign Name

Date

Appendix D

Vocabulary Word List with Spanish Translations and Picture Sources

English	Spanish (Expressive Language only)	Source (Available for public use under Creative Commons attribution licensing at time of download; See Appendix F for details of Creative Commons attribution licensing):
Alphabet	alfabeto	Alphabet 20 by Leo Reynolds
Apartment	pisso, apartamento	Zgorzelec Apartment Blocks by elmada
Arm	brazo	arm by Leposava
Baby	Bebé	Kristina Ann by Chris Laska
Baby		Baby Rabah by BadrNaseem
Baker	Panadero/a	Baker by decafinata
Bakery	Panadería	lopez bakery by uberzombie
Bear	Oso	Mother's Bear by Andrew N
Bird	Pájaro, Ave	A Bird in a Tree... by law keven
Book	Libro	secret book #1 by Randy Cox
Bridge	Puente	Golden Gate Bridge by ground.zero
Builder, (Construction)	Constructor, Obrero, Albañil,	
Worker, Carpenter	Trabajador (de Construcción), Empleado de Construcción	
Buildings, City	Edificio, Inmueble, Ciudad	DrillAndYellowTape by brutal
Bus	Autobús, Bús, Camión	Tall buildings straightened by readerwalker
Butterfly	Mariposa	Greyhound Bus by casual.tourist
Cafeteria	Cafetería	Viceroy Butterfly by euripedies
Cake	Pastel, Torta, Tarta	Pine Street Elementary Cafeteria by booskitty
Calendar	Calendario, Almanaque	dream cake by choitda
Car	Carro, Coche, Automovil, Auto	2007-2008 SCH Calendar by SteelCityHobbies
Cat	Gato/a	Toyota by DG
Caterpillar	Oruga, Cuncuna	I am a regal cat by photogirl7
Chick, Baby Chick	Pollito/a, Gallina	monarch caterpillar out my window by Brenda Anderson
Chrysalis, Pupa	Crisálida, Pupa	chick by sheriffmitchell
		Chrysalis by horizontal.integration

English	Spanish (Expressive Language only)	Source (Available for public use under Creative Commons attribution licensing at time of download; See Appendix F for details of Creative Commons attribution licensing):
Circle		squared circle by thomwatson
City	Ciudad	City of London by micamica
Classroom	Clase, Aula, Salón (de Clases), Escuela	after view of my classroom by LizMarie
Clock	Reloj	Genie III - wall&clock by Cathérine
Coat	chaqueta	Easton Men's Baseball Sport Jacket by warrantedarrest
Cow	Vaca	Cow bell by mickydelfavero
Crayons, Colors, Crayolas	(Lápiz de) Colores, Crayolas, Crayones	crayons, sex, and rock & roll by woodleywonderworks
Deer	Ciervo, Venado	Deer by Noël Zia Lee
Doors	Puertas	blue door and red door by Leo Reynolds
Duck	Pato/a	Just a Duck by Janusz I
Ear	Oreja	205/365: Ear(s) lookin' at you by Mr. Thomas
Earth, World, Planet	La Tierra, Planetta (Tierra), Mundo	Blue Marble (Planet Earth) by woodleywonderworks
Egg	Huevo	fried egg by niznoz
Eye	Ojo	My eye by orangeacid
Fall, Autumn		Autumn in Hespeler by bill barber
Family	familia	Steve Polyak and family by Steve Polyak
Farm	granja, hacienda	Family Farm by royal_broil
Feather	Pluma	feather by jgrantmac
Feet	Pies	DSP 66: Feet 2007-07-22 by vernhart
Finish Line		Finish by »Philo
Firefighter, Fireman	Bombero	Firefighters by sparktography
Food	Comida	food by rachelandrew
Hammer	Martillo	hammer.JPG by blakeemrys
Hands	Manos	gentle hands by Niko 1900
Handshake	Apretón de Manos, Saludo (de Manos)	handshake I by oooh.oooh

English	Spanish (Expressive Language only)	Source (Available for public use under Creative Commons attribution licensing at time of download; See Appendix F for details of Creative Commons attribution licensing):
House	Casa	not luke's house by wiseacre
Hug		Big Hug by derPlau
Jungle		"welcome to the jungle!" by Magalie L'Abbé
Legs		Legs by G
Letters	letras	Alphabet graveyard by VickyTH
Library	Biblioteca	Slide8 by mwoodard
Lightning	Relámpago, Rayo	Lightning by KM Photography
Mail Carrier, Mailman	Cartero	Mail Call by Mary
Map	Mapa	Google Maps has Tube Stations by plemelj
Market	Mercado	market Lomo by wolf 359
Meadow		The Meadow by Artcatcher
Microwave	(Horno de) Microondas, Microwave	Microwave (298) by dougww
Milk	Leche	cute little milk by striatic
Mittens, Gloves	Mitón, Mitónes, Manopla, Guantes	peekaboo mittens by normanack
Money	Dinero, Billetes	My Spending Money by Jake Wasdin
Mouth	Boca	Jan In Detail - Mouth by jemsweb
Nose	Nariz	Nose by LHOON
Numbers	números	numbers by procsilas
Orchard		orchard row by Muffet
Owl	Búho, Tecolote, Lechuza	Owl Eyes by BugMan50
Paddle(s), Oar(s)	Pala, Canaleta, Remo	Paddles by Goldring
Paints	Pintura	Psychadelic Paint Plate by Professor Rogers
Park, Playground	Parque, Patio de Recreo	playground by javier
Pencil(s)	Lapiz	Pencils by hownowdesign
Pets		The Pets 291 by Unity Gain

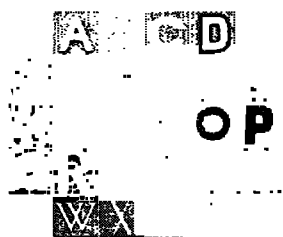
English		Spanish (Expressive Language only)	Source (Available for public use under Creative Commons attribution licensing at time of download; See Appendix F for details of Creative Commons attribution licensing):
Pie		Tarta, Pastel, Pay, Torta, Empanada	My Apple Pie by jakeliefer
Pig		Cerdo, Cochino, Puerco	DSC03298 - pig by RaeA
Plant		Planta	Corn Planted by Western Scrub Jays by Noël Zia Lee
Police Officer, Policeman		Policia, Agente de Policia	Detroit police officer by Conlawprof
Rabbit, Bunny (Rabbit)		Conejo/a	Welcome by ft
Rain			GNR - November Rain by Mylor
Roof		Techo	Roofs/tejados by pasotraspaso
Rooster		Gallo	Rooster by Whotheheckareyou
School		Escuela, Colegio Autobús Escolar, Bús, Guagua Escolar, Camión Escolar, Camión de Escuela, Autobús de Escuela	Governor John Fairfield Elementary by brentdanley
School Bus			US School Bus by digitalsean
Scissors		Tijeras	Scissors by semuthutan
Seeds		Semillas	Many sunflower seeds by flickrich
Sheep		Oveja, Borrego(a)	Sheep Portrait by notcub
Sidewalk		Acera, Banqueta	Sidewalk by edkohler
Sky			Summer landscape by west of the sound
Slide		Tobogán, Resbaladillo, Rebanada, Página, Pedazo, Resbalar	Playground by QwirkSilver
Snow			Snow by mark
Spring			SPRING by tonino62
Street, Road		Calle, Camino	Street by Smith Photo
Stripes			stripes by smcgee
Summer			Sweet Summer by joss t
Sun			Winter by norm

		Source (Available for public use under Creative Commons attribution licensing at time of download; See Appendix F for details of Creative Commons attribution licensing):
English	Spanish (Expressive Language only)	
Sunflower, Flower	Girasol	Sunflower by wabberjockey
Swing	columpio, balanceo, oscilación	playground by smcgee
Taxi, Cab	Taxi	taxi at Highland Avenue by Dystopos
Teacher	Maestro/a, Professor/a	Student Teacher by peigianlong
Tools	herramientas	Workshop by ape
Tortoise, Turtle	Tortuga	La Vanille Crocodile Farm by Joachim S. Müller
Toys		toy car story by Michael Haslam
Trash Collector, Garbage Man, Garbage Truck	Basurero, Recolector de Basura, Bote de Basura, Camión de la Basura	Trash I by Sheila Toste
Water, (Water) Drop	Agua, Gota	The world of water by Snap®
Watermelon	Sandía	Watermelon by babasteve
Wheat		DSC01371 - Wheat heads by RaeA
Winter		Winter in Sweden by Steffe
Wood	madera	Lumber by nicholasjon

Appendix E

Pictures Used for Development of Vocabulary Measures

Pictures Used for Development of Vocabulary Measures



Alphabet



Apartment



Arm



Baby



Baby



Baker



Bakery



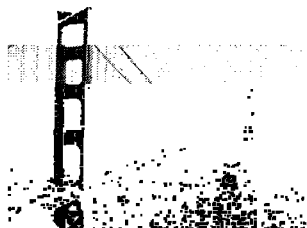
Bear



Bird



Book



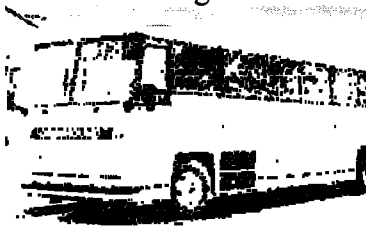
Bridge



Builder



Buildings



Bus



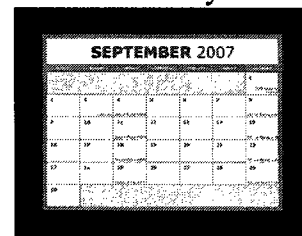
Butterfly



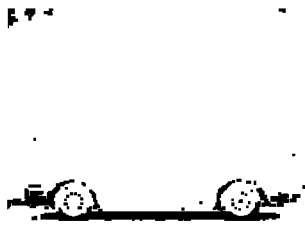
Cafeteria



Cake



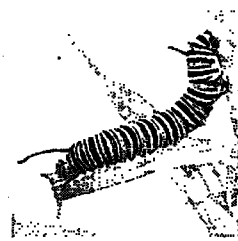
Calendar



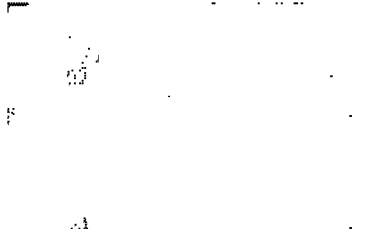
Car



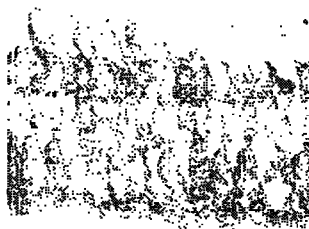
Cat



Caterpillar



Chick



Chrysalis



Circle



City



Classroom



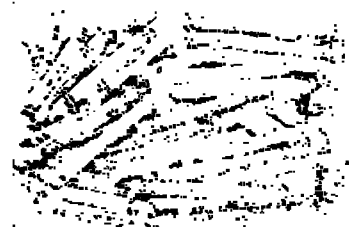
Clock



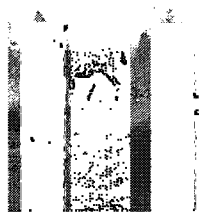
Coat



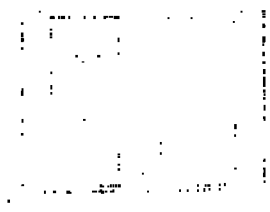
Cow



Crayons



Deer



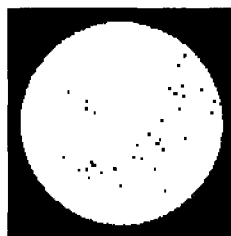
Doors



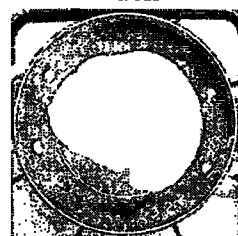
Duck



Ear



Earth



Egg



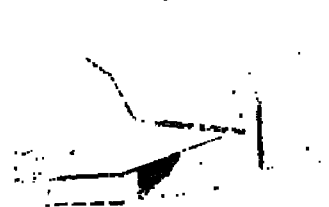
Eye



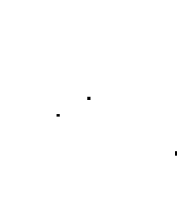
Fall



Family



Farm



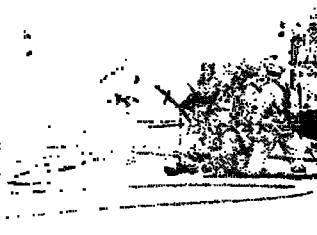
Feather



Feet



Finish Line



Firefighters



Food



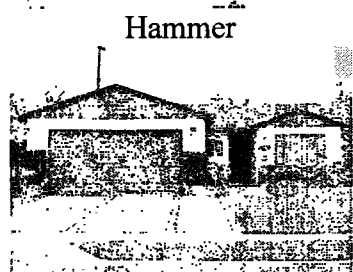
Hammer



Hands



Handshake



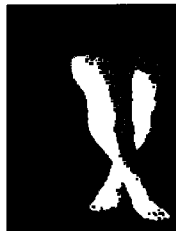
House



Hug



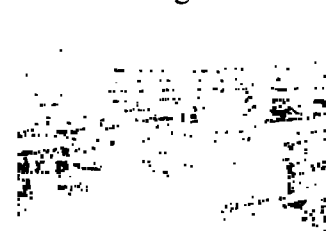
Jungle



Legs



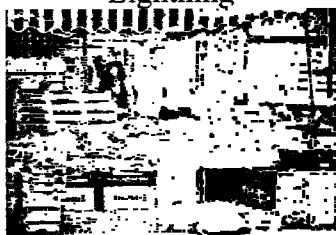
Letters



Library



Lightning



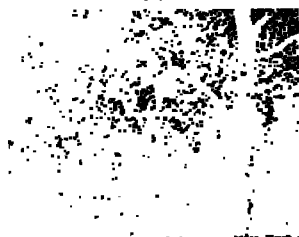
Market



Milk



Mouth



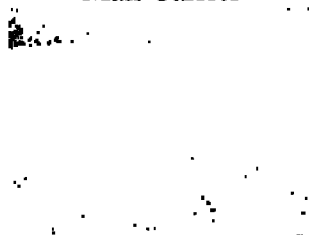
Orchard



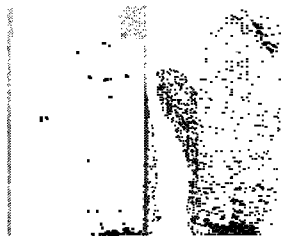
Paints



Mail Carrier



Meadow



Mittens



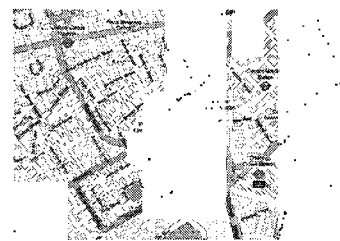
Nose



Owl



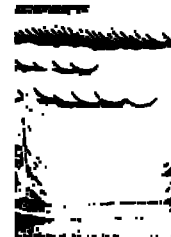
Park/Playground



Map



Microwave



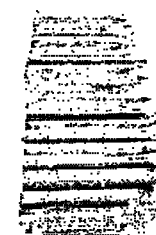
Money



Numbers



Paddles



Pencils



Pets



Pie



Pig



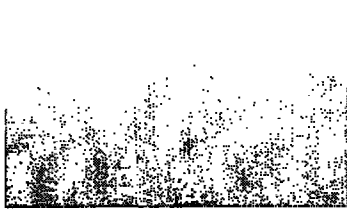
Plant



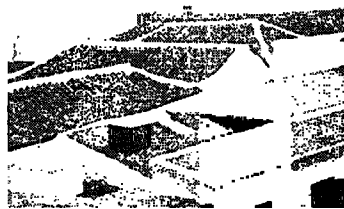
Police Officer



Rabbit



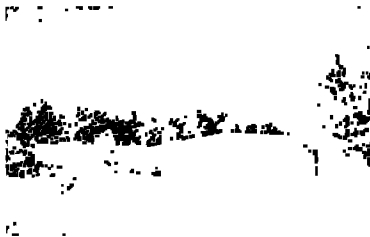
Rain



Roof



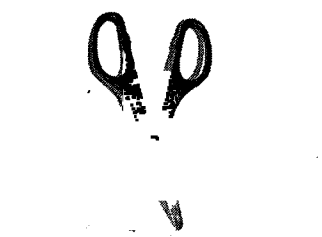
Rooster



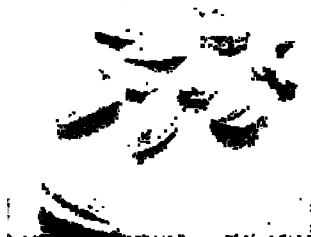
School



School Bus



Scissors



Seeds



Sheep



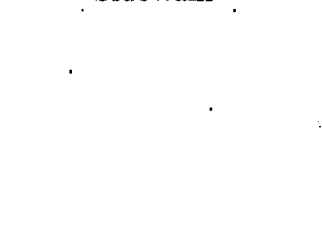
Sidewalk



Sky



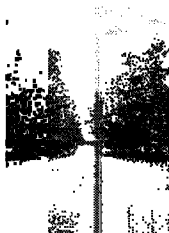
Slide



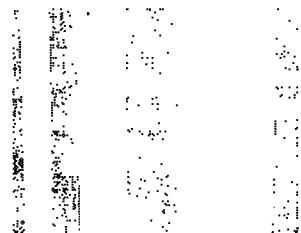
Snow



Spring



Street



Stripes



Summer



Sun



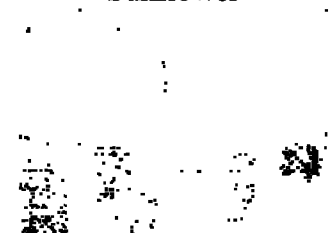
Sunflower



Swing



Taxi



Teacher



Tools



Tortoise



Toys



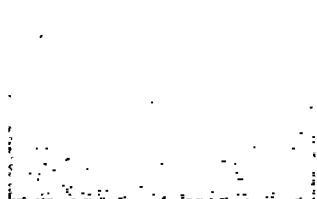
Trash Collector



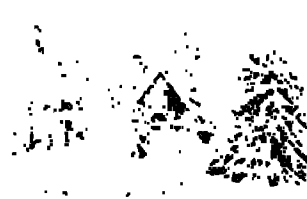
Water



Watermelon



Wheat



Winter



Wood

Appendix F

Creative Commons Licensing

All photos used in this work were available at the time of download under Creative Commons attribution licensing, described as follows. Please note under Term 7 of the license, the licensor has the right to remove or change the terms of availability of any work previously provided under this license; however, the license granted at time of download continues for perpetuity for the use intended at time of download (<http://creativecommons.org/licenses/by/3.0/legalcode>).

License

THE WORK (AS DEFINED BELOW) IS PROVIDED UNDER THE TERMS OF THIS CREATIVE COMMONS PUBLIC LICENSE ("CCPL" OR "LICENSE"). THE WORK IS PROTECTED BY COPYRIGHT AND/OR OTHER APPLICABLE LAW. ANY USE OF THE WORK OTHER THAN AS AUTHORIZED UNDER THIS LICENSE OR COPYRIGHT LAW IS PROHIBITED.

BY EXERCISING ANY RIGHTS TO THE WORK PROVIDED HERE, YOU ACCEPT AND AGREE TO BE BOUND BY THE TERMS OF THIS LICENSE. TO THE EXTENT THIS LICENSE MAY BE CONSIDERED TO BE A CONTRACT, THE LICENSOR GRANTS YOU THE RIGHTS CONTAINED HERE IN CONSIDERATION OF YOUR ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

1. Definitions

- "Adaptation" means a work based upon the Work, or upon the Work and other pre-existing works, such as a translation, adaptation, derivative work, arrangement of music or other alterations of a literary or artistic work, or phonogram or performance and includes cinematographic adaptations or any other form in which the Work may be recast, transformed, or adapted including in any form recognizably derived from the original, except that a work that constitutes a Collection will not be considered an Adaptation for the purpose of this License. For the avoidance of doubt, where the Work is a musical work, performance or phonogram, the synchronization of the Work in timed-relation with a moving image ("synching") will be considered an Adaptation for the purpose of this License.
- "Collection" means a collection of literary or artistic works, such as encyclopedias and anthologies, or performances, phonograms or broadcasts, or other works or subject matter other than works listed in Section 1(f) below, which, by reason of the selection and arrangement of their contents, constitute

intellectual creations, in which the Work is included in its entirety in unmodified form along with one or more other contributions, each constituting separate and independent works in themselves, which together are assembled into a collective whole. A work that constitutes a Collection will not be considered an Adaptation (as defined above) for the purposes of this License.

- "Distribute" means to make available to the public the original and copies of the Work or Adaptation, as appropriate, through sale or other transfer of ownership.
- "Licensor" means the individual, individuals, entity or entities that offer(s) the Work under the terms of this License.
- "Original Author" means, in the case of a literary or artistic work, the individual, individuals, entity or entities who created the Work or if no individual or entity can be identified, the publisher; and in addition (i) in the case of a performance the actors, singers, musicians, dancers, and other persons who act, sing, deliver, declaim, play in, interpret or otherwise perform literary or artistic works or expressions of folklore; (ii) in the case of a phonogram the producer being the person or legal entity who first fixes the sounds of a performance or other sounds; and, (iii) in the case of broadcasts, the organization that transmits the broadcast.
- "Work" means the literary and/or artistic work offered under the terms of this License including without limitation any production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression including digital form, such as a book, pamphlet and other writing; a lecture, address, sermon or other work of the same nature; a dramatic or dramatico-musical work; a choreographic work or entertainment in dumb show; a musical composition with or without words; a cinematographic work to which are assimilated works expressed by a process analogous to cinematography; a work of drawing, painting, architecture, sculpture, engraving or lithography; a photographic work to which are assimilated works expressed by a process analogous to photography; a work of applied art; an illustration, map, plan, sketch or three-dimensional work relative to geography, topography, architecture or science; a performance; a broadcast; a phonogram; a compilation of data to the extent it is protected as a copyrightable work; or a work performed by a variety or circus performer to the extent it is not otherwise considered a literary or artistic work.
- "You" means an individual or entity exercising rights under this License who has not previously violated the terms of this License with respect to the Work, or who has received express permission from the Licensor to exercise rights under this License despite a previous violation.
- "Publicly Perform" means to perform public recitations of the Work and to communicate to the public those public recitations, by any means or process, including by wire or wireless means or public digital performances; to make available to the public Works in such a way that members of the public may access these Works from a place and at a place individually chosen by them; to perform the Work to the public by any means or process and the

communication to the public of the performances of the Work, including by public digital performance; to broadcast and rebroadcast the Work by any means including signs, sounds or images.

- "Reproduce" means to make copies of the Work by any means including without limitation by sound or visual recordings and the right of fixation and reproducing fixations of the Work, including storage of a protected performance or phonogram in digital form or other electronic medium.

2. Fair Dealing Rights. Nothing in this License is intended to reduce, limit, or restrict any uses free from copyright or rights arising from limitations or exceptions that are provided for in connection with the copyright protection under copyright law or other applicable laws.

3. License Grant. Subject to the terms and conditions of this License, Licensor hereby grants You a worldwide, royalty-free, non-exclusive, perpetual (for the duration of the applicable copyright) license to exercise the rights in the Work as stated below:

- to Reproduce the Work, to incorporate the Work into one or more Collections, and to Reproduce the Work as incorporated in the Collections;
- to create and Reproduce Adaptations provided that any such Adaptation, including any translation in any medium, takes reasonable steps to clearly label, demarcate or otherwise identify that changes were made to the original Work. For example, a translation could be marked "The original work was translated from English to Spanish," or a modification could indicate "The original work has been modified.";
- to Distribute and Publicly Perform the Work including as incorporated in Collections; and,
- to Distribute and Publicly Perform Adaptations.
- For the avoidance of doubt:
 - Non-waivable Compulsory License Schemes. In those jurisdictions in which the right to collect royalties through any statutory or compulsory licensing scheme cannot be waived, the Licensor reserves the exclusive right to collect such royalties for any exercise by You of the rights granted under this License;
 - Waivable Compulsory License Schemes. In those jurisdictions in which the right to collect royalties through any statutory or compulsory licensing scheme can be waived, the Licensor waives the exclusive right to collect such royalties for any exercise by You of the rights granted under this License; and,
 - Voluntary License Schemes. The Licensor waives the right to collect royalties, whether individually or, in the event that the Licensor is a member of a collecting society that administers voluntary licensing schemes, via that society, from any exercise by You of the rights granted under this License.

The above rights may be exercised in all media and formats whether now known or hereafter devised. The above rights include the right to make such modifications as are technically necessary to exercise the rights in other media and formats. Subject to Section 8(f), all rights not expressly granted by Licensor are hereby reserved.

4. Restrictions. The license granted in Section 3 above is expressly made subject to and limited by the following restrictions:

- You may Distribute or Publicly Perform the Work only under the terms of this License. You must include a copy of, or the Uniform Resource Identifier (URI) for, this License with every copy of the Work You Distribute or Publicly Perform. You may not offer or impose any terms on the Work that restrict the terms of this License or the ability of the recipient of the Work to exercise the rights granted to that recipient under the terms of the License. You may not sublicense the Work. You must keep intact all notices that refer to this License and to the disclaimer of warranties with every copy of the Work You Distribute or Publicly Perform. When You Distribute or Publicly Perform the Work, You may not impose any effective technological measures on the Work that restrict the ability of a recipient of the Work from You to exercise the rights granted to that recipient under the terms of the License. This Section 4(a) applies to the Work as incorporated in a Collection, but this does not require the Collection apart from the Work itself to be made subject to the terms of this License. If You create a Collection, upon notice from any Licensor You must, to the extent practicable, remove from the Collection any credit as required by Section 4(b), as requested. If You create an Adaptation, upon notice from any Licensor You must, to the extent practicable, remove from the Adaptation any credit as required by Section 4(b), as requested.
- If You Distribute, or Publicly Perform the Work or any Adaptations or Collections, You must, unless a request has been made pursuant to Section 4(a), keep intact all copyright notices for the Work and provide, reasonable to the medium or means You are utilizing: (i) the name of the Original Author (or pseudonym, if applicable) if supplied, and/or if the Original Author and/or Licensor designate another party or parties (e.g., a sponsor institute, publishing entity, journal) for attribution ("Attribution Parties") in Licensor's copyright notice, terms of service or by other reasonable means, the name of such party or parties; (ii) the title of the Work if supplied; (iii) to the extent reasonably practicable, the URI, if any, that Licensor specifies to be associated with the Work, unless such URI does not refer to the copyright notice or licensing information for the Work; and (iv) , consistent with Section 3(b), in the case of an Adaptation, a credit identifying the use of the Work in the Adaptation (e.g., "French translation of the Work by Original Author," or "Screenplay based on original Work by Original Author"). The credit required by this Section 4 (b) may be implemented in any reasonable manner; provided, however, that in the case of a Adaptation or Collection, at a minimum such credit will appear, if a credit for all contributing authors of the Adaptation or Collection appears, then as part of these credits and in a manner

at least as prominent as the credits for the other contributing authors. For the avoidance of doubt, You may only use the credit required by this Section for the purpose of attribution in the manner set out above and, by exercising Your rights under this License, You may not implicitly or explicitly assert or imply any connection with, sponsorship or endorsement by the Original Author, Licensor and/or Attribution Parties, as appropriate, of You or Your use of the Work, without the separate, express prior written permission of the Original Author, Licensor and/or Attribution Parties.

- Except as otherwise agreed in writing by the Licensor or as may be otherwise permitted by applicable law, if You Reproduce, Distribute or Publicly Perform the Work either by itself or as part of any Adaptations or Collections, You must not distort, mutilate, modify or take other derogatory action in relation to the Work which would be prejudicial to the Original Author's honor or reputation. Licensor agrees that in those jurisdictions (e.g. Japan), in which any exercise of the right granted in Section 3(b) of this License (the right to make Adaptations) would be deemed to be a distortion, mutilation, modification or other derogatory action prejudicial to the Original Author's honor and reputation, the Licensor will waive or not assert, as appropriate, this Section, to the fullest extent permitted by the applicable national law, to enable You to reasonably exercise Your right under Section 3(b) of this License (right to make Adaptations) but not otherwise.

5. Representations, Warranties and Disclaimer

UNLESS OTHERWISE MUTUALLY AGREED TO BY THE PARTIES IN WRITING, LICENSOR OFFERS THE WORK AS-IS AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE WORK, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTIBILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR THE ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OF ABSENCE OF ERRORS, WHETHER OR NOT DISCOVERABLE. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES, SO SUCH EXCLUSION MAY NOT APPLY TO YOU.

6. Limitation on Liability. EXCEPT TO THE EXTENT REQUIRED BY APPLICABLE LAW, IN NO EVENT WILL LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES ARISING OUT OF THIS LICENSE OR THE USE OF THE WORK, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. Termination

- This License and the rights granted hereunder will terminate automatically upon any breach by You of the terms of this License. Individuals or entities

who have received Adaptations or Collections from You under this License, however, will not have their licenses terminated provided such individuals or entities remain in full compliance with those licenses. Sections 1, 2, 5, 6, 7, and 8 will survive any termination of this License.

- Subject to the above terms and conditions, the license granted here is perpetual (for the duration of the applicable copyright in the Work). Notwithstanding the above, Licensor reserves the right to release the Work under different license terms or to stop distributing the Work at any time; provided, however that any such election will not serve to withdraw this License (or any other license that has been, or is required to be, granted under the terms of this License), and this License will continue in full force and effect unless terminated as stated above.

8. Miscellaneous

- Each time You Distribute or Publicly Perform the Work or a Collection, the Licensor offers to the recipient a license to the Work on the same terms and conditions as the license granted to You under this License.
- Each time You Distribute or Publicly Perform an Adaptation, Licensor offers to the recipient a license to the original Work on the same terms and conditions as the license granted to You under this License.
- If any provision of this License is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this License, and without further action by the parties to this agreement, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.
- No term or provision of this License shall be deemed waived and no breach consented to unless such waiver or consent shall be in writing and signed by the party to be charged with such waiver or consent.
- This License constitutes the entire agreement between the parties with respect to the Work licensed here. There are no understandings, agreements or representations with respect to the Work not specified here. Licensor shall not be bound by any additional provisions that may appear in any communication from You. This License may not be modified without the mutual written agreement of the Licensor and You.
- The rights granted under, and the subject matter referenced, in this License were drafted utilizing the terminology of the Berne Convention for the Protection of Literary and Artistic Works (as amended on September 28, 1979), the Rome Convention of 1961, the WIPO Copyright Treaty of 1996, the WIPO Performances and Phonograms Treaty of 1996 and the Universal Copyright Convention (as revised on July 24, 1971). These rights and subject matter take effect in the relevant jurisdiction in which the License terms are sought to be enforced according to the corresponding provisions of the implementation of those treaty provisions in the applicable national law. If the standard suite of rights granted under applicable copyright law includes additional rights not granted under this License, such additional rights are

deemed to be included in the License; this License is not intended to restrict the license of any rights under applicable law.

Appendix G

Word Combinations Used for Receptive Language Cards

Receptive Language Cards

Words listed in order clockwise from top left of card. * Indicates target word.

1. Chick, *tortoise, watermelon, seeds
2. Baker, *teacher, builder, summer
3. Slide, circles, *stripes, chrysalis
4. Jungle, rabbit, *food, mittens
5. Wheat, meadow, *orchard, roofs
6. *Builder, mail carrier, hammer, summer
7. *Roofs, hands, feet, mittens
8. *Ear, nose, street, butterfly
9. *Milk, taxi, butterfly, money
10. Car, cow, pie, *duck
11. Cake, *money, milk, taxi
12. Pets, rooster, *bear, chick
13. Spring, *summer, winter, fall
14. Hands, *clock, calendar, map
15. Firefighter, *bus, trash collector, car
16. *Police officer, nose, buildings, trash collector
17. Playground, *house, market, library
18. Chrysalis, slide, pig, *cow
19. Water, crayons, *watermelon, pets
20. Deer, fall, *sunflower, rabbit
21. Mail carrier, teacher, *baker, builder
22. Roofs, chrysalis, *wheat, orchard
23. Nose, *mouth, ear, legs
24. Market, crayons, *paints, calendar
25. Caterpillar, seeds, sunflower, *chrysalis
26. Butterfly, cat, *caterpillar, feather
27. Feet, bear, toys, *pets
28. Cow, bear, pig, *rooster
29. *Scissors, paddles, pencils, handshake
30. Slide, *microwave, clock, hug
31. Market, baker, crayons, *sky
32. Winter, builder, summer, *hug
33. Owl, legs, *lightning, buildings
34. Summer, mittens, city, *plant
35. Duck, cow, pig, *sheep
36. *Winter, jungle, orchard, summer
37. *Deer, cow, pig, pets
38. Taxi, *snow, buildings, milk
39. *Bus, house, car, school
40. Map, cafeteria, *finish line, feet
41. School bus, classroom, *toys, pets
42. *Book, baby, crayons, school bus
43. City, wheat, orchard, *jungle
44. *City, jungle, orchard, deer
45. Cake, money, *milk, butterfly
46. *Sun, spring, map, jungle
47. *Rain, apartment, playground, deer
48. *Library, cafeteria, school, playground
49. *Firefighters, baker, teacher, mail carrier
50. Buildings, street, *bakery, taxi
51. *Handshake, lightning, trash collector, scissors
52. *Fall, winter, summer, sunflower
53. Baker, winter, map, *spring
54. *Map, calendar, clock, book
55. Handshake, ear, nose, *legs
56. *Meadow, chrysalis, winter, jungle

Appendix H

CBM Expressive Vocabulary Word List

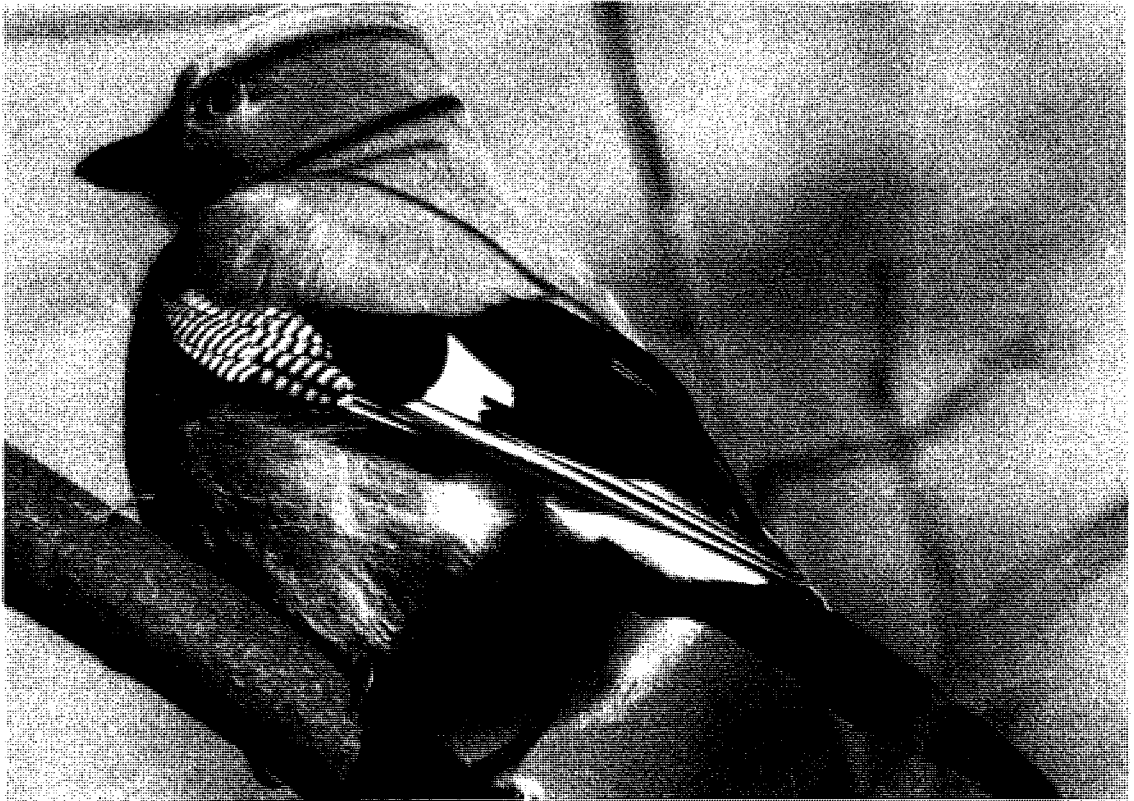
CBM Expressive Vocabulary Word List

Words chosen for inclusion in the final version of the CBM measure:

Baby	Library
Baker	Lightning
Bakery	Mail Carrier
Bear	Map
Bird	Market
Book	Microwave
Bridge	Milk
Builder	Mittens
Buildings	Money
Bus	Mouth
Butterfly	Nose
Cafeteria	Owl
Cake	Paddle
Calendar	Paints
Car	Park
Cat	Pencil
Caterpillar	Pie
Chick	Pig
Chrysalis	Plant
City	Police Officer
Classroom	Rabbit
Clock	Roof
Cow	Rooster
Crayons	School
Deer	School Bus
Doors	Scissors
Duck	Seeds
Ear	Sheep
Earth	Sidewalk
Egg	Slide
Eye	Street
Feather	Sunflower
Feet	Taxi
Firefighter	Teacher
Food	Tortoise
Hammer	Trash Collector
Hands	Water
Handshake	Watermelon
House	

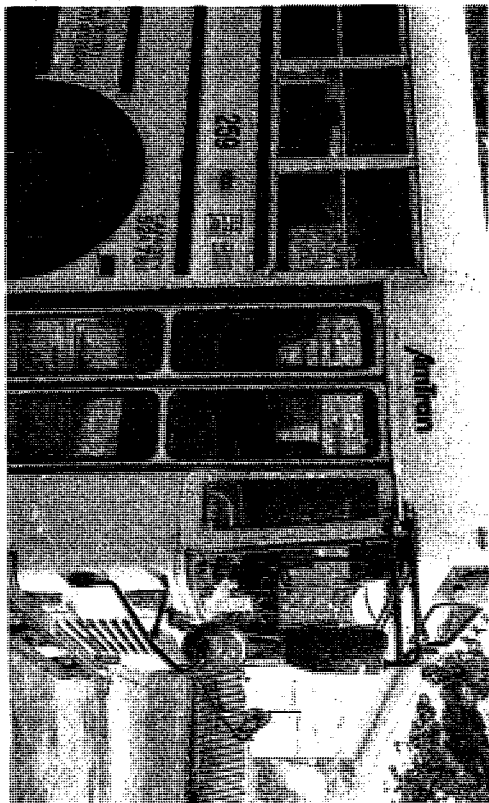
Appendix I

Sample CBM Expressive Language Vocabulary Card



Appendix J

Sample CBM Receptive Language Vocabulary Card



Appendix K

Script for Administration of the English Expressive Language Measure

Script for administration of the English expressive language measure:

1. Set the timer to count down one minute, but do not start the timer until step 8.
2. Place the four sample picture cards from the assessment measure on the table in front of the child. These four pictures constitute the practice items.
3. Direct the child to look at the picture cards and say, **“I am going to name these pictures.”**
4. Point to each picture and identify it by name in English.
5. Next ask the child to name the four pictures from the practice items. Say, **“Now you name these pictures.”** If the child responds in a language other than English, redirect the child to name the pictures in English. Note if the child responds in Spanish (sp) to test items.
6. If the child names the pictures correctly, proceed with step 7 of the assessment. If the child does not name the pictures in the practice items correctly, provide corrective feedback and practice to ensure the child understands the task before proceeding with the assessment. For example, if the child identifies a picture incorrectly, point to that picture and say, **“This is a _____, what is this?”** Wait for the child to respond. (The practice items are not included in the final score.) In either situation, provide simple positive feedback to the child for effort by saying:
 - a. **“Good.”**
 - b. **“Well done.”**
 - c. **“Thank you.”**

7. Say to the child, **“Now I want you to name these pictures as fast as you can.”**
8. Start the timer.
9. Present the child with the picture cards one at a time.
 - a. If the child does not respond to the stimulus card *within three seconds*, prompt the child to identify the picture. To prompt the child, point to the picture and say one of the following:
 - i. **“What is this?”**
 - ii. **“What’s this?”**
 - iii. **“Do you know what this is?”**
 - iv. **“What do you call this?”**
 - v. **“What is a name for this one?”**
 - b. If the child does not respond *within two more seconds*, move on to the next stimulus card.
10. Place cards correctly identified in English in one pile. Close synonyms may be counted as correct. The back of the card includes examples of acceptable alternatives. Near correct cards should be placed in a second pile. Place incorrectly identified cards in a third pile. For ELLs, also count the number of words correctly identified in Spanish.
11. Simple positive feedback may be provided during the assessment for attention, effort, and task engagement.
12. Do not supply the correct response if child responds incorrectly.
13. At the end of one minute, stop testing.

14. Record the number of correctly identified cards (do not include sample items) and the number of near correct responses.
15. If working with an ELL, note how many items the child identified in Spanish AND also in English.
16. Shuffle the cards except for the sample items.

Appendix L

Script for Administration of the Spanish Expressive Language Measure

Script for administration of the Spanish expressive language measure:

1. Set the timer to count down one minute, but do not start the timer until step 8.
2. Place the four sample picture cards from the assessment measure on the table in front of the child. These four pictures constitute the practice items.
3. Direct the child to look at the picture cards and say, **“Voy a nombrar estas fotos en Espanol”** or **“Voy a identificar estas fotos en Espanol.”** (“I am going to name these pictures.”)
4. Point to each picture and identify it by name in Spanish.
5. Next ask the child to name the four pictures from the practice items. Say, **“Ahora te toca a ti nobrar las fotos en Espanol”** or **“Ahora te toca a ti identificar las picturas en Espanol.”** (“Now you name these pictures.”) If the child responds in a language other than Spanish, redirect the child to name the pictures in Spanish. Note if the child responds in English (eng) to test items.
6. If the child names the pictures correctly, proceed with step 7 of the assessment. If the child does not name the pictures in the practice items correctly, provide corrective feedback and practice to ensure the child understands the task before proceeding with the assessment. For example, if the child identifies a picture incorrectly, point to that picture and say, **“Se dice en Español _____, qué es esto?”** (“This is _____ in Spanish, what is this?”) Wait for the child to respond. (The practice items are not included in the final score.) In either situation, provide simple positive feedback to the child for effort by saying:

- a. **“Bueno” or “Excelente”** (“Good”)
 - b. **“Bien Hecho”** (“Well done”)
 - c. **“Gracias”** (“Thank you”)
7. Say to the child, **“Ahora quiero que tú las nombres tan rápidamente como posible”** or **“Ahora quiero que tú las identifiques tan rápidamente como posible.”** (“Now I want you to name these pictures as fast as you can.”)
8. Start the timer.
9. Present the child with the picture cards one at a time.
 - a. If the child does not respond to the stimulus card *within three seconds*, prompt the child to identify the picture. To prompt the child, point to the picture and say one of the following:
 - i. **“¿Qué es esto?”** (“What is this?”)
 - ii. **“¿Qué es?”** (“What’s this?”)
 - iii. **“¿Sabes qué es?”** (“Do you know what this is?”)
 - iv. **“¿Cómo se llama esto?”** (“What do you call this?”)
 - v. Point to the picture and say, **“¿Cómo se dice en Español?”**
 - b. If the child does not respond *within two more seconds*, move on to the next stimulus card.
10. Place cards correctly identified in Spanish in one pile. Close synonyms may be counted as correct. The back of the card includes examples of acceptable alternatives. Near correct cards should be placed in a second pile. Place incorrectly identified cards in a third pile. For ELLs, also count the number of words correctly identified in English.

11. Simple positive feedback may be provided during the assessment for attention, effort, and task engagement.
12. Do not supply the correct response if child responds incorrectly.
13. At the end of one minute, stop testing.
14. Record the number of correctly identified cards (do not include sample items) and the number of near correct responses.
15. If working with an ELL, note how many items the child identified in Spanish AND also in English.
16. Shuffle the cards except for the sample items.

Appendix M

Script for Administration of Receptive Language Measure

Script for administration of receptive language measure:

1. Set the timer to count down one minute, but do not start the timer until step 8.
2. Place the sample stimulus card from the assessment measure on the table in front of the child. This picture card will constitute the practice item.
3. Direct the child to look at the pictures on the card and say, **“I am going to name these pictures.”**
4. Point to each picture and identify it by name in English.
5. Next ask the child to point to the target picture from four pictures shown on the practice item. Say, **“Show me book.”**
6. If the child identifies the correct picture, proceed with step 7 of the assessment. If the child cannot identify the picture corresponding to the target word in the practice item correctly, provide corrective feedback and practice to ensure the child understands the task before proceeding with the assessment. For children who need additional practice, the other pictures on the sample card may also be used as target items. (The practice item is not included in the final score.) In either situation, provide simple positive feedback to the child for effort by saying:
 - a. **“Good.”**
 - b. **“Well done.”**
 - c. **“Thank you.”**
7. Say to the child, **“Now I will tell you a word and I want you to point to the correct picture for that word on the picture card as fast as you can.”**
8. Start the timer.

9. Present the child with the picture cards one at a time and ask the child to point to the picture that corresponds with the target word.
 - a. If the child does not respond to the stimulus card *within three seconds*, prompt the child to identify the picture for the target word. To prompt the child, say one of the following:
 - i. **“Put your finger on [target word].”**
 - ii. **“Show me [target word].”**
 - iii. **“Point to [target word].”**
 - iv. **“Find [target word].”**
 - v. **“Where is [target word]?”**
 - b. If the child does not respond *within two more seconds*, move on to the next stimulus card.
10. Place correctly identified cards in one pile and incorrectly identified cards in a second pile.
11. Simple positive feedback may be provided during the assessment for attention, effort, and task engagement.
12. Do not supply correct response if child responds incorrectly.
13. At the end of one minute, stop testing.
14. Record the number of correctly identified cards (do not include sample item.)
15. Shuffle the cards.

Appendix N

Checklist for Administration of Vocabulary Measures

Checklist for Administration of Vocabulary Measures

Assessor: _____

Observer: _____

Indicate procedures completed as described:

- _____ Has materials ready: Picture Cards, Directions, Timer, Recording Form.
- _____ Sets timer to count down 1 minute.
- _____ Starts with practice/sample item(s).
- _____ Points to and names each picture in sample.
- _____ Gives child opportunity to identify sample item(s).
- _____ Provides corrective feedback and practice if child does not correctly complete sample.
- _____ Begins administration by starting timer and showing first item to child.
- _____ Does not provide correct response if child responds incorrectly on test items.
- _____ Provides periodic positive feedback for attention, effort, and task engagement.
- _____ Prompts child as directed in script if child does not respond within 3 seconds.
- _____ Shows next card if child does not respond within an additional 2 seconds.
- _____ Separates correct, near correct, and incorrect cards into three piles.
- _____ For ELLs, keeps track of number of correct Spanish responses on English Expressive Language Assessment and correct English responses to Spanish Expressive Language Assessment.
- _____ Stops assessment after exactly 1 minute.
- _____ Writes total number correct and near correct on recording form, excluding sample items.

Appendix O

Vocabulary Measure Acceptability Survey

Vocabulary Measure Acceptability Survey

The vocabulary assessment is an acceptable way to measure vocabulary growth for English-speaking children.

1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree

The vocabulary assessment is an acceptable way to measure vocabulary growth for ELL children.

1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree

I would recommend using the vocabulary assessment to measure vocabulary growth to other teachers.

1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree

The vocabulary assessment is an appropriate assessment technique for measuring vocabulary growth for a variety of students.

1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree

The vocabulary assessment is a time efficient way to continuously monitor student vocabulary growth.

1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree

I would be willing to use the vocabulary assessment on a regular basis to measure student growth in vocabulary.

1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree

The vocabulary assessment provides useful information for planning instruction for English-speaking children.

1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree

The vocabulary assessment provides useful information for planning instruction for ELL children.

1=Strongly Agree 2=Agree 3=Neutral 4=Disagree 5=Strongly Disagree

Comments: