The Pennsylvania State University

The Graduate School

College of Education

THE IMPACT OF DIALOGIC READING: FACILITATING LANGUAGE ACQUISITION OF YOUNG CHILDREN WITH HEARING IMPAIRMENTS IN TAIWAN

A Dissertation in

Curriculum and Instruction

by

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Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

August 2009
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ABSTRACT

This study examined the impacts of dialogic storybook reading on the language acquisition of young Taiwanese children with hearing impairments. The study also investigated teachers’ and parents’ attitudes toward the dialogic reading intervention for their hearing-impaired students/children. The intervention was conducted in four small classes at two centers affiliated with a foundation for young children with hearing impairments in Taipei, Taiwan. Sixteen children with moderate to profound hearing loss from the four classes and their class teachers participated in this study. The dialogic reading intervention was implemented by teachers in their classes three times a week, 20–30 minutes each time, for eight weeks.

Three standardized assessments were used to identify changes in four language skills—receptive vocabulary, listening comprehension, oral expression, and syntax skills—before and after the dialogic reading intervention with students. In addition, Likert scale questionnaires were also developed to obtain parents’ and teachers’ perceptions of children’s language progress and their attitudes toward the dialogic reading intervention. Study findings showed a positive but not significant change in children’s receptive vocabulary; a marginally significant increase in their oral expression skills; and significant and practical progress in listening comprehension and syntax skills. Questionnaire responses indicated that both parents and teachers perceived moderate to significant language progress among their hearing-impaired students/children. In general, parents had high positive attitudes toward the dialogic reading intervention. Teachers also revealed positive attitudes toward most but not all aspects of the intervention.
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ACKNOWLEDGMENTS

I would like to express my sincere gratitude to those whose great help and support assisted me in completing this research smoothly and who were with me throughout this doctoral journey. First of all, I would like to extend my respectful thanks to my academic advisor, Dr. Thomas D. Yawkey, for his professional guidance throughout my doctoral program. He helped me to sharpen my skills so that I am a better thinker, presenter and researcher, and provided helpful comments in structuring my dissertation. I am greatly indebted to Dr. Ladilaus Semali for his guidance, encouragement and support. He was enthusiastic about my work and demonstrated confidence in me. I especially thank him for his professional guidance in helping me to prepare for my final defense. Heartfelt thanks are also extended to Dr. Pamela Wolfe, who provided me with valuable insights and practical suggestions for performing quality research and expert suggestions that undoubtedly improved the final product. I extend my sincere appreciation to Dr. Edgar Yoder, whose tremendous assistance and support brought this dissertation to fruition. He was attentive in helping me with my research methods and data analysis and provided useful suggestions for interpreting and organizing my research results. I am deeply grateful for his endless patience and enormous outlay of time and effort for this research.

I gratefully acknowledge the dissertation scholarship from the Chiang Ching-kuo Foundation for International Scholarly Exchange, which enabled me to complete the last stage of my doctoral study. A special thanks goes to my former supervisor, Meei-Ling, Kuan, Executive Director of the National Women’s League Foundation for the Hearing Impaired, Taiwan R.O.C., for her support of this study at the Foundation and help in improving my questionnaires. My deep appreciation is also extended to my former
colleagues, Mei-Ling Chen, Ming-Lan Chin, Li-Wen Tsuo, and Shu-Jen Lian, whose contributions toward implementing the intervention in their classes made this study possible. I also thank all of the hearing-impaired children and their parents who were willing to join in this study. Without their participation, the study would not have been delivered and processed.

I would like to extend my great thanks to my beloved family for their love, support and encouragement, without which I would never have completed this doctoral degree. I am also greatly indebted to my church (State College Chinese Alliance Church) brothers and sisters for their love and support. Their persistent prayers gave me the strength and endurance to endure difficult times during the study process. Last, glory and honor to God—I thank Him for His everlasting love, mercy and grace, and for leading me with my hand in His not only during my pursuance of this doctoral degree but throughout my entire life. May glory be to His Name!
Chapter 1
INTRODUCTION

Language is a critical domain and language acquisition is an important issue in child development. A substantial body of research (e.g., Fey, Catts, & Larrivee, 1995; Larney, 2003; Rescorla, Ross, & McClure, 2007, Tomblin, 2006) indicates that children with early language delays are likely to experience literacy difficulties, social and behavioral problems, and academic failure. Language deficits and delays commonly appear among children with hearing impairments. Children who are diagnosed with hearing loss are at risk for delayed development of language-related skills such as social communication, reading and writing. Such children may experience lower academic achievement. One effective language intervention is known as dialogic reading. Dialogic reading is the use of shared book reading to provide a context for interactive dialogues between adults and children. This study investigated the effects of teacher-child dialogic reading on facilitated language acquisition among young Taiwanese children with hearing impairments.

This chapter is divided into the following sections: (a) background of the study, (b) statement of the study, (c) need for the study, (d) purposes of the study, (e) research questions, (f) limitations of the study, (g) delimitations of the study, and (h) definitions of terms. Each section is provided below.

Background of the Study

A trend toward inclusive education in Taiwan has increased the number of hearing-impaired children in resource classrooms and/or mainstreamed them into regular
classes (Ministry of Education, 2006; Special Education Transmit Net, 2007). As a result, how to enhance hearing-impaired children’s language skills for school readiness through early intervention has become an important issue in Taiwanese deaf education (Lin, 2006; 2007). The natural acquisition of a first language and the ability to read and write are paramount in educational achievement and in maximizing a child’s potential (Fernandes, 2000). Therefore, language skills play an essential role in the educational success of hearing-impaired children under the inclusive education program. In order to enhance hearing-impaired children’s language development, the Taiwan government has made great efforts to support early intervention focusing on aural training and oral programs for young children with hearing impairments. If children with hearing impairments develop appropriate language skills in their early years, they are more likely to achieve academic success later in school.

Picture book reading is a common activity in the daily life of young children. Adult-child shared picture book reading provides a language-interactive context in which young children may learn and improve language in a natural way. Research studies (e.g., Cutspec, 2004) have suggested that dialogic reading, a particular method of shared book reading, has beneficial impacts on young children’s language acquisition. The effect of the dialogic reading technique has been further examined with hearing-impaired children’s Chinese vocabulary acquisition in Hong Kong and has been suggested to be effective (Fung, Chow, & McBride-Chang, 2005). Results indicated that Chinese hearing-impaired children experienced significant improvements in vocabulary learning through engagement in the dialogic reading technique.
In Taiwan, many educational professionals have suggested that parent-child shared reading benefits young children’s language development. As a result, the parent- and teacher-child shared readings have been widely promoted in Taiwan. Furthermore, Taiwanese research regarding the effects of dialogic reading on the development of children’s language and emergent literacy has gradually increased in recent years (Chen, 2005; Lin, Wu, & Su, 2005). Empirical evidence of improvements in hearing-impaired children’s language through interactive dialogic reading would contribute to research on early interventions for the hearing-impaired. This expectation encouraged the researcher to conduct this study of the effectiveness of dialogic reading on the language acquisition of Taiwanese children with hearing impairments.

In sum, the main focus of this study was the facilitation of Taiwanese hearing-impaired children’s language acquisition through dialogic reading. Early intervention with deaf Taiwanese emphasizes the importance of enhancing the language development of young hearing-impaired children. The effects of the dialogic reading technique have been suggested as an ideal vehicle for enhancing young children’s language acquisition. Therefore, the purpose of this study was to examine the impact of the dialogic reading technique on the language acquisition of young children with hearing impairments.

**Statement of the Problem**

The acquisition of language is critical for young children because language development affects other areas of a child’s development. For example, empirical evidence has indicated that language development provides children with a foundation for developing other learning skills, such as reading (e.g., Catts, Fey, Tomblin, & Zhang,
writing (e.g., Dockrell, Lindsay, Connelly, & Mackie, 2007), and social interactions (e.g., Rice, Hadley, & Alexander, 1993). Similarly, Crain-Thorenson and Dale (1992) suggested that development of spoken language influences the development of literacy skills, such as reading and writing, which determine academic success. Given that language development is related to other domains of a child’s development, the problem of language acquisition in children with hearing impairments has been acknowledged (ASHA, 2007a; Gravel & O’Gara, 2003). Because hearing is a prerequisite for learning language, children who have hearing loss commonly face a challenge in acquiring language skills. The difficulty in hearing limits the language development of children with hearing impairments. Therefore, children with hearing impairments tend to be relatively slow in developing language skills, and language deficits are likely to become their common characteristic (Kretchmer & Kretchmer, 1978; Laughton, 1989). According to the American Speech-Language-Hearing Association (ASHA, 2007a), hearing loss causes delays in the development of the receptive and expressive communication skills of hearing-impaired children. Such communication difficulties often lead these children to experience social isolation and poor self-concept. Language deficits of hearing-impaired children lead to learning problems and consequently reduce academic achievement (ASHA, 2007a).

Each year, approximately 1 in 1,000 newborn infants is born profoundly deaf, and another 2 to 3 out of 1,000 babies are born with mild to severe hearing impairments or unilateral hearing loss (ASHA, 2007b; Wrightson, 2007). Such impairments are associated with impeded language acquisition, learning, and speech development, which can affect their speech, language, social, and cognitive development (NIDCD, 2006). In
the past decade, on average, 25,000 babies were born each year in Taiwan (Ministry of Interior, 2007); of these, 250 to 750 each year were estimated to have hearing impairments. Despite an annual decrease in the number of newborn infants in Taiwan, many young children with hearing impairments are still at risk of not learning through hearing and need early intervention to optimize their development. Their physical and mental development as well as their educational learning demand more attention and effort to meet their special needs.

Need for the Study

This study is needed for three reasons: (a) a lack of research on shared book reading, in general, with hearing-impaired children, (b) the influence of early language intervention on language acquisition of young children with hearing impairments, and (c) the trend toward inclusive education for hearing-impaired children in Taiwan. Each of these needs is further described in the following section.

The first need for the present study arose because of the lack of research on the effect of the dialogic reading intervention with hearing-impaired children (Fung et al., 2005). Recent research studies (e.g., Ezell, Justice, & Parsons, 2000) have well documented the importance and efficacy of shared reading on young children’s language development, emergent literacy skills, and later academic achievement. The effectiveness of dialogic reading in language acquisition was recognized in children of different ages, from toddlers to the early elementary school ages. In addition, dialogic reading was successfully used to enhance children’s language and emergent literacy in different settings, including learning centers, schools, and homes (Fielding-Barnsley & Purdie, 2003; Wasik & Bond, 2006). Results of dialogic reading studies (e.g., Cutspec, 2004)
indicated that young children with various backgrounds or characteristics benefited from adult-child interactions during shared book reading. These children included young children from middle- to upper-income families (e.g., Arnold, Lonigan, Whitehurst, & Epstein, 1994) and children from low-income families with additional at-risk factors (e.g., Huebner, 2000a, 2000b), as well as typically developing children (e.g., Huebner, 2000a; Whitehurst et al., 1988), and those with language delays (e.g., Crain-Thoreson & Dale, 1999; Lonigan, Anthony, Bloomfield, Dyer, & Samwel, 1999) or communication disorders (Ezell, Justice, & Parsons, 2000).

Despite the positive impacts of adult-child reading, few studies (e.g., Crain-Thoreson & Dale, 1999; Hockenberger, Goldstein, & Haas, 1999) investigated the effects of shared book reading for children with special developmental disorders. Studies on shared book reading targeting children with hearing impairments are especially limited (e.g., Fung et al., 2005; Kaderavek & Pakulski, 2007). A great deal remains to be learned about whether adult-child interactions during shared book reading also have a positive impact on hearing-impaired children’s language skill development. Given this need, the present study extended the dialogic technique to both preschoolers and kindergarteners with hearing impairments who used Mandarin as their primary communicative language in Taiwan.

The second reason for conducting this study stemmed from the positive influence of early language intervention on the language acquisition of young children with hearing impairments. Because language deficits are typically a by-product of hearing losses, young children with hearing impairments need to receive effective early language interventions. The purpose of language intervention is to provide certain models of skills
so that children may gain the necessary language skills to reach an age-appropriate level of performance, and consequently prevent them from experiencing wider-reaching problems, and attenuate long-term harm to their overall development (Fey, Windsor, & Warren, 1995).

Beyond the number of young children with hearing impairments, the long-term impact of such impairment increases the importance of early intervention programs to promote their language acquisition. Dialogic reading is an ideal context for children to practice and improve their language skills through conversational interactions with adults. For example, a growing body of research studies (e.g., Crain-Thoreson & Dale, 1992, 1999; van Kleeck, Gillam, Hamilton, & McGrath, 1997; Zevenbergen & Whitehurst, 2003) has demonstrated that frequent and effective shared book reading is associated with many aspects of children’s language growth as well as literacy.

The third reason arises from the trend toward inclusive education for hearing-impaired children in Taiwan. The number of self-sufficient deaf classes and resource classes in regular schools has increased, while the number of classes in deaf schools has declined over the past ten years (Lin, B-G., 2007). Correspondingly, only 10.5% of elementary school students with hearing impairments were enrolled in deaf schools in the 2006 school year (Special Education Transmit Net, 2007). This phenomenon arose in response to the trend toward inclusive education promoted by Taiwan’s Ministry of Education.

The purpose of inclusive education for children with hearing impairments is to provide them with multiple opportunities to learn with their hearing peers (Kirk, 1974). Children with hearing impairments need to be allowed to fully participate in this society
by including them in the regular school system from an early age rather than isolating
them in special schools. Provided this type of environment, hearing-impaired children are
more likely to develop satisfactory social skills through adequate interactions with
hearing peers in an inclusive learning environment.

Owing to the trend toward mainstream and inclusive education in Taiwan, more
children with hearing impairments have been placed in the regular classroom annually
(Lin & Wang, 1996). To ensure that students with hearing impairment will learn
successfully in inclusive classrooms, hearing-impaired children’s oral language abilities
and communication skills must be given sufficient attention. One of the primary goals of
most institutes for young children with hearing impairments in Taiwan is the
development of students’ oral language skills. There is a need to explore effective
approaches that will help achieve this goal.

In sum, few research studies have been done on the effect of dialogic reading on the
language acquisition of hearing-impaired children. More general research (e.g.,
Thompson et al., 2001) has shown that early language interventions have a significant
impact on the language development of hearing-impaired children. The increase in
inclusive classrooms in Taiwan increases the need to identify effective techniques for
promoting hearing-impaired children’s language development and to evaluate the
effectiveness of those techniques, including dialogic reading, on the language acquisition
of young children with hearing impairments.

**Purposes of the Study**

The primary purpose of this study was to investigate the efficacy of dialogic reading
in facilitating the language acquisition of young children with hearing impairments. In
this study, pretests and posttests were administered to determine the extent to which young children with hearing impairment were able to acquire language skills through adult-child dialogic reading. Four aspects of language acquisition were examined in this study: vocabulary acquisitions, oral expression, listening comprehension and oral syntax skills.

The primary purpose of this study was accompanied by two supporting purposes related to evaluating teachers’ and parents’ perspectives on dialogic reading for hearing-impaired children. The teacher and parent surveys were conducted separately after the intervention using questionnaires for teachers and parents of hearing-impaired children.

**Research Questions**

To accomplish the major and supporting purposes of this study, four research questions were developed.

1. What are the changes from pretest to posttest in hearing-impaired children’s vocabulary knowledge, listening comprehension, oral expression, and syntax skills?

2. What are parents’ and teachers’ perceptions of children’s progress regarding language skills, oral participation, and reading engagement through the dialogic reading intervention?

3. What are teachers’ attitudes toward the dialogic reading intervention for their hearing-impaired students?

4. What are parents’ attitudes toward the dialogic reading intervention for their hearing-impaired children?
In sum, the major purpose of this study was to examine the effect of dialogic reading on the language improvement of hearing-impaired children in Taiwan. In this study, four dependent variables were used to measure aspects of children’s language acquisition: receptive vocabulary, listening comprehension skills, oral expressive language skills, and syntactic skills. The independent variable was the dialogic reading intervention.

**Limitations**

Three general limitations of this study need to be considered. Each limitation is described below.

First, the sample size was limited and the subjects were all recruited from a foundation for the hearing-impaired. Results of this study might be not generalizable to all children with hearing impairments across different settings.

Second, no control group was included in this study through which to compare children’s language outcomes with the experimental group after the intervention period. Therefore, it is possible that changes in children’s language production were associated with other factors, such as maturation, effects of their other early childhood program, or test-retest effects.

The third limitation was that the intervention involved in this research was completed within a two-month period. The abbreviated time period limited the overall magnitude of the study.

**Delimitations**

The major focus of this study must be identified to ensure that it was dealt with in a comprehensive manner. This research was conducted within the following parameters.
The first delimitation was that the scope of this study was narrowed to a particular population: young children with hearing impairments. Due to her professional experience working with children with hearing impairments, the researcher knew well how they learn to speak as well as their special needs in learning language. Furthermore, hearing-impaired children have great potential to acquire language skills at age-appropriate levels if they receive sufficient and effective help in language acquisition in their early years (Pipp-Siegel, Sedey, VanLeeuwen, & Yoshinaga-Itano, 2003). Therefore, the researcher aimed this study specifically at young children with hearing impairments so that study results would benefit hearing-impaired children.

The second delimitation was that the magnitude of the measurement was focused on the language acquisition of children with hearing impairments. The major reason for this focus was the essential role of language skills in a child’s development. Lack of appropriate language skills has negative impacts on the other aspects of hearing-impaired children’s development, such as literacy, academic learning and social skills (ASHA, 2007a). It was hoped that the study results would effectively help young children with hearing impairments properly develop their language skills and consequently prevent other developmental challenges. As a result, rather than examining the effect of dialogic reading on many relative aspects of development such as emergent literacy and reading skills, this study focused mainly on the language acquisition of children with hearing impairments.

The third delimitation was that only small group classes at the Foundation were included and the individual classes were excluded. The significant reason for this subject selection was the frequency of dialogic reading. At the Foundation, each child has a
one-on-one individual class only once a week while children enrolled in the group classes participate four days a week. Because frequency is one of the key factors in children’s language gains through dialogic reading (Kassow, 2006), children from the once-weekly individual classes were unlikely to gain as much from dialogic reading as children who had classes four days a week within a short period of time. Therefore, only the hearing-impaired children who were enrolled in the group classes were recruited for the language intervention, which lasted for two months in this study.

**Definitions of Terms**

This section presents selected definitions of concepts used in this study. These terms are: hearing impairment, dialogic reading, language acquisition, listening comprehension, and teachers/parents’ attitudes.

**Hearing Impairment**

“Hearing impairment” is used in this study as a broad term covering all degrees and types of hearing loss. A hearing impairment is a hearing loss that prevents a person from completely receiving sounds through the ear. Hearing loss is often classified by means of different categories: mild (20–44dB), moderate (45–69dB), severe (70–90dB) and profound (90dB above) hearing loss. A loss in the profound range is often referred to as deafness. Individuals with hearing impairment may be described as deaf or hard of hearing.

1. “*Deaf* is defined as a hearing disorder that limits an individual’s aural/oral communication performance to the extent that the primary sensory input for communication may be other than the auditory channel” (ASHA, 1993, p. 41).

2. “*Hard of hearing* is defined as a hearing disorder, whether fluctuating or permanent,
which adversely affects an individual’s ability to communicate. The hard-of-hearing individual relies on the auditory channel as the primary sensory input for communication” (ASHA, 1993, p. 41).

**Dialogic Reading**

Dialogic reading is a method of reading picture books in which children are provided with multiple opportunities to talk and engage in conversation, while the adult becomes an active listener, asks questions, adds information, and promotes the child’s use of descriptive language (Whitehurst et al., 1988). The fundamental reading technique in dialogic reading is the PEER sequence, which is composed of Prompt, Evaluations, Expansion, and Repetition (Whitehurst et al., 1988). The acronym CROWD refers to the five types of questions asked by adults when engaging in dialogic reading with young children. These questions types are: *Completion prompts*, *Recall prompts*, *Open-ended prompts*, *Wh-prompts*, and *Distancing prompts*.

**Language Acquisition**

Language acquisition is a natural progression in the use of language, typified by infants and young children learning to talk. It is an unconscious process that occurs when language is used in ordinary conversation and learned through interaction with the environment, rather than being taught directly (Frey, 2002).

**Listening Comprehension**

Listening comprehension refers to understanding the spoken language. Testing for listening comprehension must be age- or grade-level-appropriate. The listening comprehension assessment used in this study tested the extent to which children with hearing impairments could understand information they were listening to.
Parents’ Attitudes

An attitude is defined as “relatively enduring set of interrelated beliefs that describe, evaluate, and advocate action with respect to some object or situation” (Harold, 1979, pp. 119–120). Teachers’ and parents’ attitudes measured in this study refer to their beliefs and perceptions regarding the usefulness, implementation and effectiveness of the dialogic reading techniques used with their students or children.

Summary

This chapter is organized to provide an introduction to the study, an overview of the its background, a statement of the problem, an explanation of the needs for the study, its purpose, a list of research questions, a discussion of the study’s limitations, a description of the study’s delimitations, and definitions of terms used in this study. In sum, this research study on the effect of dialogic reading on the language acquisition of Taiwanese young children with hearing impairments was motivated by the encouraging results of previous research studies on dialogic reading and the three needs arising from different aspects of concern, including a lack of research on dialogic reading with hearing-impaired children, the importance of using early language interventions with young children with hearing impairments, and the trend toward inclusive education for hearing-impaired children in Taiwan.
Chapter 2

REVIEW OF THE LITERATURES

This chapter contains a review of the research and professional literature on the acquisition of language, the influence of hearing impairment on language acquisition, the positive impacts of shared story book reading on acquiring language skills, and the evidence of the effectiveness of dialogic reading in facilitating children’s language acquisition. This chapter is divided into the following sections: (a) theories of language acquisition, (b) hearing impairment and language acquisition, (c) dialogic reading and language acquisition, and (d) summary.

Theories of Language Acquisition

To help educators select appropriate strategies for developing language interventions and promoting effective language acquisitions, it is important to have an understanding of the models of language development. In a discussion of theories of language acquisition, no coherent explanation accounts for all aspects of a child’s development of communication competence. There are disagreements about which theories and models provide a clear and holistic picture of the communication process. Some theories lack technical adequacy and all have limitations in terms of providing a complete explanation for the entire process of language development in children (Lue, 2001). This study incorporated three of the dominant theories of language acquisition that emphasize the influence of nurture on children’s acquisition of language. Each of these theories is described in the following sections.
Sociocultural Theory

According to Vygotsky (1934), language growth expands preschoolers’ ability to participate in social dialogues while engaging in culturally important tasks. Soon children begin to communicate with themselves in a manner that is very similar to the way they converse with others. Vygotsky reasoned that children self-communicate for self-guidance and self-direction (Vygotsky, 1934). He noted that language is an inherently social behavior and believed that speech-to-self language actually had its origins in early social communication (Vygotsky). When children develop their ability to use language to communicate with others, the quantity and complexity of their self-communication expands and becomes increasingly effective in helping them execute their actions (Berk & Winsler, 1995). Because language helps children think about their own behavior and to choose directions of action, Vygotsky viewed it as the foundation for all complex mental activities. As children grow older and tasks become easier, their self-directed speech declines and is internalized as silent inner speech (Vygotsky, 1962).

In sociocultural theory, thinking originates in collaborative dialogues that are internalized as “inner speech”, enabling children to do later in “verbal thought” what they could at first only do by talking with supportive adults or more knowledgeable peers (Bakhtin, 1981; Vygotsky, 1962, 1978; Wertsch, 1991). Later when a child’s thought becomes verbal, speech becomes rational. A child first seems to use language for superficial social interaction, but at some point this language goes underground to become the structure of the child’s thinking.

According to Vygotsky’s point-of-view, cognitive skills and thinking patterns are not mainly determined by innate factors, but are developed through activities practiced in
social interactions in the culture in which the individual grows up. Consequently, the culture of the environment in which a child is reared and the child’s social experiences are crucial factors in determining the way individual will think (Schütz, 2004). In this process of cognitive development, language is a crucial tool for determining how the child learns to think because advanced modes of thought are transmitted to the child by means of words (Thomas, 1993).

In conclusion, Vygotsky contended that language is the key to all development and words play a central part not only in the development of thought but in the growth of cognition as a whole (Thomas, 1993). Within this framework, language development and acquisition are viewed as the result of social interaction.

**Operant Learning Theory**

Skinner’s operant learning theory asserts that behavior, including verbal behavior, is acquired and maintained through environmental contingencies (Skinner, 1957). This theory is based upon the idea that changes in behavior are the result of an individual’s response to events (stimuli) that occur in the environment. The distinctive characteristic of operant conditioning relative to previous forms of behaviorism (e.g., Thorndike, Hull) is that the organism can emit responses rather than only eliciting responses due to an external stimulus.

Reinforcement is the key element in Skinner’s operant conditioning theory. A reinforcer is anything that strengthens the desired response (Skinner, 1957). It could be verbal praise, a good grade or a feeling of increased accomplishment or satisfaction. Behavior increases or becomes more probable when followed by a reinforcer. For example, as the baby makes sounds, parents reinforce those that are most like words by
responding with smiles, hugs, and speech back. The baby makes the sounds more frequently that have been reinforced by his parents.

Skinner regarded language as a human verbal behavior and defined verbal behavior as “the behavior reinforced through the mediation of other persons” (Skinner, 1957, p. 2). He proposed that language, just like any other behavior, is acquired through operant conditioning. When language acquisition is taken into consideration, the operant learning theory claims that language learners receive linguistic input from speakers in their environment, and positive reinforcement for their correct repetitions and imitations. As a result, language learners acquire the language more rapidly when their responses are reinforced positively. For example, the parent coaxes her child to say, “I want a cookie,” and gives a treat with praises after the child responds, “Wanna cookie!” Thus, the child learns the words soon and says them when requesting cookies from adults.

In sum, Skinner noted that verbal behavior develops through a gradual accumulation of verbal symbols, imitation, practice and selective reinforcement of the child’s behavior. In addition, Skinner stressed the role of parents and peers in modeling and reinforcing. The most rapid acquisition of verbal behavior begins early in life when parents model desired patterns and reinforce sounds that are functional (Skinner, 1957).

Social Learning Theory

Bandura’s social learning theory contends that the function of communication is the fundamental reason for communication. Social learning theory emphasizes the important role of social interaction in children’s language acquisition (Bandura, 1977; Bandura & Harris, 1966). The way in which a child uses language informs us of how the child acquires language.
Bandura stated that children acquire language through observation and imitation (Bandura, 1977). Children imitate the way people speak as they naturally interact with their parents, caregivers, and peers. When they are reinforced opportunely due to their verbal imitations, the social reinforcements accrue and consequently encourage children’s willingness and confidence in developing their language through observation and imitation. For example, the child observes various situations and verbalizations that occur during these situations, and then creates a rule-based system that governs his own verbalizations (Bandura, 1977).

**Hearing Impairment and Language Acquisition**

This section contains a description of the importance of the language environment to children’s language acquisition, the essential role of hearing to language acquisition, and the empirical evidence about the influence of hearing impairment on children’s language acquisition and performance. These subjects are organized in the following subsections: (a) language in the language environment, (b) hearing and language acquisition, and (c) effects of hearing impairment on language acquisition.

**Language in the Language Environment**

The American Speech-Language-Hearing Association (ASHA) defines language as a “complex and dynamic system of conventional symbols that is used in various modes for thought and communication” (ASHA, 1982, p. 44). Language is also a socially shared code used by a group of people to communicate with one another, and a conventional system of rules for combining those symbols into larger units. A specific communication convention is a code in which specific symbols stand for something else and it is learned
Children start to learn language by gaining knowledge of what language can do, and then acquire language through interactions with people who speak to them (Locke, 1990). Environment plays an important role in shaping children’s language learning through the reinforcement of responses, promotion of children’s language acquisition, and provision of information about when a child can create or discard language rules (Lue, 2001). A functional environment for language learning is an environment that contains much information and rich reinforcers.

**Hearing and Language Acquisition**

In a hearing world, most people exchange information by hearing it. Without hearing, access to the auditory avenue of information is limited. Hearing the sounds, words, and sentences continuously and repeatedly exposes children to the structure of the language spoken by the community. It is also through hearing that children develop the language and communication abilities that are the basic, vital tools for learning (Butler, 1990). Children with hearing loss, however, miss most of the sounds, voices, and talking that surrounds them. Even though deaf babies cry, babble, and vocalize in their early months like hearing children, they cannot experience the auditory reinforcement from playing sounds with themselves or adults that hearing babies do. Deaf babies eventually cease vocalizing because they are unable to receive the auditory reinforcement that parents provide to encourage their early vocalization attempts. Consequently, deaf babies miss the exposure to spoken language—the effortless way to learn the language code.

**Effect of Hearing Loss on Language Acquisition**

The presence of a congenital, severe-to-profound, bilateral hearing loss disrupts the
with hearing loss are far behind their hearing peers in language skills by the time they enter school. Such language delays associated with an early severe-to-profound hearing impairment have been well documented. Delays have been reported in different components of language, including lexical/semantic skills (content), syntactic/morphological skills (form), and pragmatics (use) (Curtiss, Prutting, & Lowell, 1979; Geer, Kuehn, & Moog, 1981). Both receptive and expressive language skills are affected, with the greatest delays reported in the area of expressive language (Brookhouser & Goldgar, 1987).

Deficits in the lexical/semantic skills of hearing-impaired children limit their word knowledge and verbal-conceptual skills. Wilcox (2001) conducted a study to compare the age-equivalent vocabulary score of the 7- and 8-year-old children with and without hearing impairment. The results of the study were consistent with those from previous research, showing that hearing-impaired children scored significantly lower than their normally hearing peers on vocabulary tests. Gilbertson and Kamhi (1995) compared children with mild-moderate hearing impairments and hearing children on measures of novel word learning. They found that word learning was highly correlated with vocabulary knowledge. However, the children with mild-moderate hearing impairments in their study had vocabulary delays of up to two years and six months. This finding indicated that vocabulary might be vulnerable to even mild hearing losses.

In general, assessments of syntactic/morphological skills administered to students with severe and profound hearing losses have shown that they acquire only the simple sentences (Geer, Kuehn, & Moog, 1981). In an early study, Brannon and Murry (1966) analyzed the syntax in the spontaneous speech of hearing-impaired children. The results
indicated that hearing-impaired children scored lower on structural accuracy than did children with normal hearing.

Deficits in word knowledge, verbal-conceptual skills, and syntax/morphology seriously affect the reading and academic achievement of children with hearing impairments. Research (e.g., Curtiss, Prutting, & Lowell, 1979; McKirdy & Blank, 1982) on the pragmatic skills among these children has shown delays and deviances in this area of linguistic performance that affect their discourse and related skills. Wilcox and Tobin (1978) tested 11 hearing-impaired students, with a mean hearing loss of 61 dB, using a sentence repetition task. Normal hearing children from the same school were matched by age and gender for comparison. The results demonstrated that hearing-impaired children have more difficulty than hearing children with complex verb constructions and tended to substitute simpler forms. Wilcox and Tobin (1978) also found that the oral response patterns of hearing-impaired students were compatible with those seen in normal hearing children 4 to 5 years younger in chronological age.

A longitudinal study by Blamey et al. (2001) tracked the spoken language performance of a group of 87 school-aged children who were deaf or hard of hearing and wore hearing aids or were cochlear implants users. The results showed that the rate of language improvement was only approximately 60% of that in hearing children, although their language performance improved steadily over a period of three years. The findings suggested that by the time these children enter secondary school at the age of about 12 years, the average language delay would be approximately 4–5 years. This finding was consistent with the result of the early study by Wilcox and Tobin (1978).

In a word, many children with hearing loss experience delayed acquisition of
spoken language skills when compared to their normally hearing peers (Blamey et al., 2001). Such empirical evidence provided by previous research consistently supports the need for language-centered intervention to develop the language skills of children who have hearing loss. Through sufficient and effective language exploration and practices, young children with hearing impairments are likely to develop age-appropriate language skills. Adequate listening comprehension enables hearing-impaired children to understand others’ spoken language and further comprehend the language of the school curriculum. As a result, the appropriately developed language skills enhance their success in school. Furthermore, early language intervention provides access to the acquisition of vocabulary and oral expression skills for children with hearing impairments. This opens opportunities for hearing-impaired children to interact successfully with their hearing peers, and consequently function effectively in the wider community in the future.

**Dialogic Reading and Language Acquisition**

This section first describes two teaching theories in which dialogic reading is grounded. Next, it presents related information about the dialogic reading technique, including the significance of shared story book reading, the origin, goal, and specific strategies of dialogic reading, and general guidelines for implementing dialogic reading. Finally, evidence of the effectiveness of dialogic reading on children’s language acquisition is provided. This section is presented in the following subsections: (a) fundamental concepts of dialogic reading, (b) dialogic reading technique, and (c) effects of dialogic reading on language acquisition.
Fundamental Concepts of Dialogic Reading

**Zone of Proximal Development (ZPD)**

The theory of the Zone of Proximal Development (ZPD) was developed by Vygotsky in 1978. The ZPD is the process of learning in a productive domain. Vygotsky (1978) defined the ZPD as “the difference between the child’s development as determined by independent problem solving and the level of potential level as determined through problem solving under adult guidance or in collaboration with more capable peers” (p. 86). The ZPD refers to the domain of knowledge or skills in which the learner is not able to function independently but requires assistance. Scaffolding is an important aspect of the ZPD. Scaffolding is defined as interaction with more capable others, such as a teacher, parent, or more skilled peer, in which dialog supporting the learner’s meaning-making process to ensure that the learner can properly navigate through the ZPD (Donato, 1994). According to Donato (1994), the social part of the scaffolding process should be a dialogically formed interpsychological mechanism that enhances the learner’s internalization of knowledge co-constructed in shared activities. The emphasis in the ZPD is the process of interaction and language use for learning.

In a Vygotskian theoretical framework (Vygotsky, 1962, 1978), dialogic reading offers both social and contextual support for language acquisition. Through familiar routines and repeated readings, adults use story books to support children’s learning of new concepts and their verbal participation (Yoder, Spruytenburg, Edward, & Davies, 1995). During shared book reading, a skilled adult can evaluate a child’s understanding of the story by questioning. If the child does not understand, the adult can appeal to the illustrations or create bridges from the story content to the child’s experience as
scaffolding to help comprehension (Rogoff, 1990). The adult and child jointly explore the meaning of the story through communicative interactions, thus supporting the child’s use of increasingly sophisticated language structures and functions (Heath, 1982; Snow, 1991). With the elaborate efforts that adults make, adult-child dialogic reading seems to be an ideal context in which children may practice and improve their language skills.

*Naturalistic Teaching Approach*

Naturalistic teaching approaches were characterized by Noonan and McCormick (1993) as “structured approaches that use the natural routines and activities in natural environments as the teaching context” (Noonan & McCormick, 1993, as cited in Peterson, 2005, p. 22). Naturalistic teaching approaches typically work with the child in his or her natural setting (i.e., classroom or home) and usually follow the child’s lead or interest in terms of the relation to objects or occurrences that interest the child (Peterson, 2005).

Goldstein, Kaczmarek, and Hepting (1994) stated that naturalistic teaching procedures were developed as alternative teaching strategies to didactic language interventions (Goldstein, Kaczmarek, & Hepting, 1994, as cited in Sheldon, 1997). Unlike traditional adult-directed language intervention, the naturalistic language teaching procedure emphasizes child-oriented interaction with a focus on the child’s language potential but incorporates adult-directed strategies.

Naturalistic teaching procedures have proven to be very effective in establishing language (Kaiser, Ostrosky, & Alpert, 1993) and promoting generalization of acquired language skills (Miranda-Linne & Melin, 1992, Peterson, 2007). Naturalistic language intervention involves four “natural” interaction strategies: (a) following a child’s lead, (b) organizing the environment to provide communication opportunities, (c) focusing on the
child-adult conversational dyad, and (d) providing linguistic models (Iacono, 1999). The naturalistic procedures in language intervention play a critical role in allowing the generalization of communication gains.

The dialogic reading technique has been used as a language intervention based on the naturalistic procedures for establishing the child’s language abilities using natural reading routines in natural environments (i.e., home or classroom). Snow and Goldfield (1983) suggested that book reading is an ideal routine because it is clearly defined, frequently repeated, and highly structured. According to Arnold and Whitehurst (1994), dialogic reading provides a natural opportunity for adults to facilitate young children’s language. At the same time, it creates an optimal environment for children’s language learning. During story time, children tend to talk more and adults use modeling and feedback techniques to teach language skills (DeBaryshe, 1993; Whitehurst, et al., 1988).

**Dialogic Reading Technique**

*Importance of Story Book Reading*

Story book reading is viewed as one of the most important language opportunities for young children (Snow & Goldfield, 1983; Watkins & Bunce, 1996). Story book reading is a familiar routine in many child centers and families with young children. Frequent and enjoyable story book reading contributes to young children’s acquisition of concepts, language, and emergent literacy skills (Dickinson & Tabors, 2001; Sulzby & Teale, 1987). However, Snow (1983) noted that story reading was often overlooked as an opportunity for children and their adult readers to engage in conversation related to the content of the story. McNeill and Fowler (1999) also emphasized the important effect of frequent conversational opportunities during story book reading on young children’s
language acquisition and language use. Therefore, story book reading can be used as a naturalistic intervention to increase language use in children with language delays. For example, Whitehurst and colleagues (1988, 1994) reported a promising intervention that taught adults to interactively converse with young children about the story in the picture books.

Shared parent-child story book interactions are seen as a particularly incidental context for language learning and an ideal vehicle for a child’s early literacy growth (Bus, 2001; Snow et al., 1998; Whitehurst et al., 1988). Shared book reading is associated with enhanced language input by adults and promotes more sophisticated language output by children. Furthermore, shared reading has been consistently proven to have a significant and positive impact on receptive as well as expressive vocabulary development and listening comprehension (Centre for Community Child Health [CCHC], 2004). Based on the potential role of shared book reading as a powerful technique for facilitating oral language acquisition, dialogic reading offers one specific method for identifying the characteristics of shared book reading that help to promote young children’s expressive language skills (Cutspec, 2004).

**Origin and Aim of Dialogic Reading**

Dialogic reading was originally developed to enhance children’s vocabulary and descriptive language skills by encouraging parents to use specific techniques when reading with their children (Whitehurst et al., 1988; Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al., 1994). To help parents fully use the potential of shared picture book reading to enhance young children’s language and literacy skills, Whitehurst and his colleagues designed an instructional program called “dialogic reading” that uses shared
book reading to provide a context for interactive dialogue between adult and child. Wasik and Bond (2006) described dialogic reading as “a method of reading picture books in which children are provided with multiple opportunities to talk and engage in conversation, while the adult becomes an active listener, asks questions, adds information, and promotes the child’s use of descriptive language” (p. 64).

**Strategies of Dialogic Reading**

A major goal of dialogic reading is to make children active participants in shared picture book reading rather than passive listeners to stories being read by adults (Arnold & Whitehurst, 1994). The primary mechanism for achieving this goal is to ask children different types of questions to help them share what they think about the story. The acronym CROWD was developed to help adult readers remember the five types of questions that they can ask children when engaging in dialogic reading (Whitehurst et al., 1994). The letters of CROWD stand for the following types of questions (Zevenbergen, & Whitehurst, 2003, p. 6):

1. **Completion prompts**: These are fill-in-the-blank questions (e.g., “When they went into the car, they all put on their ____________.”).

2. **Recall prompts**: These are questions that require the child to remember aspects of the book (e.g., “Can you remember some of the things that Stickybreak did at school?”).

3. **Open-ended prompts**: These are statements that encourage the child to respond to the book in his or her own words (e.g., “Now it’s your turn to tell about this page.”).

4. **Wh-prompts**: These are what, where, and why questions (e.g., “What is this called?”; “Why didn’t Peter stay home from school?”).

5. **Distancing prompts**: These are questions that require the child to relate the
content of the book to aspects of life outside of the book (e.g., “Did you ever go to a parade like Susie did?”).

Whitehurst et al. (1988) noted that the fundamental reading technique in dialogic reading is the PEER sequence, which is **Prompt, Evaluation, Expansion, and Repetition**. The acronym PEER is used to help adult readers remember to embed the five types of questions into interactive sequences. For example, the adult *prompts* the child to respond to the book, *evaluates* the child’s response, *expands* the child’s response by repeating and adding information to it, and encourages the child to *repeat* the expanded utterance (Whitehurst et al., 1994). An example of such a sequence was given by Whitehurst et al. (1994). The adult reader might prompt the child by asking, “What does it feel like to play in the snow?” The child might respond by saying, “It’s cold.” The adult evaluates this response to be correct but shorter and less detailed than desired, and responds with an expansion by repeating and adding information such as, “Yes, it’s cold when your feet get wet or when someone hits you with a snowball.” The adult encourages the child to repeat some of this new information by waiting until the end of the book and then asking the child a recall question: “Can you remember some things we talked about that make people cold when they play in the snow?”

**Differentiation between Dialogic Reading and Traditional Reading**

The distinguishing difference between dialogic reading and traditional reading is the roles played by the adult and the child during story book reading. Dialogic reading involves a shift in the roles of adults and children, and this is a critical change in the way adults typically read books to children (Lonigan & Whitehurst, 1998). During typical book reading, adults read and children listen, while in dialogic reading children are
In the early stage of dialogic reading, the adult assumes the role of an active listener, asking questions, adding information, and prompting the child to increase the sophistication of her or his descriptions of the picture book. Later, when the child becomes familiar with the picture book, the adult gradually shifts the responsibility of telling the story to the child. For example, early in a dialogic reading activity, the child is asked to name objects pictured in the book; later, the adult asks open-ended questions that engage the child in more description. A child’s responses to the book should be encouraged through praise and repetition, and more sophisticated responses need to be modeled by expansions of the child’s utterances (Lonigan & Whitehurst, 1998).

**Guiding Principles of Dialogic Reading**

Dialogic reading with young children is based on three general principles of implementation: (a) encourage the child’s oral participation, (b) give feedback to the child, and (c) adapt the level of interactive conversation to the child’s growing language ability (Arnold & Whitehurst, 1994; Hargrave & Sénéchal, 2000). The first principle is that the adult reader should use stimulating techniques to encourage the child’s oral participation and active role during story time. An example is asking “wh” questions (e.g., What is the monkey doing? Why is Emily crying?) that require the child to give oral responses. Conversely, yes-and-no questions do not encourage novel speech. Therefore, the child participates and benefits more from this evocative technique. Second, feedback given by the adult reader provides the child with instructive information. Feedback is encouraged in a variety of forms such as modeling, or correct, recast and expand the child’s utterances. The third principle is that the adult reader should progressively adjust
the standard of language interaction to the child’s increasing language ability. For example, if a child shows adequate ability to name objects or characters in the book, the adult reader should encourage the child to talk about other features in the book and not simply to label colors (Hargrave & Sénéchal, 2000).

In summary, dialogic story book reading provides children with plenty of opportunities to listen to and receive adult readers’ language output. At the same time, children are provided with multiple opportunities to express themselves and thus to build upon existing language with the aid of appropriately structured questions, and to witness language-rich models.

**Effectiveness of Dialogic Reading on Language Acquisition**

The effectiveness of dialogic reading in facilitating children’s language acquisition has been well documented (e.g., Crain-Thoreson & Dale, 1999; Cutspec, 2004; Lonigan & Whitehurst, 1998). According to practice-based research syntheses reviewed by Cutspec (2004), children’s language gains through dialogic reading include receptive (e.g., Fung et al., 2005; Wasik & Bond, 2006) and expressive vocabulary (e.g., Heubner, 2000a, 2000b; Lonigan & Whitehurst, 1998), oral syntax skills (Heubner, 2000b; Valdez-Menchaca and Whitehurst, 1992), mean length of utterance (e.g., Crain-Thoreson & Dale, 1999; Dale et al., 1996), use of different words (e.g., Crain-Thoreson & Dale, 1999; Lonigan & Whitehurst, 1998), narrative skills (e.g., Wasik & Bond, 2001; Lonigan et al., 1999, ), and verbal participation (e.g., Crain-Thoreson & Dale, 1999; Dale et al., 1996). In addition, evidence in the work of Freeman and Bochner (2009) and Lonigan et al. (1999) suggested that dialogic reading served to enhance children’s listening comprehension of spoken language. Doyle and Bramwell (2006) also noted that dialogic
reading can build children’s comprehension on a deeper level by asking meaningful questions.

The earliest dialogic reading study was conducted by Whitehurst and his colleagues (1988) with typically developing young children. Whitehurst et al. studied middle- to high-SES mothers and their 2-year-olds. The intervention group of mothers received two training sessions and then read to their children at home for two weeks. Mothers in the control group received no training but read to their children as frequently as the intervention mothers. Children in the dialogic reading program produced significant increases in the grammatical complexity of their speech and a 6- to 8.5-month gain in expressive language ability. These are very large effects in children who were already functioning at an advanced level before the intervention.

Arnold et al. (1994) replicated and extended the results of the original study of dialogic reading by developing and evaluating an inexpensive videotape training package for teaching dialogic reading techniques. Mothers were randomly assigned to receive no training, traditional direct training, or videotape training. Findings supported the conclusions of Whitehurst et al. (1988) that dialogic reading had powerful effects on children’s language skills. In addition, results indicated that videotape training provided a cost-effective, standardized means of implementing the program (Arnold et al., 1994).

Dale et al. (1996) extended the results of previous dialogic reading research by examining the effectiveness of parent-child dialogic book reading versus general conversation as an intervention technique for young children with language delays. Thirty-three children with mild-to-moderate language delays and their parents were randomly assigned to the dialogic reading program or to the conversational language
program. After pretest observations, parents in both groups viewed videotaped presentation and discussed the strategies in small groups. Posttests were conducted after the 6- to 8-week intervention. Results showed some modest effects on children, primarily increased rates of verbal responses to questions, increased numbers of different words, and increased mean lengths of utterance. These results suggested that dialogic reading has considerable potential for facilitating language development in children with language delays.

Based on earlier dialogic reading studies (Whitehurst, Arnold et al., 1994) that compared the language growth of children in home-based and school-based conditions, Crain-Thoreson and Dale (1999) evaluated the effects of modified one-on-one dialogic reading on enhancing the linguistic performance of children with language delays. Thirty-two children with language delays were randomly assigned to one of three intervention conditions: (a) parent instruction with shared book reading, (b) staff instruction with shared book reading, and (c) staff instruction without shared book reading practice (control group). Children were given standardized vocabulary tests and were videotaped during shared book reading before and after the 8-week intervention period. Study results demonstrated a number of statistically significant changes from pretest to posttest in the language of children in all three groups, including increased MLU and increased numbers of utterances, different words used, and ratios of participation. However, the intervention did not have an effect on children’s vocabulary growth. This result may be due to the small sample size or the lower success of this intervention among children with language delays than with typically developing children. A longer intervention period may be needed for notable changes in test scores.
Children from low-income families are likely to experience a disadvantaged environment that limits their acquisition of adequate and mature language. Lonigan and Whitehurst (1998) evaluated the effects of dialogic reading intervention with ninety-one 3- to 4-year-old children from low-income families who attended subsidized child care. These children’s oral language skills were significantly below age-level as measured using standardized tests. All children were randomly assigned to one of four conditions: (a) no treatment control, (b) a school condition in which children were read to by their teachers in small groups, (c) a home condition in which children were read to by their parents, and (d) a combined school plus home condition. Parents and teachers were trained in dialogic reading techniques via an instructional videotape. Each child was tested on standardized measures of oral language before and after the 6-week intervention. Comparisons in this study revealed that the combined intervention groups produced longer utterances, more words overall, a higher diversity of words, and more adjectives/modifiers than the control group. Children in high compliance centers scored higher on all of these variables. For children’s vocabulary production, there were minimal differences among the three intervention groups, and most of the separate intervention groups differed from the control group on a majority of measure variables.

Despite the fruitful results reported in research on dialogic reading, a limited number of studies have examined the effects of dialogic reading for children with special developmental disorders, especially children with hearing impairments. Therefore, Fung et al. (2005) conducted a study to test the hypothesis that the dialogic reading intervention could produce greater receptive language gains in deaf and hard-of-hearing children as compared to children in typical parent-child reading and control conditions in Hong Kong.
Twenty-eight deaf and hard-of-hearing children in kindergarten, first, or second grade were randomly assigned to one of three conditions: dialogic reading, typical reading, and a control condition, matched by age and degree of hearing loss. Each participant was tested on a receptive vocabulary test (PPVT) before and after the 8-week intervention. Results indicated that children in the dialogic reading group produced the greatest improvements in receptive vocabulary learning among the three groups. This study extended the positive impacts of the dialogic reading technique to deaf and hard-of-hearing children.

Summary

Language skills are thought to lay a critical foundation for later reading skills and success in school. Young children acquire language through language interactions with adults in their surrounding environments. A rich language environment is essential to children’s language acquisition. Children with hearing impairments are highly likely to experience delays in language acquisition due to defects in hearing, with adequate hearing a prerequisite for acquiring language appropriately. Therefore, early language intervention is needed to foster hearing-impaired children’s language development.

Dialogic reading was developed as a naturalistic language intervention to promote children’s oral language skills using adult-child shared story book reading. The dialogic reading technique has achieved encouraging results in enhancing the language skills of young children from middle- to upper-income families as well as low-income families, who are language-delayed or at risk of developmental disadvantages, and who are deaf or hard of hearing.
Chapter 3

METHODOLOGY

A description of the methods and procedures implemented in this study is presented in this chapter. The following sections may be found here: (a) research design, (b) settings, (c) participants, (d) instrumentation, (e) procedures, and (f) data collection and data analysis.

Research Design

A pre-experimental research design, one-group pretest-posttest design, was used to evaluate the effectiveness of the dialogic reading intervention across four areas of language skills. In this design, the independent variable was the dialogic reading intervention, and the dependent variables were participants’ performances on receptive vocabulary, oral expression, listening comprehension, and syntax skills. Table 3.1 presents the examples of the dialogic reading technique and which language skill they intended to enhance.

In this study, children were pre- and posttested in four areas of language skills (receptive vocabulary, listening comprehension, oral expression, and syntax), using three standardized assessment instruments before and after an 8-week dialogic reading intervention. The research design for this study was depicted as follows with $O_1 =$ pretests, $X =$ intervention, and $O_2 =$ posttests.

$$O_1 \quad X \quad O_2$$
Table 3.1

*The Acquisition of Children’s Language Skills Associated with the Use of the Dialogic Reading Intervention*

<table>
<thead>
<tr>
<th>Dialogic Reading</th>
<th>Examples</th>
<th>Language Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CROWD Prompts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completion</td>
<td>“For Ricky’s first day of school his mother bought him a new ____.” (uniform)</td>
<td>Vocabulary, Listening Comprehension</td>
</tr>
<tr>
<td></td>
<td>“Mrs. Tao used the flower print fabric to make herself an _____.” (apron)</td>
<td></td>
</tr>
<tr>
<td>Recall</td>
<td>“What did grandpa make for Joseph using his worn-out blanket?”</td>
<td>Vocabulary, Listening Comprehension, Oral Expression, Syntax</td>
</tr>
<tr>
<td></td>
<td>“What did Harry (a dog) do when his master’s family couldn’t recognize him?”</td>
<td></td>
</tr>
<tr>
<td>Open-ended</td>
<td>“What’s happening in this picture?”</td>
<td>Listening Comprehension, Oral Expression, Syntax</td>
</tr>
<tr>
<td></td>
<td>“What do you think they are doing here?”</td>
<td></td>
</tr>
<tr>
<td>Wh-</td>
<td>“What do the dogs’ masters do to take care of them?”</td>
<td>Listening Comprehension, Oral Expression, Syntax</td>
</tr>
<tr>
<td></td>
<td>“Why do you think Harry (a dog) took the brush out from the bathroom and hide it when it heard the water running into the bathtub?”</td>
<td></td>
</tr>
<tr>
<td>Distancing</td>
<td>“Does your mom have an apron?”</td>
<td>Vocabulary, Listening Comprehension, Syntax</td>
</tr>
<tr>
<td></td>
<td>“When you went to the doctor, what did the doctor do?”</td>
<td>Oral Expression, Syntax</td>
</tr>
<tr>
<td></td>
<td>“What did your mom do the clothes you have grown out of?”</td>
<td></td>
</tr>
<tr>
<td><strong>PEER Sequences</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prompt</td>
<td>(See examples regarding Completion, Recall, Open-ended, Wh-, and Distancing prompts.)</td>
<td>Vocabulary, Listening Comprehension, Oral Expression, Syntax</td>
</tr>
<tr>
<td>Evaluate</td>
<td>“Yes, Ricky looks very sad.”</td>
<td>Listening Comprehension</td>
</tr>
<tr>
<td>Expand</td>
<td>“Ricky feels sad because his classmates tease him about his ear.”</td>
<td>Listening Comprehension, Syntax</td>
</tr>
<tr>
<td>Repeat</td>
<td>“May you repeat the word?”</td>
<td>Vocabulary, Oral Expression, Syntax</td>
</tr>
<tr>
<td></td>
<td>“So, tell me again, what is happening here?”</td>
<td></td>
</tr>
</tbody>
</table>
Settings

The study was conducted at two centers of a private nonprofit foundation for children with hearing impairments, located in Taipei City, Taiwan. The foundation has been in existence for 12 years and was established to provide early interventions and education and related services to children with hearing impairments and their families. Their interventions and educational programs focus on each child’s solid development and emphasize the importance of family involvement. At the time the study was conducted, the foundation was currently serving 95 children with hearing impairments who ranged in age from a few months to the first grade in three centers. A total of 17 teachers and 11 staff members were employed in these three centers. Each teacher had at least an associate’s degree or higher in special education, early childhood education, or a related field. Each teacher was required by the foundation to receive training for six months or longer and pass evaluations in order to become a qualified, formal teacher.

The early intervention programs provided by the foundation for hearing-impaired children included both types of instruction: individual (one-on-one) and group classes. Each group class contained four children and one teacher. Children attended group classes two hours a day, four days a week. The schedule for each group class consisted of two class sessions with a 10-minute recess in between. The end of the second class session was followed by a half-hour parent-teacher consultation about the daily lesson.

The present study was conducted in four group classes in the two Taipei centers of the foundation. Two of the four group classes were scheduled in the morning in the main center, and the other two were scheduled in the afternoon in the branch center. The dialogic reading intervention was implemented in the first class session. It was assumed
that children would concentrate better at the beginning of the classes, and so offering important information then would enhance their learning.

**Participants**

Sixteen children with moderate to profound hearing loss participated in this study. The level of severity of hearing loss was based on unassisted or pre-implant hearing ability. These hearing-impaired children were enrolled in four different group classes in the foundation according to their age levels and language abilities. During the child subject selection process, a consent form describing the study and potential benefits of the intervention was sent to all parents of the children. Parental permission to recruit their children for the dialogic reading intervention was requested. After consent was obtained, children’s background information was obtained from the individual student files at the foundation and from the children’s parents. In addition, parents were asked to provide their demographic information, including age, highest level of education completed, occupation, monthly household income, number of children, and other information regarding their reading habits (e.g. frequency, duration) with picture book reading at home. The demographic characteristics of children with hearing impairments and their parents are summarized in Tables 3.1 and 3.2, respectively.

The 16 children (11 boys, 5 girls) in this study ranged in age from 3 years and 3 months to 6 years and 11 months, with a mean age of 5 years (SD = 11 months). Because two children did not reach the entry age, 4 years old, for the OSST (Oral Syntax Skills Test), they were not included in the analysis of OSST (see chapter 4). With regard to the degree of hearing loss, three children had a moderate hearing loss between 45 to 69 dB, five children had a severe hearing loss between 70 to 90 dB, and eight children were
profoundly hearing impaired (greater than 90 dB). Children’s ages at the diagnosis of their hearing loss ranged from birth to 3 years with a mean age of one and a half years (SD = 1 year and 2 months). None of the children in this study had been diagnosed with additional disabilities except for their hearing impairment. Seven children used hearing aids, two children used cochlear implants only, and the other seven children used cochlear implants plus hearing aids. Children’s ages at enrollment in the foundation ranged from 2 months to 4 years with an average age of 2 years and 2 months (SD = 1 year and 1 month). Years of children’s enrollment in the foundation ranged from 11 months to 4 years and 9 months (SD = 1 year and 2 months). Of the 16 hearing-impaired children, eight children were also attending either public or private kindergartens or daycares but the other eight children were not enrolled in any other educational settings.

Of the 16 children’s main caregivers who observed the daily group class activities, 15 were mothers, one was a father, and one was a grandmother. With regard to age, 12 parents were between the ages of 30–39 years, two were between 40–49 years, one was between 20–29 years, and the remaining one was above 50 years old. In terms of parental education level, six parents had completed high school/vocational high school or below, four had completed vocational college, five had their junior college diplomas, five were 4-year-university graduates, and one had completed a graduate degree. In looking at primary occupation, 12 parents of the hearing-impaired children were housewives, two parents were business people, one was an educator and the remaining fell into the “other” category. The monthly household income of five families were NT 39,999 or under, four families had incomes between NT 40,000–69,999; three families had incomes between 70,000–69,999; three families had incomes between 100,000–139,999; and one family
Table 3.2

Children’s Characteristics at Time of Initial Assessment

<table>
<thead>
<tr>
<th>Child</th>
<th>Gender</th>
<th>Chronological Age (year : month)</th>
<th>Age at Diagnosis (year : month)</th>
<th>Level of Hearing Loss (Unaided)</th>
<th>Aided Status</th>
<th>Age at Enrollment in the Foundation (year : month)</th>
<th>Years of Enrollment in the Foundation (year : month)</th>
<th>Enrollment in Preschool or Daycare</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>6:8</td>
<td>2:0</td>
<td>Profound</td>
<td>CI+HA</td>
<td>2:3</td>
<td>4:5</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>6:11</td>
<td>2:0</td>
<td>Severe</td>
<td>CI+HA</td>
<td>2:5</td>
<td>4:6</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>5:6</td>
<td>3:2</td>
<td>Profound</td>
<td>HA</td>
<td>3:2</td>
<td>2:4</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>M</td>
<td>4:11</td>
<td>1:6</td>
<td>Moderate</td>
<td>HA</td>
<td>1:9</td>
<td>3:2</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>4:7</td>
<td>1:7</td>
<td>Profound</td>
<td>CI+HA</td>
<td>1:8</td>
<td>2:9</td>
<td>Yes</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>5:1</td>
<td>0:1</td>
<td>Profound</td>
<td>HA</td>
<td>0:4</td>
<td>4:9</td>
<td>Yes</td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>5:3</td>
<td>0:0</td>
<td>Profound</td>
<td>CI+HA</td>
<td>2:10</td>
<td>2:5</td>
<td>Yes</td>
</tr>
<tr>
<td>8</td>
<td>M</td>
<td>4:11</td>
<td>3:10</td>
<td>Moderate</td>
<td>HA</td>
<td>4:0</td>
<td>0:11</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>5:7</td>
<td>2:0</td>
<td>Severe</td>
<td>CI+HA</td>
<td>2:4</td>
<td>3:3</td>
<td>No</td>
</tr>
<tr>
<td>10</td>
<td>M</td>
<td>5:1</td>
<td>0:4</td>
<td>Profound</td>
<td>CI</td>
<td>3:10</td>
<td>1:3</td>
<td>No</td>
</tr>
<tr>
<td>11</td>
<td>F</td>
<td>4:9</td>
<td>0:8</td>
<td>Profound</td>
<td>CI</td>
<td>1:3</td>
<td>3:6</td>
<td>Yes</td>
</tr>
<tr>
<td>12</td>
<td>F</td>
<td>4:11</td>
<td>0:4</td>
<td>Profound</td>
<td>CI+HA</td>
<td>1:0</td>
<td>3:11</td>
<td>No</td>
</tr>
<tr>
<td>13</td>
<td>M</td>
<td>4:6</td>
<td>2:9</td>
<td>Severe</td>
<td>HA</td>
<td>2:9</td>
<td>1:9</td>
<td>No</td>
</tr>
<tr>
<td>14</td>
<td>F</td>
<td>4:3</td>
<td>3:0</td>
<td>Severe</td>
<td>HA</td>
<td>3:4</td>
<td>0:11</td>
<td>No</td>
</tr>
<tr>
<td>15</td>
<td>F</td>
<td>3:7</td>
<td>0:1</td>
<td>Profound</td>
<td>CI+HA</td>
<td>0:2</td>
<td>3:5</td>
<td>No</td>
</tr>
<tr>
<td>16</td>
<td>M</td>
<td>3:3</td>
<td>1:3</td>
<td>Severe</td>
<td>HA</td>
<td>1:3</td>
<td>2:0</td>
<td>No</td>
</tr>
</tbody>
</table>

Note: CI = Cochlear Implant; HA = Hearing Aid; Hearing Loss: Moderate (45-69dB); Severe (70-90dB); Profound (90dB above)
Table 3.3
Demographic Characteristics of Parents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Frequency (N = 16)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
<td>94%</td>
</tr>
<tr>
<td>Male</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29 years</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td>30-39 years</td>
<td>12</td>
<td>75%</td>
</tr>
<tr>
<td>40-49 years</td>
<td>2</td>
<td>13%</td>
</tr>
<tr>
<td>50 years or above</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior high or under</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td>High school/vocational high school</td>
<td>5</td>
<td>31%</td>
</tr>
<tr>
<td>Junior college</td>
<td>4</td>
<td>25%</td>
</tr>
<tr>
<td>4-year university</td>
<td>5</td>
<td>31%</td>
</tr>
<tr>
<td>Graduate or higher</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Primarily Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>12</td>
<td>75%</td>
</tr>
<tr>
<td>Business</td>
<td>2</td>
<td>13%</td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Monthly Household Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NT 39,999 or under</td>
<td>5</td>
<td>31%</td>
</tr>
<tr>
<td>NT 40,000 – 69,999</td>
<td>4</td>
<td>25%</td>
</tr>
<tr>
<td>NT 70,000 – 99,999</td>
<td>3</td>
<td>19%</td>
</tr>
<tr>
<td>NT 100,000 – 139,999</td>
<td>3</td>
<td>19%</td>
</tr>
<tr>
<td>NT 140,000 or above</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Number of Children at Home</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>7</td>
<td>44%</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>56%</td>
</tr>
</tbody>
</table>
had an income above NT 140,000. Seven parents reported having one child and nine parents reported two children in their families.

Four teachers of the group classes were recruited to implement the dialogic reading intervention in their classrooms. All teachers completed the teacher information questionnaires prior to the teacher training on the dialogic reading technique. The questionnaire sought teachers’ background information and previous experiences in reading books with their students in the classroom. All the four teachers were female. One teacher was in her 30s, two were in their 40s, and 1 was above 50 years old. Of the four teachers, three teachers had junior college diplomas and one teacher had received a bachelor’s degree. They were experienced teachers who had from seven to 25 years of experience working with hearing-impaired children. Each teacher was very familiar with the hearing status and current language abilities of their students. All of the teachers indicated that they irregularly read stories to children in their classes. The frequency of the storytelling in their classes varied from once a week to once a month or less. Two teachers reported that they usually asked questions related to the story contents both during and after the storytelling, while the other two teachers asked story-related questions only when the storytelling had been completed.

**Instrumentation**

Three assessments were administered in this study to measure the effects of treatments on participants’ language acquisition with regard to receptive vocabulary, listening comprehension, oral expression, and syntax at pretests and posttests. The three language assessment instruments were the Peabody Picture Vocabulary Test-Revised (PPVT-R), the Preschool and Kindergarten Language Scale (PKLS), and the Children
Oral Syntax Skills Test (OSST). In addition, two social validity questionnaires were designed to evaluate teachers’ and parents’ satisfaction with and opinions about the effects of the dialogic reading technique upon completion of the intervention. Each measurement instrument is described in the following sections.

**Peabody Picture Vocabulary Test — Revised (PPVT-R)**

The Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn & Dunn, 1981) is a norm-referenced, standardized achievement and screening test of the receptive vocabulary of subjects older than 2.5 years of age. In this study, all children’s receptive vocabularies were measured using a translated Chinese version of the Peabody Picture Vocabulary Test-Revised (PPVT-R) (Liu & Lu, 1998). The Chinese version of PPVT-R was translated from the original PPVT-R (Dunn & Dunn, 1981) in 1994 (Liu & Lu, 1994), and revised in 1998 (Liu & Lu, 1998). After a pretest and analysis of the test items, 50 unsuitable items were removed; and 125 items remained in the Chinese version. In the new revised Chinese version, 16 pictures that did not illustrate distinguishable features were replaced with new distinguishable pictures. In 1998, a national norm for this test was found for children aged three to 12 years old through a pretest and formal test in Taiwan.

Two parallel forms, Form 甲 (used for pretests in this study) and Form 乙 (used for posttests in this study), of the revised Chinese PPVT-R are available. Each form contains five practice items and a set of 125 test items ordered according to increasing difficulty. There are four pictures of nouns per page. The examiner presents a series of pages to the child one word at a time. For each page, the assessor names an item that is one of the four pictures, and asks the child to point to the picture that presents the word (e.g., “point to
The PPVT-R contains two sections: personal information and the main body of the test content. In the first part, the assessor puts down personal information about the child, name of the assessor, language used in the test, test date, reason for the test, etc. (Liu & Lu, 1998). The second part consists of vocabularies for testing children’s receptive vocabulary. The majority of these vocabularies are nouns and verbs. According to Dunn and Dunn’s PPVT-R (1981), there are 19 categories of vocabulary (e.g., movements, animals, clothes, food, tools). In the revised Chinese PPVT-R, vocabulary items are recategorized based on features of the item, with a total of 17 categories in Form 甲 and 16 categories, no clothes category, in Form 乙.

The reliability and validity of the Chinese PPVT-R have been assessed. The split-half reliabilities for Form 甲 range from .90 to .97 with a median value of .95; for Form 乙, they range from .90 to .97 with a median value of .96. Both achieve significance at the .01 level. With an interval of four to eight weeks, the test-retest reliabilities of Form 甲 is .09, and Form 乙 is .84. All participants are tested with Form 甲 first and then with Form 乙. Alternate form reliability is obtained, ranging from .60 to .91 with a median value of .79. Concurrent validity with other vocabulary tests is assessed. Correlations with the WISC-R Vocabulary subtest are .55 and .48 for Form 甲 and Form 乙, respectively.

With high reliabilities and good validities, the Chinese PPVT-R has been widely used to measure children’s language outcomes in many Taiwanese research studies (Yu, 2006). It has proved to be an appropriate instrument for use with both typically developing children (e.g., Lin, 2006; Kuo, 2001; Xiao, 2007; Yang, 2002) and children
with disabilities such as hearing impairment (e.g., Jiang, 2004; Lin & Lee, 2004), autism (e.g., Tang, 2002), and so on.

**Preschool and Kindergarten Language Scale—Revised (PKLS-R)**

All children’s listening comprehension and oral expression skills were measured using the Preschool and Kindergarten Language Scale - Revised (PKLS-R) (Lin, Huang, Huang, & Lin, 2007). The PKLS-R is an individually administered, Taiwanese norm-reference, standardized screening test. It is designed to evaluate the language ability of listening comprehension (receptive language) and oral expression (expressive language), expressive vocabularies, the performance of articulation, as well as vocal sound and speech fluency for children aged from 3 years to 5 years 11 months.

The PKLS-R is a simple and easy-to-use instrument. Administration of this test requires only 10–20 minutes, but 30 minutes more is needed for children with disabilities. Fostering a friendly relationship between the participant and examiner is recommended prior to the test. For children who are younger, distracted or tire easily, a pause can be introduced between sections.

The PKLS-R contains four subtests for evaluating children’s speech sound and fluency, listening comprehension, expressive vocabulary, and oral expression. In this study, children were only tested with the listening comprehension and oral expression subtests. The listening comprehension subtest is a receptive language test containing a total of 37 items (29 items and 8 sub-items) designed to evaluate children’s listening comprehension skills, vocabulary, and knowledge of syntax. Test items include: (a) one to two commands, (b) receptive vocabularies (e.g., nouns of locality and color, common and collective nouns), and (c) yes/no questions, negative sentences, and analogies. The
oral expression subtest contains a total of 46 items (18 items and 28 sub-items) used to evaluate expressive language ability. Test items include labeling pictures, answering questions regarding daily life and short statements, telling a story from the picture and recalling the content of stories. A correct response is scored as 1 point and a wrong response is scored as 0 points. “NR” is marked as 0 when the examinee does not give a response.

The PKLS-R has been standardized nationally on a sample of 725 Taiwanese children (363 boys, 362 girls). The internal consistency has been assessed for each subtest by age groups and the entire sample, indicating that this test has a high degree of internal consistency. The internal consistency of the listening comprehension subtest for different age groups and the entire sample is from .82 to .91. The internal consistency of the oral expression subtest is from .86 to .94. With an interval of two weeks, the test-retest reliability of the listening comprehension, language expression, and entire test is .93, .92, and .96, respectively. This test also has good content validity. The correlation between listening comprehension and oral expression subtests is significant (> .05) with a value of .78. Both listening comprehension and oral expression subtests are significantly (> .05) correlated with the overall test with values of .93 and .95, respectively. The concurrent validity is assessed and correlated highly with the Oral Syntax Skills Test for PreK–2 Children (Yang, Chang, & Lee, 2005).

Before being revised, the PKLS was widely used to assess young children’s language outcomes in a number of Taiwanese research studies involving both typically developing children (e.g., Lin, 2006) and children with disabilities (e.g., Lee, 2006; Liang, 2004), including hearing impairment (e.g., Jiang, 2004; Lin, Yang, & Wu, 2003).
recent years, several Taiwanese research studies began to use the revised PKLS (PKLS-R) to obtain samples of children’s language performance (e.g., Chang, 2007; Hsu, 2008).

**Oral Syntax Skills Test for PreK–2 Children (OSST: PreK–2)**

All children’s oral syntax skills were measured using the Oral Syntax Skills Test (Yang, Chang, & Lee, 2005) before and after the 8-week intervention. The OSST is an individually administered, Taiwanese norm-referenced, diagnostic test of oral syntax for children ranging in age from pre-kindergarten to the second grade (4- to 8-years old). It is designed to assess a child's understanding of word and sentence structures.

This test contains two subtests. The first subtest is a receptive oral syntax test containing 22 test items (items 1–12 are for the Pre-K and kindergarten level; items 13–22 are for grades 1 and 2). The second subtest is the expressive oral syntax test containing 23 test items (items 1–8 are for the Pre-K and kindergarten level; items 9–23 are grades 1 and 2). Although each subtest contains two levels of test items, there is no limit to the number of items to which the child may respond. Children of different ages are allowed to give responses from the first item to the last item of the test if they go on responding correctly, or may from their entry points back to the very first item if they fail to give the correct responses. Picture cards corresponding with the questions are provided for the child to point to or orally describe. On average, administration of this test requires only 15 minutes for kindergarteners and 30 minutes for grade 1–2 children. A correct response is scored as 1 and both a wrong response and no response are scored as 0.

The OSST has been standardized nationally on a sample of 707 Taiwanese children (360 boys, 346 girls). The test-retest reliability for pre-kindergarten, kindergarten, grade 1 and grade 2 children was .77, .89, .85 and .80, respectively. The overall test-retest
reliability of the receptive syntax subtest, expressive syntax subtest, and overall test is .80, .87, and .90, respectively. All achieve significance at the .01 level. The internal consistency of this test is good with values of .88, .94 and .95 for receptive, expressive and overall syntax tests, respectively. The criterion-related validity of this test has been assessed. For the pre-kindergarten and kindergarten group, the criterion-related validity of the receptive, expressive and overall syntax tests was .37, .41 and .44, respectively; for the grade 1 and 2 group, it was .49, .41 and .50, respectively. Both achieved significance at the .01 level. Construct validity was tested by examining differences in mean scores between gender and age groups. There were no significant gender differences in the mean scores for both the OSST subtests and overall test. There were significant age differences in the subtests and overall mean scores. The mean scores for each age group on all subtests and the overall test were significantly different and suggested acceptable construct validity.

A number of workshops have been conducted to introduce the procedures, assessment method and interpretation of test results to teachers and professionals in many cities and counties across Taiwan. With its good reliability and validity, OSST has been used in recent Taiwanese research (e.g., Chang, 2008; Lu, 2007) to evaluate children’s syntax competence.

Teacher Social Validity Questionnaire

To answer the second and third research questions regarding teachers’ perception of children’s language progress and teacher attitudes toward the dialogic reading intervention, a follow-up teacher social validity questionnaire was designed to gather information from teachers. The questionnaire was distributed to each of the participant’s
teachers after the intervention was completed.

The teacher questionnaire was comprised of three sections. The first section contained questions about the effects of the dialogic reading intervention on the language outcomes of the hearing-impaired children who participated in this study. These questions were developed to obtain teachers’ evaluations of each child’s gains in language skills after the dialogic reading intervention. The questions were based on a 4-point Likert-type response scale from 1 to 4, indicating “no progress” to “significant progress”. This section had four sets of identical questions with a blank in the front of each set where teachers could put the name of each child in their classes. Teachers were asked to write a child’s name in the blank on each set and respond to the questions by circling one answer for each question.

Questions in the first section were grouped into three main categories: (a) outcome of the child’s language acquisition, including vocabulary knowledge, oral expression skills, listening comprehension skills, use of different words and complex words, and story retelling ability; (b) frequency of the child’s oral participation during story book reading, including responding to the teacher’s questions, asking questions about the story, and expressing their feeling about the story; and (c) the child’s engagement changes during story book reading, including duration of attention, understanding of story plots, and enjoyment of reading.

The second section contained questions designed to obtain teachers’ attitudes toward the dialogic reading intervention used with their students who had hearing impairments. Teachers were asked to respond to these questions following a 4-point Likert-type response scale from 1 (“strongly disagree”) to 4 (“strongly agree”), representing low
agreement to high agreement. Questions in the second section were sorted into the following main categories: (a) teachers’ beliefs in dialogic reading technique, (b) teachers’ perceptions of the implementation of dialogic reading, and (c) teachers’ satisfaction with the effectiveness of the dialogic reading intervention.

The third section of the teacher questionnaire consisted of open-ended questions designed to obtain teachers’ overall opinions about the dialogic reading technique. Teachers were asked to provide explanations for their satisfaction with the dialogic reading intervention, and invited to give their comments and suggestions about the intervention.

**Parental Social Validity Questionnaire**

To answer the second and fourth research questions regarding parents’ perceptions of children’s language gains and parental attitudes toward the dialogic reading intervention, a follow-up parent social validity questionnaire designed for parents’ evaluation of the dialogic reading technique was used. The questionnaire was distributed to the parent of each participant in the posttest period.

The parent questionnaire was comprised of three main sections. The first section included questions about the influence of the dialogic reading technique on their children’s language growth. These questions obtained parents’ evaluation of their children’s language gains through the dialogic reading intervention. A 4-point Likert-type response scale from 1 to 4 was used, with 1 indicating “no progress” and 4 indicating “significant progress”. Parents responded to these statements by circling one of the 4 points in the scale. Questions here were grouped into three main categories exactly like those in the first section of the teacher questionnaire, but there was only one set for their
own child.

The second section contained questions designed to assess parents’ attitudes toward the dialogic reading intervention used with their hearing-impaired children. Questions in this section were sorted into the following main categories: (a) parents’ beliefs in the usefulness of dialogic reading technique, (b) parents’ perceptions of the implementation of dialogic reading, and (c) parents’ satisfaction with the effectiveness of the dialogic reading intervention. Each question was followed by a 4-point Likert-type response scale from 1 (“strongly disagree”) to 4 (“strongly agree”), representing low agreement to high agreement. Parents responded by circling one of the points on the scale.

The third section of the parent questionnaire consisted of open-ended questions that sought parents’ overall opinions about the dialogic reading technique. To the open-ended questions, parents were asked to provide explanations for their perspectives on dialogic reading, and invited to give their comments and suggestions about the intervention.

**Procedures**

The study was conducted in three phases. The first phase involved teacher training and pretests that measure receptive vocabularies, expressive skills and listening comprehension for each child. The second phase was an 8-week dialogic reading intervention delivered by teachers in four individual classrooms. The third phase included posttests measuring the four areas of language skills measured in the pretests for each child, and the social validity questionnaires measuring parents’ and teachers’ perspectives on dialogic reading. The procedures for the study are presented in Figure 3.1.
Figure 3.1 Study Procedures
Phase 1: Children Pretests and Teacher Training

Pretests

Children’s language skills were tested in the week preceding the 8-week language intervention. Each child was individually given the translated Chinese version of the Peabody Picture Vocabulary Test-Revised (PPVT-R) (Liu & Lu, 1994), the Preschool and Kindergarten Language Scale (PKLS) (Lin & Lin, 1993), and the Oral Syntax Skills Test (OSST) (Yang et al, 2005) in a quiet room at the foundation. These tests were administered by teachers trained in the administration of assessments at the centers. Data collected from the pretests was used as a baseline measurement of the children’s knowledge of receptive vocabulary, listening comprehension skills, expressive language skills, and oral syntax skills, respectively, before receiving the dialogic reading intervention.

Teacher Training

Teachers of the four group classes received training in the dialogic reading style via a videotape training method (Arnold et al., 1994; Whitehurst et al., 1994, 1999) at the main center in the week prior to the intervention. The training session included an introduction to dialogic reading, the training video on dialogic reading, and a presentation on modeling, as well as role-play and discussions. In addition, teachers received handouts and other written materials such as articles on dialogic reading. The handouts introduced the background features of dialogic reading, summarized the techniques of dialogic reading, provided an example using CROWD and PEER strategies, and emphasized what adults should and should not do during dialogic reading.

The training videotape, Read Together, Talk Together, was published by Pearson
Early Learning in collaboration with Whitehurst (Pearson Early Learning, 2002). The program has proven to be highly acceptable to parents and to health center staff (Blom-Hoffman, O’Neil-Pirozzi, & Cutting, 2006). This training videotape is a fifteen-minute instructional video for parents, teachers, and other caregivers. It is commercially available and relatively inexpensive (Blom-Hoffman, O’Neil-Pirozzi, & Cutting, 2006). In the video, a rationale is first provided for the importance of encouraging adults and children to talk during shared book reading. Then, the video describes the dialogic reading strategies CROWD and PEER developed by Whitehurst and colleagues (Whitehurst et al., 1994). Finally, it demonstrates the use of DR strategies with diverse ethnic parent-child dyads.

During the presentation of the video, the experimenter periodically stopped the video for Chinese interpretation, and discussion and confirmation that all teachers understood the context. In the role-play section, each teacher selected one book that s/he used at the foundation and practiced dialogic reading techniques with other teachers, exchanging the roles of teacher and student. The experimenter or teachers corrected the teachers who did not follow the dialogic reading strategies during the role-play.

Phase 2: Intervention

The intervention took place over eight weeks from the week following the children’s pretest and teacher training. Eight story books were selected for each class and only one book was provided each week for the dialogic reading activity three times a week. Based on Hargrave and Sénéchal’s (2000) study, the following criteria were used to select theme picture books for the dialogic reading intervention in this study: (a) colorful illustrations provided the opportunity for story narration without complete reliance on the
text, (b) potentially new vocabularies appeared in the illustrations and in the text, allowing children to be exposed to new words either through being read to in a dialogic manner or through conventional reading, (c) texts were not excessively long, increasing the likelihood of reader-child interactions, (d) books were appropriate for the entire age range of children participating in this study, and (e) according to teachers’ reports, children had not been previously exposed to the books in their classes (Hargrave & Sénéchal, 2000).

Each class was given one book each week. Teachers were asked to read each book with children for 20 to 30 minutes each time. Books were read using interactive dialogic reading strategies (PEER sequence) that encourage the children to orally respond to and later become active storytellers in the teacher-child reading. In the intervention, teachers prompted children to say something about the story they were reading, evaluated children’s responses, expanded children’s responses by rephrasing and adding information, and repeated the prompt to ensure that the children learned from the expansion.

To monitor implementation of the intervention, each class’s shared reading activity was audiotaped and a checklist (see Appendix I) was used to ascertain whether teachers were using the various prompts consistently with the dialogic reading strategies during picture book reading in class. This helped to minimize the possibility of diluting the efficacy of the intervention. The researcher observed the teacher-child shared dialogic reading outside the classroom through the one-way mirrors in the classrooms. After the first two sections of dialogic reading were completed in each class, the researcher met with each teacher individually to see if they had any questions and provide them with
feedback or correction to their implementation of dialogic reading techniques. In addition, the researcher invited an experienced teacher other than the teachers who were delivering the dialogic reading intervention in the classrooms to serve as a second monitor to further check teachers’ consistent use of dialogic reading strategies. This teacher listened to the audiotapes and filled out the checklist. To ensure that the second monitor had the same perceptions and knowledge of dialogic reading as the other teachers, she was also asked to attend teacher training on the dialogic reading technique conducted prior to the intervention. The reliability of monitoring the implementation of the intervention was assessed by calculating the inter-monitor agreement on 20% of all dialogic reading sessions. The total number of agreements was divided by the total number of agreements plus disagreements. The inter-monitor agreements between the researcher and the second monitor concerning the use of PEER sequences and CROWD prompts were 92% and 90%, respectively.

Phase 3: Children Posttests and Evaluation of Social Validity

Posttests

Four aspects of children’s language skills (vocabulary, listening comprehension, oral expression, syntax) were reevaluated in the week following the 8-week intervention. In this phase, each child was posttested individually with the same three language assessment instruments used in the children’s pretests in the first phase. Posttests were administered by the same assessors in order to minimize the possibility of inconsistent administration of assessments due to different assessors. Data collected from the posttests were compared with those from the pretests to ascertain whether children’s language abilities increased in the four aspects after receiving the dialogic reading intervention.
Evaluation of Social Validity

After the 8-week dialogic reading intervention, teacher and parent social validity questionnaires were used to obtain teachers’ and parents’ perceptions of the design of the dialogic reading technique and its implementation, and assess teachers’ and parents’ satisfaction with the intervention. Each teacher and parent received a teacher or parent questionnaire in an envelope distributed by the researcher in the week after the end of the intervention. The researcher explained the purpose of this survey to all teachers and parents and asked them to respond to the questionnaire attentively and honestly in the interest of maintaining study validity. Objective data collected via standardized assessments might not fully represent all aspects of language gains from the intervention outside the assessment settings or beyond the instruments. This subjective data provided useful information about the overall effectiveness of the dialogic reading technique in the language acquisition of hearing-impaired children and the meaningfulness of the intervention in meeting their needs.

Internal Validity

Since internal threats to validity are possible in this type of research design, they are discussed here according to this study’s procedures. First, to eliminate a possible history threat involving practicing dialogic reading at home, the researcher did not provide explanations and instructions about dialogic reading techniques to parents until the completion of the intervention. Before parents were introduced to dialogic reading techniques, they were told not to try to ask their children questions when they read to their child at home because doing so might decrease the child’s interest in reading before introduction to dialogic reading. However, all 16 hearing-impaired children who
participated in the study also were involved in other learning activities at the Foundation, and eight (50%) also attended other education settings (e.g., day care centers, kindergartens) at the same time that they received the dialogic reading intervention. Therefore, the possibility of a history threat involving children’s education could not be eliminated. Second, since the intervention period was only two months, it was unlikely that hearing-impaired children would gain much language growth naturally; this eliminated maturation threats. Third, the two-month interval between the children’s pretest and posttest meant that children were unlikely to remember the contents of the test items after the 8-week intervention. In addition, the three standardized tests administered to the hearing-impaired children had good test-retest reliability, thereby excluding a possible testing threat.

**Data Collection and Data Analysis**

Four types of data were collected via the background information questionnaires, standardized language tests, audiotape and intervention monitoring checklist, and social validity questionnaires. The background information questionnaires provided demographic information of all participants and children’s previous reading experiences at home and in class before the intervention. The language skills tests provided objective data about children’s pre- and post-intervention language performance. The data obtained via the social validity questionnaires provided information about teachers’ and parents’ general beliefs about dialogic reading, perceptions of the implementation of dialogic reading, and satisfaction with the intervention.

These data were collected before, during, and after the intervention following a scheduled timeframe. The timeframe for data collection is demonstrated in Table 3.2.
Table 3.4

Timeframe for Data Collection

<table>
<thead>
<tr>
<th>Periods</th>
<th>Types of Data</th>
<th>Data Collected Days (2008)</th>
</tr>
</thead>
</table>
| Before Intervention | a. Demographic Survey  
b. Pretests                  | May 10–May 17               |
| During Intervention | a. Intervention Mentor  
                      Checklists                  | May 19–July 11               |
| After Intervention  | a. Posttests  
b. Teacher Questionnaires  
c. Parent Questionnaires | July 14–July 25               |

The purpose of this study was to examine the effect of the dialogic reading technique in promoting children’s language acquisition. A one-group pretest and posttest design was applied to investigate whether there was a difference in the test outcomes for children’s language skills before and after the intervention. The data analysis was conducted using SPSS software version 15.0 to compare the results from the pretest to the corresponding posttest. The researcher used descriptive statistics, graphical procedures, correlations, and paired t test. Statistical significance was set at .05.
The purpose of this study was to investigate whether use of the dialogic reading technique facilitated language skill development in young Taiwanese children with hearing impairments. Data were collected and analyzed to answer the study’s research questions. Results of the data analyses as they corresponded to each research question are presented in the following sections: (a) changes in children’s language skills, (b) teachers’ and parents’ perceptions of children’s progress, (c) teachers’ attitudes toward the dialogic reading intervention, (d) parents’ attitudes toward the dialogic reading intervention, and (e) teachers’ and parents’ overall perspectives on the dialogic reading technique.

**Changes in Children’s Language Skills**

Children’s language acquisition was evaluated via use of three assessments: the PPVT-R, PKLS-R and OSST. Objective data obtained from the assessments were analyzed for the first research question. The results of these assessments are described in the following sections: (a) receptive vocabulary, (b) listening comprehension, (c) listening comprehension and oral expression, (d) syntax skills, (e) correlation between variables, and (f) language changes of children with different language levels.

Research question one was: *What are the changes from pretest to posttest in hearing-impaired children’s vocabulary knowledge, listening comprehension, oral expression, and syntax skills?*

To answer this question, three standardized language assessments (PPVT-R,
PKLS-R, and OSST) were administered to children before and after an 8-week dialogic reading intervention. Three separate repeated measures analyses were performed on PPVT-R, PKLS-R subtests, and OSST subtests and overall OSST to compare children’s improvement in different language skills before and after the dialogic reading intervention. Percentile ranks converted from raw scores or standard scores were determined for all three tests. The descriptive statistics for the pretest and posttest of the three tests including the subtests are presented in Table 4.1. The changes between pretests and posttest for each test are also presented graphically in Figures 4.1, 4.2 and 4.3.

**Receptive Vocabulary**

Children’s receptive vocabulary was measured using the Chinese version of PPVT-R. Table 4.1 and Figure 4.1 indicate changes in children’s mean percentile on PPVT-R before and after the implementation of the dialogic reading intervention in their classes. For receptive vocabulary, there was a positive change from pretest (73rd percentile) to posttest (80th percentile) on the PPVT-R (see Table 4.1 and Figure 4.1). However, the increase was not statistically significant ($p = .196$).

**Listening Comprehension and Oral Expression**

PKLS-R subtests were employed to measure children’s listening comprehension and oral expression skills. Table 4.1 and Figure 4.2 present the comparisons of children’s mean percentiles on the PKLS-R subtests and their overall outcomes before and after their involvement in dialogic readings in classes. As can be seen in Table 4.2 and Figure 4.2, there was a significant ($p = .003$) and practical change from pretest (59th percentile) to posttest (72nd percentile) on the listening comprehension subtest of the PKLS-R. For the oral expression subtest of the PKLS-R, there was a positive change from pretest (34rd
percentile) to posttest (45th percentile). However, this was not a statistically significant increase \((p = .057)\). Children’s overall change in the above two aspects of language skills was also examined. The total mean percentiles converted from the total score of the two PKLS-R subtests indicated that children made significant \((p = .011)\) progress in language acquisition from pretest (46th percentile) to posttest (61st percentile).

**Syntax Skills**

OSST subtests and overall OSST were used to measure children’s syntax skills. Table 4.1 and Figure 4.3 offer a comparison of children’s mean percentiles on the two OSST subtests and the overall OSST before and after completion of the 8-week dialogic reading intervention. For the receptive syntax subtest of the OSST, there was a significant \((p = .041)\) positive change from pretest (49th percentile) to posttest (72nd percentile). Similarly, there was also a significant \((p = .007)\) and practical change on the expressive syntax subtest of the OSST from pretest (57th percentile) to posttest (72nd percentile). The mean percentiles of the overall OSST on pretest (55th) and posttest (74th) revealed that children made significant \((p = .009)\) progress in syntax skills after experiencing an 8-week program of dialogic reading in their classes.
## Table 4.1

*Descriptive Statistics on the Results of Pretests and Posttests and Comparison of Pretest and Posttest Mean Percentiles*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean Percentile</th>
<th>SD</th>
<th>Percentile Range</th>
<th>p</th>
</tr>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Low</td>
<td>High</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pretest</td>
<td>16</td>
<td>.73</td>
<td>.22</td>
<td>.29</td>
<td>.96</td>
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<tr>
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<td>.16</td>
<td>.47</td>
<td>.99</td>
</tr>
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<td><strong>PKLS-R</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Listening Comprehension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>16</td>
<td>.59</td>
<td>.29</td>
<td>.11</td>
<td>.99</td>
</tr>
<tr>
<td>Posttest</td>
<td>16</td>
<td>.72</td>
<td>.29</td>
<td>.13</td>
<td>.99</td>
</tr>
<tr>
<td>Oral Expression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>16</td>
<td>.34</td>
<td>.19</td>
<td>.05</td>
<td>.65</td>
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<td>.20</td>
<td>.10</td>
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</tr>
<tr>
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<td>.46</td>
<td>.27</td>
<td>.05</td>
<td>.89</td>
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<tr>
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<td>16</td>
<td>.61</td>
<td>.28</td>
<td>.09</td>
<td>.97</td>
</tr>
<tr>
<td><strong>OSST</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive Syntax</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>14</td>
<td>.49</td>
<td>.32</td>
<td>.17</td>
<td>.98</td>
</tr>
<tr>
<td>Posttest</td>
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<td>.72</td>
<td>.29</td>
<td>.14</td>
<td>.98</td>
</tr>
<tr>
<td>Expressive Syntax</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>14</td>
<td>.57</td>
<td>.25</td>
<td>.17</td>
<td>.90</td>
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<tr>
<td>Posttest</td>
<td>14</td>
<td>.72</td>
<td>.22</td>
<td>.26</td>
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<td>Total</td>
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<td></td>
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<tr>
<td>Pretest</td>
<td>14</td>
<td>.55</td>
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<td>Posttest</td>
<td>14</td>
<td>.74</td>
<td>.24</td>
<td>.24</td>
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*Figure 4.1 Changes between Pretest and Posttest on the PPVT-R*
**Figure 4.2** Changes between Pretest and Posttest on the PKLS-R

**Figure 4.3** Changes between Pretest and Posttest on the OSST
Correlations between Variables

In the previous section, changes from pretest to posttest were examined. Correlation is used here to assess whether individuals who scored high or low on one measure also scored high or low on a second measure. Person product-moment correlation was computed among PPVT-R, PKLS-R and OSST to examine the relationships among different aspects of language skills. The results for the correlation analyses for the three assessments at pretests and posttests are presented in Table 4.2 and Table 4.3, respectively.

As shown in Tables 4.2 and 4.3, most of the bivariate correlations among the three tests and the subtests were significant positive relationships (Hinkle, Wiersma & Jurs, 2003). Examination of each of the bivariate correlations revealed that most of the statistically significant \( p \leq .05 \) correlations would be classified as moderate correlations according to the Hinkle et al. (2003) guideline, which is that values of ± .5 to .7 reflect moderate correlations.

Correlation between PPVT-R and PKLS-R

As can be seen in Table 4.2, the correlations between children’s pretest outcome on the PPVT-R and both of the PKLS-R listening comprehension and oral expression subtests revealed significant correlations \( (r = .65 \text{ and } .55, p < .05) \). Similarly, children’s pretest outcomes on PPVT-R also were significantly \( (p < .05) \) associated with the pretest PKLS-R total outcome \( (r = .56) \). In Table 4.3, the results of the data analysis also revealed significant \( (p < .05) \) positive correlations between children’s posttest mean percentiles on the PPVT-R and the PKLS-R oral expression subtest \( (r = .53) \) and also the total of the two PKLS-R subtests \( (r = .51) \). The only correlation that was not statistically
<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
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<th>5</th>
<th>6</th>
<th>7</th>
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<tr>
<td>1. PPVT-R</td>
<td>Pearson Correlation</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>–</td>
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</tr>
<tr>
<td>2. PKLS-R</td>
<td>Pearson Correlation</td>
<td>.649**</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
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</tr>
<tr>
<td>Listening Comprehension</td>
<td>Sig. (2-tailed)</td>
<td>.006</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
<td>3. PKLS-R</td>
<td>Pearson Correlation</td>
<td>.549*</td>
<td>.854**</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
<td>Oral Expression</td>
<td>Sig. (2-tailed)</td>
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<td>.000</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
<td>4. PKLS-R</td>
<td>Pearson Correlation</td>
<td>.563*</td>
<td>.944**</td>
<td>.972**</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Total</td>
<td>Sig. (2-tailed)</td>
<td>.023</td>
<td>.000</td>
<td>.000</td>
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<td>–</td>
<td>–</td>
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<tr>
<td>5. OSST</td>
<td>Pearson Correlation</td>
<td>.372</td>
<td>.699**</td>
<td>.652*</td>
<td>.716**</td>
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<tr>
<td>Receptive Syntax</td>
<td>Sig. (2-tailed)</td>
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<td>.005</td>
<td>.012</td>
<td>.004</td>
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<tr>
<td>6. OSST</td>
<td>Pearson Correlation</td>
<td>.507</td>
<td>.747**</td>
<td>.565*</td>
<td>.682**</td>
<td>.720**</td>
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<tr>
<td>Expressive Syntax</td>
<td>Sig. (2-tailed)</td>
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<td>.002</td>
<td>.035</td>
<td>.007</td>
<td>.004</td>
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<td>7. OSST</td>
<td>Pearson Correlation</td>
<td>.459</td>
<td>.778**</td>
<td>.675**</td>
<td>.768**</td>
<td>.911**</td>
<td>.936**</td>
</tr>
<tr>
<td>Total</td>
<td>Sig. (2-tailed)</td>
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<td>.001</td>
<td>.008</td>
<td>.001</td>
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<td>.000</td>
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</tbody>
</table>

Notes: *. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).
<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
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<tr>
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<td>Pearson Correlation –</td>
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<td>Sig. (2-tailed) –</td>
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<td>2. PKLS-R</td>
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<td>Listening Comprehension</td>
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<tr>
<td></td>
<td>N 16</td>
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<td>3. PKLS-R</td>
<td>Pearson Correlation .528*</td>
<td>.870**</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Oral Expression</td>
<td>Sig. (2-tailed) .036</td>
<td>.000</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>N 16</td>
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<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>4. PKLS-R</td>
<td>Pearson Correlation .514*</td>
<td>.972**</td>
<td>.955**</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Total</td>
<td>Sig. (2-tailed) .042</td>
<td>.000</td>
<td>.000</td>
<td>–</td>
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<td>16</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>5. OSST</td>
<td>Pearson Correlation .480</td>
<td>.508</td>
<td>.703**</td>
<td>.624*</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Receptive Syntax</td>
<td>Sig. (2-tailed) .083</td>
<td>.064</td>
<td>.005</td>
<td>.017</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>N 14</td>
<td>14</td>
<td>14</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>6. OSST</td>
<td>Pearson Correlation .537*</td>
<td>.739**</td>
<td>.825**</td>
<td>.815**</td>
<td>.888**</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Expressive Syntax</td>
<td>Sig. (2-tailed) .048</td>
<td>.003</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>–</td>
<td>–</td>
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<tr>
<td></td>
<td>N 14</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>7. OSST</td>
<td>Pearson Correlation .554*</td>
<td>.676**</td>
<td>.808**</td>
<td>.772**</td>
<td>.957**</td>
<td>.979**</td>
<td>–</td>
</tr>
<tr>
<td>Total</td>
<td>Sig. (2-tailed) .040</td>
<td>.008</td>
<td>.000</td>
<td>.001</td>
<td>.000</td>
<td>.000</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>N 14</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Notes: * Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).
significant \((p > .05)\) was between the posttest PPVT-R and the listening comprehension subtest of the posttest PKLS-R \((r = .44)\).

*Correlation between PPVT-R and OSST*

As indicated in Table 4.2, children’s mean percentile on the pretest PPVT-R was not significantly \((p > .05)\) correlated with those on both the pretest OSST receptive and expressive syntax subtests \((r = .37 \text{ and } .51)\) and total outcomes \((r = .46)\). The correlations in Table 4.3 indicated significant \((p < .05)\) relationships between children’s posttest PPVT-R mean percentile and their mean percentiles on the posttest OSST expressive syntax subtest \((r = .54)\) and total outcomes \((r = .55)\). However, children’s posttest PPVT-R mean percentile was not significantly \((p > .05)\) correlated to their mean percentile on the posttest OSST receptive syntax subtest \((r = .48)\).

*Correlation between OSST and PKLS-R*

As can be seen in Table 4.2, children’s language outcome on all pretest OSST subtests and total were highly and positively \((p < .05)\) associated with their language outcomes on both the pretest PKLS-R subtests and their total outcomes.

For the posttests (see Table 4.3), children’s mean percentile on the OSST receptive syntax subtest was significantly \((p < .05)\) correlated to their mean percentile on the PKLS-R oral expression subtest and total outcomes. Nevertheless, children’s mean percentile for the receptive syntax subtest on the posttest OSST was not significantly \((p > .05)\) correlated with their outcome on the posttest PKLS listening comprehension subtest \((r = .51)\). In addition, children’s mean percentile on the posttest OSST expressive syntax subtest was correlated positively and significantly \((p < .05)\) with all posttest PKLS-R subtests and the total. Likewise, the correlations in Table 4.3 also suggested
significant correlations between children’s overall outcome of the posttest OSST and the outcome of all posttest PKLS-R subtests and total outcomes.

**Interrelationship among Subtests and Total for PKLS-R and OSST**

Analysis results presented in Tables 4.2 and 4.3 indicate high correlations ($r > .70, p < .01$) among PKLS-R subtests and total outcomes at both pretest and posttest. For example, the correlations between outcomes for listening comprehension and oral expression at pretest and posttest were .85 and .87, respectively. The correlations between each of the PKLS-R subtests and total outcomes were .94 and .97 at pretest, and .97 and .96 at posttest. Similar patterns were observed among the posttest OSST subtests and total outcomes. The correlations between outcomes for receptive syntax and expressive syntax at pretest and posttest were .72 and .89, respectively. The correlations between each of the OSST subtests and total outcomes were .91 and .93 at pretest, and .96 and .98 at posttest.

**Language Changes among Children with Different Language Skill Levels**

In the first section of this chapter, descriptive statistics on the pretest and posttest results revealed that children made positive changes, on average, from the pretest to the protest in all skill areas: receptive vocabulary, listening comprehension, oral expression, and syntax skills. In this section, the researcher further examined whether children’s language skill levels at entry into the dialogic reading intervention were related to the extent of their language progress over the eight weeks.

To examine the extent of language progress related to children’s language abilities, three (low, middle, and high) levels were determined for each aspect of children’s language skills investigated in this study. The researcher examined the data and assessed
whether relatively large “naturally” occurring gaps existed in the percentile groupings on the pretest for each language skill. In addition, each level group was composed of at least three children. On PPVT-R, for instance, there was a relatively big gap of 20 percentile points between the lowest percentile (86th) in the high level group (level 1) and the highest percentile (66th) in the middle level group (level 2). In the meantime, there was a smaller gap of six percentile points between the middle (level 2) and low (level 3) groups.

The descriptive statistics for language changes among children at three language levels are summarized in Figure 4.4. Detailed information to support the graphic summary is provided in Table 4.4 which includes definitions for language levels.

As can be seen in Figure 4.4 and Table 4.4, children in the level 2 group made greater progress than did children in the level 1 group across all language skill areas. Similarly, children in the level 3 group showed greater language gains than did children in the level 2 group on each language test except the PKLS-R oral expression subtest. The findings suggested that children who entered the dialogic reading intervention with lower language skills showed greater progress in all aspects of language tests, with the exception of oral expression, than did children with higher language skills. On PKLS-R, the largest increase in mean language gains occurred among children in the level 2 group. This was the only case in which the level 2 group made greater language gains than did the level 3 group. For the level 1 group, children’s mean change from pretest to posttest decreased on PPVT-R, and also did not make much progress on the PKLS-R oral expressive subtest. Among the tests of different areas of language skills, children in the level 1 and level 2 groups made the greatest progress in receptive syntax skills.
Figure 4.4 Changes from Pretest to Posttest in Language Outcomes of Children with Three Different Levels of Language Skills
Table 4.4

Descriptive Statistics for Changes from Pretest to Posttest in Language Outcomes of Children with Three Different Levels of Language Skills

<table>
<thead>
<tr>
<th>Variable</th>
<th>Language Level Operational Defined</th>
<th>N</th>
<th>Mean Change</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPVT-R</td>
<td>Level 1 (≥ .86)</td>
<td>9</td>
<td>-.05</td>
<td>.11</td>
</tr>
<tr>
<td></td>
<td>Level 2 (.53 – .66)</td>
<td>4</td>
<td>.21</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>Level 3 (≤ .47)</td>
<td>3</td>
<td>.24</td>
<td>.25</td>
</tr>
<tr>
<td>PKLS-R</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Listening Comprehension</td>
<td>Level 1 (≥ .76)</td>
<td>6</td>
<td>.09</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>Level 2 (.52 – .72)</td>
<td>6</td>
<td>.19</td>
<td>.10</td>
</tr>
<tr>
<td></td>
<td>Level 3 (≤ .26)</td>
<td>4</td>
<td>.14</td>
<td>.14</td>
</tr>
<tr>
<td>Oral Expressive</td>
<td>Level 1 (≥ .59)</td>
<td>3</td>
<td>.01</td>
<td>.13</td>
</tr>
<tr>
<td></td>
<td>Level 2 (.34 – .49)</td>
<td>7</td>
<td>.11</td>
<td>.13</td>
</tr>
<tr>
<td></td>
<td>Level 3 (≤ .19)</td>
<td>6</td>
<td>.16</td>
<td>.13</td>
</tr>
<tr>
<td>Total</td>
<td>Level 1 (≥ .74)</td>
<td>4</td>
<td>.04</td>
<td>.09</td>
</tr>
<tr>
<td></td>
<td>Level 2 (.42 – .63)</td>
<td>6</td>
<td>.17</td>
<td>.13</td>
</tr>
<tr>
<td></td>
<td>Level 3 (≤ .36)</td>
<td>6</td>
<td>.20</td>
<td>.15</td>
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<tr>
<td>OSST</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive Syntax</td>
<td>Level 1 (≥ .80)</td>
<td>4</td>
<td>.05</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>Level 2 (.42 – .54)</td>
<td>4</td>
<td>.30</td>
<td>.23</td>
</tr>
<tr>
<td></td>
<td>Level 3 (≤ .23)</td>
<td>6</td>
<td>.32</td>
<td>.27</td>
</tr>
<tr>
<td>Expressive Syntax</td>
<td>Level 1 (≥ .72)</td>
<td>5</td>
<td>.07</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>Level 2 (.45 – .69)</td>
<td>5</td>
<td>.15</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>Level 3 (≤ .38)</td>
<td>4</td>
<td>.23</td>
<td>.20</td>
</tr>
<tr>
<td>Total</td>
<td>Level 1 (≥ .71)</td>
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<td>.12</td>
<td>.09</td>
</tr>
<tr>
<td></td>
<td>Level 2 (.48 – .56)</td>
<td>3</td>
<td>.18</td>
<td>.13</td>
</tr>
<tr>
<td></td>
<td>Level 3 (≤ .33)</td>
<td>5</td>
<td>.26</td>
<td>.21</td>
</tr>
</tbody>
</table>

Note: Level 1 = Highest Language Level
Level 2 = Middle Language Level
Level 3 = Lowest Language Level
Teachers’ and Parents’ Perceptions of Children’s Progress

Teachers’ and parents’ perceptions of children’s progress on the dialogic reading intervention were measured using teacher and parent questionnaires. Data collected from the parent and teacher questionnaires were analyzed for research question two. The results from the statistical comparison of teachers’ and parents’ responses are described in the following sections: (a) language skills, (b) oral participation, and (c) reading engagement.

Research question two was: What are parents’ and teachers’ perceptions of children’s progress regarding language skills, oral participation, and reading engagement through the dialogic reading intervention?

To answer this question, data were collected from teachers and parents by means of Likert scale questionnaires. Both parent and teacher questionnaires had 16 items consisting of three components of teachers’ and parents’ perceptions of children’s progress via the dialogic reading technique. These three components were language skills (7 items), oral expression (4 items), and reading engagement (3 items). This Likert response scale assessed perceived progress in dialogic reading from pretest to posttest. The Likert response scale was: (1) no progress, (2) slight progress, (3) moderate progress, and (4) significant progress.

Language Skills

In Figure 4.5, parents’ and teachers’ responses are summarized for seven items/questions regarding children’s progress in language skills. Those seven items/questions were the following:
Q1. How would you rate this child’s progress in his/her vocabulary knowledge?
Q2. How would you rate this child’s progress in his/her listening comprehension skills?
Q3. How would you rate this child’s progress in his/her oral expression skills?
Q4. How would you rate this child’s progress in his/her length of utterance?
Q5. How would you rate this child’s progress in using different descriptions to express the same meaning?
Q6. How would you rate this child’s progress in using more complex words or phrases?
Q7. How would you rate this child’s progress in retelling stories in his/her own words?

For exact wording of items on the parent version of the questionnaire, see Appendix G (p. 150).

For each item, the average of parents’ evaluation was compared with those of the teachers. As can be seen in Figure 4.4, parents tended to rate their children’s progress in language skills somewhat higher than the teachers did across all seven items. The average of the parents’ rating for all items and the teachers’ ratings for most of the items were above the average of this rating scale. For teachers’ responses, Q6 was the only item that obtained a mean below the theoretical midpoint of this scale. Figure 4.4 also shows that Q2 and Q3 were rated by parents with an equal highest mean point. Similarly, Q2 and Q3 were also rated by teachers with the first and second highest average. Among these items, a big difference between parents’ and teachers’ responses was found on Q6. Item Q6 was one of three items to attain the second highest average on parents’ ratings, while it was
the item with the lowest mean for teachers.

**Figure 4.5** Comparison of Parents’ and Teachers’ Perceptions of Children’s Progress in Language Skills

**Oral Participation**

In Figure 4.6, parents’ and teachers’ responses are summarized for four items regarding children’s progress in oral participation. Those four items were as follows:

Q8. How would you rate this child’s progress in actively responding to your questions about the stories?

Q9. How would you rate this child’s progress in being actively asking questions about the stories?

Q10. How would you rate this child’s progress in being willing to participate in discussions about the stories?

Q11. How would you rate this child’s progress in actively expressing his/her feelings (e.g., it’s cute/scary...) about the characters, happenings or objects in
the stories?

As shown in Figure 4.6, for each item the parents’ ratings tended to be higher than those of teachers. Among the four items, parents rated the extent of children’s progress only slightly higher than teachers did on Q8 and Q9; a bigger difference between parents’ and teachers’ ratings was found on Q10 and Q11. Figure 4.6 also indicated that both parents and teachers appeared to rate Q8 higher than the other three items. The lowest mean point of parents’ ratings was on Q9, while teachers’ perceptions differed from parents’, rating Q11 with the lowest mean point.

![Figure 4.6 Comparison of Parents’ and Teachers’ Perceptions of Children’s Progress in Oral Participation](image)

*Figure 4.6 Comparison of Parents’ and Teachers’ Perceptions of Children’s Progress in Oral Participation*

**Reading Engagement**

In Figure 4.7, parents’ and teachers’ responses are summarized for three items/questions regarding children’s progress in reading engagement. Those three items/questions were the following:
Q12. How would you rate this child’s progress in duration of attention to the story that you are reading?

Q13. How would you rate this child’s progress in understanding the main plots of the stories?

Q14. How would you rate this child’s progress in enjoying storybook reading?

As indicated in Figure 4.7, parents consistently rated their children’s progress higher than teachers did on all three items for reading engagement. Item Q12 had the highest mean point among parents’ ratings; while Q14 had the highest mean point among teachers’ ratings.

![Figure 4.7 Comparison of Parents’ and Teachers’ Perceptions of Children’s Progress in Reading Engagement](image)

*Figure 4.7 Comparison of Parents’ and Teachers’ Perceptions of Children’s Progress in Reading Engagement*

**Teachers’ Attitudes toward the Dialogic Reading Intervention**

Teachers’ attitudes toward the dialogic reading intervention were measured via the teacher questionnaire. Teachers’ responses were analyzed for research question three.
The results from the statistical analysis of teachers’ responses are presented in the following sections: (a) belief in the usefulness of dialogic reading, (b) perceptions of the implementation of dialogic reading, and (c) satisfaction with the effectiveness of dialogic reading.

Research question three was: *What are teachers’ attitudes toward the dialogic reading intervention for their hearing-impaired students?*

To answer this question, a 4-point Likert scale questionnaire exploring teachers’ attitudes toward the dialogic reading technique was conducted with four teachers. There were 16 items that contained three components of teachers’ attitudes toward the dialogic reading intervention. The first component was general belief in the usefulness of dialogic reading, which was composed of five items measuring teachers’ opinions about the design and use of dialogic reading technique. The second component was perception of the implementation of dialogic reading, which was composed of five items measuring teachers’ opinions of practicing dialogic reading in their classes. The third component was general satisfaction with the effectiveness of dialogic reading, which was composed of six items measuring teachers’ evaluations of the beneficial effects of the dialogic reading intervention on their students with hearing impairments. The Likert response scale was: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree.

**Belief in the Usefulness of Dialogic Reading**

In Figure 4.8, the four teachers’ responses are summarized for five items/questions on their general belief in the usefulness of the dialogic reading technique. Those five items/questions included the following:

Q1. The dialogic reading technique is comprehensible.
Q2. The dialogic reading technique is easy to use.

Q3. Dialogic reading provides an ideal naturalistic context for children’s language development.

Q4. The dialogic reading technique provides a well-structured framework for asking children questions relating to the stories.

Q5. It’s feasible to incorporate dialogic reading into a classroom of children with hearing impairments.

Figure 4.8 shows that four out of five items in this subscale obtained mean points above the mean point (2.50) of the response scale. The item with the highest mean point of teacher ratings, indicating a stronger belief in the dialogic reading intervention, was Q5. This result revealed that teachers seemed to hold stronger beliefs about the feasibility of incorporating dialogic reading into classrooms of children with hearing impairments. Among the five items, Q4 was rated lowest by teachers with a mean point of 2.25, revealing less belief in the benefits of the dialogic reading intervention in terms of its intervention framework.

![Figure 4.8 Teachers’ Beliefs in the Usefulness of the Dialogic Reading Technique (n = 4)]
Perception of the Implementation of Dialogic Reading

In Figure 4.9, the four teachers’ responses are summarized for five items/questions on their acceptance of the implementation of the dialogic reading technique. Those five items/questions included the following:

Q6. It takes lots of work to prepare for implementing dialogic reading in my class.

Q7. I am able to engage my students in oral conversations with me using the dialogic reading technique.

Q8. I feel comfortable directing the oral interactions that take place in the context of dialogic reading with my students.

Q9. I would like to incorporate dialogic reading in my classroom activities in the future.

Q10. I would like to encourage parents to implement dialogic reading at home with their hearing-impaired children.

As can be seen in Figure 4.9, four of five items (Q7, Q8, Q9, and Q10) had mean points of 3.00 (“Agree”) or above, revealing high teacher acceptance of dialogic reading in classrooms. Among the five items, teachers rated Q7 the highest, indicating high acceptance of dialogic reading in prompting children to talk. The lowest mean point of teachers’ ratings was for Q 6, indicating a lower level of acceptance for preparation for dialogic reading.
**Figure 4.9** Teachers’ Perceptions of the Implementation of the Dialogic Reading Intervention in Their Classrooms ($n = 4$)

**Satisfaction with the Effectiveness of Dialogic Reading**

In Figure 4.10, teachers’ responses are summarized for six items/questions regarding satisfaction with the effectiveness of the dialogic reading technique for their hearing-impaired students. Those six items/questions included the following:

Q11. The dialogic reading technique can effectively promote my students’ vocabulary acquisition.

Q12. The dialogic reading technique can effectively promote my students’ listening comprehension skills.

Q13. The dialogic reading technique can effectively promote my students’ oral expression skills.

Q14. The dialogic reading technique can effectively promote my students’ cognitive skills.

Q15. The dialogic reading technique can effectively promote my students’ thinking skills.
Q16. The dialogic reading technique can effectively promote my students’ imagination skills.

As shown in Figure 4.10, six of the seven items had mean points above the average point of this rating scale, revealing more positive attitudes about the effectiveness of dialogic reading among teachers. Among the seven items, three items had the same high mean point: Q11, Q12, and Q13. Results revealed that teachers seemed satisfied with the impacts of dialogic reading on enhancing vocabulary knowledge, listening comprehension and oral expression skills of hearing-impaired students. The lowest mean point was on Q14, indicating lower satisfaction with the effectiveness of dialogic reading in promoting the cognitive skills of students with hearing impairments. Q15 achieved an average point on this rating scale, presenting a neutral attitude. Among the four teachers, two agreed and two disagreed that the dialogic reading intervention had a positive impact on their hearing-impaired students’ thinking skills.

![Figure 4.10 Teachers’ Satisfaction with the Effectiveness of the Dialogic Reading Intervention for Their Hearing-impaired Students (n = 4) (400x400)](image-url)
Parents’ Attitudes toward the Dialogic Reading Intervention

Parents’ attitudes toward the dialogic reading intervention were measured via the parent questionnaire. Data collected from the questionnaire were analyzed for research question four. Results from statistical analyses of parents’ responses are presented in the following sections: (a) belief in the usefulness of dialogic reading, (b) perception of the implementation of dialogic reading, and (c) satisfaction with the effectiveness of dialogic reading.

Research question four was: What are parents’ attitudes toward the dialogic reading intervention for their hearing-impaired children?

To answer this question, a 4-point Likert scale questionnaire exploring parents’ attitudes toward the dialogic reading technique was conducted with 16 parents of hearing-impaired children who received the dialogic reading intervention in the study. The 14 questionnaire items had three components relating to parents’ attitudes toward the dialogic reading intervention. The first component—general belief in the usefulness of dialogic reading—was composed of five items measuring parents’ opinions about the design and use of the dialogic reading technique. The second component—perception of the implementation of dialogic reading—was composed of three items measuring parents’ opinions about practicing dialogic reading with their hearing-impaired children. The third component—satisfaction with the effects of dialogic reading—was composed of six items measuring parents’ satisfaction with the effectiveness of the dialogic reading intervention in their children with hearing impairments. The Likert response scale was: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree.
Belief in the Usefulness of Dialogic Reading

In Figure 4.11, parents’ responses are summarized for five items/questions regarding their beliefs about the dialogic reading technique. Those five items/questions were the following:

Q1. The dialogic reading technique is comprehensible.
Q2. The dialogic reading technique is easy to use.
Q3. Dialogic reading provides an ideal naturalistic context for children’s language development.
Q4. The dialogic reading technique provides a well-structured framework for asking children questions relating to the stories.
Q5. It’s feasible to incorporate dialogic reading into a classroom of children with hearing impairments.

Analyses results revealed a strong belief in the usefulness of the dialogic reading technique among parents. As can be see in Figure 4.11, all five items had a mean of 3.25 or higher. Item Q5 had the highest mean of 3.38, indicating that most parents believed dialogic reading could be used with children with hearing impairments.

Figure 4.11 Parents’ Beliefs in the Usefulness of the Dialogic Reading Technique (n = 16)
Perception of the Implementation of Dialogic Reading

In Figure 4.12, parents’ responses are summarized for three items/questions regarding their acceptance of implementing dialogic reading. These three items/questions were the following:

Q6. It takes lots of work to prepare for implementing dialogic reading.

Q7. Dialogic reading leads my child to engage in conversation with the teacher by answering questions about the stories.

Q8. I would like to read with my child at home frequently using the dialogic reading technique.

Parents’ responses to Q7 and Q8 had the same mean above the “agree” point (3.00) of this rating scale, indicating that parents appeared to be more accepting of the use of dialogic reading with their hearing-impaired children. The mean for parent ratings on Q6 was a neutral point on this scale. Some parents agreed that using dialogic reading required significant preparation, while other parents disagreed with this opinion.

Figure 4.12 Parents’ Perceptions of the Implementation of the Dialogic Reading Intervention (n = 16)
Satisfaction with the Effectiveness of Dialogic Reading

In Figure 4.13, parents’ responses are summarized for six items/questions regarding satisfaction with the effectiveness of the dialogic reading technique for their hearing-impaired children. Those six items/questions were the following:

Q9. The dialogic reading technique can effectively promote my child’s vocabulary acquisition.
Q10. The dialogic reading technique can effectively promote my child’s listening comprehension skills.
Q11. The dialogic reading technique can effectively promote my child’s oral expression skills.
Q12. The dialogic reading technique can effectively promote my child’s cognitive skills.
Q13. The dialogic reading technique can effectively promote my child’s thinking skills.
Q14. The dialogic reading technique can effectively promote my child’s imagination skills.

As can be seen in Figure 4.13, all six items had high parent ratings with means above the “agree” point (3.00) of this rating scale. The rating results showed a high degree of parent satisfaction with the effectiveness of dialogic reading for their children with hearing impairments.
Figure 4.13 Parents’ Satisfaction of the Effectiveness of the Dialogic Reading Intervention for Their Hearing-impaired Children (n = 16)

Teachers’ and Parents’ Overall Perspectives on the Dialogic Reading Technique

In previous sections, teachers’ and parents’ attitudes toward the dialogic reading technique were examined using rating scales. Open-ended questions were also used to investigate parents’ and teachers’ overall perspectives on the dialogic reading intervention in this study. Five open-ended questions were included in both the teacher and parent questionnaires to gain a better understanding of teachers’ and parents’ overall evaluations and opinions on the impact of the dialogic reading intervention on their students/children with hearing impairments. Responses are summarized below.

Summary of Teachers’ Responses

A summary of teachers’ responses to the open-ended questions is offered below. Teachers’ responses are summarized and categorized for each question as follows:

1. Besides the following language skills—vocabulary knowledge, listening
comprehension skills, oral expression skills, and syntax skills, what other positive impacts has dialogic reading had on your students?

According to teacher responses, positive impacts on hearing-impaired students included: enhanced attention/concentration and word reading skills, increased reading enjoyment, expressive willingness, motivation and ability to ask questions, oral interactions among children, auditory memory span, observations of daily life, and caring for others.

2. According to your observations, how have your students reacted to dialogic reading exercises in class?

Teacher responses to this question are summarized as follows:

(1) Students demonstrated high involvement and great interest in terms of voluntarily answering questions about stories.

(2) Students demonstrated high learning motivation, and therefore enhanced their learning outcomes.

(3) Students not only paid attention to the stories but also explored the illustrations and discovered more information associated with the stories.

(4) Students developed their own thoughts and predictive ability through the dialogic interactions.

3. From your experience with using dialogic reading with your students, what strategies among four sequences (PEER: prompt, evaluate, expand, and repeat) and five prompts (CROWD: completion, recall, open-ended, wh-, and distancing) do you think have been particularly effective in promoting language acquisition for your hearing-impaired students? Please give brief examples.
Basically, all teachers agreed that the four sequences and five prompts effectively facilitate hearing-impaired children’s language acquisition. Some teachers further reported the strategies that particularly promoted their students’ learning in some way. Those reported strategies included both sequence and prompt and are summarized as follows:

(1) Particularly effective sequences (PEER) for their hearing-impaired students:
   a. *Prompt:* this strategy provided opportunities for children to talk and think freely and hence promote their learning motivation.
   b. *Expansion:* this strategy helped children learn different phrases or sentences.
   c. *Repetition:* this strategy helped children notice the important information in the sentence or the sentence construction.

(2) Particularly effective prompts (CROWD) for their hearing-impaired students:
   a. One teacher reported that *completion, recall, open-ended* and *wh- prompts* were used more with her students and consequently enhanced children’s language skills.
   b. Another teacher reported that *open-ended* and *distancing prompts* provided multiple opportunities for teacher-child verbal discussions and allowed children to express their thoughts and opinions in an unrestrained way.

4. *Did you encounter any difficulties or challenges when implementing dialogic reading with your students? If yes, please describe the challenge(s) you experienced.*

   Teachers’ responses to this question are summarized in two categories as follows:

(1) Commonly reported challenges:
   a. A story was repeatedly read with students three times a week. The repeated
reading of the same story made some children become less active and/or less attentive in answering questions.

b. For the children who were passive or easily distracted, the positive impact of dialogic reading on their language outcomes might not be apparent.

c. Some books were difficult for children who had lower language or cognitive skills to comprehend; as a result, some children lost interest.

(2) Uniquely reported challenges:

a. Because of the teacher’s usual practices and lack of patience in waiting for children’s responses to teachers’ questions and repetition of the sentence rephrased by the teacher, children produced few complete sentences in the beginning. After the teacher provided children with enough time to respond as the researcher suggested, children made progress in actively responding and speaking in more complete sentences.

b. The teacher worried that she did not completely comprehend the method of and rules for implementing the dialogic reading intervention, and therefore she could not give the storytelling full play in the class.

5. What adaptations or supplements (e.g., verbal prompts, activities, materials) would you suggest to improve the dialogic reading intervention in order to make it more applicable and effective for children with hearing impairments in terms of language learning?

Teachers’ responses to this question are summarized in two categories as follows:

(1) Commonly given suggestions:

a. Storybooks should be selected that were appropriate to children’s language
levels or interesting to children.

b. Teachers needed more time to introduce new concepts and vocabularies to children during storybook reading. Limited time for the interactive dialogic reading might reduce the effectiveness of children’s learning or break up the time spent on the story reading in which children were interested and engaged.

(2) Uniquely given suggestions:

a. Select two books with the same or similar themes may provide more opportunities for children to practice new vocabularies relating to the theme and have deeper discussions and encourage more thought about the stories.

b. Provide related objects or printed materials for the classroom dialogic reading to facilitate children’s learning.

c. Provide teachers with more training in dialogic reading and clear instructions for implementation.

Summary of Parents’ Responses

The following section is a summary of parents’ responses to the open-ended questions. For each item, parents’ responses were summarized and organized according to common themes and other unique comments.

1. Besides the following language skills—vocabulary knowledge, listening comprehension skills, oral expression skills, and syntax skills, what other positive impacts has dialogic reading had on your child?

The responses are organized in two categories:

(1) Most commonly claimed impacts were: improved attention span, involvement in reading, reading enjoyment and engagement, motivation to learn, and asking
questions and thinking.

(2) The remaining impacts mentioned included the following: enhanced imagination skills, cognitive and thinking skills, increased understanding of the context of the stories and the emotions of the story characters.

2. According to your observation, how did your child react to dialogic reading exercises in class?

The responses are organized in two categories:

(1) Most frequently identified behaviors:

a. Concentrated in listening to the stories, and facial expressions and emotions varied with the story plots.

b. Paid attention to the details in the stories (rather than being more focused on the pictures).

c. Liked to answer teachers’ questions about the stories.

d. Liked to ask questions about the story (curiosity about why it happened or what would happen next and the results).

(2) The remaining behaviors were mentioned:

a. Used imagination with a powerful and unconstrained style when teacher motivated children to brainstorm with each other during the storytelling.

b. Had an integrated understanding about the stories (due to the repetition of the storytelling and different types of questions).

3. According to your observation and understanding, what strategies among four sequences (PEER: prompt, evaluate, expand, and repeat) and five prompts (CROWD: completion, recall, open-ended, wh-, and distancing) do you think have been particularly
effective in promoting your child’s language acquisition? Please give brief examples.

The responses are organized in two categories:

(1) Most commonly reported strategies and reasons:

Most parents think all four sequences and five types of prompts could effectively enhance their children’s language acquisition. The reasons given were that expansion and repetition technique could increase children’s oral utterances and help them become proficient in speaking, and open-ended, wh-, and distancing prompts could stimulate children to think and then express using their own words.

(2) The following strategies were mentioned individually by parents:

a. Completion prompt: this prompt provided a more specific direction for the child who had difficulty with inadequate cognition and had a limited vocabulary to use in thinking about and learning words.

b. Distancing prompt: this prompt provided opportunities for the child to engage in longer discussions based on his experiences, and therefore facilitated the child’s spontaneous speech.

c. Open-ended prompt: no explanation was given.

d. Repetition: the child made significant progress through this prompt.

4. Did you encounter any difficulties or challenges when implementing dialogic reading with your child? If yes, please describe the challenge(s) you experienced.

The responses are organized into categories with two common themes as follows:

(1) Parental capability. Some parents reported parental capability as their challenge. They found that when using dialogic reading, they needed adequate knowledge as well as prior preparation in order to answer children’s questions about the stories. In addition,
parents have to learn the strategies in order to know how to prompt children to talk and be skillful in motivating their children.

(2) Child’s characteristics. About half of the parents were worried that their children might not be interested or pay enough attention to the stories they read with them. One parent was concerned that her child was usually impatient to let her finish talking, or prompted questions about the page they were reading. Other parents reported their child’s dependency as their challenge. Their children were passive in thinking or answering questions and sometimes waited for the answers to be given by parents. Some parents reported that their children might not be able to respond to the open-ended or distancing questions due to inadequate language skills or lack of daily life experiences.

5. What adaptations or supplements (e.g., verbal prompts, activities, materials) would you suggest to improve the dialogic reading intervention in order to make it more applicable and effective for your child with hearing loss in terms of language learning?

Parents’ responses are categorized by the following major suggestions:

a. Select storybooks with themes of interest to children or that relate to the happenings in children’s real life.

b. Relate the story to children’s life experiences.

c. Provide children with supplementary information or materials when introducing unfamiliar concepts to them.

d. Develop a progressive reading plan regarding the levels of the stories, connections among story topics, and types of stories to help children learn gradually and effectively.
Summary

This chapter presents the results of the data analyses for the four research questions in this study. Results showed that four different language skills all improved after the 8-week dialogic reading intervention with hearing-impaired children. Most notably, their listening comprehension skills and syntax skills increased significantly. However, changes in receptive vocabulary were not significant and the increase in oral expression skills was only marginally significant. Parents tended to rate their children’s gains from dialogic reading slightly higher than teachers. Both parents and teachers perceived moderate to significant progress in children’s language skills, oral participation, and reading engagement. There appeared to be some variations in teachers’ attitudes toward the dialogic reading intervention, while parents appeared to consistently hold high positive attitudes toward the intervention for their hearing-impaired children.
Chapter 5

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

This study investigated whether the dialogic reading intervention had an effect on facilitating hearing-impaired children’s language acquisition, including receptive vocabulary, listening comprehension, oral expression, and oral syntactic skills. Parents’ and teachers’ attitudes toward the dialogic reading intervention used with their hearing-impaired children/students were also explored in this study. Results of the data analyses were described in the previous chapter. This chapter reviews the research procedures, discusses research findings, draws conclusions, and provides recommendations for educators and further research.

Overview of Research Procedures

This study was conducted in two centers affiliated with a foundation for young children with hearing impairments in Taipei, Taiwan. Sixteen hearing-impaired children, aged from three years and three months old to six years and eleven months old, who had been enrolled in four small group classes participated in this study. These children attended the classes four days a week and two hours a day. Sixteen parents of the hearing-impaired children and four class teachers were also recruited in this study.

The study procedures were conducted in three phrases. In the first phrase, three standardized language assessments were administered to all children individually to ascertain their language outcomes before the dialogic reading intervention. In the meantime, teachers were trained in the dialogic reading technique at the foundation. In the second phrase, the dialogic reading intervention took place in the classroom three
times a week and continued over eight weeks. Teachers were provided with a book each week to read with the hearing-impaired children in classes in which the dialogic reading technique was being used to prompt children to talk and engage them in teacher-child oral interactions.

In the final phrase, children were retested with the same language assessment in order to identify any differences between pretests and posttests. In addition, two questionnaires were conducted with parents and teachers to investigate their perceptions of children’s language progress and their attitudes and overall opinions about the dialogic reading intervention.

**Discussion of Findings**

This section contains a discussion of the implications of results described in chapter 4. The discussion of the major findings is presented for each research question in sequence.

**Research Question One**

*What are the changes from pretest to posttest in hearing-impaired children’s vocabulary knowledge, listening comprehension, oral expression, and syntax skills?*

The purpose of this question was to determine if classroom dialogic reading activities made a difference in the language acquisition of children with hearing impairments, and was measured using three standardized language assessments. For receptive vocabulary knowledge, children’s mean percentiles on the PPVT-R revealed a positive change from pretest to posttest. However, the difference was not significant. This finding was similar to the results in several previous research studies (e.g., Huebner,
2000b; Whitehurst, Arnold, et al., 1994) which indicated that children in the dialogic reading group did not significantly outperform the control group children on the PPVT-R posttest. This result contrasted with the findings from prior research (e.g., Fung et al., 2005; Wasik & Bond, 2006) which showed a significant difference on the PPVT posttest scores in favor of the dialogic reading intervention group.

The lack of statistically significant differences in this outcome measure may well be due to the small sample size, which would reduce the ability of a statistical test to detect significant and meaningful differences (Cohen, 1988). Another possible reason for the absence of a significant difference in receptive vocabulary may be associated with the hearing-impaired children’s special needs in vocabulary learning. Adequate repeated input, explanations, and practices in different contexts are needed for children with hearing impairments to acquire new vocabulary (Massaro & Light, 2004). However, the amount of time spent with these hearing-impaired children during the dialogic reading might not sufficient to acquire the unfamiliar words. In addition, the new vocabularies learned by children from picture books reading might not present in the PPVT-R, and thus children’s gains in vocabulary acquisition might not be fully presented by the posttest outcome of the PPVT-R. Lastly, children were already at a middle high mean percentile (73rd) on the PPVT-R at the initiation of the intervention and were less likely to progress at the same level as for other language skills at lower levels.

For the listening comprehension skills, children’s language outcomes on the PLKS-R listening comprehension subtest showed a significant positive change from pretest to posttest. This finding was consistent with results from earlier studies (e.g., Freeman & Bochner, 2009; Lonigan et al., 1999), and was similar to empirical findings
offered in a literature review prepared by Centre for Community Child Health (CCHC, 2004) in which the authors concluded that shared reading has a significant impact on children’s listening comprehension. It is possible that teachers repeatedly read stories with students, asked questions and provided additional information associated with the stories and their conversations, thereby enhancing the hearing-impaired children’s listening understanding.

There was a positive change in children’s oral expression skills from the pretest to the posttest of the PLKS-R oral expression subtest, but this difference was only marginally significant ($p = .057$). This result differed from that in other research (e.g., Heubner, 2000b; Wasik & Bond, 2001) which revealed significant effects of dialogic reading on children’s descriptive language. A possible reason for the lack of statistically significant differences is that the eight-week intervention period might be not long enough for hearing-impaired children to make sufficient progress. It’s very likely that children’s syntax skills would have continued to grow and demonstrate significant progress if the intervention period had been longer than eight weeks.

Hearing-impaired children’s mean percentiles on the OSST pretest and posttest showed that their syntax skills increased significantly after the dialogic reading intervention. This finding was consistent with the prior work of Huebner (2000b) and Valdez-Menchaca and Whitehurst (1992) who have shown that dialogic reading can effectively facilitate children’s syntactic skills. One possible explanation is that these particular hearing-impaired children were provided with many opportunities to orally respond to teachers’ questions about the stories and repeat the sentences as expanded or rephrased by their teachers during the dialogic reading.
The correlations among tests for the four aspects of hearing-impaired children’s language skills were measured. For the pretests, 18 out of the 21 bivariate correlations examined were statistically significant. Only three bivariate correlations between children’s performances on the tests of receptive vocabulary and syntax skills were not statistically significant. Findings indicated that children with more receptive vocabulary knowledge had better listening comprehension, oral expression and overall language skills. Conversely, children who had less vocabulary were likely to have lower listening comprehension, oral expression and overall language skills. In addition, children with higher receptive and expressive syntax skills performed better on listening comprehension, oral expression and overall language skills, and vice versa. Conversely, children with fewer receptive and expressive syntax skills had lower listening comprehension, oral expression and overall language skills.

For the posttests, most of the correlations among children’s posttest outcomes on the same language assessments were also significant. Children’s receptive vocabulary performance was moderately correlated with their expressive syntax performance and overall syntax skills, which was not observed at pretests. It is possible that most of these hearing-impaired children had fair to good knowledge of receptive vocabulary and their syntax skills were poor to fair before the dialogic reading intervention. After receiving the dialogic reading intervention, children made moderate progress in receptive vocabulary and their oral syntax skills increased significantly. Overall, children with better language skills in one area tended to reveal better skills in the other three language areas examined in this study. The converse is also true.

Mean percentiles for all 16 hearing-impaired children on each of the language tests
from pretests to posttests showed that all of the assessed language skills increased. This study also examined the extent of progress made by children with different levels of language skills. Results showed that children in the lowest language level group made the greatest progress in six of seven test outcomes analyzed, while children in the highest language level group made the smallest progress in all test outcomes analyzed. This finding indicates that those hearing-impaired children with lower language skills at the beginning of the intervention tended to make greater gains through dialogic reading than did children who started out with better language skills.

Research Question Two

What are parents’ and teachers’ perceptions of children’s progress regarding language skills, oral participation, and reading engagement through the dialogic reading intervention?

Research question two was designed to determine whether, according to parents and teachers, children benefited from the dialogic reading intervention in terms of language skills, oral participation, and reading engagement. Children with disabilities may do less well on standardized tests because they sometimes do not provide language samples representative of the child’s spontaneous language performance (Arnold et al., 1994) nor are they likely to reflect small gains in language development (Davie & Kemp, 2002). Because the standard assessments could not reflect hearing-impaired children’s language performance in a testing setting, nor could they examine children’s progress in oral participation and reading engagement, a 4-point rating scale questionnaire was used to assess parents’ and teachers’ perceptions of children’s progress on language skills, oral participation, and reading engagement.
Findings showed that parents consistently gave higher ratings than teachers on all items relating to children’s gains in language skills, oral participation, and reading engagement. It is possible that hearing-impaired children’s use of the increasing language skills acquired through dialogic reading spontaneously occurred more frequently at home than in their classes. This explanation is also the possible reason for the single difference in parents’ and teachers’ perceptions of children’s progress in their use of complex words or phrases (item 7).

To have a better understanding of differences among the four subscales, the researcher divided the mean point of teachers’ and parents’ ratings into three levels: (a) 1.00–2.00 = little progress; (b) 2.01–3.00 = moderate progress; and (c) 3.01–4.00 = great progress. In general, parents regarded their hearing-impaired children as having made moderate progress (total mean point = 2.83) in their language skills and oral participation (total mean point = 3.0), and perceived a great (total mean point = 3.17) increase in their children’s reading engagement. Teachers believed that children made moderate gains in all three aspects (total mean point = 2.55, 2.60, and 2.58). The explanation for the findings is that children’s enjoyment of reading and their understanding of the story increased when teachers provided them with rich information about, and engaged them in, the stories. In addition, children’s oral participation likely increased in correspondence with their increasing engagement in reading when teachers provided considerable opportunities to talk about the stories and gave positive feedback about these responses during dialogic reading. Consequently, the increases in oral participation and language use due to dialogic reading enhanced children’s language skills. Overall, findings confirmed the results of earlier research which indicated that shared reading has positive
impacts on facilitating children’s language development (Chow, McBride-Chang, Cheung, and Chow, 2008), oral participation (Crain-Thoreson & Dale, 1999), and reading engagement (Meagher, Arnold, Doctoroff, and Baker, 2008).

**Research Question Three**

*What are teachers’ attitudes toward the dialogic reading intervention for their hearing-impaired students?*

Research question three was designed to gain a better understanding of how teachers perceived the dialogic reading technique and used it as an intervention for their students who have hearing loss and deficits in language skills. This was investigated using a 4-point rating scale from 1 (“strongly disagree”) to 4 (“strongly agree”), representing low agreement to high agreement. Results showed that most of teachers believed dialogic reading is comprehensible and easy to use; provides an ideal naturalistic language environment; and could be incorporated into hearing-impaired children’s classes. However, some teachers seemed not to fully agree that dialogic reading is a well-structured framework for prompting children’s verbal responses. The researcher was curious about this and asked the teachers about this finding. It appeared that teachers were not content to simply ask five types of questions throughout the three occasions of dialogic reading for each story, but expected a progressive approach that involved prompting children’s language skills in depth beyond the questions.

For perceptions regarding the implementation of dialogic reading, findings revealed that teachers were comfortable using dialogic reading with their hearing-impaired students and able to engage them in interactive conversation. However, most teachers reported that considerable preparation was needed to implement dialogic reading in their
classes. The explanation is that dialogic reading was conducted in hearing-impaired children’s classrooms as a language teaching activity rather than a nature activity at home. Therefore, teachers did much preparation—reading over stories and developing a variety of questions—in order to sufficiently facilitate children’s verbal responses during dialogic reading. Although much preparation was required, findings indicated that teachers were still willing to incorporate dialogic reading in their classroom activities after completion of the 8-week intervention, and encouraged parents to implement dialogic reading with their hearing-impaired children at home.

Findings regarding satisfaction with the effectiveness of dialogic reading showed that teachers commonly agreed that dialogic reading can effectively enhance language skills of their hearing-impaired students. However, some teachers appeared not to perceive benefits to children’s cognitive and/or thinking skills after engaging in dialogic reading. It is possible that development of cognitive and thinking skills demands a longer and more sophisticated learning process (Patel, Kinshuk, & Russell, 2000), and therefore the 8-week dialogic reading intervention might be not long enough to detect changes in children’s cognitive and thinking skills, especially younger children (Evans & Saint-Aubin, 2005). Additionally, most teachers noticed an impact of dialogic reading hearing-impaired students’ imagination skills, while one teacher had the contrary perception. The explanation is that all children in this particular teacher’s class were younger (mean age = 3.8 years) and may still need more prerequisite concepts as a foundation in developing imagination skills. The researcher observed two teachers of older children ask many predicted and “why” questions (cause-and-effect), prompting the children to talk. Most of the children actively responded with different answers, thereby
enhancing their language skills as well as their imagination and thinking skills.

Research Question Four

What are parents’ attitudes toward the dialogic reading intervention for their hearing-impaired children?

Research question four was designed to gain an understanding of parents’ perceptions of the dialogic reading technique and the use of dialogic reading as an intervention for their children with hearing loss and deficits in language skills. Perceptions were assessed using a 4-point rating scale from 1 (“strongly disagree”) to 4 (“strongly agree”), representing low agreement to high agreement.

Almost parents consistently rated 13 of the 14 items as a 3 or 4 (“agree” or “strongly agree”). Findings indicated that parents viewed dialogic reading as useful, held positive perceptions of the implementation of dialogic reading, and felt dialogic reading intervention was beneficial for their hearing-impaired children. Parents of children with hearing impairments appeared to view the dialogic reading technique, PEER sequences and CROWD prompts, as ideal in helping their children enhance language skills.

However, only one item relating to attitude toward implementation of dialogic reading was rated inconsistently, attaining a mean of 2.5 (between “disagree” and “agree”). The item had to do with the level of parents’ agreement about the need for considerable preparation work in order to effectively implement dialogic reading with their children. The result indicated that some parents may have the ability to create impromptu questions that encourage their children’s verbal responses, while other parents may not without advanced preparation and practice. It appeared that the ability to help their children’s learning may differ among parents. Therefore, future research that
involves parent training in the use of dialogic reading strategies with their children may need to take these differences in parental capability into account.

**Conclusions**

In light of the positive changes in children’s language outcomes between pretest and posttest and children’s language progress as reported by teachers and parents, the present study has demonstrated the effectiveness of the dialogic reading intervention in aiding hearing-impaired children to gain different aspects of language skills. Although children’s improvement in receptive vocabulary and oral expression skills did not reach a significant level in eight weeks, such progress is likely to be possible over a longer intervention period. More importantly, language improvements may also facilitate other language-related developments in these children over the long run. Given the ease with which the dialogic reading technique can be learned and successfully used, educators and parents might consider using this technique to further facilitate positive learning in children with hearing impairments.

**Implication for Practice**

Study findings supported those from previous research which suggested that adult-child dialogic reading is a potentially powerful and effective intervention to use in enhancing different aspects of language skills, oral participation, and enjoyment of reading among young children with language development deficits. To make the features of dialogic reading most practically beneficial to hearing-impaired children’s language acquisition, parents and educators may consider several recommendations for implementing dialogic reading with children at home or schools. In addition, based on the
discussion of findings and study limitations, other recommendations for future research are also provided in this section.

**Recommendations for Educators and Parents**

In this study, parents’ and teachers’ responses to the questionnaire item about their willingness to continually use dialogic reading with their hearing-impaired children or students after the completion of this study were overwhelmingly positive. Therefore, a number of recommendations are offered here for adults who may use dialogic reading with children to effectively facilitate their language development.

First, start early. In this study, both language assessments and parents’/teachers’ reports indicated that the hearing-impaired children who were younger than 4 years old made moderate to significant progress in their language skills. This suggests that hearing-impaired children can benefit from dialogic reading at an early age. Previous findings from research with younger children also showed that dialogic reading had positive impacts on the language skills of children younger than 3 years old. Therefore, it is better to practice dialogic reading with hearing-impaired children early when they have basic hearing and speaking ability. The earlier the dialogic reading intervention is, the earlier the effect may be on children’s language gains.

Second, read frequently. Study results showed that hearing-impaired children’s different language skills improved within a short intervention period of eight weeks. Three occasions of dialogic reading in class per week were very likely to be the reason for the rapid increases in language skills among the children in this study. Research studies have also concluded that frequent adult-child shared reading is essential to successful language development via dialogic reading (Huebner & Meltzoff, 2001).
However, the frequencies of classroom reading reported by the four teachers before the dialogic reading intervention were low (either once or twice a month). It is suggested that parents and educators should establish reading time with hearing-impaired children as a routine activity and frequently practice dialogic reading in naturalistic settings. As adults frequently engage hearing-impaired children in dialogic reading and demonstrate correct or more mature sentences through their conversations about the stories, children’s language skills are very likely to be enhanced by sufficient language experiences.

Third, scaffold children. To maximize the effect of dialogic reading on hearing-impaired children’s language development, adults should identify children’s zone of proximate development and provide appropriately scaffolded adult-child interactions in the context of picture book reading. Parents’ and teachers’ responses to the questionnaires indicated that different dialogic reading techniques were especially effective in facilitating the language acquisition of their hearing-impaired children/students due to differences in children’s language abilities. It is suggested that adults scaffold children by utilizing dialogic reading techniques appropriately to encourage children to talk a little more than they naturally could. This scaffolding contributes to a more rapid growth in children’s language skills than would occur spontaneously.

Forth, relate to life. Relating stories to children’s life experiences is a beneficial means for children to practice language skills naturalistically and effectively. According to parents’ responses to the questionnaire, their children showed greater interest and attention if the story read with the teacher was more relevant to their real life. In addition, children also strongly participated in discussions when teachers used the distancing
prompt to help them form a bridge between the story and the real world. On the one hand, to motivate children to share and talk, adults should incorporate children’s life experiences into story reading to motivate children to talk. On the other hand, to help hearing-impaired children master language skills facilitated during dialogic reading, adults should integrate what they just learned into their daily life.

Fifth, repeat readings differently. Dialogic reading technique suggests that adults should re-read story books multiple times with children. Repeated reading may especially benefit hearing-impaired children, as they may need repeated readings to fully understand the story. In this study, repeated readings involving dialogic reading techniques would mostly likely be attributed to the significant increase in hearing-impaired children’s listening comprehension skills within a short intervention period. However, some teachers reported that children were less attentive to the story when the same story was reread a third time. To keep children’s interest and have fun during dialogic reading, it is very important to re-read the story by providing novel information about the story and asking different questions to encourage children to think and talk.

Recommendations for Future Research

Based on the limitations and findings of this study, four main recommendations for future research are provided.

Comparison of Larger Samples

The sample size of this study was small and all participants were recruited from a foundation—for these reasons, the results may not be generalizable to a large population of young children with hearing impairments. Future studies with larger numbers of hearing-impaired children from different settings are needed to corroborate these findings.
Additionally, no comparison group was available in this study due to the small number of participants. Therefore, it is difficult to conclude that the study outcome was the result of the intervention program. However, the repeated measure comparisons used in this study evaluated an individual child’s performance across contexts in contrast to comparisons of one group’s performance with another group’s performance, and the results are promising. Future research needs to replicate and expand these results with more children in experimental and control groups and to control for age of identification, level of language development, and a longitudinal look at the effects from the language intervention.

**Book Selection**

The selected picture books varied by theme (e.g., friendship, teasing, stray dog) and were judged to be interesting and appropriate for teachers to read with their students and to be capable of motivating discussion about the stories using dialogic reading strategies. However, teachers’ and parents’ responses to the open-ended question in the questionnaires revealed that some of the stories might be somewhat difficult for or unattractive to some children; therefore, children sometimes seemed not to be highly motivated during dialogic reading. Individual differences in interests, language skills or cognitive ability among children in the same class are inevitable. Therefore, it is a challenge to select story books that are “appropriate” for all children in light of their different characteristics. Future research should involve teachers or parents who know their student/children well in the book selection process.

**Comparison of Different Approaches**

In this study, only the traditional dialogic reading approach was used to facilitate hearing-impaired children’s language skills. Future research should compare the impacts
of different approaches on hearing-impaired children’s language acquisition—e.g., a comparison of the dialogic reading method and child play approach. Another interesting project would be an exploration of the differences between the traditional dialogic reading approach and the enhanced or modified dialogic reading approach, by conducting role play about the story following reading using the dialogic process, or by providing supplemental materials during dialogic reading activities. Findings related to different outcomes can help educators or parents facilitate their children’s language skills more effectively by employing those approaches that best support children’s learning.

**Longer Study Period**

Findings from this study demonstrated positive changes in all language outcomes measured from pretests to posttests. However, changes in receptive vocabulary and oral expression skills did not reach a significant level. It was difficult to attribute the lack of significant difference to small effects of dialogic reading or the short intervention period, which perhaps was not enough for hearing-impaired children to make great gains. Future research should conduct the intervention over a longer period of time to draw convincing conclusions. Additionally, researchers should conduct longitudinal studies to follow up on hearing-impaired children’s language gains and the continuous influences on their later academic performance.
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Appendix A

Parent and Child Background Information Questionnaire (English Version)

In this questionnaire we ask for background information about you and your children. For each question in each section, please select or provide an appropriate response.

Part I: Parent Information

Directions: This section contains general personal information about you. Please place a “✓” in the box that is most accurate for you.

1. Your gender:
   □ Male □ Female

2. Your age:
   □ 19 or under □ 20–29 □ 30–39 □ 40–49 □ 50 or older

3. Your highest educational level achieved:
   □ Junior high or under □ High school/vocational high school
   □ Junior college □ University (Bachelor’s degree)
   □ Graduate school (Master’s, Ph.D.) or higher

4. Your primary occupation:
   □ Housewife □ Business □ Industry
   □ Agriculture □ Education (level: ________________ )
   □ Military or police □ Government and public administration
   □ Medical profession □ Service industry □ Self-employment
   □ Other ________________________________

5. Your total monthly household income:
   □ NT 39,999 or under □ NT 40,000–NT 69,999
   □ NT 70,000–NT 99,999 □ NT 100,000–NT 139,999
   □ NT 140,000 or above

6. Total number of children you have:
   □ 1 □ 2 □ 3 □ 4 or more
Part II: Child Information

Directions: This section requests general personal information about your child. Please fill in the blanks or place a “✓” in the box that is most accurate for your child.

1. Name of your child: ____________________________

2. Gender of your child:  □ Male  □ Female

3. Name of the class in which your child is enrolled at the Foundation: __________

4. Age of your child: _______ years and _______ months

5. Age at diagnosis of hearing loss: _______ years and _______ months

6. Your child’s area of hearing loss:  Left ear:_______ dB;  Right ear:_______ dB

7. Aided status of your child:
   □ Hearing aid (only)  □ Cochlear implant (only)  □ Both

8. Years enrolled at the Foundation: _______ years and _______ months

9. Other education settings in which your child is enrolled:
   □ None  □ Day care  □ Kindergarten  □ Other: ________________

Part III: Child’s Experiences with Picture book Reading at Home

Directions: This section requests general information about your child’s experiences with picture book reading at home. Please place a “✓” in the box that is most accurate for your child.

1. How often, on average, does your child engage in storybook reading with you (or other caregivers) at home?
   □ About every day  □ Three to five times a week  □ Twice a week
   □ Once a week  □ Twice a month  □ Once a month or less

2. How long does your child usually engage in storybook reading with you (or other caregivers) on each occasion at home?
   □ More than 30 minutes  □ 20–30 minutes
   □ 10–20 minutes  □ Less than 10 minutes
3. How often does your child actively ask parents/caregivers to read him/her storybooks at home?
   □ Often       □ Sometimes       □ Never

4. How often does your child actively read storybooks by himself?
   □ Often       □ Sometimes       □ Never

5. How long does your child usually concentrate on storybook reading?
   □ More than 30 minutes    □ 20–30 minutes    □ 10–20 minutes
   □ 5–10 minutes            □ Less than 5 minutes

6. Do you ask your child questions relating to the story when you read a storybook with him/her?
   □ Yes
      How many questions do you usually ask?
      □ More than 20       □ 10–20       □ Less than 10
   □ No

7. Does your child actively ask you questions relating to the story when you read a storybook with him/her?
   □ Yes
      How many questions does he/she usually ask?
      □ More than 10       □ 5–10       □ Less than 5
   □ No

8. How much does your child orally interact with you during storybook reading?
   □ Very much       □ Moderate       □ Little       □ Not at all

9. How much does your child enjoy storybook reading with you (or other caregivers) at home?
   □ Like very much       □ Like       □ Tolerate       □ Dislike
   □ Depends (please explain): _________________________________________
Appendix B

Parent and Child Background Information Questionnaire (Chinese Version 1)

家長及兒童背景資料問卷

這份問卷將詢問您及貴子弟的個人資料，請就下列各項問題，勾選或填寫最符合您及貴子弟的背景資料。

第一部分：家長資本資料

1. 您的性別:
   □ 男 □ 女

2. 您的年齡:
   □ 19 歲以下 □ 20-29 歲 □ 30-39 歲 □ 40-49 歲 □ 50 歲以上

3. 您的最高教育程度:
   □ 國中(含)以下 □ 高中職 □ 專科學校
   □ 大學(學士學位) □ 研究所(含)以上

4. 您的主要職業:
   □ 家管 □ 商業 □ 工業 □ 農業
   □ 教育 □ 教育 □ 軍警 □ 政府公家機關
   □ 醫藥 □ 服務業 □ 自營業
   □ 其他 ______________________

5. 您全家平均每月總收入:
   □ 台幣 39,999 (含)以下 □ 台幣 40,000-69,999
   □ 台幣 70,000 - 99,999 □ 台幣 100,000-139,999
   □ 台幣 140,000 (含)以上

6. 您有幾個孩子: □ 1 個 □ 2 個 □ 3 個 □ 4 個 (含)以上
第二部分：兒童資本資料

說明：1. 這個部份是有關於貴子弟的基本資料的問題。

2. 請就下列問題在空格中填入正確資料，或勾選最符合貴子弟的情況的

答案，請在答案前方的方格中打勾 (“✓”)，如：✓。

1. 貴子弟姓名：

2. 性別： □ 男 □ 女

3. 基金會就讀班級：

4. 生理年齡：______ 歲 ______ 月

5. 發現聽障的年齡：______ 歲 ______ 月

6. 聽力損失程度：左耳：______ 分貝； 右耳：______ 分貝

7. 所配帶的聽覺輔具：
   □ 助聽器   □ 人工電子耳   □ 兩者同時配帶

8. 在基金會就讀時間(入會就讀至今)：______ 年 ______ 月

9. 基金會外平日就讀學校：
   □ 無   □ 托兒所   □ 公/私立幼稚園   □ 其他：

第三部分：兒童在家的閱讀經驗

說明：1. 這部份是有關於貴子弟在家裡閱讀故事書的經驗。

2. 請在最符合貴子弟家中閱讀情況的答案方格中打勾 (“✓”)，如：✓。

1. 您和孩子平均多久一起閱讀故事書一次？
   □ (近乎)每天   □ 一週兩次約 3 到 5 次。   □ 一週兩次
   □ 一週一次   □ 兩週一次(一個月兩次)   □ 一個月一次

2. 您和孩子通常在家閱讀故事書的時間大約多長？
   □ 30 分鐘以上   □ 20-30 分鐘   □ 10-20 分鐘   □ 少於 10 分鐘
3. 您的孩子在家多常主動要求父母講故事給他/她聽？
   □ 經常 □ 偶爾 □ 從來沒有

4. 您的孩子在家是否會主動獨自閱讀故事書？
   □ 經常 □ 偶爾 □ 從來沒有

5. 您的孩子平常專注地閱讀故事書的時間大約多久？
   □ 30 分鐘以上 □ 20-30 分鐘 □ 10-20 分鐘
   □ 5-10 分鐘 □ 少於 5 分鐘

6. 您與孩子閱讀故事書的時候，是否會問他/她一些有關故事內容的問題？
   □ 會
      您通常會問多少問題？
      □ 20 個以上 □ 10-20 個 □ 10 個以內
   □ 不會

7. 您與孩子閱讀故事書的時候，孩子是否會主動詢問一些關於故事內容的問題？
   □ 會
      孩子通常會問多少問題？
      □ 10 個以上 □ 5-10 個 □ 5 個以內
   □ 不會

8. 您與孩子閱讀故事書的時候，孩子與您口語互動有多少？
   □ 很多 □ 普通 □ 很少 □ 沒有

9. 您的孩子在家喜愛和您或其他照護者閱讀故事書的程序如何？
   □ 非常喜愛 □ 喜歡 □ 可以接受 □ 不喜歡
   □ 看情形（請舉例說明）：__________________________________________
Appendix C

Teacher Background Information Questionnaire (English Version)

In this questionnaire we ask for background information about you and about picture book reading in your class. For each question in each section, please select or provide an appropriate response.

Part I. Teacher’s Personal Information

Directions: This section contains questions relating to your personal information. Please place a “✓” in the box that is most accurate for you.

1. Your age: __________________

2. Your highest educational level achieved:
   • □ Junior College or equivalent     • □ University (Bachelor’s degree)
   • □ Graduate school (Master’s, Ph.D.) or higher  • □ Other: __________________

3. Number of years you have been teaching at the Foundation:
   • □ 5 or less                        • □ 6–10 years           • □ 11–15 years
   • □ 16–20 years                     • □ 21–25 years          • □ Over 25 years

Part II: Engagement in Picture Book Reading with Students during Class

Directions: This section relates to storybook reading in your classes. Please fill in the blanks or place a “✓” in the box that is most accurate for you.

1. Name of your class: __________________

2. How often, on average, do you read story books/cards with your students in class?
   • □ Three times a week or above      • □ Twice a week           • □ Once a week
   • □ Twice a month                    • □ Once a month or less
   □ Never (please give a brief reason and STOP HERE)
3. How long do you usually spend reading story books/cards with your students in class?
   □ More than 30 minutes  □ 20–30 minutes
   □ 10–20 minutes       □ Less than 10 minutes

4. How long do your students usually concentrate on the story books/cards reading in class?
   □ More than 30 minutes  □ 20–30 minutes  □ 10–20 minutes
   □ 5–10 minutes         □ Less than 5 minutes

5. Do you usually ask your students questions relating to the story when you read a picture book to them?
   □ Yes
       How many questions do you usually ask?
       □ More than 30  □ 20–30  □ 10–20  □ Less than 10
   □ No (Skip item 6)

6. Do you usually ask students questions relating to the stories during or after a picture book reading?
   □ During picture book reading   □ After picture book reading   □ Both

7. Do your students actively ask you questions relating to the story when you read a picture book with them?
   □ Yes
       How many questions do your students usually ask?
       □ More than 10  □ 5–10  □ Less than 5
   □ No

8. How much do your students orally participate during picture book reading?
   □ Very much   □ Moderate   □ Little   □ Not at all

9. How much do your students enjoy picture book reading in class?
   □ Like very much   □ Like   □ Tolerate   □ Dislike
   □ Depends (please give brief examples): ________________________________

______________________________
Appendix D

Teacher Background Information Questionnaire (Chinese Version)

教師背景資料調查問卷

這份問卷將詢問您的個人背景資料以及您與學生閱讀圖畫故事(書)的情形，請就下列各項問題，勾選或填寫最符合您的背景資料，以及您與學生在課堂上閱讀圖畫故事(書)的情形。

第一部份：教師個人基本資料

說明：這一部份是有關您個人的相關資料，請在最適當的選項中打勾“✓”，如：✓。

1. 您的年齡：______________

2. 您的最高教育程度：

   □ 五年制專科學校  □ 二或三年制專科學校
   □ 大學（含日、夜間部） □ 研究所（碩、博士）

3. 您已在從事聽障口語教學多久？

   □ 5 年(含)以下     □ 6-10 年     □ 11-15 年
   □ 16-20 年   □ 21-25 年  □ 25 年以上

第二部份：課堂中圖畫故事閱讀活動

說明：這一部份是關於課堂中進行圖畫故事(書)閱讀活動的情況，請在空格中填寫答案，或在最適當的選項中打勾“✓”，如：✓。

1. 您的班級名稱：________________________

2. 您通常在課堂上講圖畫故事(書)給學生聽的頻率為何？

   □ 一週三次(含)以上     □ 一週兩次     □ 一週一次
   □ 兩週一次    □ 一個月一次(含)以下
   □ 不曾（請簡述原因後停止作答）：________________________
3. 您在課堂上講圖畫故事(書)的時間大約多久？
   □ 10 分鐘以內   □ 10-20 分鐘
   □ 20-30 分鐘   □ 30 分鐘以上

4. 貴班學生通常在課堂上可以專注於圖畫故事(書)的時間平均大約多久？
   □ 少於 5 分鐘   □ 5-10 分鐘   □ 10-20 分鐘
   □ 20-30 分鐘   □ 30 分鐘以上

5. 您通常在講圖畫故事(書)給學生聽的時，是否會提問關於故事內容的問題？
   □ 會
   您大約提問多少問題？
   □ 10 個以內  □ 11-20 個  □ 20 個以上
   □ 不會（請跳過第 6 題，接續回答第 7 題）

6. 您在課堂上講圖畫故事(書)時，通常選擇何時問學生關於故事內容的問題？
   □ 邊講邊問   □ 講完才問   □ 二者皆有

7. 您在課堂上講圖畫故事(書)給學生聽的時候，學生是否會主動問與故事內容相關的問題？
   □ 會
   學生大約提問多少問題？
   □ 5 個以內  □ 5-10 個  □ 10 個以上
   □ 不會

8. 整體而言，您在講圖畫故事(書)時，貴班學生口語參與情形如何？
   □ 很多   □ 普通   □ 很少   □ 完全沒有

9. 整體而言，您覺得貴班學生喜歡在課堂上聽圖畫故事(書)的程度如何？
   □ 非常喜歡  □ 普通喜歡  □ 一一點喜歡  □ 不喜歡
   □ 看情形（請舉例說明）：__________________________________________________
   ____________________________________________
Appendix E

Teacher Questionnaire on Dialogic Reading Intervention (English Version)

Part I. Teachers’ Evaluations of Children’s Progress on the Dialogic Reading Intervention

| Directions: |  
| 1) For each of the following questions, please indicate your evaluation of the children’s improvement through the dialogic reading intervention.  
2) Write down a child’s name in the blank for each set and select one response that most appropriately indicates the level of the child’s progress by placing a “✓” in one of the boxes on the scale.  
3) The rating scale from 1 to 4 is as follows:  
1: No progress  2: Slight progress  3: Moderate progress  4: Significant progress |

<table>
<thead>
<tr>
<th>Child’s Name: ____________________________</th>
<th>No Progress</th>
<th>Slight Progress</th>
<th>Moderate Progress</th>
<th>Significant Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Skills</td>
<td>1. How would you rate this child’s progress in his/her vocabulary knowledge?</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
</tr>
<tr>
<td></td>
<td>2. How would you rate this child’s progress in his/her listening comprehension skills?</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
</tr>
<tr>
<td></td>
<td>3. How would you rate this child’s progress in his/her oral expression skills?</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
</tr>
<tr>
<td></td>
<td>4. How would you rate this child’s progress in his/her length of utterance?</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
</tr>
<tr>
<td></td>
<td>5. How would you rate this child’s progress in using different descriptions to express the same meaning?</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
</tr>
<tr>
<td></td>
<td>6. How would you rate this child’s progress in using more complex words or phrases?</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
</tr>
<tr>
<td></td>
<td>7. How would you rate this child’s progress in retelling stories in his/her own words?</td>
<td>[ ] 1</td>
<td>[ ] 2</td>
<td>[ ] 3</td>
</tr>
</tbody>
</table>
**Oral Participation**

8. How would you rate this child’s progress in actively responding to your questions about the stories? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress

9. How would you rate this child’s progress in actively asking questions about the stories? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress

10. How would you rate this child’s progress in being willing to participate in discussions about the stories? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress

11. How would you rate this child’s progress in actively expressing his/her feelings (e.g., it’s cute/scary...) about the characters, happenings or objects in the stories? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress

**Reading Engagement**

12. How would you rate this child’s progress in duration of attention to the story that you are reading? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress

13. How would you rate this child’s progress in understanding the main plots of stories? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress

14. How would you rate this child’s progress in enjoying storybook reading? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress

**Child’s Name:** __________________________

**Language Skills**

1. How would you rate this child’s progress in his/her vocabulary knowledge? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress

2. How would you rate this child’s progress in his/her listening comprehension skills? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress

3. How would you rate this child’s progress in his/her oral expression skills? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress

4. How would you rate this child’s progress in his/her length of utterance? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress

5. How would you rate this child’s progress in using different descriptions to express the same meaning? □ No Progress □ Slight Progress □ Moderate Progress □ Significant Progress
6. How would you rate this child’s progress in using more complex words or phrases?

☐  ☐  ☐  ☐

7. How would you rate this child’s progress in retelling stories in his/her own words?

☐  ☐  ☐  ☐

**Oral Participation**

8. How would you rate this child’s progress in actively responding to the teacher’s questions about the stories?

☐  ☐  ☐  ☐

9. How would you rate this child’s progress in actively asking questions about the stories?

☐  ☐  ☐  ☐

10. How would you rate this child’s progress in being willing to participate in discussions about the stories?

☐  ☐  ☐  ☐

11. How would you rate this child’s progress in actively expressing his/her feelings (e.g., it’s cute/scary...) about the characters, happenings or objects in the stories?

☐  ☐  ☐  ☐

**Reading Engagement**

12. How would you rate this child’s progress in duration of attention to the story that you are reading?

☐  ☐  ☐  ☐

13. How would you rate this child’s progress in understanding the main plots of stories?

☐  ☐  ☐  ☐

14. How would you rate this child’s progress in enjoying storybook reading?

☐  ☐  ☐  ☐

**Child’s Name:** _____________________________

**Language Skills**

1. How would you rate this child’s progress in his/her vocabulary knowledge?

☐  ☐  ☐  ☐

2. How would you rate this child’s progress in his/her listening comprehension skills?

☐  ☐  ☐  ☐

3. How would you rate this child’s progress in his/her oral expression skills?

☐  ☐  ☐  ☐
4. How would you rate this child’s progress in his/her length of utterance? □ □ □ □

5. How would you rate this child’s progress in using different descriptions to express the same meaning? □ □ □ □

6. How would you rate this child’s progress in using more complex words or phrases? □ □ □ □

7. How would you rate this child’s progress in retelling stories in his/her own words? □ □ □ □

**Oral Participation**

8. How would you rate this child’s progress in actively responding to the teacher’s questions about the stories? □ □ □ □

9. How would you rate this child’s progress in actively asking questions about the stories? □ □ □ □

10. How would you rate this child’s progress in being willing to participate in discussions about the stories? □ □ □ □

11. How would you rate this child’s progress in actively expressing his/her feelings (e.g., it’s cute/scary...) about the characters, happenings or objects in the stories? □ □ □ □

**Reading Engagement**

12. How would you rate this child’s progress in duration of attention to the story that you are reading? □ □ □ □

13. How would you rate this child’s progress in understanding the main plots of stories? □ □ □ □

14. How would you rate this child’s progress in enjoying storybook reading? □ □ □ □
Child’s Name: ____________________________

Language Skills

1. How would you rate this child’s progress in his/her vocabulary knowledge? □□□□

2. How would you rate this child’s progress in his/her listening comprehension skills? □□□□

3. How would you rate this child’s progress in his/her oral expression skills? □□□□

4. How would you rate this child’s progress in his/her length of utterance? □□□□

5. How would you rate this child’s progress in using different descriptions to express the same meaning? □□□□

6. How would you rate this child’s progress in using more complex words or phrases? □□□□

7. How would you rate this child’s progress in retelling stories in his/her own words? □□□□

Oral Participation

8. How would you rate this child’s progress in actively responding to the teacher’s questions about the stories? □□□□

9. How would you rate this child’s progress in actively asking questions about the stories? □□□□

10. How would you rate this child’s progress in being willing to participate in discussions about the stories? □□□□

11. How would you rate this child’s progress in actively expressing his/her feelings (e.g., it’s cute/scary...) about the characters, happenings or objects in the stories? □□□□

Reading Engagement

12. How would you rate this child’s progress in duration of attention to the story that you’re reading? □□□□
13. How would you rate this child’s progress in understanding the main plots of stories?

14. How would you rate this child’s progress in enjoying storybook reading?

**Part II: Teachers’ Attitudes toward the Dialogic Reading Technique**

<table>
<thead>
<tr>
<th>Directions:</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Please indicate the extent to which you agree or disagree with the following statements about the <em>dialogic reading technique</em> implemented in your class.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2) Please respond to each item by placing a “✓” in one of the boxes on the scale.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) The rating scale from 1 to 4 is as follows:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1: Strongly disagree</td>
<td>2: Disagree</td>
<td>3: Agree</td>
<td>4: Strongly agree</td>
<td></td>
</tr>
</tbody>
</table>

1. The dialogic reading technique is comprehensible. ❌
2. The dialogic reading technique is easy to use. ❌
3. Dialogic reading provides an ideal naturalistic context for children’s language development. ❌
4. The dialogic reading technique provides a well-structured framework for asking children questions relating to the stories. ❌
5. It’s feasible to incorporate dialogic reading into the classrooms of children with hearing impairments. ❌
6. It takes lots of work to prepare for implementing dialogic reading in my class. ❌
7. I am able to engage my students in oral conversations with me using the dialogic reading technique. ❌
8. I feel comfortable directing the oral interactions that take place in the context of dialogic reading with my students. ❌
9. I would like to incorporate dialogic reading in my classroom activities in the future.

10. I would like to encourage parents to implement dialogic reading at home with their hearing-impaired children.

11. The dialogic reading technique can effectively promote my students’ vocabulary acquisition.

12. The dialogic reading technique can effectively promote my students’ listening comprehension skills.

13. The dialogic reading technique can effectively promote my students’ oral expression skills.

14. The dialogic reading technique can effectively promote my students’ cognitive skills.

15. The dialogic reading technique can effectively promote my students’ thinking skills.

16. The dialogic reading technique can effectively promote my students’ imagination skills.

**Part III: Teachers’ Overall Perspectives on the Dialogic Reading Technique**

**Direction:** For each of the following questions, please provide your opinions or suggestions about the dialogic reading intervention.

1. Besides the following language skills—vocabulary knowledge, listening comprehension skills, oral expression skills, and syntax skills, what other positive impacts has dialogic reading had on your students?

2. According to your observations, how have your students reacted to dialogic reading exercises in class?
3. From your experience with using dialogic reading with your students, what strategies among four sequences (prompt, evaluate, expand, and repeat) and five prompts (completion, recall, open-ended, wh-, and distancing) do you think have been particularly effective in promoting language acquisition for your hearing-impaired students? Please give brief examples.

4. Did you encounter any difficulties or challenges when implementing dialogic reading with your students? If yes, please describe the challenge(s) you experienced.

5. What adaptations or supplements (e.g., verbal prompts, activities, materials) would you suggest to be used to improve the dialogic reading intervention in order to make it more applicable and effective for children with hearing impairments in terms of language learning?
Appendix F

Teacher Questionnaire on Dialogic Reading Intervention (Chinese Version)

教師問卷
對話式閱讀意見調查

教師姓名：________________________ 班級名稱：________________________

第一部分：透過對話式閱讀的介入後，學童在各項表現上的進步情形之評估

說明：1) 請就下列問題，針對您班上的各個學生在八週的對話式閱讀介入後的各項進步，分別予以評估。
2) 請先在學生姓名欄上填上一位學生的姓名，然後在最能表示該生進步程度的方格中打勾（如：✓）。
3) 數字1~4所代表的進步程度如下：
   1: 沒有進步   2: 微量進步   3: 中度進步   4: 大幅進步

學生姓名：________________________

語言技巧

1. 您覺得透過對話式閱讀的語言介入，該生在詞彙認知方面的進步情形如何？
   □ □ □ □

2. 您覺得透過對話式閱讀的語言介入，該生在聽理解方面的進步情形如何？
   □ □ □ □

3. 您覺得透過對話式閱讀的語言介入，該生在語言表達方面的進步情形如何？
   □ □ □ □

4. 您覺得透過對話式閱讀的語言介入，該生在說話語句長度上進步的情形如何？
   □ □ □ □

5. 您覺得透過對話式閱讀的語言介入，該生使用不同的描述方式表達相同意思的能力提昇多少？
   □ □ □ □

6. 您覺得透過對話式閱讀的語言介入，該生使用較高層次的詞彙或語句的能力提昇多少？
   □ □ □ □

7. 您覺得透過對話式閱讀的介入，該生使用自己的語彙重述事件或故事的能力提昇多少？
   □ □ □ □
口語參與

8. 您覺得該生能主動回答您提問的故事內容相關問題之進步情形如何？

9. 您覺得該生能主動詢問有關故事內容問題的進步情形如何？

10. 您覺得該生參與故事相關討論的意願提昇多少？

11. 您覺得該生針對人、事、物主動表達內心感覺（如好可愛、好可怕…）的進步情形如何？

閱讀表現

12. 您覺得該生在聆聽故事時，維持專注聆聽的時間長度上進步情形如何？

13. 您覺得該生在掌握故事情節重點的能力提升多少？

14. 您覺得該生對於圖畫故事書的閱讀興趣較以前提升多少？

學生姓名：________________________

語言技巧

1. 您覺得透過對話式閱讀的語言介入，該生在詞彙習方面的進步情形如何？

2. 您覺得透過對話式閱讀的語言介入，該生在聽理解方面的進步情形如何？

3. 您覺得透過對話式閱讀的語言介入，該生在語言表達方面的進步情形如何？

4. 您覺得透過對話式閱讀的語言介入，該生在說話語句長度上進步情形如何？

5. 您覺得透過對話式閱讀的語言介入，該生使用不同的描述方式，表達相同意思的能力提昇多少？
6. 您覺得透過對話式閱讀的語言介入，該生使用較高層次的詞彙或語句的進步情形如何？

7. 您覺得透過對話式閱讀的介入，該生使用自己的語言重述事件或故事的能力提昇多少？

口語參與

8. 您覺得該生能主動回答您提問的故事內容相關問題之進步情形如何？

9. 您覺得該生能主動詢問有關故事內容問題的進步情形如何？

10. 您覺得該生參與故事相關討論的意願提昇多少？

11. 您覺得該生針對人、事、物主動表達內心感覺（如好可愛、好可怕…）的進步情形如何？

閱讀行為

12. 您覺得該生在聆聽故事時，維持專注聆聽的時間長度上進步情形如何？

13. 您覺得該生在掌握故事情節重點的能力提升多少？

14. 您覺得該生對於圖畫故事書的閱讀興趣較以前提升多少？

學生姓名： ____________________

語言技巧

1. 您覺得透過對話式閱讀的語言介入，該生在詞彙習方面上的進步情形如何？

2. 您覺得透過對話式閱讀的語言介入，該生在理解方面上的進步情形如何？

3. 您覺得透過對話式閱讀的語言介入，該生在語言表達方面的進步情形如何？
4. 您覺得透過對話式閱讀的語言介入，該生在說話語句長度上進步情形如何？

5. 您覺得透過對話式閱讀的語言介入，該生使用不同的描述方式，表達相同意思的能力提昇多少？

6. 您覺得透過對話式閱讀的語言介入，該生使用較高層次的詞彙或語句的進步情形如何？

7. 您覺得透過對話式閱讀的介入，該生使用自己的語彙重述事件或故事的能力提昇多少？

口語參與

8. 您覺得該生能主動回答您提問的故事內容相關問題之進步情形如何？

9. 您覺得該生能主動詢問有關故事內容問題的進步情形如何？

10. 您覺得該生參與故事相關討論的意願提昇多少？

11. 您覺得該生針對人、事、物主動表達內心感覺（如好可愛、好可怕…）的進步情形如何？

閱讀行為

12. 您覺得該生在聆聽故事時，維持專注聆聽的時間長度上進步情形如何？

13. 您覺得該生在掌握故事情節重點的能力提升多少？

14. 您覺得該生對於圖畫故事書的閱讀興趣較以前提升多少？

學生姓名：________________________

語言技巧

1. 您覺得透過對話式閱讀的語言介入，該生在詞彙習方面的進步情形如何？

沒有進步 微量進步 中度進步 大幅進步

1 2 3 4
2. 您覺得透過對話式閱讀的語言介入，該生在聽理解方面進步情形如何？

3. 您覺得透過對話式閱讀的語言介入，該生在語言表達方面的進步情形如何？

4. 您覺得透過對話式閱讀的語言介入，該生在說話語句長度上的進步情形如何？

5. 您覺得透過對話式閱讀的語言介入，該生使用不同的描述方式，表達相同意思的能力提昇多少？

6. 您覺得透過對話式閱讀的語言介入，該生使用較高層次的詞彙或語句的進步情形如何？

7. 您覺得透過對話式閱讀的介入，該生使用自己的語彙重述事件或故事的能力提昇多少？

口語參與

8. 您覺得該生能主動回答您提問的故事內容相關問題的進步情形如何？

9. 您覺得該生能主動詢問有關故事內容問題的進步情形如何？

10. 您覺得該生參與故事相關討論的意願提昇多少？

11. 您覺得該生針對人、事、物主動表達內心感覺（如好可愛、好可怕…）的進步情形如何？

閱讀行為

12. 您覺得該生在聆聽故事時，維持專注聆聽的時間長度上進步情形如何？

13. 您覺得該生在掌握故事情節重點的能力提升多少？

14. 您覺得該生對於圖畫故事書的閱讀興趣較以前提升多少？
第二部份：教師對實行對話式閱讀的評估

說明: 1) 請根據下列各項關於實行對話式閱讀誘發技巧的敘述，表達您同意與否的程度。
2) 請逐項勾選最適合您想法的答案（如：✔）。
3) 數字 1～4 所代表的滿意程度說明如下:

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13. 對話式閱讀能有效提升本班聽障兒童的口語表達能力。

14. 對話式閱讀能有效提升本班聽障兒童的認知能力。

15. 對話式閱讀能有效提升本班聽障兒童的思考能力。

16. 對話式閱讀能有效提升本班聽障兒童的想像力。

第三部份：教師對對話式閱讀的綜合觀點及建議

說明：請就下列各項問題，提供您個人對對話式閱讀語言介入的觀點及建議。

1. 除了下列語言能力─詞彙認知、語言理解、口語表達、語法能力之外，您認為對話式閱讀對貴班聽障兒童還有哪些正面的影響效益？

2. 請就您所觀察到的情形，貴班學生在進行對話式閱讀時有哪些行為或反應？

3. 根據您與學生進行對話式閱讀的經驗，您認為四個連貫策略（誘發、評估、擴展、重述）或五種誘發問題類型（填充式、回憶式、開放式、wh-、延伸式）中，哪幾項特別能有效提升貴班聽障兒童在語言上的習得？為什麼？
4. 您在與貴班學生進行對話式閱讀時，遇到過什麼困難、挑戰或侷限？

5. 您認為在貴班級進行對話式閱讀介入時，還可以做什麼調整或補強，使其能更適切有效地提升聽障兒的語言習得？
Appendix G

Parent Questionnaire on Dialogic Reading Intervention (English Version)

Child’s Name: ___________________________   Class Enrolled: __________________

Part I. Parents’ Evaluations of Children’s Progress on the Dialogic Reading Intervention

Directions:
1) For each of the following questions, please indicate your evaluation of your child’s improvement as the result of the dialogic reading intervention.
2) Select one response that most appropriately indicates the level of the child’s progress by placing a “✓” in one of the boxes on the scale.
3) The rating scale from 1 to 4 is as follows:
   1: No progress   2: Slight progress   3: Moderate progress   4: Significant progress

Language Skills

1. How would you rate your child’s progress in his/her vocabulary knowledge?   □  □  □  □

2. How would you rate your child’s progress in his/her listening comprehension skills?   □  □  □  □

3. How would you rate your child’s progress in his/her oral expression skills?   □  □  □  □

4. How would you rate your child’s progress in his/her length of utterance?   □  □  □  □

5. How would you rate your child’s progress in using different descriptions to express the same meaning?   □  □  □  □

6. How would you rate your child’s progress in using more complex words or phrases?   □  □  □  □

7. How would you rate your child’s progress in retelling stories in his/her own words?   □  □  □  □
Oral Participation

8. How would you rate your child’s progress in actively responding to the teacher’s questions about the stories? □ □ □ □

9. How would you rate your child’s progress in actively asking questions about the stories? □ □ □ □

10. How would you rate this child’s progress in being willing to participate in discussions about the stories? □ □ □ □

11. How would you rate this child’s progress in actively expressing his/her feelings (e.g., it’s cute/scary...) about the characters, happenings or objects in the stories? □ □ □ □

Reading Engagement

12. How would you rate your child’s progress in duration of attention to the story that you’re reading? □ □ □ □

13. How would you rate your child’s progress in understanding the main plots of the stories? □ □ □ □

14. How would you rate your child’s progress in enjoying storybook reading? □ □ □ □

Part II: Parents’ Attitudes toward the Dialogic Reading Technique

Directions:
1) Please indicate the extent to which you agree or disagree with the following statements about the dialogic reading technique implemented in your child’s class.
2) Please respond to each item by placing a “✓” in one of the boxes on the scale.
3) The rating scale from 1 to 4 is as follows:
   1: Strongly disagree  2: Disagree  3: Agree  4: Strongly agree

1. The dialogic reading technique is comprehensible. □ □ □ □

2. The dialogic reading technique is easy to use. □ □ □ □
3. Dialogic reading provides an ideal naturalistic context for children’s language development.

4. The dialogic reading technique provides a well-structured framework for asking children questions relating to the stories.

5. It’s feasible to incorporate dialogic reading into a classroom of children with hearing impairments.

6. It takes lots of work to prepare for implementing dialogic reading.

7. Dialogic reading leads my child to engage in conversation with the teacher by answering questions about the stories.

8. I would like to read with my child at home frequently using the dialogic reading technique.

9. The dialogic reading technique can effectively promote my child’s vocabulary acquisition.

10. The dialogic reading technique can effectively promote my child’s listening comprehension skills.

11. The dialogic reading technique can effectively promote my child’s oral expression skills.

12. The dialogic reading technique can effectively promote my child’s cognitive skills.

13. The dialogic reading technique can effectively promote my child’s thinking skills.

14. The dialogic reading technique can effectively promote my child’s imagination skills.
Part III: Parents’ Overall Perspectives on the Dialogic Reading Technique

Directions: For each of the following questions, please provide your opinions or suggestions about the dialogic reading intervention.

1. Besides the following language skills—vocabulary knowledge, listening comprehension skills, oral expression skills, and syntax skills, what other positive impacts has dialogic reading had on your students?

2. According to your observations, how has your child reacted to dialogic reading exercises in class?

3. According to your observation and understanding, what strategies among four sequences (PEER: prompt, evaluate, expand, and repeat) and five prompts (CROWD: completion, recall, open-ended, wh-, and distancing) do you think have been particularly effective in promoting your child’s language acquisition? Please give brief examples.

4. Did you encounter any difficulties or challenges when implementing dialogic reading with your child? If yes, please describe the challenge you experienced.
5. What adaptations or supplements (e.g., verbal prompts, activities, materials) would you suggest to be used to improve the dialogic reading intervention in order to make it more applicable and effective for children with hearing impairments in terms of language learning?
Appendix H

Parent Questionnaire on Dialogic Reading Intervention (Chinese Version)

家長問卷
對話式閱讀意見調查

孩子姓名：_________________________ 就讀班級：_________________________

第一部分：學童在對話閱讀介入後的進步情形之評估

說明：1) 請就下列問題，針對貴子弟在八週的對話式閱讀介入後，其語言及閱讀行為
表現的進步情形予以評估。
   2) 請在最能表示貴子弟進步程度的方格中打勾（如：✔）。
   3) 數字 1~4 所代表的進步程度如下：

語言技巧

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<tr>
<th></th>
<th>沒有進步</th>
<th>微量進步</th>
<th>中度進步</th>
<th>大幅進步</th>
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<tbody>
<tr>
<td>1. 您覺得透過對話式閱讀的介入，貴子弟在詞彙習得方面的進步情形如何？</td>
<td>□</td>
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<tr>
<td>2. 您覺得透過對話式閱讀的介入，貴子弟在聽理解方面的進步情形如何？</td>
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<td>3. 您覺得透過對話式閱讀的介入，貴子弟在語言表達方面的進步情形如何？</td>
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<td>4. 您覺得透過對話式閱讀的介入，貴子弟在說話語句長度上的進步情形如何？</td>
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<td>5. 您覺得透過對話式閱讀的介入，貴子弟會使用不同的描述方式表達相同意思的能力提昇多少？</td>
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<td>6. 您覺得透過對話式閱讀的介入，貴子弟會使用較高層次的詞彙或語句的能力提昇多少？</td>
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<td>7. 您覺得透過對話式閱讀的介入，貴子弟使用自己的語彙重述故事的能力提昇多少？</td>
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口語參與

8. 您覺得貴子弟能主動回答與故事內容相關之問題的進步情形如何？
   □ 1 □ 2 □ 3 □ 4

9. 您覺得貴子弟會主動詢問有關故事內容問題的進步情形如何？
   □ 1 □ 2 □ 3 □ 4

10. 您認為貴子弟參與討論的意願提昇多少？
    □ 1 □ 2 □ 3 □ 4

11. 您認為貴子弟針對人、事、物會主動表達內心感覺（如：好可愛、好可怕...）的進步情形如何？
    □ 1 □ 2 □ 3 □ 4

閱讀表現

12. 您認為貴子弟在聆聽故事時，維持專注聆聽的時間長度上進步情形如何？
    □ 1 □ 2 □ 3 □ 4

13. 您認為貴子弟掌握故事情節重點的能力提昇多少？
    □ 1 □ 2 □ 3 □ 4

14. 您認為貴子弟對於圖畫故事書的閱讀興趣（如：喜歡聽故事、要求成人講故事、拿故事書自己翻閱...）比較以前提昇多少？
    □ 1 □ 2 □ 3 □ 4

第二部份：家長對實行對話式閱讀的評估

說明: 1) 請根據下列各項關於實行對話式閱讀誘發技巧的敘述，表達您同意與否的程度。
      2) 請於題目選較為潛入您的想法的答案（如： ☑ ）。
      3) 數字1 ～ 4 所代表的滿意程度說明如下：
         1: 非常不同意   2: 不同意   3: 同意   4: 非常同意


<table>
<thead>
<tr>
<th></th>
<th>沒有進步</th>
<th>微量進步</th>
<th>尚有進步</th>
<th>極大進步</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 對話式閱讀引導技巧容易理解。</td>
<td>□ 1 □ 2 □ 3 □ 4</td>
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<tr>
<td>2. 對話式閱讀引導方法容易運用。</td>
<td>□ 1 □ 2 □ 3 □ 4</td>
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<tr>
<td>3. 對話式閱讀為聽障兒童語言發展提供了一個理想的自然情境。</td>
<td>□ 1 □ 2 □ 3 □ 4</td>
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</tbody>
</table>
4. 對話式閱讀在詢問學生問題以誘發其語言上，提供了一個很有組織的脈絡架構。

5. 進行對話式閱讀需要花很多工夫做準備工作。

6. 將對話式閱讀活動納入聽障兒的班級中是可行的。

7. 對話式閱讀能有效地吸引我小孩，透過回答與故事有關的問題和老師對話。

8. 我願意在家利用對話式閱讀與小孩經常從事閱讀活動。

9. 對話式閱讀能有效提升我小孩的詞彙學習。

10. 對話式閱讀能有效提升我小孩的語言理解能力。

11. 對話式閱讀能有效提升我小孩的口語表達能力。

12. 對話式閱讀能有效提升我小孩的認知能力。

13. 對話式閱讀能有效提升我小孩的思考能力。

14. 對話式閱讀能有效提升我小孩的想像力。

第三部份：家長對對話式閱讀的綜合觀點及建議

說明：請就下列各項問題，提供您個人對對話式閱讀語言介入的觀點及建議。

1. 除了下列語言能力—詞彙認知、語言理解、口語表達、語法能力之外，您認為對話式閱讀對貴子弟還有哪些正面的影響效益？
2. 請就您所觀察到的情形，貴子弟在進行對話式閱讀時有哪些行為或反應？

3. 根據您對對話式閱讀的觀察與了解，您認為四個連貫策略（誘發、評估、擴展、重述）或五種誘發問題類型（填充式、回憶式、開放式、wh-、延伸式）中，哪幾項並不能有效提升貴子弟的語言能力，為什麼？

4. 您認為在與貴子弟進行對話式閱讀時，可能會遇到什麼困難或挑戰？

5. 您認為在與貴子弟進行對話式閱讀的介入時，可以做什麼調整或補強，使其能更適切有效地提升貴子弟語言能力的習得？
Appendix I
Dialogic Reading Techniques Monitor Checklist

Teacher: ___________  Class: ___________  Date: ___________  Title of Story: ___________

<table>
<thead>
<tr>
<th>Questions about the Story</th>
<th>CROWD</th>
<th>PEER</th>
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<tbody>
<tr>
<td>Completion</td>
<td>Recall</td>
<td>Open-end</td>
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<td>15</td>
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</tbody>
</table>
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Yi-Wen Tsai

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       Emphasis Area: Early Childhood Education;
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CONFERENCE PRESENTATION
