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The Effects of Collaboration Versus Traditional Service Delivery on Reading and Listening Comprehension with School-Aged Students

Megan E. Grimaldi
Eastern Illinois University
This research is a product of the graduate program in Communication Disorders and Sciences at Eastern Illinois University. Find out more about the program.

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THE EFFECTS OF COLLABORATION VERSUS TRADITIONAL SERVICE DELIVERY ON READING AND LISTENING COMPREHENSION WITH SCHOOL-AGED STUDENTS

By

Megan E. Grimaldi

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

Master of Science

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

2000

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THE EFFECTS OF COLLABORATION VERSUS TRADITIONAL SERVICE DELIVERY ON READING AND LISTENING COMPREHENSION WITH SCHOOL-AGED STUDENTS

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Abstract
This study investigated improvement of reading comprehension and listening comprehension in school-aged students in first through third grades at two different elementary schools. Approximately half of the students at each school received collaborative classroom-based language lessons from the teacher and speech-language pathologist. The other half of the students at each school received regular instruction from the classroom teacher without input from the speech-language pathologist. The speech-language pathologist provided services to the students with speech or language IEP goals in the collaborative classrooms primarily in the classroom during these language lessons. The students who received speech or language services in the control classrooms received services solely through the traditional pull-out service delivery model of intervention. Statistical comparisons between the groups were not significant, even though students receiving services in the collaborative group earned pre-post score differences that were double of those in the pull-out classrooms. Reasons for non-significant findings in light of observable differences are discussed.
CHAPTER I

Introduction

Oral language comprehension and written language comprehension are complex skills. There are several areas of overlap between reading and oral language comprehension. These areas include phonological representation, word meaning, and sentence or text processing (Kahmi & Catts, 1991). Although reading and oral language share many of the same sources of knowledge, achieving comprehension of oral language does not guarantee comprehension of written language (Kamhi & Catts, 1991).

Students labeled as reading disabled often exhibit difficulties with oral language skills and/or listening comprehension. Catts, Fey, Zhang and Tomblin (1998) found that approximately 34.5% of poor readers actually have good listening comprehension, but display word recognition deficits (and poor phonological awareness). These students consequently have difficulties with reading comprehension because they are slow or inaccurate decoders. Students who exhibit both poor oral listening comprehension and poor word recognition, approximately 36.8% of poor readers, are referred to as language-learning disabled. These students typically have difficulty with reading comprehension because of deficits in both key areas of reading, decoding and listening comprehension. Additionally, 14.4% of poor readers exhibit good decoding but poor listening comprehension and poor reading comprehension. Therefore, more than 85% of the poor readers exhibit some type of language-based difficulty.

Another interesting relationship between language and reading was found (Stark et al., 1984) in that 90% of students with language impairments demonstrated some degree of reading impairment. Therefore, Catts, et al. (1998) suggested that speech-language
Collaboration versus Traditional Service Delivery

pathologists should become more involved with reading to better serve the students on their caseload. Wolf Nelson, Catts, Ehren, Roth, Scott, and Staskowski (1999, November) reported that the American Speech-Language-Hearing Association (ASHA) is developing an Ad Hoc Committee on Reading and Written Language Disorders and stated that, "Listening, speaking, and reading are interactive skills that draw on a common core of competencies that can't be easily separated for the purposes of assessment and remediation." The committee stated further that speech-language pathologists have unique knowledge and skills to address written language in students who are not succeeding in literacy.

Classroom teachers and speech-language pathologists have also begun to understand the significant impact language abilities have on academic and social success (Miller, 1989). Traditionally, speech-language pathologists provided services to students independent of the classroom environment and curriculum. Recent literature has reported the benefits of collaboration, and several surveys have indicated that some speech-language pathologists are providing a portion of their services in the classroom (Beck & Dennis, 1997; Elksnin & Capilouto, 1994; Throneburg, Calvert, Sturm, Paramboukas, & Paul, in press). However, only a few studies have evaluated the effectiveness of collaborative classroom-based intervention versus the traditional model (Sturm, Throneburg, & Calvert, 1998; Valdez & Montgomery, 1997; Wilcox, Kouri, & Caswell, 1991). Additionally, although there are several promising studies reporting strategies to improve the reading comprehension of school-aged students in the literature (Anderson, 1992; Bomrrito & Meichenbaum, 1979 (as cited in Meichenbaum & Asarnow, 1979); Brown, Pressley, Van Meter & Schuder, 1996; Collins, 1991; Duffy & Roehler, 1989;
Palinscar & Brown, 1984), none have incorporated a language specialist such as a speech-language pathologist in the intervention.

The purpose of this study was to compare the effects of collaborative classroom based intervention with the traditional service delivery model on reading and listening comprehension. The study evaluated the progress of students with current Individualized Education Plans (IEP) for speech and language, as well as non-IEP students.
CHAPTER II

Review of Literature

The 1992 National Assessment of Educational Progress revealed that the reading performance of 41% of the nation’s fourth graders fell below the criterion for basic level performance (Adams, Treiman & Pressley, 1998). This indicated students could not read grade-level narratives and high-interest text well enough to identify main ideas and themes, locate stated detail, summarize, or reflect on a character’s actions (Adams, Treiman & Pressley, 1998).

The purpose of this literature review is to address reading comprehension and its connection to the comprehension of oral language. The two skills, acquiring spoken language and reading comprehension, are no longer considered as two separate and independent skills. Therefore, the awareness of overlap between oral and written language abilities leads to the idea that collaborative language intervention from the speech-language pathologist and classroom teacher may be the most effective service delivery style. Following the review of reading comprehension literature is a review of collaborative versus traditional service deliveries. Advantages and disadvantages to both models as well as recent research findings in these areas are presented.

Reading Comprehension

The relationship between reading disabilities and developmental language disorders has been acknowledged throughout the research during the past several decades. Research during the current decade has demonstrated that reading is a language-based skill that shares many of the same processes and knowledge bases as speaking and understanding (Catts & Kamhi, 1999).
Kamhi and Catts (1991) developed a model of spoken and written language comprehension. A student decoding auditory input (spoken language) immediately uses phonological representation to attach word meaning to the stimulus. After word meaning is attached, sentence processing can be completed which then leads to comprehension. A student attempting to decode visual input will initially also use phonological representation to segment the written word into phonemes which can then be used to access word meanings. As the reader becomes more experienced and more visual stimuli are learned, the reader will progress from visual analysis to phonological representation and be able to attach word meaning based on the sight of the word. Once the reader has reached the word meaning level in reading, s/he will progress to sentence and/or text processing and to comprehension as in spoken language.

Reading, therefore, involves two basic components, word recognition and comprehension. Word recognition, or the ability to decode, is the ability to transform printed words into spoken words. Students who are reading to learn are using comprehension. A good reader who uses an interactive model of reading comprehension must have proficient word recognition skills and higher-level language and conceptual knowledge (Kamhi & Catts, 1991). Therefore, the division of labor between remediating language and learning to read is no longer valid. Reading and oral language are not separate ability areas. Young students use oral-language skills to learn to read and students reading to learn must use their language and cognitive abilities to acquire new knowledge (Westby, 1999).

Reading to learn requires comprehension monitoring which is a metacognitive process. Metacognition is defined as the ability to think about thinking. Using
metacognition, an individual assesses the successes and failures of his/her problem-solving strategies. Westby (1999) summarizes several metacognitive behaviors essential for reading comprehension: the student must understand the purpose of the reading assignment, be able to identify the important aspects and main ideas of a story, focus his/her attention on the major content aspects rather than the less important, trivial aspects, monitor to determine what s/he is comprehending, engage in self-questioning to determine if goals during reading are being met, and take corrective actions when comprehension fails.

Problem solving skills are also employed to facilitate comprehension. Roth and Spekman (1991) identified several areas of higher-level linguistic and problem solving skills that readers use to engage reading comprehension. These include the ability to understand relations between word and word parts signaled by word order and morphological endings, relations between sentences signaled by anaphoric and cataphoric reference, ellipsis and substitution. The reader should be able to identify words based on familiarity with content and/or context and determine vocabulary meaning based on context. A good reader can understand different levels of abstraction including literal and inferential comprehension, determining the main idea, summarizing, making appropriate predictions about the story’s events, character traits, emotions, and motivations. Finally, determining the author’s intent, information that is relevant, retaining that information for a sufficient amount of time and using one’s knowledge of narrative structure are also skills used by good readers.

Many of these skills used by good readers are goals within the language arts curriculum. Appendix A contains a curriculum profile for first through third grades at a
local public school. Skills that are introduced and targeted to become proficient during
the first through third grades include using stated detail, stated and implied cause and
effect, prediction, and drawing conclusions or inferences.

Blachowicz (1994) identified several areas in reading that students with academic
difficulties typically manifest. The first area, difficulty with narrative comprehension, is
often observed in the student who has difficulty retelling a story in a coherent manner.
The student can usually recount isolated details from the story but not any of the
surrounding framework for the story which may make the retelling unorganized and
nonsystematic. Students with narrative comprehension difficulties draw a conclusion for
the story early on or from a single isolated section and cannot or will not revise his/her
interpretation even after completing the entire text.

According to Blachowicz (1994), another area of difficulty occurs in making
correlations across the text. A student experiencing difficulty in this area generally cannot
connect information from different locations within the text, focusing on only single items
of literal information. Blachowicz suggested developing diversified strategies for
answering questions as one way to emphasize the need to collect information along the
way.

The last major area of difficulties that occur in reading comprehension according
to Blachowicz (1994) is vocabulary deficits. Students experiencing this type of academic
difficulty often have fewer semantic associations for the words with which they are
familiar. Intervention may include highlighting new word(s) and generating possible
associations between new words and known words. After this association, Blachowicz
recommends that the reader gather information to apply to the problem through contextual
reading followed by self-monitoring and consolidation into the student’s established vocabulary.

**Investigations of Reading Comprehension**

A variety of educational studies suggest that students who learn reading strategies perform better in reading comprehension when compared to their control peers. Palincsar and Brown (1984) investigated the effects of reciprocal teaching with comprehension strategies with twenty-four seventh grade readers. The students were identified as adequate decoders but poor comprehenders and were placed into four conditions of six students each. In the first condition, the students were taught comprehension strategies including predicting, questioning, seeking clarification, and summarizing using the reciprocal teaching method. In the second condition, students were taught a different strategy to locate information in a text in response to postreading questions about the content of a text. In the third condition, students received all the pre- and posttests and daily assessments but no training on strategy use. The fourth condition was the control group that only received pre- and posttest assessments but did not receive training on specific strategies or daily assessments.

The experimental group received intervention for approximately 20 days. Testing materials were 400- to 475-word passages that each student read silently and 10 comprehension questions which they answered. Each day during intervention, the teacher discussed the day’s topic and asked for predictions about the content of the passage based on the title if the passage was new, or called for a review if the passage was from the previous day. One student each day was then given the opportunity to be a “teacher” for the class, and pose questions about the passage for the class and adult teacher to answer.
Each junior teaching session was approximately 30 minutes in length. Daily assessments were collected with each student silently reading the 400- to 475-word passages and answering the 10 comprehension questions. Throughout intervention, students were informed that summarizing, predicting, questioning and seeking clarification were all strategies that would facilitate better understanding of the passage. Students were encouraged to try these strategies when they were reading on their own. Posttesting scores indicated a positive impact of all strategies used for comprehension as a result of reciprocal teaching (Adams, Treiman & Pressley, 1998).

Another study by Bomrrito and Meichenbaum (as cited in Meichenbaum & Asarnow, 1979) taught comprehension strategies to middle school students who were adequate decoders but experiencing difficulties understanding what they read. Intervention began with an adult model of self-verbalized regulation of the comprehension strategies such as looking for the main idea, attending to the sequence of important events in the story, and attending to how characters in a story feel and why they feel the way they do. After six training sessions, posttest scores on a standardized comprehension test indicated an increase in the reading comprehension skills of the students who participated in the study as compared to students in the control group (Adams, Treiman & Pressley, 1998).

Other studies (Anderson, 1992; Brown, Pressley, Van Meter, & Schuder, 1996; Collins, 1991) have indicated an increase, or improved performance, by students involved in comprehension strategy studies as compared to their control group counterparts. Collins’ (1991) study of transactional strategies on fifth and sixth graders who did not differ on standardized tests prior to treatment reported there was a three standard
deviation difference between the two groups by the end of the study. Duffy and Roehler (1989) conducted a study on the effects of direct explanation strategies on third graders' reading comprehension. Ten of twenty groups of weak readers were randomly assigned to the direct explanation condition and the other ten groups were retained as control groups who received their usual instruction. Teachers began intervention by explaining a strategy, skill, or process that was part of skilled reading at this level, and then mentally modeling the use of it for students. Students were then guided in practice, and teachers cued and prompted the use of new strategies throughout the school day whenever s/he thought the students might profit from its use. Posttesting results using standardized reading measures showed students in the direct explanation condition group scored significantly higher than students in the control group (Adams, Treiman & Pressley, 1998).

Although there have been several promising studies that have investigated reading comprehension, none have included the assistance of a language specialist such as a speech-language pathologist.

**Traditional Speech-Language Services**

Traditionally, speech therapy in schools has followed the medical model and drilled isolated skills in a separate room from the regular classroom. The students were taken out of their classroom to receive specialized treatment. This type of service delivery setting is referred to as the "pull-out model." The speech-language pathologist is in control of the environment and any possible distractions. Therapy may be one-on-one or in small groups.

Many limitations to the traditional pull-out model have been cited in recent literature (Miller, 1989). First, there may be a lack of carryover since the student is
removed from the classroom context for therapy and then returned to the highly active
environment of his/her regular classroom. Often, the student will fail to see the
relationship between an isolated therapy skill and the ongoing activities at school. Second,
the focus of activities in the therapy room may not parallel what is occurring in the
student’s regular classroom. As a result, treatment goals may not be related to academic
goals. Third, the student who may already be struggling to meet academic demands in the
classroom as a result of his/her language deficits is further disadvantaged by being
expected to meet those demands while missing classwork. This type of service delivery
may place additional pressure on the student, and may cause him/her to fall further behind
peers. A fourth disadvantage cited by Miller is that the scheduling competition between
the classroom teacher and the special service provider may violate the least-restrictive
environment condition of PL 94-142. In extreme cases, a student may be expected to go
in and out of his/her regular classroom eight to ten times per week for services in order to
accommodate the schedules of the teacher and service provider(s). The regular classroom
may be determined as the least restrictive environment for the student, but s/he may spend
a majority of his/her time out of the classroom for special services. Miller additionally
cites that communication between the service provider and classroom teacher is often
diminished because traditional therapists’ caseloads are often maximized, therefore
reducing or eliminating time to communicate and coordinate services with others involved
with the student. Arguments may also be made that a poor self-image may develop from
leaving the regular classroom to receive special services. A student who is “pulled out” of
the classroom may miss or have limited social interactions with his/her peers.
The implementation of the least restrictive environment has forced professionals to look beyond the traditional model. Much of the support for finding alternative roles for providers of services has evolved from the regular education initiative (REI), a proposal associated with the former Assistant U.S. Secretary of Education, Madeline Will. In her 1986 report, Will investigated files from the Office of Special Education and Rehabilitation Services (OSERS) and reported that the graduation and employment rates for students from special programs was declining. She issued a challenge to each state to revisit their commitment towards assisting these students in the regular classroom. Will (1986) suggested partnerships between special education programs, compensatory programs, and regular education be formed.

Alternative Service Delivery Models

Meyer (1997) described seven different service delivery models: consultative, collaborative, traditional, team teaching, self-contained language class, multiskilling, and inclusion. Meyer speculated as to why so many new types of intervention services have surfaced in recent years. First, the school population has changed so drastically that the resulting caseloads are more varied. Secondly, consumers are demanding results and providing less funding, which requires one professional to perform many tasks. Additionally, speech-language pathologists are required to show the connection between language deficits and academic failure. Recent legislation like the Individuals with Disabilities Education Act (IDEA) has required speech-language pathologists to demonstrate outcomes which will positively impact both academic performance and the students’ ability to function productively in society. Speech-language pathologists must also translate their terminology into educational terms.
Cirrin and Penner (1995) identified several advantages to the classroom-based service delivery. Included in their arguments to move therapy into the classroom was the idea that students need "understanding and responding to instructional content and participation in teacher-student and student-student interactions that support learning (p. 338)." They also cited the ease with which generalization into natural contexts could occur. Another important advantage introduced by Cirrin and Penner was the increase in the frequency of intervention. If a speech-language pathologist models intervention techniques with the classroom teacher present, the teacher will be able to utilize those learned techniques at other times during the day. Finally, by providing intervention services in the regular classroom, those students who have been identified are being served and those students who have not been identified are also being served, therefore, potentially preventing communication disorders. Additionally, Ebert and Prelock (1994) reported that teachers participating in a collaborative classroom became more accurate in identifying students with speech and language deficits than did teachers who did not participate in a collaborative classroom.

Overcoming Obstacles to Implementing Alternate Intervention Services

Research has identified issues related to implementation of collaborative-consultative service delivery. Ferguson (1991) noted that it may take three to five years to effectively implement an alternate service delivery option. Speech-language pathologists and regular classroom teachers should anticipate long-term planning to be involved in the entire process of change. Speech-language pathologists must foster the regular classroom teacher's willingness to allow the speech-language pathologist into his/her classroom to share goals (Magnotta, 1991). Additionally, the speech-language pathologist must acquire
the skills required to achieve competence inside a classroom and teaching an entire class.

The teacher and speech-language pathologist must develop a team attitude and cohesiveness for the collaboration to be successful (Achilles, Yates & Freese, 1991).

Achilles, Yates and Freese (1991) also noted that support of the regular classroom teacher is imperative, as well as the administrative support.

A set of guidelines for implementing a successful collaborative model was offered by Loucks-Horsley and Cox (1984). The authors recommended that the speech-language pathologist and the teacher define the specific responsibilities of the professionals involved, determine what the teachers will do differently, and identify the benefit the students will derive from the change. Additionally, the teacher and speech-language pathologist should observe one another in each professional’s respective setting in order to assess concerns and differences in teaching styles that may be encountered. The authors stated commitment from the administration where collaborative service deliveries takes place is necessary for a successful change. Teachers who are the opinion leaders must demonstrate support for the change and training by credible professionals with practical know-how is essential. Finally, support with immediate access to resources and hands-on material to assist with program implementation is crucial, as well as writing the collaborative teaching into the curriculum, budget, or someone’s job description (Ferguson, 1991).

Survey Research in Collaboration

Beck and Dennis (1997) recently studied the perceptions of classroom teachers and speech-language pathologists regarding classroom-based intervention. At the time of the survey, 86% of the speech-language pathologists who responded (n=21), and 67% of
the teachers who responded (n = 51) were currently using collaborative intervention. The results indicated that teachers and speech-language pathologists agreed that collaborative intervention enhanced students' turn-taking skills and learning from peers. The majority of both groups agreed that the communication skills of students not receiving speech-language services were enhanced, that there was a greater carryover of new skills and that there were increased opportunities for appropriate reinforcements. Both professions cited primary advantages to be that the students remained in their natural settings, had more functional goals, and did not miss regular classroom activities. Other advantages reported were an improvement of peer modeling and social interactions with peers. An improvement of communication between professionals was also mentioned as an advantage. Disadvantages listed by both the classroom teacher and speech-language pathologist were that planning time and targeting individualized goals were difficult. Speech-language pathologists also stated that lack of teacher support and/or interest in classroom-based intervention were sometimes a drawback.

Elksnin and Capilouto (1994) surveyed speech-language pathologists interested in adopting a collaborative model or those who already were using a collaborative model. The speech-language pathologists who had already adopted a collaborative model, reported using it primarily with preschoolers and elementary-aged students, whereas, very few reported using such a model with adolescents. Elksnin and Capilouto's survey identified factors important for an effective collaboration model as knowledge and skills of the speech-language pathologist and classroom teacher, planning time, and support from the administration. Perceived advantages to a collaborative model as reported by the speech-language pathologists included a better carryover of speech and language skills and
increased knowledge of the relationship between language and academics. Perceived disadvantages included the extra planning time and a difficulty incorporating IEP goals into the collaboration.

Another survey by Paramboukas, Calvert and Throneburg (1998) indicated that the one teach/one drift and the SLP-teach (classroom teacher was not present during speech-language pathologist’s language lesson) models were most frequently used. This survey also found that 76% of speech-language pathologists providing services within a classroom did not have scheduled planning time with the regular classroom teacher. These survey results indicate that although speech-language pathologists are entering the classrooms, they may not engage in a collaborative model of intervention.

Classroom versus Traditional Pull-Out Services for Students with Speech-Language Deficits

Roberts, Prizant and McWilliam (1995) investigated the effects of traditional pull-out versus classroom intervention on communication skills in young students. Two groups of students ages one to five years with mild or moderate cognitive and developmental delays were studied. The groups of students initially did not differ significantly in their scores on the ABILITIES Index (Simmonson & Bailey, 1980) or on the Battelle Developmental Inventory (Newborg, Stock, Wneck, Guidubaldi, & Svinicke, 1984). All students received two twenty-five minute sessions of either traditional pull-out therapy or classroom intervention. The intervention procedures were similar in both groups with a shared curriculum and consistent schedule. The study concluded that the speech-language pathologist took considerably more turns in pull-out therapy and the students were more compliant in the traditional therapy setting. An important similarity
was found between the two service delivery options in that the students took the same amount of turns in both settings.

Wilcox, Kouri, and Caswell (1991) evaluated the effectiveness of traditional pull-out versus classroom treatment with preschool students diagnosed with language delays. Their subjects were 20 preschoolers who scored at least 1.5 standard deviations below the mean on either the receptive and expressive sections of the Sequenced Inventory of Communication Development (SICD) (Hendrick, Prather, & Tobin, 1984) or the communication portion of the Battelle Development Inventory. Services for these students were provided twice a week for twelve weeks, for a total of 24 traditional or classroom sessions. Classroom sessions were scheduled from 9:00 a.m. to 12:00 p.m., while traditional sessions were conducted for 45 minutes. During both sessions, all students received at least 10 models of each of his/her target vocabulary words through interactive modeling techniques. The results of the study by Wilcox, Kouri, and Caswell indicated similar lexical knowledge gain at the time of the posttests, however, the students who received classroom-based intervention demonstrated greater generalization to the home than those who received traditional therapy.

Valdez and Montgomery (1997) investigated the outcomes for preschool students with language deficits in classroom-based intervention and traditional pull-out treatment. Forty students in the Head Start program were identified with language disorders based on their performance on the Clinical Evaluation of Language Fundamentals (CELF-Preschool) (Wiig, Secord, & Semel, 1991). The students were randomly placed in two groups, with an equal dispersion of students from each severity level (mild, moderate, and severe). Basic concept activities were the same for both groups of students and the
intervention treatments were delivered by two certified speech-language pathologists. Intervention treatment totaled 36 hours over a six month period. Following the six month intervention period, the CELF-Preschool was re-administered to all students. The overall mean gains of the students in traditional therapy were slightly greater than the scores of the classroom-based intervention students, however, the gains were not determined to be clinically significant and statistics were not applied.

Collaborative Classroom Services versus Traditional Teacher Only Instruction

A study by Ellis, Schlaudecker, and Regimbal (1995) investigated the effects of collaborative consultation on basic concept instruction with kindergarten students. Forty students aged 5:4 to 7:2 were randomly placed into one of two kindergarten classes at the beginning of the school year. One kindergarten class served as the experimental group, the other class served as the control group. During collaboration, the school speech-language pathologist, the university physical education faculty member, the kindergarten teacher, and the grade school physical education teacher met to list concepts to be addressed during intervention. Nine concepts were selected as targets and were taught during eight weeks. The teacher of the control classroom was unaware of the study and continued to teach the class from the regular curriculum. At the conclusion of the study, both groups were tested with the Boehm Test of Basic Concepts-Revised. Ellis, Schlaudecker, and Regimbal found a significant difference between the experimental and control groups with the experimental group scoring higher on the nine targets.

A recent study by Sturm, Throneburg, and Calvert (1998) investigated the effects of collaboration versus traditional pull-out service delivery models on the acquisition of vocabulary in students enrolled in kindergarten through third grade at two different
schools. Students at the “traditional school” with speech-language IEP goals received traditional pull-out therapy. Students at the “traditional school” who had not been scheduled to receive speech-language pathology services continued receiving instruction from their regular classroom teacher. At the second school, referred to as the “collaborative school,” the SLP delivered speech and language services through collaborative intervention with the classroom teacher in the regular classroom. The results indicated that the collaborative classroom students made significantly greater gains in curricular vocabulary than did their counterparts in the traditional school (Sturm, Throneburg, & Calvert, 1998). Further, Sturm, Throneburg, and Calvert reported that all four grades levels (kindergarten through third grades) demonstrated substantially greater vocabulary gains with classroom-based collaboration than in traditional pull-out or regular instruction alone. Collaboration was also found to be the most effective strategy for all students involved including students who did not qualify for speech-language services.

Most recently a study by Farber and Klein (1999) reported the effects of a year long comprehensive classroom teacher and speech-language pathologist collaborative intervention program. The study included 552 students from 12 kindergarten and first grade classrooms at six different elementary schools. Two treatment groups received direct, weekly collaborative intervention by the speech-language pathologist and classroom teacher in three sessions per week. The control group received no support services. Curriculum for the Maximizing Academic Growth by Improving Communication (MAGIC) program, and MAGIC testing items were developed by 16 school-certified speech-language pathologists. The committee used sources such as grade appropriate curriculum guidelines, cognitive-linguistic categories relating to the demands of the
curriculum for the major academic subjects, the hierarchy of Bloom’s Taxonomy, downward extensions of writing assessments, information from primary grade teachers in the participating school district, narrative development, story grammar, basal reading words using a context-bound format, and information obtained from a curriculum components checklist. The MAGIC Test assessed speaking, listening, reading, and writing. Teachers from the treatment classrooms and collaborating SLPs met for a two day workshop prior to the school year to share information on the collaborative process, the language instruction, Bloom’s Taxonomy of Higher Levels of Thinking, cooperative learning, and classroom management. The initial workshop allowed time for collaborative teams from each school to meet, begin to plan lessons, and analyze various co-teaching strategies. Posttesting of all students revealed the treatment groups scored significantly higher on the listening and writing subtests and total test when compared to the control group. Near significant differences were also seen in the reading subtest. Results of the analyses indicated that the MAGIC collaborative program was a worthwhile educational practice for students in the early years of school. Results of this study suggested that the speech-language pathologist working in an educational setting could effectively bring his or her clinical skills into the classroom as well as the therapy room.

**Summary and Statement of Objectives**

Research has established a relationship between reading comprehension, listening comprehension, and language (Adams, Treiman & Pressley, 1998; Aram & Hall, 1989; Blachowicz, 1994; Kamhi & Catts, 1991; Roth & Spekman, 1991; Silva, Williams & McGee, 1987; Stark et al., 1984; Westby, 1999). The literature has shown that improving language skills impacts the level of reading comprehension positively.
Legislation such as IDEA and REI have directed speech-language pathologists to engage in more functional, curriculum-based intervention during the treatment of students with speech and language IEP goals in the least restrictive environment. Traditional service delivery for speech and language services has been questioned as the most effective form of intervention and collaboration in school classrooms has been introduced as an intervention strategy which may be more effective.

A few limited studies with collaboration between the speech-language pathologist and regular classroom teacher have been reported and these have mixed results. The studies that exist were primarily concerned with the intervention of young students, often preschool-aged, who had identified language disabilities (Roberts, Prizant & McWilliam, 1995; Valdez & Montgomery, 1997; Wilcox, Kouri & Caswell, 1991). Farber and Klein (1999) and Ellis, Schlaudecker, and Regimbal (1995) found that collaborative intervention between speech-language pathologists and teachers was more effective than traditional teacher-only instruction for basic concepts, listening and writing for entire kindergarten and first grade classrooms. There currently exists only one study that has examined the effects of collaboration versus traditional intervention for school-aged students with both IEP and non-IEP students (Throneburg, Calvert, Sturm, Paramboukas & Paul, in press). However, the study by Throneburg et al (1998) only investigated the effects of collaboration on vocabulary acquisition.

The purpose of this study was to compare collaborative classroom-based intervention with the traditional model of services for students in grades one through three including speech-language impaired and non-speech-language impaired students. The following questions were asked:
1. Is there a significant difference in the improvement of reading comprehension skills for students who participated in collaborative intervention versus traditional service delivery? Specifically the study will evaluate differences between:
   a. entire classrooms of students who participated in collaborative versus traditional intervention
   b. students with speech-language deficits who participated in collaborative versus traditional intervention
   c. students without speech-language deficits who participated in collaborative versus traditional intervention.

2. Is there a significant difference in the improvement of listening comprehension skills for students who participated in collaborative intervention versus traditional service delivery? Specifically the study will evaluate differences between:
   a. entire classrooms of students who participated in collaborative versus traditional intervention
   b. students with speech-language deficits who participated in collaborative versus traditional intervention
   c. students without speech-language deficits who participated in collaborative versus traditional intervention.

3. Is there a significant difference between the improvement of vocabulary skills of students with speech-language deficits who received speech and
language services through collaborative classroom-based intervention and students who received services through traditional pull-out intervention?
CHAPTER III

Methods

Overview

The purpose of this study was to compare the effects of collaborative classroom based intervention with the traditional service delivery model on reading and listening comprehension. The effects of intervention were measured using subtests of the Wechsler Individual Achievement Test (WIAT) during pre- and posttest conditions.

Subjects

Subjects for this study were 139 students with signed parental permission slips (see Appendix B) enrolled in first through third grades at Carl Sandburg Elementary School and Windsor Elementary School, located in east central Illinois. Mean ages for subjects in each grade level were similar at both schools.

Table 1 presents the number of subjects from each school with and without speech-language deficits who participated in the collaborative and traditional service delivery models.
TABLE 1

Number of Subjects Receiving Special Services at Carl Sandburg and Windsor Elementary Schools

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>n at Carl Sandburg</th>
<th>n at Windsor</th>
<th>Total n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech/language therapy from SLP</td>
<td>13</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>Collaborative classrooms</td>
<td>6</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Control classrooms</td>
<td>7</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>No speech/language services</td>
<td>58</td>
<td>55</td>
<td>113</td>
</tr>
<tr>
<td>Collaborative classrooms</td>
<td>35</td>
<td>30</td>
<td>65</td>
</tr>
<tr>
<td>Control classrooms</td>
<td>23</td>
<td>25</td>
<td>48</td>
</tr>
<tr>
<td>TOTALS</td>
<td>71</td>
<td>68</td>
<td>139</td>
</tr>
</tbody>
</table>

Students identified for language intervention at both elementary schools scored one or more standard deviations below the mean on two different language tests.

Students identified for articulation intervention at both elementary schools scored one or more standard deviations below the mean on one test of articulation.

Intervention

All students in each grade at both schools were exposed to language lessons during their regular language arts curriculum throughout the semester this study was conducted. Prior to the start of the 1999 Spring Semester, the speech-language pathologist serving each school met with the collaborative teachers individually to discuss the curriculum goals for the semester to ensure all goals would be addressed and targeted throughout the course of the semester in each grade level. The teachers in the control classrooms were
not part of the collaboration meeting. Table 2 provides a definition and example of each curricular comprehension area and goals targeted at each grade level during the 1999 Spring Semester.

TABLE 2

Definition and Examples of Curricular Goals Targeted at Various Grade Levels

<table>
<thead>
<tr>
<th>Goal</th>
<th>Description; Key Terms; Examples of Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Using Picture Clues</td>
<td>Given a sentence and a picture depicting the content of the sentence, the student is able to answer a question directly relating to an action or detail in the picture. Some questions can be answered from picture alone, while others require some reading to get the answer. “Why running, Whose book, What’s in the box?”, etc.</td>
</tr>
<tr>
<td>Grade 1</td>
<td></td>
</tr>
<tr>
<td>2. Stated Detail</td>
<td>Given a passage, the student is able to restate a piece of information stated directly in that passage. “How can you make your body burn fat while you sleep?”, etc.</td>
</tr>
<tr>
<td>Grades 1-3</td>
<td></td>
</tr>
<tr>
<td>3. Stated Cause and Effect</td>
<td>Given a passage, the student is able to state the cause or effect in a cause-effect relationship stated directly in the passage. “Why was the man sleeping when the phone rang?”, etc.</td>
</tr>
<tr>
<td>Grades 1-3</td>
<td></td>
</tr>
</tbody>
</table>
### Definition and Examples of Curricular Goals Targeted at Various Grade Levels

<table>
<thead>
<tr>
<th>Goal</th>
<th>Description; Key Terms; Examples of Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Drawing Conclusions</td>
<td>Given a passage, the student is able to state the conclusion that can best be inferred from information stated in the passage. “Who am I?” etc.</td>
</tr>
<tr>
<td>Grades 1-3</td>
<td></td>
</tr>
<tr>
<td>5. Sequencing</td>
<td>Given a passage that contains a sequence of events or steps in a process, the student is able to identify the event or step requested. “Lee saw this then this...What did Lee see first?” etc.</td>
</tr>
<tr>
<td>Grades 1-3</td>
<td></td>
</tr>
<tr>
<td>6. Implied Cause and Effect</td>
<td>Given a passage, the student is able to state the implied cause or implied effect for a cause-effect relationship. “Why did Mr. Clark want a new job?” etc.</td>
</tr>
<tr>
<td>Grades 2-3</td>
<td></td>
</tr>
<tr>
<td>7. Predicting Outcomes</td>
<td>Given a passage containing a series of events or background information, the student is able to state an event or outcome that is likely to happen. “What will probably happen next?” etc.</td>
</tr>
<tr>
<td>Grades 2-3</td>
<td></td>
</tr>
<tr>
<td>8. Compare/Contrast</td>
<td>Given a passage, the student is able to explain either the similarity or difference between characters, objects, or events in the passage. “What makes this boat different?” etc.</td>
</tr>
<tr>
<td>Grades 2-3</td>
<td></td>
</tr>
</tbody>
</table>

(Table Continues)
TABLE 2 (Continued)

Definition and Examples of Curricular Goals Targeted at Various Grade Levels

<table>
<thead>
<tr>
<th>Goal</th>
<th>Description; Key Terms; Examples of Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Weekly Vocabulary</td>
<td>Students were introduced to new vocabulary which</td>
</tr>
</tbody>
</table>

First grade was the only grade level to use picture clues as a technique for increasing reading comprehension. Second and third grades were the only grades to utilize implied cause and effect, predicting outcomes, and comparing and contrasting as techniques to increase reading comprehension. All other curricular goals were included in each grade level.

The students at each school were exposed to only one of the two types of intervention strategies investigated in this study, traditional or collaborative intervention. Each school had two first, second, and third grade classrooms. One classroom in each grade level at each school participated in collaborative intervention and the second classroom in each grade level at each school participated in traditional intervention. Table 3 describes the division of students in each school and the role of the school's respective speech-language pathologist.
TABLE 3

Groups of Subjects and Intervention Models

<table>
<thead>
<tr>
<th>Collaborative Intervention</th>
<th>Traditional Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each School¹, Each Grade² - Classroom A</td>
<td>Each School¹, Each Grade² - Classroom B</td>
</tr>
<tr>
<td>Group 1: not qualifying for SLP services</td>
<td>Group 1: not qualifying for SLP services</td>
</tr>
<tr>
<td>SLP role: collaborating and in the classroom</td>
<td>SLP role: not involved (control for group 1A)</td>
</tr>
<tr>
<td>Group 2: receiving SLP services</td>
<td>Group 2: receiving SLP services</td>
</tr>
<tr>
<td>SLP role: provides services primarily in the classroom with collaboration</td>
<td>SLP role: provides speech-language services in traditional pull-out therapy only. Does not directly address curricular goals such as reading comprehension.</td>
</tr>
</tbody>
</table>

¹Carl Sandburg and Windsor Elementary Schools
²First, second and third grades

Collaborative Intervention

Students in each of the six classes participating in collaborative intervention received instruction in the classroom from the classroom teacher, the speech-language pathologist, and a graduate student from Eastern Illinois University. The instruction occurred during the language arts curriculum and included vocabulary along with comprehension skills such as using picture clues, stated detail, stated and implied cause
and effect, prediction, comparing and contrasting, and drawing conclusions. Typically, the
regular classroom teacher and the speech-language pathologist met each week to plan for
upcoming collaborative sessions. Curricular targets were chosen and specific vocabulary
words were identified which related to the week’s lesson. Each week, vocabulary and
approximately three of the other eight curriculum goals were targeted in each of the six
collaborative classrooms. A story from the language arts curriculum was often selected
for the week’s collaborative lesson. In first and second grades, a short story was often
read to the students. They were asked questions relating to the ideas of the entire story
with some specific detail questions also addressed. In third grade classrooms, chapters
from a longer story were frequently read either to the class or by the students in the class.
Following the story some type of activity relating to the curricular targets was performed
such as sequencing story events from jumbled sentences from the story. Each
collaborating member was assigned a certain task or activity to lead during the
collaborative session with many activities assigned as joint responsibilities. During the
sessions, the regular classroom teacher and speech-language pathologist would participate
equally in the week’s language lesson, primarily using team teaching service delivery
models but also employing some one-teach/one-drift or station teaching service delivery
models. Speech and language goals for students with speech-language deficits were also
targeted in the classrooms primarily by the speech-language pathologist through the one-
teach/one-drift model. Collaborative language instruction occurred 40 minutes per week
in each class for a minimum of ten weeks during the 1999 Spring Semester.

The teachers and their respective speech-language pathologists met at the
beginning of the semester to generally plan the collaborative activities for the semester.
Throughout the semester, weekly 30 minute conferences were attempted with each teacher and the speech-language pathologist to discuss the previous lesson and plan for the upcoming lesson. Appendix C contains a copy of a checklist used at each meeting to help focus on the targeted curriculum goals and plan activities for the lesson. A section for listing untargeted goals and other comments related to the week's lesson was also provided.

In addition to the collaborative classroom intervention, students with speech and language IEP goals received a minimum of 15 minutes of traditional therapy a week in order to meet the number of minutes per week recorded on their respective IEP. The pull-out therapy also used the curricular material from collaborative lessons to target other speech or language goals.

**Traditional Pull-Out Intervention and Control Conditions**

The students in the traditional classrooms with speech and language IEP goals received traditional pull-out therapy each week in order to meet the number of minutes recorded on their respective IEP. Traditional intervention was provided to students individually or in small groups away from the classroom environment. The therapy targeted each student's speech and language goals. Classroom teachers independently targeted comprehension curriculum goals in the classroom setting. The eight curricular goals chosen for the collaborative classroom targets were part of the district's curriculum for each grade level (Appendix A). However, the teachers in the control classrooms did not emphasize the eight curricular goals targeted in the collaborative classrooms.

Students from the six classes of traditional intervention who were not receiving any speech or language services were given instruction in the comprehension curriculum
goals through instruction from the regular classroom teacher. The respective speech-language pathologist did not provide any services for these students.

Evaluation of All Subjects

All subjects were administered the Reading and Listening Comprehension subtests of the Wechsler Individual Achievement Test (WIAT, 1992) during pre- and posttest measures. Testing was administered individually to all students in each classroom with a signed permission slip at the beginning and end of the 1999 Spring Semester.

Testing was completed by two certified speech-language pathologists employed at a university and several graduate students in the Department of Communication Disorders and Sciences at Eastern Illinois University. All examiners met prior to testing to train on testing procedures.

The Reading Comprehension subtest of the WIAT (1992) tested areas including using picture clues, recognizing stated detail, sequencing, recognizing stated and implied cause and effect, making inferences, and comparing and contrasting between characters, objects or events in the passage. All subjects began with item number one and continued testing until four consecutive items had been failed. The examiners were given very specific correct and incorrect responses during testing to ensure a high interjudge reliability.

The Listening Comprehension subtest of the WIAT (1992) also tested areas including using picture clues, recognizing stated detail, sequencing, recognizing stated and implied cause and effect, making inferences, and comparing and contrasting between characters, objects or events in the passage. All subjects again began with item number one and continued testing until five consecutive items had been failed. The examiners
were given very specific correct and incorrect responses during testing to ensure a high interjudge reliability.

Reliability for the WIAT (1992) was reported at .98 in the manual. Interjudge reliability was determined by rescoring five percent of the tests. A Pearson Product Correlation determined the reliability was $r = .98$. The form used for recording responses to the Reading and Listening Comprehension subtests of the WIAT is included in Appendix D.

Students who had speech-language IEP goals were administered the Peabody Picture Vocabulary Test – Revised (PPVT-II), Forms L or M. According to the manual for the PPVT Forms L and M, raw scores on the two forms of the revised edition do not differ by more than 2 raw score points. The PPVT-II was administered to obtain vocabulary acquisition knowledge and was administered individually to students receiving IEP services.
CHAPTER IV

Results

Results were obtained by comparing the difference between mean pre- and posttest scores on two subtests of the WIAT (1992). Group means for the reading and listening comprehension pre- and posttests were first calculated for all subjects who received collaborative intervention or traditional intervention. The means for the pre- and posttests as well as the test gains for reading and listening comprehension subtests are presented in Table 4.

TABLE 4

Comparison of Mean Scores (and Standard Deviations in Parentheses) on Listening Comprehension and Reading Comprehension Subtests of the Wechsler Individual Achievement Test of Students Who Participated in Collaboration or Traditional Intervention

<table>
<thead>
<tr>
<th>Service Delivery</th>
<th>Listening Comprehension</th>
<th>Reading Comprehension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Test</td>
<td>Posttest</td>
</tr>
<tr>
<td>Collaboration</td>
<td>16.51</td>
<td>18.81</td>
</tr>
<tr>
<td>n = 80</td>
<td>(5.15)</td>
<td>(4.85)</td>
</tr>
<tr>
<td>Traditional</td>
<td>17.15</td>
<td>18.37</td>
</tr>
<tr>
<td>n = 59</td>
<td>(5.11)</td>
<td>(4.95)</td>
</tr>
</tbody>
</table>
Initial testing prior to intervention indicated the collaborative ($M = 16.51$) and traditional ($M = 17.15$) groups scored similarly on listening comprehension, and reading comprehension ($Ms = 11.60, 13.08$ respectively) subtests. In fact, two one-way analyses of variance revealed no statistically significant differences between the groups in pre-test measures (listening comprehension $F (1, 137) = .53, \ p = .47$, reading comprehension $F (1, 137) = 1.29, \ p = .26$). Following ten weeks of intervention, subjects were re-administered assessment instruments. Pre-test scores were subtracted from posttest scores to determine test gains.

Mean test gains were positive for both collaboration and traditional intervention groups. The mean test gains in listening comprehension were nearly twice as great for the collaborative group ($M = 2.30$) as those for the traditional group ($M = 1.22$). A one-way analysis of variance indicated that the difference in listening comprehension gain approached but did not reach statistical significance, $F (1, 137) = 3.41, \ p = .07$. The mean test gains in reading comprehension were similar for both collaborative and traditional groups ($Ms = 3.22, 3.25$ respectively). A one-way analysis of variance revealed no statistical difference between the groups in reading comprehension gain, $F (1, 137) = .00, \ p = .96$.

Further evaluation of treatment effectiveness for sub-groups of students with and without speech deficits was analyzed. Group means for the reading and listening comprehension pre- and posttests were calculated for students with and without speech-language deficits who received collaborative intervention or traditional intervention. The means for the test gains of reading and listening comprehension subtests are presented in Table 5.
TABLE 5

Comparison of Listening Comprehension and Reading Comprehension Mean Test Gain of Students with and without Speech-Language Services in Collaboration vs. Traditional Intervention

<table>
<thead>
<tr>
<th>Service Delivery</th>
<th>Listening Comprehension Test Gain</th>
<th>Reading Comprehension Test Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speech/Language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration</td>
<td>2.73</td>
<td>4.13</td>
</tr>
<tr>
<td>n = 15</td>
<td>(4.08)</td>
<td>(3.58)</td>
</tr>
<tr>
<td>Traditional</td>
<td>1.18</td>
<td>2.73</td>
</tr>
<tr>
<td>n = 11</td>
<td>(1.60)</td>
<td>(3.58)</td>
</tr>
<tr>
<td>No Speech/Language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration</td>
<td>2.20</td>
<td>3.02</td>
</tr>
<tr>
<td>n = 65</td>
<td>(3.07)</td>
<td>(3.02)</td>
</tr>
<tr>
<td>Traditional</td>
<td>1.23</td>
<td>3.38</td>
</tr>
<tr>
<td>n = 48</td>
<td>(3.93)</td>
<td>(4.68)</td>
</tr>
</tbody>
</table>

Note. Standard deviations are reported in parenthesis.

Initial testing prior to intervention indicated the sub-groups of students with speech-language deficits in the collaborative and traditional groups were similar on listening comprehension (Ms = 15.40, 12.73 respectively) and reading comprehension...
Collaboration versus Traditional Service Delivery 39

(Ms = 10.73, 9.18 respectively) test scores. Two one-way analyses of variance revealed no statistically significant differences between the groups in pre-test measures (listening comprehension $F (1, 24) = 1.55, p = .23$, reading comprehension $F (1, 24) = .24, p = .63$). Pre-test scores also indicated sub-groups of students without speech-language services in the collaborative and traditional groups were similar on listening comprehension (Ms = 16.77, 18.17 respectively) and reading comprehension (Ms = 11.80, 13.98 respectively) test scores. Again, two one-way analyses of variance revealed no statistically significant differences between the groups in pre-test measures (listening comprehension $F (1, 111) = 2.28, p = .13$, reading comprehension $F (1, 111) = 2.34, p = .13$).

Mean test gains were positive for all groups, collaborative and traditional intervention, and for students with and without speech-language deficits. The mean test gains for students with speech-language deficits on listening comprehension were more than double for the collaborative group ($M = 2.73$), as compared to the traditional group of students with speech-language deficits ($M = 1.18$). A one-way analysis of variance, however, indicated that the difference was not statistically significant, $F (1, 24) = 1.42, p = .25$. The mean reading comprehension subtest gains for students with speech-language deficits in the collaborative group ($M = 4.13$) were one and one-half times greater than the gains of the traditional group ($M = 2.73$). A one-way analysis of variance, however indicated no statistically significant difference between the groups, $F (1, 24) = .98, p = .33$.

The mean test gains for students without speech-language deficits on listening comprehension was nearly double for the collaborative group ($M = 2.20$), as compared to the traditional group of students without speech-language deficits ($M = 1.23$). A one-way analysis of variance indicated that the difference was not statistically significant, $F (1, 111)$
The mean test gains for students without speech-language deficits in reading comprehension were similar for the collaborative group ($M = 3.02$) and the traditional group ($M = 3.38$). A one-way analysis of variance indicated no statistical difference between the groups, $F(1, 111) = .25, p = .62$.

Mean test gains were also calculated for students with speech/language IEP goals based on their performance on the PPVT. Pre-test scores were subtracted from posttest scores to determine a mean gain. The pre-test, posttest and test gains are displayed in Table 6.

**TABLE 6**

Comparison of Vocabulary Knowledge of Students with Speech-Language Services in Collaboration vs. Traditional Intervention

<table>
<thead>
<tr>
<th>Service Delivery</th>
<th>Pre-Test</th>
<th>Posttest</th>
<th>Test Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration</td>
<td>96.50 (13.88)</td>
<td>99.25 (10.50)</td>
<td>2.75 (8.14)</td>
</tr>
<tr>
<td>$n = 8$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional</td>
<td>77.43 (25.91)</td>
<td>81.57 (28.30)</td>
<td>4.14 (12.19)</td>
</tr>
<tr>
<td>$n = 7$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. Standard deviations are reported in parenthesis.*

Initial testing prior to intervention indicated the students with speech-language services in the collaborative condition scored higher on the PPVT ($M = 96.50$) than the traditional group ($M = 77.43$). A one-way analyses of variance, however, revealed this difference was not statistically significant ($F(1, 13) = 3.28, p = .09$).
Mean test gains were positive for both groups, collaborative and traditional intervention, for students with speech-language deficits. The mean test gains for students with speech-language deficits in collaborative intervention \((M = 2.75)\) were not as great as the mean test gains for students with speech-language deficits in traditional intervention \((M = 4.14)\). However, the students with speech-language deficits in the collaborative intervention group began with a higher pre-test score than students with speech-language deficits in the traditional intervention. A one-way analysis of variance indicated that the difference in test gain between the groups was not statistically significant, \(F (1, 13) = .07, p = .80\).
CHAPTER V

Discussion

The purpose of this study was to compare the effects of collaborative classroom-based intervention with the traditional service delivery model for reading and listening comprehension. According to the results obtained from the Wechsler Individual Achievement Test (WIAT, 1992), the collaborative classrooms made greater mean test gains than the control classrooms in both reading and listening comprehension. Although the differences were not statistically significant between the groups, the performance of the collaborative group on listening comprehension was generally greater and near statistical significance.

The results from the current study support past studies (Farber & Klein, 1999) by revealing similar trends in improvement of the collaborative groups receiving treatment when compared to the respective control groups, however, not to a significant degree. The current study saw mean gains approaching significance on the listening comprehension subtest, much like the significant gains seen in writing and listening comprehension in the Farber and Klein study. Further, in both the current study and the study performed by Farber and Klein, statistically significant gains were not seen in the reading comprehension subtests, although reading comprehension scores approached significance in Farber and Klein’s study. Less significant gains in the current study may be attributed to decreased weekly intervention time and fewer weeks of intervention as compared to the Farber and Klein study.

The theoretical and practical implications for speech-language pathologists indicated in the present study are that speech-language students and non-speech-language
students can all receive benefits from the collaborative service delivery as compared to the traditional service delivery model. However, collaborative service delivery models may require increased costs in the school system to allow for adequate planning time and significant differences were not found in this study to justify a collaborative intervention model.

Several strengths were apparent during this study. The present study was, to the authors' knowledge, the first study to investigate the effects of collaborative research on IEP and non-IEP students in the academic areas of listening comprehension and reading comprehension. This study was also, to the authors' knowledge, only the second study to research the effects of a collaborative service delivery model on second and third graders. Other studies have included only younger students, primarily preschoolers or kindergarten and first graders. Additionally, the present study used two different school speech-language pathologists at two different elementary schools in East Central Illinois.

Several limitations were also apparent throughout this study, most notably the sensitivity of the primary test, the Wechsler Individual Achievement Test (1992). Both the Listening Comprehension subtest and the Reading Comprehension subtest began with questions allowing the subjects to use picture clues to formulate an answer. The first several pictures at the beginning of the Reading Comprehension subtest required responses that could have been concluded by looking at the pictures without being able to read. The questions progressively became more difficult. Eventually, the pictures did not depict the answer and finally the pictures were removed. After the pictures were removed, there did not appear to be a hierarchical manner of difficulty by which the students were tested. For example, the Reading Comprehension subtest began by testing
picture clues, then moved to sequencing, drawing conclusions, and then to comparing and contrasting, recognizing implied cause and effect, and then back to drawing conclusions. School curriculum used in this study as a guide for grade appropriate academic goals identified comparing and contrasting and recognizing implied cause and effect as higher level skills than sequencing and drawing conclusions. The WIAT did not progress from simpler skills to more difficult skills but rather tested skills in a somewhat random manner. The same type of formatting was noted in the Listening Comprehension subtest. In addition, the types of questions that were addressed on the WIAT were quite different from those taught in the classrooms. The WIAT placed a significant emphasis on remembering small, insignificant details after reading or listening to several paragraphs at a time. Classroom intervention addressed the same skills using entire stories and concentrating on the students' comprehension of larger ideas rather than small details.

Another limitation to the study was the differences in meeting times between each school. One school received a small grant related to the study that funded a substitute teacher who replaced the regular classroom teacher each week during collaboration meetings with the speech-language pathologist. The second school did not receive a grant, and although meeting time was scheduled, meetings did not occur consistently each week. The average number of weeks spent in collaborative sessions was 10 weeks. More significant gains may have been seen if the collaboration could have taken place for an entire year, as opposed to just a partial year. Farber and Klein's (1999) study indicated greater gains than the present study after collaborating for an entire school year, three times a week in each classroom.
Ferguson (1991) reported that it may take three to five years to effectively implement an alternate delivery option. This may have also been a limitation in the current study since both speech-language pathologists who participated were collaborating for the first time at their respective schools. Greater organization and implementation of collaborative intervention may have been seen if this study had used speech-language pathologists who had been regularly collaborating for several years prior to the onset of the current study.

The study by Bommrito and Meichenbaum (as cited in Meichenbaum & Asarnow, 1979) taught comprehension strategies to middle school students who were adequate decoders experiencing difficulties understanding what they read. The current study also addressed comprehension skills but did not test or exclude students with decoding difficulties which may have also been a limitation. Greater gains may have been seen if students who were identified as poor decoders were excluded from the study.

The current study was designed similarly to Farber and Klein (1999) and Ellis, Schlaudecker, and Regimbal (1995) which compared treatment in collaborative classrooms to control classrooms with no treatment to substantiate the effectiveness of collaborative services. However, when teaching in the collaborative services is compared to teaching in the control conditions, the same teaching is not employed and it becomes difficult to determine the effect of collaborative services and the effect of the additional professional teaching in the classroom. Another aspect to this dilemma is that control classrooms can not teach the exact same way because the collaborative teachers and speech-language pathologist are likely to implement better or more effective ideas for
teaching when planning their lessons together than the control teacher who is planning and teaching alone.

Future research is needed to address the effects of collaborative intervention on both speech-language impaired and non-speech-language impaired school-aged students. Other academic areas that relate to the scope of a speech-language pathologist’s skills should be researched. Several possibilities may include problem solving skills, expressive language use, and receptive language use. Studies are needed which utilize a more appropriate testing instrument that would effectively and more accurately collect data represented in the study. Future research designs should include adequate and consistent meeting time for collaborating teachers and speech-language pathologists and should span for an entire school year in order to yield maximum results. Future studies which compare speech-language pathologists who have several years of experience in collaborating with the regular classroom teachers at their respective schools may provide insight into effectiveness and efficacy of collaboration.

The present study may have found more significant results if the study could have been extended for an entire year, much like the study conducted by Farber and Klein (1999). The study may also have found more significant results if a more appropriate evaluation tool had been used to assess comprehension gains. The WIAT (1992) did not accurately assess listening and reading comprehension skill gains when compared to the teaching styles implemented in the collaborative classrooms. Continued research in the area of collaborative services as a possibility for supplementing or enhancing traditional pull-out services in the public school system must be conducted. The skill areas targeted in this study as well as other academic skill areas should also be addressed in future studies.
that include students in kindergarten through fifth grades with and without speech-language impairments. Replication of the present study should also continue to use multiple speech-language pathologists and classroom teachers in order to account for teacher and speech-language pathologist variables. If the results from the present study can be improved in future studies, those results will have strong implications as to the best method for servicing students with impaired speech and language skills in the public schools.
REFERENCES


Collaboration versus Traditional Service Delivery 50


Collaboration versus Traditional Service Delivery  51


APPENDIX A

Sample of District Curriculum Profile
Collaboration versus Traditional Service Delivery

Curriculum Profile – Grade One

Language Arts

Oral Language
- Participate in oral language activities
- Use spoken language effectively in formal and informal situations
- Develop confidence in speaking before a group

Word Skills
- Read words and symbols in the environment
- Identify contractions and compound words
- Distinguish difference between apostrophe use for contractions and possessives
- Identify exclamation mark, comma and quotation marks
- Identify proper nouns (day, months, names for people, places and special events) and begin them with capital letters
- Construct plural forms of nouns by adding -s or -es
- Replace nouns with the appropriate pronouns
- Define verbs as action words
- Construct verb form using -s, -ed, -ing
- Use adjectives to describe nouns
- Put five words in alphabetical order
- Recognize common abbreviations: Mr., Ms., Mrs., St., Dr., IL, U.S.A
- Identify synonyms, antonyms and homophones
- Decode unknown words using a variety of strategies: phonetic and structural analysis, context and picture clues and rereading text

Comprehension
- Remember details from stories and pictures
- Use picture clues to decode unfamiliar words and to make predictions
- Predict meaningful outcomes for stories
- Identify story elements: characters, setting, main problem, solution and outcomes
- Discuss and apply reading strategies: summarizing, clarifying, question asking, previewing, predicting, drawing conclusions, getting the main idea, compare/contrast, and inferences

Written Language
- Write D’Nealian manuscript letters and numerals legibly with specific regard to correct form, spacing, slant and neatness
- Develop near-point and far-point copying skills
- Use temporary spelling to represent sounds in words
- Write an original story, containing a beginning, a middle and an end
- Use periods, question marks, quotation marks, commas, exclamation marks in writing
- Write a thank you letter including a greeting, body and closing
Write for a variety of purposes: narrative, expository, descriptive, persuasive, letter writing, power writing
Write a power paragraph, including introductory sentence, at least 2 major details, transition words, and concluding sentence

Literature
Enjoy listening to and reading a variety of literature
Identify a variety of genres: poetry, fiction, nonfiction, fables, folk tales, and biographies

Study Skills
Understand that talking, listening, reading and writing are ways of gaining information
Use of resources such as picture dictionaries and encyclopedias
Identify and locate the table of contents, index and glossary in a book
Skim to locate information in written materials
Curriculum Profile - Grade Two

Language Arts

Oral language
- Listen critically and analytically
- Use spoken language effectively in formal and informal situations
  - Participate in oral language activities
- Read aloud with fluency and accuracy

Comprehension
- Discuss and apply reading strategies:
  - Summarize
  - Clarify
  - Reflect
  - Predict
  - Draw conclusions
  - Main idea
  - Compare/contrast
  - Inference
  - Sequence
  - Picture clues
  - Identifies purpose for reading
  - Makes connections

Know and justify differences between the following
- Reality/fantasy
- Fact/opinion

Written Language
- Spell common and frequently used words correctly in daily writing
- Use plural forms of nouns by
  - Adding –s
  - Adding –es
- Develop far-point copying skills
- Works through the writing process
  - Prewriting
  - Drafting
  - Proofreading/editing
  - Rewriting
  - Publishing
- Write for a variety of purposes
  - Narrative
  - Expository
  - Descriptive
  - Persuasive
Letter writing
Uses appropriate noun/verb agreement

Literature
Identify, read and acquire an appreciation of a variety of genres:

Poetry
Realistic fiction
Nonfiction
Fables
Folk tales
Biographies
Autobiographies
Dramatization
Identify author/illustrator

Study Skills
Be able to use different resources to find information:

Dictionary
Encyclopedia
Computer
Identify and locate the following
Table of Contents
Index
Glossary
Skim to locate information in written materials
Curriculum Profile – Grade Three

Language Arts

Oral Language
Listen critically and analytically
Use spoken language effectively in formal and informal situations
Read orally using correct pronunciation of grade level vocabulary, noting sentence punctuation, and using appropriate expression
Develop acceptable delivery in speaking to an audience through the following:
   Oral reports
   Description of personal events
   Drama
   Participation in class or small group discussions

Word Skills
Identify new vocabulary using context clues, structural clues, and phonics
Recognize multiple meanings of a given word

Comprehension
Use illustrations to gather information
Make, confirm, or revise predictions
Summarize a story and/or a paragraph
Make inferences and draw conclusions
Distinguish between fact and opinion
Organize information by comparing and contrasting
Identify and organize the steps in a process
Identify cause and effect

Written Language
Spell common and frequently used words correctly in daily writing
Recognize and spell common pattern for the following:
   Basic sight words
   Plural nouns
   Plural endings
   Numbers
   Possessive nouns
   Verb in the present and past tense
   Irregular plurals
   Homophones
   Words with prefixes and suffixes
Identify and write a statement, command, question, and exclamation
Use parts of speech correctly in sentences including noun and verb agreement
Identify and write the different parts of a friendly letter
Write an expository, narrative, and persuasive power paragraph with elaboration
Use the stages of the writing process (including a draft, revising, proofreading, and publishing) to produce a written product.

**Literature**
Read and identify the characteristics of a variety of genre such as:
- Poetry
- Informational articles
- Nonfiction
- Realistic fiction
- Fairy tales
- Fables
- Folk tales
- Myths
- Biographies
- Autobiographies
- Drama
Identify information about the author and illustrator
Acquire an appreciation for a variety of genre

**Study Skills**
Demonstrate the use of a dictionary, encyclopedia, table of contents, glossary, index, and computer to locate and gather information
Skim and reread to locate information in written material
APPENDIX B

PARTICIPATION AUTHORIZATION

Mrs. Janice Althoff, the speech-language pathologist at your child's school, is collaborating with your child's classroom teacher. Together with an Eastern Illinois University student, Mrs. Althoff and the teacher are presenting language lessons once per week for 40 minutes, to increase your child's comprehension and problem solving skills in reading activities. Mrs. Althoff is also working with two professors from Eastern Illinois University (Lynn Calvert & Rebecca Throneburg) to assess the effectiveness of these lessons. I authorize permission for

______________________________, who is my__________________________,
(child's name) (birthday) (relationship)
to participate in this project. The project will take place during regular reading activities and has the support of your child's teacher and principal. I give permission for a session to be videotaped for teaching purposes. I understand that my child's name will not be used in any descriptions or reports of data.

__________________________
(parent signature)

__________________________ (address) ____________________________ (parent names)

__________________________ (city) (state) (zip) ____________________________ (date)
APPENDIX B

PARTICIPATION AUTHORIZATION

Mrs. Pam Paul, the speech-language pathologist at your child's school, is working with two professors from Eastern Illinois University (Lynn Calvert & Rebecca Throneburg) to assess the effectiveness of lessons provided by the classroom teacher to be compared with lessons provided in the classroom by the teacher and speech-language pathologist. I authorize permission for

________________________, __________, who is my________________________,

(child’s name) (birthday) (relationship)

to participate in this project. The project will take place during regular school hours and has the support of your child's principal. I understand that my child's name will not be used in any descriptions or reports of data.

________________________ (parent signature) ________________________ (date)

________________________ (address) ________________________ (parent names)

________________________ (city) ________________________ (state) __________ (zip)
APPENDIX C  
COLLABORATION MEETING CHECKLIST - Date

A. Collaborative Lesson

1. CURRICULUM GOALS
   Choose from the following:
   a. Picture clues (1)  
   b. Stated detail (1-3)  
   c. Stated cause/effect (1-3)  
   d. Drawing conclusions (1-3)  
   e. Sequencing (1-3)
   f. Implied cause/effect (2-3)
   g. Predicting outcomes (2-3)
   h. Comparing/contrasting (2-3)
   i. Weekly vocabulary (1-3)

2. ACTIVITIES/RESPONSIBILITIES:

B. Children with Speech-Language IEP Goals

<table>
<thead>
<tr>
<th>STUDENT</th>
<th>SPEECH-LANGUAGE GOALS</th>
<th>CARRYOVER SUGGESTIONS</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.
2.
3.
4.
5.

***PLEASE NOTE UNTARGETED GOALS, ABSENCES, OR OTHER COMMENTS IN MARGINS FOLLOWING COLLABORATIVE LESSON.***
APPENDIX D

Record Form for Reading Comprehension and Listening Comprehension Subtests of
the Wechsler Individual Achievement Test (WIAT)
## Record Form

### Summary

<table>
<thead>
<tr>
<th>Child's Name</th>
<th>Sex</th>
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<thead>
<tr>
<th>School</th>
<th>Grade</th>
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<thead>
<tr>
<th>Teacher</th>
<th>Examiner</th>
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<th>Reason for Referral</th>
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<tr>
<th>Behavioral Observations</th>
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<table>
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<th>Date Tested</th>
<th>Month</th>
<th>Day</th>
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<table>
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<th>Date of Birth</th>
<th>Age</th>
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### WIAT Subtests

<table>
<thead>
<tr>
<th>Age</th>
<th>Grade</th>
<th>Raw Scores</th>
<th>Standard Score</th>
<th>Confidence Interval</th>
<th>Percentile</th>
<th>Other Equivalent NCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Basic Reading</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Mathematics Reasoning</td>
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<td></td>
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<td></td>
<td></td>
<td>Spelling</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>Reading Comprehension</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Numerical Operations</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Listening Comprehension</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oral Expression</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Written Expression</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Composites

<table>
<thead>
<tr>
<th>Age</th>
<th>Grade</th>
<th>Sum of Raw Scores</th>
<th>Total Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Standard Score</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Confidence Interval</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentile</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other Equivalent NCE</td>
<td></td>
</tr>
</tbody>
</table>

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**THE PSYCHOLOGICAL CORPORATION**  
SAN ANTONIO  
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All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the publisher.
## Reading Comprehension

### TIME GUIDELINE
- About 15 seconds for each question.

### REVERSE RULE
- If child scores 0 on any of 1st 5 items administered, administer preceding items in reverse sequence until child scores 1 on each of 5 consecutive items.

### DISCONTINUE RULE
- 3 consecutive scores of 0.

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Skill</th>
<th>Score 0 or 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What does the bird do?</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Why is the girl sad?</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>What do the people want to do?</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Why was the dog running?</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>What does the girl want to do?</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>What is in the box?</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Whose book did the cat sit on?</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>When did the lion laugh?</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>What did Lee see first?</td>
<td>Sequencing</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>What animal is this story about?</td>
<td>Drawing conclusions</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>What makes this boat different?</td>
<td>Comparing and contrasting</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Why did Mr. Clark want a second job?</td>
<td>Recognizing implied cause and effect</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>What animal is this story about?</td>
<td>Drawing conclusions</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Which dog has the same name as a cat?</td>
<td>Recognizing stated detail</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Why did the milk fall down?</td>
<td>Recognizing implied cause and effect</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>What in the popcorn makes it pop?</td>
<td>Recognizing stated cause and effect</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>What will probably happen next?</td>
<td>Predicting events and outcomes</td>
<td></td>
</tr>
</tbody>
</table>
## Reading Comprehension

**TIME GUIDELINE**
About 15 seconds for each question.

**REVERSE RULE**
If child scores 0 on any of last 5 items administered, administer preceding items in reverse sequence until child scores 1 on each of 5 consecutive items.

**DISCONTINUE RULE**
4 consecutive scores of 0.

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.</td>
<td>What do the Mexican Indian women do to their hair that men do not do?</td>
</tr>
<tr>
<td>19.</td>
<td>What will probably happen at the next game?</td>
</tr>
<tr>
<td>20.</td>
<td>How can you get your body to burn fat while you sleep?</td>
</tr>
<tr>
<td>21.</td>
<td>Why should you be prepared before you begin assembling the model?</td>
</tr>
<tr>
<td>22.</td>
<td>Why are tigers rarely studied in the wild?</td>
</tr>
<tr>
<td>23.</td>
<td>Why have efforts to stop dumping been unsuccessful?</td>
</tr>
<tr>
<td>24.</td>
<td>Why was the ranger sleeping when the phone rang?</td>
</tr>
<tr>
<td>25.</td>
<td>What makes one flute sound different from another?</td>
</tr>
<tr>
<td>26.</td>
<td>What is likely to happen to the lemurs?</td>
</tr>
<tr>
<td>27.</td>
<td>How did cardamom come to Europe?</td>
</tr>
<tr>
<td>28.</td>
<td>Before sulphur is heated with rubber, what is done to make the rubber stronger?</td>
</tr>
</tbody>
</table>

**Skill**
- Comparing and contrasting
- Predicting events and outcomes
- Recognizing stated detail
- Recognizing stated cause and effect
- Drawing conclusions
- Predicting events and outcomes
- Recognizing stated detail
- Sequencing

**Score**
0 or 1
## Reading Comprehension

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Skill</th>
<th>Score 0 or 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>29.</td>
<td>What is likely to happen when prices decrease?</td>
<td>Predicting events and outcomes</td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>How are mammals and saurians different?</td>
<td>Comparing and contrasting</td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>According to the passage, what happens before cloth is made?</td>
<td>Sequencing</td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>What is the most likely reason for the changes in the prices of peaches during the year?</td>
<td>Recognizing implied cause and effect</td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>How was the innocence of the accused established?</td>
<td>Recognizing stated detail</td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>Why is Jellinek's disease receiving more attention?</td>
<td>Recognizing stated cause and effect</td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>When are you most likely to remember a dream?</td>
<td>Recognizing stated detail</td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>Which word or phrase in this sentence is a trope?</td>
<td>Drawing conclusions</td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>Why is Hawaii the only state to produce coffee commercially?</td>
<td>Recognizing implied cause and effect</td>
<td></td>
</tr>
<tr>
<td>38.</td>
<td>Explain why a string of beads and a rubber band are examples of concatenation and synthesis.</td>
<td>Comparing and contrasting</td>
<td></td>
</tr>
</tbody>
</table>
## Listening Comprehension

**TIME GUIDELINE**
- Items 1-9: About 10 sec. for each item
- Items 10-36: About 15 sec. for each item

**REVERSE RULE**
- If child scores 0 on any of 1st 5 items administered, administer preceding items in reverse sequence until child scores 1 on each of 5 consecutive items

**DISCONTINUE RULE**
- Scored at 0 or 1 for each item

### Item Response Table

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Skill</th>
<th>Score 0 or 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. empty</td>
<td>A B C D</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>2. jar</td>
<td>A B C D</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>3. same</td>
<td>A B C D</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>4. healthy</td>
<td>A B C D</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>5. pen</td>
<td>A B C D</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>6. doze</td>
<td>A B C D</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>7. jolly</td>
<td>A B C D</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>8. pair</td>
<td>A B C D</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>9. festive</td>
<td>A B C D</td>
<td>Using picture clues</td>
<td></td>
</tr>
<tr>
<td>10. What day is Sally visiting Grandma?</td>
<td>Recognizing stated detail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. What does Jackie have to do before she goes to the animal shelter?</td>
<td>Sequencing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Which animal did Richard see last?</td>
<td>Sequencing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. If Susan was home, what two things did Maria probably do?</td>
<td>Predicting events and outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. What do you get free?</td>
<td>Recognizing stated detail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Name at least two of the fairy tales shown on the mugs.</td>
<td>Recognizing stated detail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Why did Amy want to climb the tree?</td>
<td>Recognizing stated cause and effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. What reason did Amy's grandfather give her for not climbing the tree?</td>
<td>Recognizing stated cause and effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Name two of the reasons given for why fish make good pets.</td>
<td>Recognizing stated cause and effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. What is Troy's favorite event on the Fourth of July?</td>
<td>Recognizing stated detail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. What is the first event Troy's family goes to on the Fourth of July?</td>
<td>Sequencing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Which sport does Julie most like to watch on television?</td>
<td>Comparing and contrasting</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Listening Comprehension

### Time Guideline
- Items 1-9: About 10 sec. per item.
- Items 10-36: About 15 sec. per item.

### Reverse Rule
If child scores 0 or 1 on any of 3-5 items administered, administer preceding items in reverse sequence until child scores 1 on each of 5 consecutive items.

### Discontinue Rule
5 consecutive scores of 0.

<table>
<thead>
<tr>
<th>Item</th>
<th>Response</th>
<th>Skill</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.</td>
<td>How many free items are you allowed?</td>
<td>Drawing conclusions</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>After you send in the words, what is the longest time you will have to wait for the free item?</td>
<td>Recognizing implied cause and effect</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>What office is Gerald running for?</td>
<td>Recognizing stated detail</td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>To Gerald, what is the most important reason for running for office?</td>
<td>Comparing and contrasting</td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>Name two advantages given for the proposed building.</td>
<td>Recognizing stated detail</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>What is the first book in the series about?</td>
<td>Drawing conclusions</td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>How much do you have to spend before you get the free item?</td>
<td>Recognizing stated cause and effect</td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>What advantage does walking have over running?</td>
<td>Comparing and contrasting</td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>What is one of the reasons, in addition to health, given in support of walking?</td>
<td>Recognizing stated detail</td>
<td></td>
</tr>
<tr>
<td>31.</td>
<td>In what direction would Ms. Franklin be traveling for most of the train trip that she wants to win?</td>
<td>Predicting events and outcomes</td>
<td></td>
</tr>
<tr>
<td>32.</td>
<td>In 1984 how many robots were produced in the United States?</td>
<td>Recognizing stated detail</td>
<td></td>
</tr>
<tr>
<td>33.</td>
<td>What government agency has begun to count robots?</td>
<td>Recognizing stated detail</td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>By how much did unemployment change last month and in what direction?</td>
<td>Recognizing stated detail</td>
<td></td>
</tr>
<tr>
<td>35.</td>
<td>What effect did students have on unemployment last month?</td>
<td>Recognizing implied cause and effect</td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>In what industries did jobs increase last month?</td>
<td>Drawing conclusions</td>
<td></td>
</tr>
</tbody>
</table>