A HEAD START ON READING FOR CHILDREN IN A
HEAD START PRESCHOOL PROGRAM

Kristin R. Osley, B.S.

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APPROVED:

Janet Ellis, Major Professor
Smita Mehta, Committee Member
Mary Estes, Committee Member
Richard Smith, Chair of the Department of
Behavior Analysis
Thomas Evenson, Dean of the College of
Public Affairs and Community
Service
Michael Monticino, Interim Dean of the
Robert B. Toulouse School of
Graduate Studies
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Literacy is a fundamental to all areas of learning. Early reading experiences prior to elementary school and kindergarten years are critical factors for later reading success. This study evaluated the effect Direct Instruction® reading procedures vs. Scholastic Early Childhood Program® reading procedures on the production of letter names, letter sounds, CV and CVC blends by preschool-aged students in a Head Start program. Results showed the intervention group improved in all areas, while the control group improved only in letter naming and letter sounds. This study discusses reading as a behavioral cusp as well as limitations, and recommendations for future research.
ACKNOWLEDGEMENTS

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TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iii</td>
</tr>
<tr>
<td>LIST OF TABLES AND FIGURES</td>
<td>v</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>METHODS</td>
<td>11</td>
</tr>
<tr>
<td>RESULTS</td>
<td>16</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>20</td>
</tr>
<tr>
<td>Appendices</td>
<td></td>
</tr>
<tr>
<td>A. INFORMED CONSENT FORM</td>
<td>23</td>
</tr>
<tr>
<td>B. DIRECT INSTRUCTION OUTLINE</td>
<td>27</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>29</td>
</tr>
</tbody>
</table>
LIST OF TABLES AND FIGURES

Table: 1 Interobserver Agreement ................................................................. 15

Figure 1: Intervention Group................................................................. 18
Figure 2: Control Group............................................................................. 19
INTRODUCTION

Literacy is fundamental to all areas of learning, and is highly correlated with success in society (Chandler, 2000). An estimated 44 million Americans are illiterate and another 50 million read below a 5th grade level (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993). Lack of literacy has been correlated with high school dropout rates (Slavin, Karweit, Wasik, Madden, & Dolan, 1994), chronic unemployment (Schonhaut & Satz, 1983) and criminal behavior (Bureau of Justice and Statistics, 1997; Haigler, Harlow, O’Connor, & Campbell, 1994).

National longitudinal studies based on NICHHD (2000) data predicted that more than 17.5 % (10 million) students will encounter reading problems within the crucial first 3 years of their schooling (NICHHD, 2000). Based on these data, legislation has come to acknowledge the fact that early reading experiences prior to elementary school and kindergarten years are critical factors for later reading success (No Child Left Behind Act, 2001).

Reading is a complex behavior built upon many prerequisite skills (Cunningham, Erickson, Spadorcia, Koppenhaver, Cunningham, & Yoder, 1999). Phonemic awareness is a fundamental step in the process of learning to read, concerns the structure of words vs. their meaning. To understand the construction of our written code, readers need to be able to comprehend spelling-to-sound correspondence. Students need to understand that the written word is composed of graphemes (individual letters) For example, the word “ship” is composed of four graphemes, s, h, i, p. These correspond to phonemes (letter sounds). For example, the word “ship” is composed of three phonemes (sh, i, p). Beginning readers first must have some understanding that
words are composed of sounds (phonemic awareness) vs. conceiving each word as a single indivisible sound stream (Hempenstall, 1997). McCormick (1999) identified two levels of phonemic awareness: simple (sound isolation) and compound (word-to-word matching).

In addition to sound isolation and word-to-word matching is the concept of abstraction. Abstraction is a discriminative behavior based on a single property of a stimulus (Catania, 1998; Skinner, 1953). An abstraction must be explicitly taught because it is “the analysis of things into their constituents…with some pragmatic disregard of the residuum of qualities or other features” (Kantor, 1949). Pre-readers will not “acquire an abstract response until a reinforcing agency sets up the required contingency” (Skinner, 1953). Important component skills involved in acquisition of the alphabetic principle are still under investigation (Byrne, 1998; Martens & Daly, 1999). At a minimum these skills must include auditory abstraction (phoneme awareness) and visual abstraction (Byrne, 1992; Saunders, 2002); both skills include discrimination of printed letters and words, discrimination of phonemes and the corresponding relationship between the letters and phonemes (Adams, 1990; Byrne & Fielding-Barnsley, 1991, 1993, 1995; Saunders, 2002). Most children who have not started to read will not demonstrate an auditory abstraction skill without appropriate training (see Treiman & Breaux, 1982).

Various methods have been applied to teach pre-reading skills to preschool and kindergarten populations. A study by Walsh and Blewitt (2006) examined the effects of adult questioning on children’s novel word acquisition during storybook reading. In this study 353 3-year-old children were assigned to one of three conditions: vocabulary-
eliciting questions, non-eliciting questions, and no questions (control group). General vocabulary comprehension and novel word knowledge were equivalent across the groups before the storybook-reading intervention. Children were read three storybooks repeatedly across 4 reading sessions and were tested for production and comprehension of novel words in the final session. Children’s novel word comprehension increased more in both question conditions than in the control condition. Novel word production was not strongly affected by any of the reading conditions. However, this study examined only novel word production and none of the prerequisite skills associated with reading words.

Another study (Whitehurst et al., 1994) used four Head Start centers randomly assigned to one of two conditions: the Head Start curriculum or an add-on curriculum modeled after Sounds Foundations curriculum (Byrne & Fielding-Barnsley, 1991). The add-on curriculum included interactive story reading (dialogic reading) and a phonemic awareness component. The study continued for 1 year and involved 94 children in the intervention group and 73 in the control group. The add-on curriculum entailed reading and discussing stories in small groups 5 times/week and one-on-one reading at home. The phonemic awareness component focused on development of 7 consonant sounds (s, m, p, g, l, t, sh) and 2 vowel sounds (e.g., a, e). No significant effects were obtained on language and linguistic awareness. The greatest improvement was noted in blends, CVC words, and letter naming for the experimental group. Although the study did report some positive changes, the components responsible for the change were not identified.

Piertrangelo’s (1999) study examined the effects of a 12-week supplementary classroom literacy program on the emergent literacy skills of children in a Head Start
program. This study consisted of 10 Head Start classrooms (9 intervention groups and 1 control group), all of which were administered pre- and post- intervention tests (12 tests each). These pre- and post- tests examined areas of semantic processing, rhyming, print conventions, sentence memory, and word memory. The intervention consisted of supplementing Head Start curriculum with activities designed to teach letter names, letter sounds, and phonemic composition of words. Teachers were trained to add large and small reading groups, letter name and sound instruction, phonological awareness activities, word-play activities, and to monitor the children's progress weekly. This study demonstrated that supplemental instruction in the intervention classrooms increased pretest vs. posttest scores for the control group. This study also demonstrated the impact of individualized instruction, although the components responsible for the changes were not identified.

Several studies have used matching-to-sample (MTS) procedures in combination with fading procedures to teach visual discrimination of individual alphabet letters. In these studies the child was asked to select the letter identical to the sample letter, with the salient features of the letters exaggerated then slowly reduced to produce accurate discriminations (Bijou, 1968; Caldwell & Hall, 1969; Popp, 1964; Williams, 1969). This method was used more recently to teach prereaders to discriminate onset letters (first letter in the word) in CVC words (Yoo, 2003). While these studies effectively teach letter name discrimination they do not teach letter sounds or how to blend the letters together to form a word.

Mueller et al. (2000) taught 3 kindergarten children to select CVC words on a computer when they heard the corresponding spoken word. The children were taught
six sets of words; each set consisting of four words with overlapping letters (e.g., sat, mat, sop, sug). The experimenters tested for recombinative generalization, determined by whether the children selected novel words with the same components as the trained words (e.g., mop, mug). This was accomplished over four phases. The 3 children demonstrated recombinative generalization after one or two training sets. Then these 3 children demonstrated highly accurate printed-word-to-picture matching and correctly read the majority of printed words. While this study was effective in teaching word sets to 3 kindergarten students, this method has not been implemented with preschool children.

Rule, Dockstader, and Stewart, (2006) took a different approach when teaching phonological awareness to elementary students; they examined the effectiveness of object box activities, environmental print card activities, and kinesthetic/oral activities used in two before-school programs for Title 1 students. In this study 34 1st -3rd grade students in two different before-school programs (Group 1, Group 2, and control group) were taught by the same certified teacher. These students met 3 mornings/week (Tuesday–Thursday) for 45 min/day, for a total of 18 hrs of phonological awareness instruction.

Activities for Group 1 included songs, phonic card games, word games, and writing. Students rotated through four stations with a writing station added 1 day/ week. The Group 1 activities included bingo and concentration games involving different phonological concepts along with reading sight words and phonics games. Group 2's program focused on hands-on activities in which small objects were manipulated. Students worked individually and in small groups with boxes of materials. These boxes
were of two basic types: environmental print sets of words cut from food boxes and other product boxes. These words were then mounted on colored cardboard and object boxes containing toys, miniature facsimiles, and small household items long with printed word cards or headings to be sorted by the concept of the day (phonemes, syllables, vowel sounds, etc.). Students rotated through four stations with a writing station added 1 day/week.

The Scholastic Early Childhood Program (SECP) curriculum was implemented in the Head Start classrooms in this study. The literacy/reading component of this curriculum was developed from Early Reading First curriculum and focused on four main areas: oral language, phonological awareness, print awareness, and letter recognition (Scholastic Inc., 2003).

The oral language component consisted of reading aloud during story time and circle time. The fiction or nonfiction stories are in the context of a theme, as to enable students to develop language and vocabulary associated with the theme.

The phonological awareness unit consisted of identifying and making oral rhymes; identifying and working with syllables in spoken words; identifying and working with “onsets and “rimes”; and identifying and working with individual sounds in words. Only one of the four sections was presented daily during teacher-initiated circle time unless a student initiated another activity. Phonological awareness activities included rereading books, singing songs and rhymes, listening to poems, and working with the sounds and patterns of language.

Print awareness exposes children to a variety of print (e.g. fiction and nonfiction books, poems and song charts, and posters). Print awareness activities included
teachers and children constructing print in a variety of forms and for many different purposes. These activities are designed to help children understand that print carries a message.

The alphabet knowledge section is derived from *Teaching Letters and Sounds* (Block & Carnizares, 2003). This component focuses on letter recognition, letter sounds, and word recognition. This is accomplished by reading a rhyme (a story with focus on a particular letter/sound), having the students listen for the letter sound, write the letter, and engage in various activities using that letter.

While the SECP curriculum provides many different pathways to learning letters, letter sounds, and recognizing words that begin with a particular letter, it does not provide instruction on how to blend letter sounds together to form a word.

The National Reading Panel Report (2000) indicated that large gains in reading scores were possible when instruction was directed systematically and explicitly to one or two types of phonemic awareness activities, when those activities were provided to small groups. There small groups involved associating phonemes with letters (such as segmenting and blending) activities.

**Englemann & Becker’s Direct Instruction® Method**

Teaching basic skills to children at a young age provides a better foundation for building critical skills in their later education. This position was exemplified in a study by Stipek (1991) who used a Direct-Verbal Program® procedure (Berteiter & Englemann, 1966). This program consisted of oral drills in verbal and logical patterns which eventually evolved into a curriculum known as Englemann & Becker’s Direct Instruction System for Teaching Arithmetic and Reading or Scientific Research Associates
DISTAR® method (Stipek, 1991). Programs using this methodology consisted of teaching component skills first (e.g., for reading, identify sounds, blends sounds, then follow a left-to-right sequence, and sound out the word at a normal rate) to form a more complex skill (reading phonetic words). This approach has reported positive gains (Meyer, Gersten, & Gutkin, 1983). Aukerman (1984) described four large-scale follow-up studies all with positive results in favor of Scientific Research Associates DISTAR®.

The Selectionist Approach

Two critical features of the selectionist approach are its use of generative procedures, specifically *generative instruction*, and its insistence that skills are to be built to *fluency* (Johnson & Layng, 1992). This method focuses on effective teaching to establish key component skills and their underlying tool elements to fluency (Johnson, 1990, 1991). The term “fluency” refers to behavior performed with high degrees of accuracy and speed (Binder, 1996; Johnson & Layng, 1992). The National Institute for Child and Human Development (2000) indicated, “It is generally acknowledged that fluency is a critical component of skilled reading…. nevertheless, fluency is often neglected in classroom instruction” (p. 3). Kuhn and Stahl (2003) also encouraged children to use fluency techniques in classrooms more often because of the positive benefits that accrued to reading. Lindsley’s Precision Teaching® method (Lindsley, 1972, 1990, 1991, 1997) is a method for measuring behavior and making data-based decisions to achieve and maintain reading behavior goals. Kubina (2005) recommended reading fluency for students with and without disabilities in an inclusive classroom. These recommendations came from applications of Lindsley’s Precision Teaching® (Binder, 1996; Haughton, 1972; Lindsley, 1997; Maloney, 1998) and
suggested how this systematic practice procedure could benefit students during reading instruction:

- Allocate time during the reading period for practice activities.
- Pinpoint the behavior selected for practice.
- Select the range of behaviors.
- Itemize steps involved in the practice routine.
- Select an optimal “counting time” for the practice routine.
- Select a “fluency aim” (the goal) for the pinpointed behavior.
- Combine practice steps with the selected counting time and initiate practice.
- Reinforce correct performance and provide feedback for incorrect performance after the practice session has ended.
- Graphically display the data on the Standard Celeration Chart graph.

Direct Instruction ® and Lindsley’s Precision Teaching ®, are successful examples of how generative instruction and fluency, have taught various reading skill components (Barnes & Pennypacker, 2001; Legault, Maloney, & Giroux, 2001; White, 2002).

There are a variety of ways to teach pre-reading skills. Current research and legislation (No Child Left Behind Act, 2001) support the need for children to begin pre-reading skills at the preschool level, in order to gain a solid foundation in pre-reading skills prior to entering elementary school. These approaches increased literacy rates in public school systems. However, previous research has primarily focused on children in elementary school; the small portion on research done involving children enrolled in a
preschool has not implemented any form of generative instruction or fluency methodology. This study addresses the following question: How will Direct Instruction ® reading procedures vs. Scholastic Early Childhood Program reading procedures affect the production of letter sounds and CVC blends by preschool-aged students?
METHOD

Participants

The participants were part of a clinical study using an AB design. Thirty consent form letters were sent describing the study to the parents of children in two Head Start classrooms. Twenty-two letters were returned the following week, 11 from each classroom. Subsequently, the forms were separated into male and female groups from each classroom. Eight students, 3-4 years of age (2 boys and 2 girls from each classroom) were selected to participate in this study in order to avoid any gender bias. One group was labeled the Control group. These students received baseline, probe, and post-test assessments. No training was provided by the experimenter. The same procedure was followed for the students in the intervention group. The baseline assessment was administered to both groups at the onset of the study. However, only the intervention group received pre-reading training in the school library.

Materials

Stimuli consisted of all lower case alphabet letters printed horizontally in size 20 New Times Roman font taped onto 26 3x5 index cards. Other materials included a pencil, timer, a binder (for storing student graphs), stickers (picture popular TV and movie cartoon characters, cars, happy faces, and various animals), a toy bin containing a Poof Products Slinky® toy, Hasbro Play-Doh® putty, Ja-ru Flarp® noise putty, miniature farm and prehistoric animals, a toy cellphone, a Fisher Price Magnadoodle® board, Hasbro Mr. Potato Head® toy, crayons, and construction paper delivered contingent on correct responses.
Training Procedures

Baseline

The baseline assessment was administered to all participants at the beginning of the study, and included all 26 lower case letters, 10 CV blends, and 10 CVC blends. The 26 lowercase letters were individually presented to the participant when the experimenter asked “What is the name of this letter?”, and “What sound does this letter make?” for each alphabet letter. The blends and common words were also presented individually when the experimenter asked the participant, “What does this say?” No feedback or reinforcement was delivered following correct or incorrect responding. After this baseline assessment the participants received a sticker of their choice.

Training Letter Sounds

Sessions started with the letter sound program which began with three letter sounds. Letter sounds the participants answered correctly on the baseline assessment were used as the initial letter sounds. If the participants were unable to emit correct letter sounds the session began with three letters they had correctly named. All the participants began with 15-s timings on three letter sounds. Criteria for adding a new letter was 90% accuracy and a rate above 15 sounds/min on the previous timing. When each participant reached 10 letters, timings increased from 15s to 30s providing adequate time to present each letter at least once per timing. At the beginning of the session the participant was told the goal (one more correct than in the previous timing) to earn free play time. The participant then chose a reinforcer from the toy bin. If the participant met his/her goal the participant accessed the reinforcer for 3 min.
Training CV Blends

The CV blends program was introduced once the participants had correctly emitted 6 letter sounds. All participants began training with blends sa, and ta. These blends were selected based on the letter sounds each participant had learned in the letter sound program. Criteria for adding a new blend and increasing the length of the timings was the same as in the letter sound program timings. The consequence procedures were the same as in the letter sound program.

Training CVC Blends

The CVC blends program began in the fourth month of intervention. This program consisted of participants sounding out each letter sound. Then the student tr, "Say all sounds fast." During this CVC blends program 1-2 new blends were introduced/session in addition to practicing previously learned blends. The consequence procedures were the same as in the letter sound and CV Blends programs.

Probe Procedures

The probe was administered to all participants the last day before winter break (December 19, 2008) and was conducted in the same manner as the baseline assessment.

Post Assessment Procedures

The post assessment occurred at the end of the study and was the same as the previous assessments except the CV and CVC blends consisted of letter sounds the participants had correctly labeled on the probe.

Error Correction Procedures

Prior to the participant gaining access to free play time, errors were corrected.
The experimenter said “What sound is this?” if the participant answered correctly praise was delivered. If the participant answered incorrectly the experimenter said, “No, this is /a/ (or the correct sound)”, “What is this sound?” until the participant correctly labeled the sound independently.

Data Collection

Target responses measured in this study included correct and incorrect responses. A correct response was scored if the participant said the appropriate letter sound, CV, and/or CVC blend after the stimulus was presented. Self-corrects made before the next stimulus was presented were also scored as correct. An incorrect response was scored if the participants made the incorrect sound, said “I don’t know,” or made no response within 5s.

For each participant the number of correct and incorrect answers, along with the number and length of the timings was recorded on a Timings chart for each program. The best timing for the session was then recorded on a Daily Standard Celeration Chart for each program.

Interobserver Agreement (IOA)

Table 1

Interobserver Agreement

<table>
<thead>
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<th>Sessions Attended</th>
<th>Sessions IOA</th>
<th>Range</th>
<th>Mean</th>
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<tr>
<td>Oscar</td>
<td>51</td>
<td>11</td>
<td>92.25% - 100%</td>
<td>99.29%</td>
</tr>
<tr>
<td>Jane</td>
<td>42</td>
<td>10</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Bill</td>
<td>56</td>
<td>11</td>
<td>88.2%-100%</td>
<td>98.59%</td>
</tr>
<tr>
<td>Ava</td>
<td>57</td>
<td>13</td>
<td>91.7%-100%</td>
<td>99.36%</td>
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</table>
Table 1 depicts the number of sessions the participants attended, the number of sessions during which IOA was collected, the range and mean of IOA.

IOA percentages for all participants were computed for approximately 20% of the sessions/student. IOA was collected once a week for 13 weeks by a trained independent observer who sat at the opposite end of the table (approximately 5ft. away) while the researcher and participant were in session. IOA percentages between the experimenter and the trained independent observer were calculated by dividing the total number of agreements plus disagreements and multiplying by 100, and ranged from 88.2% to 100% with a mean of 99.3%.
RESULTS

Overall in the baseline assessment, the participants in the control group emitted more correct responses for letter names and letter sounds than occurred in the intervention group. Results of the intervention group indicated that Oscar was able to correctly name only 2 letters; Jane named only 1 letter; Bill named 4 letters correctly and 1 letter sound; Ava named 6 letter sounds correctly and 1 letter sound. Results of the control group showed that Don correctly named 8 letters and 2 letter sounds; Tracy correctly named 13 letters and 7 sounds; Sara accurately named 17 letters and 11 sounds; while Matt correctly named 14 letters and 11 sounds. No participants in either group correctly identified any CV or CVC blends.

Generally the results from the probe assessment show both groups improved in the probe assessment compared to the baseline assessment; however, the control group improved only in letter names and sounds, while the intervention group showed gains in letter names, sounds and blends. Results of the intervention group revealed that Oscar named 7 letters, 6 sounds and 1 CV blend; Jane named 7 letters, 7 sounds, and 1 CV blend; Bill named 11 letters, 7 sounds, and 1 CV blend; while Ava named 11 letters, 10 sounds, 2 CV blends, and 1 CVC blend. The performance of all participants in the intervention group improved from their previous assessment. Results of the control group showed that Don named 23 letters and 5 sounds; Tracy named 16 letters and 6 sounds; Sara correctly labeled 13 letters and 9 sounds, while Matt named 21 letters and 7 sounds. In the control group Don and Matt improved over their baseline assessments, however, Tracy improved in letter names but dropped in letter sounds. Sara's letter naming and sounds performances decreased compared to her baseline assessment.
Overall in the post assessment, both groups improved in letter naming and sounds; however, only the intervention group improved in CV and CVC blends: Oscar named 13 letters, 10 correct sounds, 2 CV blends and 2 CVC blends; Jane named 10 letters, 10 sounds, 3 CV blends and 2 CVC blends; Bill labeled 20 letters, 19 sounds, 6 CV blends and 6 CVC blends; Ava identified 22 letters, 21 sounds, 6 CV blends and 6 CVC blends. In the control group outcomes, Don named 24 letters and 9 sounds; Tracy identified 14 letters and 7 sounds; Sara labeled 22 letters and 16 sounds; and Matt named 21 letters and 14 sounds. Don and Sara improved in letter names and sounds, while Tracy improved in letter sounds and decreased in letter names. Matt’s performance in letter names did not change from baseline; however, his performance decreased in letter sounds.

**Figure 1.** Results of the baseline, probe and post assessments for the intervention group. All participant names are pseudonyms.
Figure 2. The results of the baseline, probe, and post assessments for the control group. All participant names are pseudonyms.
DISCUSSION

Overall, results indicate that most participants improved in their letter-naming skills and letter sounds. However, only the intervention group was able to correctly label any CV and/or CVC blends. This is a significant outcome, because recent literacy literature has emphasized teaching letter names (graphemes) to their corresponding letter sounds (phonemes) (Cunningham, Erickson, Spadorcia, Koppenhaver, Cunningham, & Yoder, 1999). However, results of this study suggest that a focus on teaching letter names and sounds in isolation does not lead to sound blending. The Lindsley’s Precision Teaching®/Englemann & Becker’s Direct Instruction® approach applied in this study may be a useful procedure for teaching this pre-school population the concept of blending sounds together. Sound blending is a necessary and critical component of pre-reading (National Reading Panel Report, 2000).

One explanation of why none of the 4 participants in the control group failed to correctly blend sounds indicates that sound blending is a behavioral cusp. A behavioral cusp is a behavior change that “exposes the individual’s repertoire to new environments, especially new reinforcers and punishers, new stimulus controls, and new communities of maintaining or destructive contingencies” (Rosales-Ruiz & Baer, 1997). Learning to read leads to many new reinforcers, such as increasing performance efficiency in the general as well as academic culture. Ability to read enables these economically deprived students to ultimately (through high school education) acquire skills necessary to earn a living in today’s workplace. Reading is important to the child’s future development which defines a cusp. A child cannot learn to read without first acquiring the prerequisite skills needed to achieve the final behavior of reading.
accurately and fluently. Each prerequisite skill is a building block for the next and opens up new opportunities for reinforcement. First, the child must be able to discriminate the different letter sounds, then, learn to blend the sounds together, this will lead to forming words and being able to sound out novel words, and then reading multiple words in a sentence etc. The point is that each component of learning to read needs to be taught and we cannot expect a student to be able to read the word “cat” just because the student can say, “c-a-t” and make the sounds /c/ /a/ /t/.

Another interesting finding from this study is the speed with which the intervention group improved compared to the control group. The baseline assessment (Figure 1) showed the intervention group correctly naming 1-6 letter names, while only 2 participants in the intervention group correctly labeled 1 letter sound vs. the control group which began with naming 8-16 letter names and 2-11 letter sounds. The post assessment (Figure 2) shows the intervention group correctly labeled 10-21 letters sounds while the control group correctly labeled 7-16 letter sounds, approximately a 5-letter increase from baseline. Also, all 4 participants in the intervention group were able to blend some CV and CVC sounds together.

The variation in assessment scores in the intervention group may be a function of session attendance. There were a total of 60 sessions in this study, Ava was absent twice; Bill was absent three times; Jane was absent 18 times, and Oscar was absent 9 times. Results suggest that consistent attendance is important for skill acquisition to occur.

One confound in this study was that the intervention and control groups received Scholastic Early Childhood Program (SECP) curriculum which consisting of the pre-
reading program described in detail in the introduction of this study. The SECP pre-
reading program focused mainly on letter names and letter sounds, thus making it
difficult to assess the effectiveness of the letter names and sounds procedure. However,
the SECP program did not teach blending and the results suggest that the Lindsley's
Lindsley’s Precision Teaching®/Englemann & Becker’s Direct Instruction® method was
responsible for the academic achievement in that area.

Another limitation of this study is the lack of follow-up retention data. This
limitation was imposed by time restraints.

Conclusion

The present study demonstrated that Lindsley’s Lindsley’s Precision
Teaching®/Englemann & Becker’s Direct Instruction® produced positive gains in CV
and CVC blends and is an effective methodology for teaching pre-reading skills to
students in Head Start programs. Research focused on applying this technology in a
small group classroom setting may prompt the classroom teacher to implement this
training procedure when teaching pre-reading skills. Further research with follow-up is
needed in this area and to assess retention. Future research could include other
populations such as children with Autism. This procedure could also be effective for
teaching pre-reading skills in adult education classes, children with developmental
disabilities, and as an approach to teaching mathematics. Further research that enables
answers to how to most effectively train academic skills might benefit from the
outcomes of this behavior analysis research project.
APPENDIX A

INFORMED CONSENT FORM
Title of Study: A Head Start on Reading for Children in Head Start Program
Principal Investigator: Kristin Osley, a graduate student in the University of North Texas (UNT) Department of Behavior Analysis.

**Purpose of the Study:** The purpose of this study is to examine the effects of a procedure to teach reading to children (3-5yrs old) in the preschool program Head Start. This procedure is based on a method that tracks student's progress by conducting 15-30 second timings in which the numbers of correct and incorrect responses are noted and goals for the next day are derived.

All participants will be assessed at the beginning and end of the study on letter sounds, and blends (consonant/vowel sound e.g. “ba” as in “bag”). If this teaching method is effective in teaching reading to this population, then their after test scores should increase.

**Study Procedures:** If your child is selected to participate, his/her current pre-reading skills (letter sounds, constant/vowel (C/V) blends (“ba” as in bag), and constant/vowel/constant (CVC) blends (e.g., ”cat,” ”mit”) will be assessed. After the pre-assessment your child will be taught any unknown letter sounds and C/V blends. During each timing, correct responses will be praised and incorrect responses will be ignored. After each timing, incorrect responses will be corrected and briefly practiced. If your
child meets his/her goal for the day s/he will receive a sticker of their choice and a short 2 minute free play time with age-appropriate toys. The session will take 10 -15 minutes each school day from 11/03/08- 03/09/09. At the end of the study an assessment will be given.

**Foreseeable Risks:** No foreseeable risks are involved in this study.

**Benefits to the Subjects or Others:** Benefits to your child are expected to be building pre-reading skills such as, letter sounds, C/V blends, and CVC blends, which are important building blocks in learning to read.

**Procedures for Maintaining Confidentiality of Research Records:** All research records will be maintained in a locked filing cabinet in the Department of Behavior Analysis at the University of North Texas. Signed consent forms will be filed separately from any other identifying information in order to maintain confidentiality, and these data will be destroyed three years following the completion of the study. The confidentiality of your child’s individual information will be maintained by numeric code (e.g. Adam Cade = 1-3) or pseudonyms in any publications or presentations regarding this study.

**Questions about the Study:** If you have any questions about the study, you may contact Kristin Osley at telephone number 555-555-5555, or the faculty advisor, Dr. Janet Ellis, 999-999-9999.

**Review for the Protection of Participants:** This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at 999-999-9999 with any questions regarding the rights of research subjects.

**Research Participants’ Rights:** Your signature below indicates that you have read or have had read to you all of the above and that you confirm all of the following:
• Kristin Osley has explained the study to you and answered all of your questions. You have been told the possible benefits and the potential risks and/or discomforts of the study.

• You understand that you do not have to allow your child to take part in this study, and your refusal to allow your child to participate or your decision to withdraw him/her from the study will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your child’s participation at any time.

• You understand why the study is being conducted and how it will be performed.

• You understand your rights as the parent/guardian of a research participant and you voluntarily consent to your child’s participation in this study.

• You have been told you will receive a copy of this form.

Printed Name of Parent or Guardian

________________________________                 __________
Signature of Parent or Guardian                                 Date
APPENDIX B
DIRECT INSTRUCTION OUTLINE
The following outline of Englemann & Becker’s Direct Instruction is from Distar Reading I: A Instructional System (1974).

Pre-reading Activities

The purpose of these activities is to prepare the children for the reading of simple regularly spelled words.

Symbol Identification. The children must be able to recognize the letter symbols and produce the sounds they represent.

Sequencing. The children need to know the order in which to read the symbols.

Blending. The children need to know that a word can be pulled apart by sounding out and that once a word is sounded out it can be put back together by saying the sounds fast.

Rhyming. The children need rhyming skills so that they will be aware of similarities among words.

Once the children master these skills they will be ready to begin reading words.
REFERENCES


Saunders, K. J. (2002, October). *Abstraction and recombinative generalization of within-syllable units*. Invited presentation at the Southeastern Association for Behavior Analysis, Charleston, SC.

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