Examining Reading Comprehension Strategies Selected and Used by Two Teachers of d/Dhh Students in an Elementary School Classroom

Dissertation

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Abstract

The purpose of this qualitative study was to examine reading comprehension strategies selected and used by two teachers of d/Dhh (Deaf and Hard of Hearing) students in an elementary school classroom. The study explored the backgrounds, perceptions, and other various factors that affect the teachers’ decisions, the steps of the decision-making process of choosing and using comprehension strategies were uncovered. The following research questions guided this study: (1) What reading comprehension strategies do the two teachers use in the elementary classroom with their d/Dhh students?, (2) What processes do the two teachers follow while selecting appropriate reading comprehension strategies? What rationale do these teachers give for their decisions?

The primary sources of data for this qualitative case study were participants’ responses to semi-structured interviews, field notes generated through classroom observations, and information collected through the teacher’s use of Experience-Sampling Methodology (ESM). The case study approach - a particular methodology within qualitative inquiry – was used in order to answer this study’s research questions by investigating an instructional process/phenomenon involving selected teachers working in the natural settings of their schools. The findings across both
case studies suggest that four intersecting categories informed the process of selection and use of reading comprehension strategies for working with d/Dhh students, as represented by the TC Teacher and OA Teacher: (a) the teacher’s background and characteristics, (b) the teacher’s experiences with selection and use of reading comprehension strategies in the school setting, (c) key factors that influenced the teacher’s decisions regarding the selection and use of reading comprehension strategies, and (d) key factors that improved the teacher’s use of selected reading comprehension strategies. It is important that d/Dhh education programs, administrators, and teachers pay attention to the following points as implications of this study: (a) teach reading foundation skills first by recognizing and assessing students’ needs in this area, (b) require high quality teacher preparation programs to better prepare new d/Dhh teachers for the classroom, (c) provide ongoing professional development training specific to d/Dhh reading comprehension strategies, (d) provide in-school sources of support whereby d/Dhh teachers can exchange teaching reading experiences with other teachers, and (e) adapt the reading comprehension strategies recommended by NRP (2000) for d/Dhh students.
Dedication

This is dedicated to my parents, wife, children, sisters, and brothers. Thank you for inspiring and encouraging me throughout this journey.
Acknowledgments

Many people supported, guided, and helped me through this journey. I would like to thank my parents, Nasser and Fatimah, who provided all the love, care, and support I needed for every step of my life. I wish to thank my wife, Halimah, whose encouragement and support allowed me to focus on my academic goals and without whom this work would not have been possible.

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Fields of Study

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Chapter 1: Introduction

Reading is a complex and difficult process for d/Deaf and hard of hearing students (d/Dhh; Luckner & Handley; 2008; McAnally, Rose, & Quigley, 1994; Trezek, Wang, & Paul, 2010). Furth (1966) reported that only 8% of over 5000 students in the United States who are d/Dhh (i.e., with severe to profound hearing loss) performed above the fourth grade level on standardized reading tests (e.g., Metropolitan Achievement Test) upon graduation from high school. The Office of Special Education Programs (2009) reported that around 85% of a representative d/Dhh sample, who were served under the Individuals with Disabilities Education Act (IDEA) from 2000-2001, were below the 50th percentile in reading comprehension. Recent research (Karchmer & Mitchell, 2003; Traxler, 2000) indicated that the average d/Dhh student graduated high school with reading skills at about the fourth grade level. Therefore, given the importance of adequate literacy levels, it is important to develop effective reading comprehension skills in d/Dhh students.

There are several reasons why a number of d/Dhh students experience challenges in learning to read and write well. Some d/Dhh readers have the ability to use sentential context clues, but seem to struggle with many words that are not concrete and appear frequently in passages (Trezek et al., 2010). d/Dhh adolescents who use phonological coding ineffectively face difficulties when attempting to comprehend sentences with
varying kinds of syntactic and other discourse constructions (Paul, 2009). Trezek et al. (2010) stated that deaf children of deaf parents who use ASL at home may face difficulties with decoding words in English—specifically with the use of phonological processes—because of limited exposure to and internalization of spoken language skills, especially at the pre-reading stage.

Studies have shown that there is a strong relationship between reading comprehension and vocabulary knowledge; thus, the low level of vocabulary knowledge for d/Dhh children inevitably can have a negative effect on their text comprehension and reading achievement levels (Paul, 2009). In addition, Paul stated that, although d/Dhh individuals may use amplification, sign language, and have received special education interventions, their vocabulary knowledge is still subpar when compared to that of their hearing peers (as cited in Trezek et al., 2010). d/Dhh children who also have problems with syntax and orthographic knowledge experience difficulty in obtaining the meaning of the words from the contexts in which they are provided (Paul, 2009). The challenges of understanding syntax decreases the students’ ability to develop fluency in reading and their ability to use context cues to obtain meanings of major words (Trezek et al., 2010).

The National Reading Panel (NRP, 2000) reported that there are five components of effective reading instruction: phonemic awareness, phonics, fluency in reading, text comprehension, and vocabulary instruction. Research findings for each component with d/Dhh children have been reported in the literature (e.g., Paul, Wang, & Williams, 2013; Schirmer & McGough, 2005; Trezek et al., 2010). To enhance students’ reading comprehension, for example, teachers should implement effective strategies. Teachers
can guide students until they are able to work independently and use the strategies they have learned to comprehend the text (Pearson & Gallagher, 1983; Pressley, Wharton-McDonald, Mistretta-Hampston, & Echevarria 1998).

Researchers suggested that students require eight months of formal instruction in reading comprehension strategies in order to work independently and to use these strategies with other tasks (Block, 1993; Collins, 1991). Trabasso and Bouchard (2002) noted that when readers were not explicitly taught cognitive strategies, it is improbable that they would learn and improve their own comprehension processes independently. Students in third grade improved their reading comprehension scores on standardized tests when taught reading comprehension strategies such as summarizing, questioning, and predicting (Duffy, Roehler, Meloth, & Vavrus 1986).

**Purpose of the Study**

It is possible to discuss the reading difficulties of d/Dhh children within the framework of components offered by the National Reading Panel (NRP, 2000; e.g., see Paul et al., 2013; Schirmer & McGough, 2005; Trezek et al., 2010). Reading problems for d/Dhh children are also associated with the inherent challenges posed by their language proficiency in English (Trezek et al., 2010). Several skills that students use during reading are known as reader factors such as prior knowledge and metacognitive skills, including making inferences and reading motivation (Jackson, Paul, & Smith, 1997). Studies (Andrews & Mason; Ewold, Isrealite, & Doddes; Kluwin, Getson, & Kluwin; Yamashita; as cited in Paul, 1998) have shown that many d/Dhh students lack the effective use of both bottom up (decoding) and top down (comprehension) strategies,
which help students understand the text during reading.

Comprehension is one of the major components to be addressed in effective reading instruction (NRP, 2000). The NRP reported that formal instruction in reading comprehension strategies is the most effective way to increase understanding of the text. Thus, the NRP recommended the following formal reading comprehension strategies, especially combinations of strategies in cooperative learning situations, supported by significant research findings: comprehension monitoring, semantic or graphic organizers, generating and answering questions, summarizing and synthesizing, and story/passage maps.

In the present study, I focused on the component of text comprehension. Specifically, I examined reading comprehension strategies selected and used by teachers of d/Dhh students in an elementary school classroom. By exploring the backgrounds, perceptions, and other various factors that might affect the teachers’ decisions, I uncovered the steps of the decision-making process of choosing and using comprehension strategies. By using structured interviews and observations, as well as aspects of Experience Sampling Methodology (ESM; Hektner, Schmidt, & Csikszentmihalyi, 2007; Gay, Mills, & Airasian, 2012), I categorized types of instructional strategies and attempted to understand the reasons these strategies were selected. I compared the different types of strategies used by teachers to the list of recommended effective strategies suggested by the NRP (2000)--comprehension monitoring, semantic or graphic organizers, generating and answering questions, summarizing and synthesizing, and story/passage maps. As mentioned previously, the
NRP also recommended the use of multiple strategies and engaging students in cooperative learning situations.

**Significance of the Study and the Research Problem**

There is little research on how teachers select and use reading comprehension strategies during classroom instruction with children in special education programs (Donne & Zigmond, 2008; Woolsey, Harrison, & Gardner, 2004). This is also the case for teachers who instruct children who are d/Dhh (Trezek et al., 2010).

The overall framework that guided the present study was the qualitative similarity hypothesis (QSH; Paul et al., 2013). Grounded in cognitive and linguistic theories, proponents of the QSH assert that d/Dhh learners who learn English as a first or second language go through similar developmental steps as do typical learners and, in general, make the same errors in a qualitatively or developmentally similar way (Paul & Lee, 2010; Paul et al., 2013). However, some d/Dhh students’ rate of acquisition might be quantitatively delayed when compared to that of typical readers.

The QSH has been challenged, especially the role of phonology in the model, by others for Deaf children who primarily use signed language and have little access to “running speech” (Paul et al., 2013). However, Wang and Williams (2014) have argued that instructional strategies used with typical readers can also be used with modifications for all d/Dhh readers. Thus, it is important to examine the selection and use of reading comprehension strategies (and others), recommended by the NRP, for d/Dhh (Schirmer & McGough, 2005).
With respect to research, Durkin (1979) examined reading comprehension strategies through classroom observations. The major finding of Durkin’s study is that teachers expended little time on teaching comprehension strategies. This finding was confirmed by Duffy, Lanier, and Roehler (as cited in Ness, 2011) and by Pressley et al (1998). Taylor, Pearson, Clark, and Walpole (1999) indicated that only 16% of teachers taught the use of comprehension strategies in the classroom. The recent work by Pressley (2006) indicated that there has been little change in how instructors teach reading comprehension in the classrooms.

Ness (2011) tried to emphasize the significance of Durkin’s (1979) and Pressley et al.’s (1998) work. Ness focused on the nature of explicit reading strategies taught by elementary teachers from the first grade through fifth grade. This included examining the frequency at which teachers taught reading comprehension strategies and the duration that each teacher spent modeling them. The findings indicated that the lowest use of reading comprehension strategies frequency exists for third-grade classroom students, and the highest for fourth-grade classroom students. In addition, question answering, predicting, prior knowledge, and summarization were the most commonly used reading comprehension strategies. The duration that each teacher spent on teaching and modeling reading comprehension strategies was 751 minutes across 3000 minutes of classroom observations.

Previous studies (Durkin, 1979; Ness, 2011; Pressley et al., 1998) have not examined the selection and use of reading comprehension strategies based on the NRP by teachers of d/Dhh students. The intention of this study was to fill this research gap by
examining the process that two teachers followed when selecting and teaching appropriate reading comprehension strategies to d/Dhh students in a classroom. In general, teachers can teach these strategies at any grade level in order to improve their students’ reading comprehension skills (Trezek et al., 2010).

The National Early Literacy Panel (NELP) also provided predictors for early English reading comprehension development: code focused strategies (e.g., phonological processing), shared reading activities, parents and home programs, preschool and kindergarten programs, and language enhancement interventions (see discussion in Paul et al., 2013). The research on code focused strategies indicated a positive effect on children’s literacy skills as well as their spoken language abilities. Shared reading interventions reported a significant effect on children’s print knowledge skills and spoken skills. Home programs and parents that focus on children’s language and cognitive development have shown a large effect on the development of spoken language skills and improvement in cognitive ability. Preschool and kindergarten programs increased readiness for reading and spelling instruction. In addition, the interventions that had the most significant effects on a child’s code related and literacy related skills were in small group or one-on-one instruction settings.

As indicated previously, Wang and Williams (2014) stated that reading comprehension strategies suggested by the NRP and NELP are effective in supporting the reading development for d/Dhh students, as suggested by the qualitative similarity hypothesis (QSH). Thus, as a starting point in understanding what comprehension
strategies should be used with d/Dhh students, it is important for teachers to be aware of strategies that have been recommended by the NRP and the NELP.

By understanding the process of selecting reading comprehension strategies, especially strategies that are effective, researchers can assist teachers in rethinking or enhancing their selection and teaching of reading comprehension strategies to d/Dhh students. Previous studies (Donne & Zigmond, 2008; Woolsey, et al., 2004; Ness, 2011) did not focus on teachers’ perceptions when choosing strategies during the development of reading comprehension. The present study extends the work of Ness by examining the process of selecting reading comprehension strategies based on teachers’ perceptions. Ness (2011) indicated that “the logical follow up work might focus on why teachers choose to include or not to include reading comprehension instruction, as well as the factors in their background, training, and beliefs that influence these decisions” (p. 111).

The NRP (2000) stated that:

More evidence is needed on whether certain strategies are more appropriate for certain ages and abilities, what the important reader characteristics are that influence successful instruction of reading comprehension, and which strategies in combination are best for younger readers, poor or below-average readers, and for learning disabled and dyslexic readers. (p. 4-52)

The following questions guided the present study:

1. What reading comprehension strategies do the two teachers use in the elementary classroom with their d/Dhh students?
2. What processes do the two teachers follow while selecting appropriate reading comprehension strategies? What rationale do these teachers give for their decisions?

Definitions of Key Terms

d/Deaf and hard of hearing (d/Dhh)

Individuals who have been identified with slight to profound hearing losses (from about an average of 27 dB to 90dB or greater in the better unaided ear). This group includes those who use a signed language as the primary language for receptive and expressive communication.

Experience Sampling Method (ESM)

ESM is a tool for gathering information on the context and content of the lives of individuals by closely examining each moment, from one to the next. This gives the researcher an opportunity to examine changes in the individual’s stream of consciousness and the links between external contexts and the contents of the individual’s mind (Hektner, Schmidt, & Csikszentmihalyi, 2007). ESM focuses on the immediate responses that relate to variations of participants’ experiences and reactions in the moment (Hektner, Schmidt, & Csikszentmihalyi, 2007). Thus, by using ESM, professionals record or document their perceptions or feelings immediately after they perform actions such as teaching a lesson or giving a lecture (Hektner, Schmidt, & Csikszentmihalyi, 2007). The purpose of using ESM in the present study is to support the interviews data as well as the information based on observations of a classroom.
**Reading Comprehension**

Most definitions of reading comprehension focus on the interactions between the text and the reader (Alfassi, 2004; Barnhouse, 2014; Meneghetti, Carretti, & De Beni, 2006), which include skills that readers use to facilitate comprehension of written passages. These skills are labeled as reader factors or text factors. Examples of reader factors include prior knowledge and metacognitive skills as well as the ability to make inferences. Effective readers also have a high level of motivation or interest in reading. A few of the major text factors are word identification, vocabulary, and syntax (Jackson et al., 1997; Paul, 1998; Trezek et al., 2010).

There is a reciprocal facilitating relationship between these two groups of factors. Effective command of skills with text factors facilitates the use of reader factors, and effective use of reader factors enhances the further development of skills in the use of text factors. In essence, effective reading comprehension involves the use of language and cognitive skills to understand the written information in the text (Trezek et al., 2010). Reading comprehension, as defined by Vaughn and Linan-Thompson (2004), is an engaging process where the reader utilizes their previous understanding of vocabulary, concepts, idea processes, and knowledge to formulate their own individualized meaning of the text and to link key ideas together. Reader factors and reading comprehension strategies are discussed further in Chapter 2.

**Teacher Perceptions**

Teachers’ perceptions are “the generalizations about things such as causality or the meaning of specific actions” (Yero, 2002, p. 21) that guide teachers’ decisions,
actions, and their instructional preparation for the classroom (Richardson, 2003). Although teachers’ perceptions are not explicit, teachers can reveal their perceptions by their actions in the classroom and by making instructional decisions (Yero, 2002). Richardson (2003) found that teachers’ perceptions influence decisions, actions, and instructional preparations for the classroom. Different scholars asserted that most teachers have been influenced by their perceptions, which invariably affects their decision-making process (Feng & Etheridge, 1993; Maxson, 1996). Teachers’ perceptions are the result of having varying experiences, observations, and accumulated knowledge about teaching and academic content areas (Richardson, 2003; Yero, 2002).

*Qualitative Similarity Hypothesis (QSH)*

This hypothesis states that the acquisition of English language and literacy by d/Dhh children is qualitatively or developmentally similar to that of native learners of English. That is, d/Dhh individuals who learn English as a first or second language go through the same developmental stages and make the same errors in a qualitatively similar manner as do typical learners of English. Some d/Dhh children acquire English language and literacy skills at a quantitatively slower rate when compared to the rate of typical leaners (Paul et al., 2013)
Chapter 2: Literature Review

This chapter provides the theoretical and research background for the present study, which focused on English reading comprehension strategies. First, the qualitative similarity hypothesis (QSH) is discussed as the primary framework for understanding the English reading development of deaf and hard of hearing (d/Dhh) children and adolescents. Next, I discuss the specific reading challenges of d/Dhh students. Then, I cover reading comprehension strategies in the broad field of reading as well in the education of d/Dhh students. The recommended reading comprehension strategies of the National Reading Panel (NRP; 2000) are presented. Finally, I provide a synopsis of the research on teacher perceptions and reading instruction.

The Qualitative Similarity Hypothesis (QSH)

The two major components of the QSH are the structure of the discipline and the critical period, which are both influenced by cognitive and biological models of language and literacy development (Paul et al., 2013). The structure of the discipline provides a framework of learning based on the experiences of the student, thus progress through various difficulty levels are necessary for one’s understanding and growth in language and literacy development (Paul et al., 2013). Paul and Wang (2012) indicated that another term for the structure of a discipline is knowledge structure.
**Structure of Discipline and Fundamentals.** Cartwright (2009), Donovan and Bransford (2005), and Shanahan (2009) have remarked that if a discipline has a structure, it is interpreted as the internal logical conceptual framework with varying levels of difficulty associated with the concepts. To understand how learners acquire knowledge of the discipline, we need more than just general cognitive and social models. It is important to describe the specific components of a discipline to understand how these components are acquired by learners. This is necessary if teachers intend to utilize effective instructional strategies in classroom settings, including strategies for English reading comprehension.

With respect to the QSH, there are specific fundamentals that should be applied to all individuals who want to learn English as a first or second language, through the air as well as in print (Paul et al., 2013). It is possible to relate fundamentals to the major areas offered by both the National Reading Panel (NRP) and the National Early Literacy Panel (NELP). Viewing fundamental attributes as all-or-nothing phenomena is inaccurate because the varied nature of contributions is diverse with respect to intensity and age (Paul et al., 2013). Mclyntyre (2011) and Paratore and Dougherty (2011) pointed out that home environment, societal and cultural experience of the individuals, literacy artifacts, and the nature of communicative language also affect the range and nature of fundamental attributes.

It is difficult to identify the important fundamentals for through-the-air English language proficiency (Paul et al., 2013). The fundamentals of English language proficiency involve the use of all the major components of language (phonology,
morphology, syntax, pragmatics, semantics) in all different settings of communicative interactions. Gough and Tunmer (1986) indicated that the simple view of reading requires comprehension of the English language to be an important component of an effective reading model. Most typical children inherently understand the fundamentals of English around the age of 5 or 6, and learn the hardest components of phonology by the age of 8 (Paul, 2009; Paul et al., 2013).

In reference to the QSH, Paul (2012) presented a few important fundamentals of English literacy:

- Knowledge of the language of print (i.e., components of English).
- Metalinguistic awareness of language – and print—related factors (e.g., letters, sounds, letter-sound relationships [phonology, orthography], functions of print [pragmatics], words [semantics], sentences [syntax])
- Phonologically based working memory or phonological memory (and processes).
- Comprehension capabilities (i.e., the development of textual, intertextual, and cultural prior knowledge, metacognitive, and self-regulatory skills). (p. 186)

In the education of d/Dhh children and adolescents, there is an ongoing debate about the role of English phonology in the development of both through the air English usage and English literacy. The role of phonology, specifically phonological and phonemic awareness, in English literacy undergirds one of the challenges to the implications of the QSH. There seems to be some disagreement on whether this can be applied to d/Dhh children who primarily use a sign language and who have little access to sound. Allen et al. (2014) connected these challenges to the acquisition of English
literacy, but not to the development of through-the-air language. It is important for individuals who want to learn the through-the-air use of a language to have the ability to access the phonology of that language.

The NRP (2000) indicated that phonology, specifically phonological processes, plays an important role in early reading development, but it is not sufficient for the acquisition of advanced reading skills. NRP and NELP also indicated that the fundamentals of English literacy are through-the-air English language proficiency with the addition of print access skills, vocabulary knowledge, comprehension, fluency, sociocultural aspects, and affective factors. Children need an understanding of phonemes, graphemes, and letter-sound connections along with morphology, syntax, and semantics to improve their reading and writing skills. Through-the-air language skills might be even more important for advanced reading because of interactions with the information in the text, presenting demands on individuals’ cognitive and language skills (McGuinness, 2004; 2005; Whitehurst & Lonigan, 2002).

Critical Period. Lenneberg (1967) indicated that the critical period is the optimal time frame that is most conducive for the acquisition of through-the-air language. Stanovich (2008) discussed a critical or optimal period for reading acquisition. The acquisition time frame of the first language influences the subsequent development of other areas, such as literacy, mathematics, and science. Moreover, the development of mature literacy skills, such as reading and writing, influences this time frame (Paul et al., 2013).
The first year of a child’s life is considered an essential period for the child to develop the five components of language structure; this period is called the pre-linguistic period. The process of development continues over the linguistic period, which begins with the first words (Paul et al., 2013). Thus, the development of language proficiency at an early age has a positive impact on the acquisition of skills and other content areas (Paul et al., 2013).

Regarding the acquisition of literacy, the accumulation of low motivation, low expectation, limited instructions, and poor reading skills lead to reading failure (Paul et al., 2013). Stanovich (2008) stated second or third grade as the boundary of the critical period because children at the end of early elementary grades have the cognitive ability to read related to their typical mental ages. In other words, children eventually learn to read a larger variety of texts, which inherently improves linguistic and cognitive skills. When children do not get the chance to learn to read during this critical period, or do not read at their appropriate reading level, children are at risk of facing multiple difficulties that will affect the development of language and cognition negatively in their future (Paul et al., 2013). Poor teaching instructions and limited social interactions are not the only challenges for these children. Facing language complexity during reading comprehension after the critical period is another major challenge (Paul et al., 2013). Arlington and McGill-Franzen (2009) related these challenges to comprehension and decoding difficulties and other cognitive areas such as working memory, metacognition, and so on.

In reference to the disciplinary structure of the QSH conceptual framework, the acquisition of the English language is qualitatively similar to individuals who attempt to
learn English as a first or second language. In other words, d/Dhh learners who learn English as first or second language go through the same steps and make the same errors in a qualitatively similar way as their typical literacy learners (Paul & Lee, 2010; Paul et al., 2013). Thus, QSH applies to all individuals who want to learn how to read in English, and should be considered when conducting research and implementing instruction for d/Dhh students.

Research on morphology, and in some cases syntax, has supported the understanding that the difference between learning English as a first or second language is predominately developmental (Paul, 2009). In addition, the difficulty of print comprehension and syntax for d/Dhh children is qualitatively similar when compared with hearing children at an early age (Paul et al., 2013). Williams, Williams and McLean, and Lemley (as cited in Paul, 2009) reported in their studies that d/Dhh children in the first grade showed the same range of responses to picture books when compared with their typically-developing peers. Payne and Quigley (1987) stated that the difficulty order of idiomatic semantic structures (i.e., verb-particle combinations) for d/Dhh individuals is the same when compared with that of typical hearing individuals. All of these findings support the view of QSH, which is that reading development for d/Dhh individuals is qualitatively similar to that of hearing individuals (Paul, 2009; Paul & Lee, 2010; Paul et al., 2013). However, reading skills might be quantitatively delayed for a number of d/Dhh readers when compared with typical readers.

It is important to decrease the reading challenges for d/Dhh students that cause the quantitative gap as early as possible (Paul et al., 2013). Moreover, English instruction
should be designed based on the child’s needs because different children may have different needs with respect to various components of English reading (Trezek et al., 2010). With respect to intensity and time frame, reading interventions need to be differentiated according to the needs of the child based on specific problems he or she may have with any of the components based on the child’s needs (Paul et al., 2013). The QSH emphasizes the important role of phonology, which is considered the most controversial aspect of the model (Paul et al., 2013).

**Specific Challenges in Reading for d/Dhh Students**

Reading problems for d/Dhh children are associated, in part, with inherent challenges in their language acquisition (Trezek et al., 2010), yet research on d/Dhh students’ reading comprehension performance has produced mixed perspectives. Some studies have shown that hearing and d/Dhh readers develop reading skills similarly (e.g., Bodner-Johnson & Benedict, 2012; Paul & Lee, 2010); however, other studies (e.g., Schirmer, 2003; Schirmer, Bailey, & Lockman, 2004) concluded that there are consistent correlations between hearing status and reading comprehension performance. A study conducted by Brown and Brewer (1996) concluded that reading comprehension performance was related to strategies that were used in class; however, various studies (Andrews & Mason, 1991; Ewoldt et al., 1992; Kluwin et al., 1979) have shown that many d/Dhh students lack the ability to use both bottom up and top down strategies that enhance reading comprehension. Even though various aspects of reading comprehension instruction and performance have been addressed in research, one point is widely
accepted: Both typical hearing and d/Dhh children go through the same developmental steps in English reading acquisition (Paul, 2009; Paul et al., 2013; Trezek et al., 2010).

**Specific Challenges in the Development of English Literacy**

This section discusses the challenges that d/Dhh students may encounter in the following areas: English language proficiency, code-related skills, cognitive-language skills, and reader factors, such as prior knowledge, metacognition, and working memory. Some textual factors such as syntax, vocabulary, and figurative language are discussed within these areas because the interaction of these factors influences reading comprehension performance.

**English language proficiency.** English language proficiency is the major foundation of developing reading comprehension skills. All language components (phonology, morphology, etc.) work together while reading. For a number of d/Dhh children, English language proficiency continues to be a major challenge; however, other d/Dhh children may struggle with comprehension, phonics, or phonemic awareness. One of the major challenges for many d/Dhh students is acquiring communicative language as well as academic language for literacy development (Paul, 2009). Many d/Dhh children start school at kindergarten or first grade with limited English language development (Paul et al., 2013).

Because d/Dhh children have challenges practicing English language through the air, they are inherently unable to acquire key English literacy and language techniques, such as the internalization of phonology (suprasegmental and segmental components; Paul et al., 2013). d/Dhh children struggle with basic components of English due to their
inability to make the proper connections that are associated with phonology and other basic components of English. In other words, d/Dhh students struggle to create proper cognitive representation of words, which is needed to enhance reading comprehension, due to inadequate access to sound (Paul et al., 2013). As stated previously in this chapter, phonology is necessary but not sufficient (Paul et al., 2013). Phonology is limited for d/Dhh children (Trezek et al., 2010); therefore, it is important to consider the process of phonology, input, and sociocultural factors that block the development of English language and English literacy for d/Dhh students (Paul et al., 2013).

In regards to sign language as a tool that improves English proficiency, several studies have indicated that signing does not enhance reading comprehension, by itself, because of the disconnection between the signs and critical language elements such as phonology, morphology, and syntactic structure of the language to be read (Paul, 2009; Paul et al., 2013). A review conducted by Paul (2009) revealed that sign language systems such as American Sign Language (ASL), Signing Exact English (SEE), or Signing Exact English-II (SEE2) do not adequately enhance English proficiency, which is necessary, in part, for improving reading comprehension. Paul (2009) stated that it is difficult to determine whether d/Dhh students could completely understand English syntax through the use of a sign language system because of the incompatibility of the representative nature of English via the use of the system and students’ visual processing capabilities. Thus, it can be inferred that using sign language systems such as ASL, SEE 1, or SEE 2 does not efficiently enhance d/Dhh students’ English language or reading comprehension performance.
It is important to note that ASL is different when compared to English sign systems and spoken English language. The major characteristics of ASL—visual-gestural and rule governed—should be kept in mind in examining differences and similarities between ASL and English sign systems and spoken English language (Paul, 2009). Similar to any other language, ASL has grammar rules; however, the grammar of ASL is different when compared with that of spoken English language. The grammar of ASL is not only different from that of English, but it is also different from that of various English sign systems designed to represent the structure of English (Paul, 2009). More differences between ASL and English sign systems include the use of space and movement, which play important linguistic roles in ASL (Paul, 2009). Most differences that exist between ASL and the English language, including components of morphology and syntax, may present challenges for developing English as a first or second language (Paul, 2009).

Morphology is important for developing English proficiency because (1) it is the basis for the development of English sign systems with d/Dhh children, and (2) it is closely associated with syntax (Paul, 2009). Research has indicated that learning affixes is one of the major challenges for d/Dhh students (Paul, 2009). Although there are a few studies that discuss the development of English morphology for d/Dhh children, the steps of acquisition are the same as those for typical hearing children (qualitatively); however, morphological development may be quantitatively delayed (McAnally et al., 1999).

Syntax difficulties prevent deaf individuals from recognizing the meaning of sentences and some phrases, even when they have prior knowledge of words in these
constructions (Paul, 1998). A review conducted by Russell, Quigley, and Power (1976) indicated that d/Dhh children have challenges with English syntax. The syntax in ASL is not similar to English syntax; therefore, this divergence creates a negative impact on reading comprehension because of the disconnection between the two languages (Trezek et al., 2010) for the d/Deaf students who are using ASL. Quigley and his colleagues (Quigley et al., 1977; Quigley et al., 1974; Quigley et al., 1976) showed that there is a large gap in the comprehension of different syntactic structures in single sentences and the age level where those structures show up in a series of reading materials for ten to eighteen year-old students with profound hearing loss. Therefore, the average eight year-old hearing student scores better than the average eighteen year-old deaf student on many of the major syntactic structures.

In regard to syntax, a study conducted by Miller (2007) revealed that deaf children have the ability to recognize the words individually, but struggle with the syntactic knowledge at the sentence level. The results of different studies (Quigley et al., 1974, 1974, 1976, 1977) showed that d/Dhh students exhibit quantitative delays in understanding syntactic structures. Syntactic challenges relate to the limited knowledge of syntactic constructions (*negation, conjunction, question formation, pronominalization, verbs, complementation, relativization, disjunction, and alternation*) that are present in written materials (Quigley et al., 1977; Quigley et al., 1974; Quigley et al., 1976).

Conversely, several studies (Ewoldt, 1981; McGill-Franzen & Gormley, 1980; Nolen & Wilbur, 1985) have reported that d/Dhh students are better at recognizing the major syntactic constructions in a short paragraph than in a single sentence. Although
d/Dhh students with severe to profound hearing loss show quantitative delays in syntax knowledge, their understanding and development of syntax is still qualitatively similar to that of younger hearing students (Paul, 2009). Paul (2009) remarked that students with a proficient reading level have a higher syntactic knowledge level. Many studies have argued that d/Dhh readers’ English syntax knowledge not only needs a deeper analysis that goes beyond the sentence level, but also needs to include pragmatic and semantic analyses (Paul, 2009). Many d/Dhh children encounter several challenges in understanding hierarchical syntactic sentences such as the use of the passive voice (*The ball was hit by the girl*) and other constructions (Paul, 2009).

**Code-related skills.** Skills that d/Dhh students struggle with the most are speech discrimination, phonological awareness, and decoding. Paul (2009) stated that d/Dhh children with severe to profound hearing loss may not have inadequate speech discrimination skills, which may not correlate with poor phonological skills; nevertheless, d/Dhh children with poor speech discrimination skills face difficulties with reading comprehension in acquiring phonological awareness and other processes. There are few studies that have documented the use of phonological awareness with sign language systems in deaf education for three reasons: (1) the differences of modality (such as ASL native structure is not alphabetic as it is in English), (2) the difficulties that are associated with the representations of the hand shapes in the English sign systems, (3) and the lack of appropriate or relevant terminology (there are no accepted terms that describe the relationship between alphabetic hand shapes and the graphemes in writing) (Crume, 2013).
Decoding is defined as word recognition, or word identification, which breaks down words into individual parts so that children are able to understand the individual part of each word, separate from the whole (Paul et al., 2013; Trezek et al., 2011). It is important to understand that “decoding without comprehension is not reading” (Paul et al., 2013, p. 135). Thus, readers who are d/Dhh may have the ability to decode from the context of a sentence, but they struggle with complex and infrequent words in a passage (Trezek et al., 2011). Trezek, Wang, and Paul (2010) stated that deaf children from deaf parents who use ASL at home may face some difficulties with decoding because of the limited exposure to internalized spoken language, especially at the pre-reading stage.

Cognitive-language skills. Typical reading materials present challenges to a deaf individual with severe to profound hearing loss in certain areas, such as vocabulary and figurative language (Paul, 2009). Deaf individuals with severe to profound hearing loss understand fewer words when compared with hearing students at all levels (Paul, 1998; 2009). Although d/Dhh individuals use amplification, sign language, and may be exposed to special education interventions, their vocabulary is still subpar when compared with that of their hearing peers (Paul, 2009; Trezek et al., 2010).

Vocabulary is defined as the use of words to comprehend and communicate effectively (Trezek et al., 2011). Vocabulary can be divided into four different types: reading vocabulary, writing vocabulary, listening vocabulary, and speaking vocabulary (Trezek et al., 2010; Trezek et al., 2011). Vocabulary knowledge is an indicator of effective reading comprehension (Paul, 2009) because understanding more words enables the reader to comprehend the text effectively (Paul, 1998). There are strong relationships
between reading achievement and reading vocabulary knowledge for d/Dhh students (Paul, 2009; Trezek et al., 2010). Thus, the lack of vocabulary knowledge for d/Dhh children inevitably has a negative effect on reading comprehension.

Vocabulary acquisition of d/Dhh children is significantly lower in comparison with their hearing peers (Paul, 2009). Paul and Gustafson (1991) indicated that young hearing students perform better than the deaf (i.e., profound hearing loss) students (age 10 to 18 years, inclusive) in selecting multiple meanings for identical words. The general results from multiple studies indicated that vocabulary knowledge of d/Dhh students is quantitatively lower than that of their hearing peers and that this lower knowledge affects reading comprehension skills (Paul, Stallman, & O’Rourke, 1990; Walter, 1978).

d/Dhh children also struggle with orthographic knowledge, which prevents them from obtaining the meaning of words from the contexts in which they occurred (Paul, 2009). The challenges decrease d/Dhh students’ ability to develop fluency in reading and the ability to use context cues to obtain meanings of unfamiliar words (Trezek et al., 2011).

The use of a word or phrase that does not connote the typical or literal meaning is known as figurative language. For example, “It’s raining cats and dogs”, and “She ran into a friend”. These examples do not reflect the words’ literal meanings. There is a positive relationship between understanding figurative language and reading comprehension (Fruchter, Wilbur, & Fraser, 1984; Orlando & Shulman, 1989). Figurative language is considered another area that a number of d/Dhh individuals struggle with due to inadequate vocabulary and syntactic knowledge (King & Quigley,
1985). Although d/Dhh readers display quantitative delays on comprehending figurative language compared to typical hearing peers (Paul, 2009), d/Dhh students are able to understand figurative language when vocabulary and syntax are controlled in the specific sentences (King & Quigley, 1985). However, there may be other factors that affect d/Dhh students’ ability to understand figurative language.

Payne and Quigley (1987) illustrated that there are many d/Dhh students who demonstrate difficulties with the use of figurative language, such as the inability to comprehend different expressions within text. These problems involve semantic difficulty and syntactic constructions (Trezek et al., 2011). Therefore, d/Dhh students’ reading comprehension performance may be affected negatively when figurative expressions are used (Fruchter et al., 1984; Orlando & Shulman, 1989).

**Reader factors in reading comprehension.** Reading comprehension is constructing and extracting meaning from a variety of texts (Snow, 2001). Reading comprehension is not only “decoding words fluently and understanding the meaning of individual words” (Roberts et al., 2008, p. 66), but also represents the ability to connect prior knowledge with new information that has been presented during reading (Roberts et al., 2008). Most definitions of reading comprehension, within a cognitive or social-cognitive perspective, share the focus on the interaction between the text and the reader's prior knowledge (Alfassi, 2004; Meneghetti et al., 2006).

Reading comprehension involves prior knowledge, metacognition, and working memory in order to understand the written information from the text (Trezek et al., 2010). Prior knowledge and metacognitive skills, which also include making inferences and
answering questions, are collectively known as reader-based factors (Jackson et al., 1997). These variables play critical roles in reading comprehension because reader-based factors assist students’ mental representations and interpretations of the words in a text (Trezek et al., 2011).

Prior knowledge. According to some theorists, prior knowledge is an important variable in reading comprehension, as it entails the use of previous information and experience to create meaning of a content (Anderson & Pearson, 1984). Prior knowledge requires familiarity with the text, the reading process, and an understanding of the reader’s culture. In addition, readers need to create meaning for unfamiliar content in the text by using inferences, which is connected to the use of their prior knowledge. This connecting process is part of a metacognitive process (Jackson et al., 1997). Prior knowledge has a profound positive effect on reading comprehension and the reader’s ability to engage in text recognition. Readers who have some prior knowledge about a topic are more likely able to comprehend a text (Rawson & Van Overschelde, 2008). Readers who have a large amount of prior knowledge relevant to the topic are able to answer questions better than readers with a low amount of prior knowledge, especially when it comes to inferential questions (Raphael & McKinney, 1983).

Schirmer and McGoug (2005) stated that the use of prior knowledge influences the reading comprehension of individuals. Many d/Dhh students seem to have limited prior knowledge, lack of skills in order to use the prior knowledge, and few chances to use prior knowledge (Trezek et al., 2010). McAnally et al. (2007) stated that d/Dhh students lack prior knowledge skills because 90-95% of these children have hearing
parents; this typically blocks their opportunities for effective communication and interaction between parent and child, which is essential for the children to assimilate into the culture around them. Jacskon et al. (1997) and Yoshinaga-Itano and Downey (1986) stated that students who have challenges with *textual demands* typically have limited prior knowledge, and do not have the ability to make effective connections between the passage and their own experiences. Studies analyzed by Paul (2009) showed that a number of d/Dh students do not engage their prior knowledge during the reading process or while answering comprehension questions. In other words, d/Dh students struggle with reading comprehension because they do not connect the information in the readings with their prior knowledge or do not possess much prior knowledge about the topics.

**Metacognition.** Metacognition is understanding the process of thinking when the mind makes a prediction, the relationship between known and unknown information, and the introduction of new concepts in order to properly and accurately recognize the meanings of any given text. Baker and Brown (1984) stated that metacognition involves *knowledge about cognition* and *regulation of cognition*. Reading comprehension includes a metacognitive process, which means readers can monitor their comprehension effectively in order to understand the meaning of a text or to repair comprehension breakdowns (McAnally et al., 1987).

Studies analyzed by Trezek et al. (2010) showed that there are strong relationships between metacognition skills and reading comprehension for typical hearing readers, as well as for d/Dh readers. However, students who are d/Dh may not have
sufficient opportunities to engage in metacognitive activities (Strassman, 1997). Although metacognition is important, children with d/Dhh may not be exposed to metacognitive strategies (Trezek et al., 2010).

   d/Dhh readers are able to develop metacognitive skills; thus, teachers need to give these students an opportunity to learn and apply the metacognition skills through reading in different situations (Banner & Wang, 2011). For example, Griffith and Ripich (1988) demonstrated that d/Dhh children have the ability to use story structure in order to arrange their retellings. There is a need for more research related to metacognition strategies for d/Dhh (Strassman, 1997).

   Part of the metacognition process for reading is making inferences. Many d/Dhh children are unable to make inferences while answering literal and inferential questions about a text (Paul, 2009). Making inferences while reading should be a natural process (Paul, 2009); however, Wilson reported that d/Dhh students usually do not make inferences while reading, which affects their reading comprehension performance (as cited in McAnally, Rose, & Quigley, 1999). Given all of these examples, it is clear that reading challenges d/Dhh students, especially their ability to make inferences and maintain an effective level of text comprehension (Paul, 1998).

   A number of deaf readers struggle with comprehension monitoring; however, with explicit instruction, it can be an effective strategy for d/Dhh students (McAnally et al., 1999). Trezek et al. (2010) stated that students should recognize the purpose of reading before reading, monitor comprehension while reading, and write a reflection after reading.
**Working Memory.** Working memory refers to the limited-capacity memory storage in the mental system that stores and processes task-based information (Baddeley, 1998). Working memory plays an essential role in comprehension because it processes and stores the information during reading in order for the reader to efficiently comprehend text using information from long-term memory (Trezek et al., 2010). During reading, working memory assists readers in processing phonological, orthographical, and contextual information simultaneously to comprehend what is being read (Trezek et al., 2010).

The phonological interpretation in working memory is crucial to create accurate meanings of unfamiliar words during reading. Dufva, Niemi, and Voeten (2001) indicate that phonological information correctly processed in working memory leads to the development of rapid word identification skills and this facilitates reading comprehension (Trezek et al., 2011). Thus, accurate phonological processing in working memory positively affects reading comprehension.

d/Dhh children struggle with phonological processes (Paul et al., 2013). Many studies found that teachers express difficulty when teaching reading to students who have limited access to English phonology (Trezek et al., 2011). When readers struggle with an aspect of working memory (phonological, orthographical, contextual), it is harder for them to accurately comprehend a text (Trezek et al., 2011).

**Reading Comprehension Strategies**

There is little research on how teachers select and implement reading comprehension strategies during classroom instruction for d/Dhh students (Donne &
Choosing effective reading strategies for d/Dhh students is crucial for them to develop proficient reading skills. The following section provides a few strategies that may enhance d/Dhh students’ reading comprehension performance.

**Question-answer relationships strategy (QARs).** QARs refers to question-answer relationships. QAR strategies may assist d/Dhh students in addressing a variety of different levels of questions to improve their comprehension abilities. Readers answer the required questions by understanding the levels of question-answer relationships: text explicit (TE), text implicit (TI), and script implicit (SI). Thus, the question’s level of difficulty is related to the different types of required answers (Jackson et al., 1997).

In QARs, readers identify the type of questions they are asked before developing an answer. For TE questions, readers find the answers from one specific location in the text; whereas for TI questions, readers find the answers in several places in the text (developing an answer from information in different locations). For SI questions, readers need to relate what has been written in the text to their own experiences and prior knowledge because the answer is not stated directly in the text. All levels of QARs require metacognition processes to answer the questions.

Raphael and Au (2005) described QARs framework, which is divided into two major parts: *In the Book* (which includes two components, *Right There*, and *Think & Search*) and *In My Head*, (which includes *Author & Me* and *On My Own*). For the *Right There* question, readers find the answer in one place of the text, and some words of the question are right there in the text. For *Think & Search*, the answer is in the text but
information is needed from two or more different locations. For *Author & Me*, the answer is not in the text, and the reader needs to understand the text and relate textual concepts to their prior knowledge. For *On My Own*, the answer is not in the text, and the reader does not need to use the text to answer the question; rather, readers need to use their experiences to answer the question (Raphael & Au, 2001). Therefore, teachers can consider *Right There* as TE, *Think & Search* as TI, and *Author & Me* and *On My Own* as SI when teaching reading comprehension strategies to their students.

The use of QARs in comprehension is helpful for school districts that have a variety of students with varying levels of socioeconomic backgrounds (Raphael & Au, 2001). Students in the second grade are able to learn the difference between *Think & Search* and *Right There* (Raphael & McKinney, 1983), whereas students in the fourth grade are able to distinguish between all levels of QAR (Raphael & Wonnacott, 1985). First-grade students who used *In the Book* and *In My Head* questions, and third-grade students who used all question types improved their reading comprehension levels (Raphael & Au, 2005).

In sum, Raphael and Au (2005) concluded that readers in different grades could benefit from learning how to answer different kinds of questions that are associated with various degrees of difficulty; thus, using the framework of QARs can benefit teachers, schools, and students. The use of QARs enhances reading comprehension for students because QARs is associated with higher level thinking in relation to a text. Prior knowledge also plays an important role in this metacognitive process.
Strassman (1997) found that explicit strategies in metacognition would benefit students’ literacy skills because teaching metacognition strategies help students actively monitor their reading performance. Baker (2005) suggested that using formal instruction in metacognition strategies with elementary age students could be beneficial to enhance reading comprehension. Therefore, metacognitive skills are highly recommended to enhance reading skills for d/Dhh children (Trezek et al., 2011).

**Reading comprehension strategies recommended by NRP.** The NRP (2000) raised the question, “Do comprehension strategy instructions improve reading achievement? If so, how is this instructions best provided?” (p. 1-3). NRP stated that comprehension could be improved by teaching students how to use explicit strategies during reading in order to comprehend the text and become independent readers. The NRP analyzed 203 studies based on specific criteria: the studies need to be experimental or quasi-experimental and need to be relevant to reading comprehension strategies for a typical reader. The panel stated that their goal is to create independent and active readers—readers who utilize these strategies for comprehension enhancement.

The NRP found the following strategies to be significant and effective:

1. **Comprehension monitoring:** Readers learn how to be aware of his or her understanding while reading and learn the procedures to understand problems as they arise.

2. **Cooperative learning:** Readers work together to learn in the context of reading.

3. **Graphic and semantic organizers:** Allow readers to represent graphically (write or draw) the meanings and relationships of the ideas that underlie the words in the
text.

4. **Story structure/map**: Reader learn to ask and answer who, what, where, when, and why questions about the plot and, in some cases, map out the timeline, characters, and events in the story.

5. **Question answering**: Readers answer questions posed by the teacher and are given feedback on the correctness.

6. **Question generation**: Readers ask themselves what, who, when, where, why, and how questions.

7. **Summarization**: Readers attempt to identify and write the main or most important ideas that integrate or unite the other ideas or meanings of the text into a coherent whole.

8. **Multiple-strategy teaching**: Readers use several procedures to interact with the teacher over the text.

**Comprehension monitoring.** Comprehension monitoring improves readers’ ability to be aware of their understanding processes during reading, and teaches them how to deal with any comprehension obstacles they may encounter (NRP, 2000). Wagoner (1983) defined comprehension monitoring as “an executive function, essential for competent reading, which directs the reader’s cognitive processing as he/she strives to make sense of incoming information” (p. 328). Harris and Hodegs (1995) stated “comprehension monitoring in the act of reading is the noting of one’s successes and failures in developing or attaining meaning, usually with references to emerging conception of the meaning of the text as a whole, and adjusting one’s reading processes
Baker and Brown (1984) considered comprehension monitoring an essential metacognitive reading component. Skilled readers have greater comprehension monitoring abilities when compared with those of poor readers (Grabe & Mann, 1984). Based on the NRP (2000), teachers should learn the following comprehension monitoring instructions:

1. Formulate what is causing them difficulty in understanding.
2. Use think-aloud procedures that show the readers and the teacher where and when understanding difficulties occur.
3. Look back in the text to try to solve a problem.
4. Restate or paraphrase a text in terms that are more familiar to readers.
5. Look forward ("watch" for information) in a text to solve a problem. (p. 4-70)

**Cooperative learning.** In cooperative learning, students work together, read to their peers, and help each other in order to increase reading comprehension. The cooperative learning strategy includes partner reading, group discussion, paragraph summarization, and so on. Balkcom (1992) identified cooperative learning as an effective strategy with small groups with members who vary in academic achievement. Utilizing different activities during cooperative learning is recommended to effectively enhance students’ understanding of the subject. In addition, each student in the group is
responsible to learn and help other group members.

By using cooperative learning strategies in reading, students read to their partners in order to increase text comprehension. The students discuss shared texts and work together to achieve the goal of an activity. Cooperative learning enables students to have knowledgeable discussion while enhancing their reading comprehension (NRP, 2000). In addition, this strategy saves the teacher’s time while students learn with their peers in socially interactive environments.

**Graphic organizers.** Graphic organizers are visual displays designed to help readers understand text by the “use of lines, arrows, and a spatial arrangement that describe text content, structure, and key conceptual relationships” (Darch & Eaves, 1986, p. 310). In addition, Duke and Pearson (2000) assured that the graphic organizers help the readers recognize and remember narrative and expository texts in order to increase reading comprehension of the texts. Thus, readers can visualize ideas to construct the meaning of a text. Jones, Pierce, and Hunter (1989) stated, “A good graphic representation can show at a glance the key parts of the whole and their relations, thereby allowing a holistic understanding that words alone cannot convey” (p. 21).

The NRP (2000) reported that graphic organizers were initially used with content areas such as social studies and science, but have been adopted as “story maps” for reading instruction. There are many benefits of graphic organizers such as focusing on text structure, visually representing textual relationships, and assisting in writing well-organized summaries (NRP, 2000). NRP (2000) evaluated 11 studies to examine the effectiveness of graphic organizers on reading comprehension of content areas such as
social studies and science. The analyses of the NRP revealed that the development of readers’ memory for the content areas is considered to be the main effect of graphic organizers.

**Story structure/map.** Sorrell (1990) defined story mapping as a strategy for introducing and building new knowledge based on prior knowledge. He added that story maps help readers understand the text by organizing the information before, during, and after reading the story (Sorrell, 1990). Story structure/map is a visual tool that represents and organizes the content of a text in order to help the reader analyze and comprehend the components of the story by focusing on the main characters, setting, problem, and the solution of the story (Who? Where? When? Why?). Mathes et al. (1997) listed the components of story map as setting, characters, main events, problem, and main idea/conclusion.

The NRP (2000) reported that the story structure/map strategy shows a positive effect on developing memory and identification, specifically for poor or below average readers. Seventeen studies related to story structure/map were analyzed by the NRP concluding that there are positive effects of story map strategy on reading comprehension performance for grades three through six. In addition, the panel stated that this strategy helps students with their writing as well.

**Question answering.** Question answering is a traditional strategy implemented to enhance readers’ comprehension by assisting with the ability to locate the answer of a question within the text and use prior knowledge to answer the question during or after the reading task (NRP, 2000). Thus, the question-answering strategy is considered the
most common strategy frequently used to improve readers’ acquisition during reading comprehension activities (Durkin, 1979). By using the question-answering strategy, readers can learn ideas from a text as well as increase their ability to understand the text.

When teachers ask students questions about the text, students must remember the text, use their prior knowledge, or look back to the text in order to locate the answer to the question. Thus, the QARs strategy, discussed previously, is based on this strategy.

The NRP evaluated 17 studies that focused on the question-answering strategy. The analysis of these studies showed that reading comprehension improved due to the use of the question-answering strategy.

**Question generation.** The NRP (2000) defined the question-generating strategy as the readers’ ability to ask themselves (why, how, when, which, and who) about what they have read during or after the reading task. The NRP (2000) stated that the question-generating strategy enables the reader to become independently active, which improves their reading comprehension. Without the question-generation strategy, readers are not likely to question themselves actively during reading.

The assumption of question generating is that self-questioning allows students to create meaning without predetermined questions (NRP, 2000). The NRP evaluated studies conducted to enhance reading comprehension performance using question generating for grades 3 through 9. Based on this investigation, the NRP concluded “the strongest scientific evidence was found in the effectiveness of asking readers to generate questions during reading” (p. 4-45). In order to teach this strategy, the teacher should use the following steps:
1. Ask students to create questions while reading. These questions should be taken from various parts of the reading passage.

2. Ask students to evaluate their questions based on relevance to the story’s plot, and if it can be found directly in the text.

3. Provide students with feedback and assist with answering students’ questions.

4. Let students reflect on the relevance of the questions to the text.

**Summarization.** Summarizing is the ability to break down the content of a text by reducing them to main ideas with a focus on key details (Jones, 2007). The main goal of summarization is to teach the reader to recognize the main ideas of a text. Sometimes, summarization requires using prior knowledge and inferences in order create accurate summaries (NRP, 2000).

Summarizing supports the reader’s ability to comprehend a text as well as assist them with their writing; however, it is not an easy task to teach summarization (Jones, 2007). The NRP indicated that summarization is a helpful strategy that supports reading comprehension. Teaching this strategy helps readers become more aware of the structure of a text and to identify the relationship between texts. Thus, teachers need to instruct students to pay attention to the main ideas and key details and ignore irrelevant information (NRP, 2000). NRP (2000) evaluated 18 studies conducted to enhance reading comprehension performance through the use of summarization. It was found that summarization significantly enhanced reading comprehension and supported students to identify the main ideas in a text.
Multiple-strategy. Multiple strategy refers to “a systematic plan, consciously adapted and monitored to improve one’s performance in learning” (Harris & Hodges, 1995, p. 244). Readers have the ability to learn and organize the use of different strategies in order to comprehend the meaning of a text. A multiple strategy approach to reading requires effective interactions between the teacher and reader while the text is being taught. Multiple strategies during reading may include question generation and summarization of the same text. After readers learn how to use multiple-strategies, they can ask questions and make summaries in an effective way that increases their comprehension of the text. Multiple-strategy teaching is effective when the procedures are used flexibly and appropriately by the teacher in naturalistic contexts (NRP, 2000).

The NRP (2000) stated that a combination of strategies could be used together effectively in order to improve reading comprehension as well as overall academic achievement. The effectiveness of these combinations, under the category of multiple-strategy, has been supported by different studies. The NRP (2000) evaluated 38 studies that examined the use of two or more combined strategies to enhance reading comprehension. Most of these studies use cooperative reading, story maps, and summarization. The NRP (2000) concluded that multiple-strategy improves reading ability and academic achievement.

Teachers’ Perceptions of Education

Perceptions, beliefs, and attitudes are connected to each other (Pajares, 1992). The critical role of teachers’ perceptions in constructing objectives, curriculum, goals, and instructions for classrooms has been addressed in many studies (Yero, 2002). A literature
review conducted by Pajares (1992) confirmed that many researchers illustrated that perceptions play an important role in educational settings and the shaping of educational practices. Perception can be defined as psychological understandings and generalizations perceived as truth about specific actions or causality (Richardson, 2003; Yero, 2002). Our experiences, specifically during childhood, shape our perceptions about the world; thus, our perspectives can affect certain experiences (Yero, 2002). The representation of teachers’ perceptions contributes to the quality of education and the development of the field of education (Wray, Medwell, Fox, & Poulson, 2000). Yero (2002) illustrated that perceptions are not explicit, but play an important role in individuals’ decisions and concerns.

Regarding teachers’ perceptions, previous schooling experiences inherently affect their perceptions (Richardson, 2003). There are multiple factors that construct and manipulate teachers’ perceptions; these factors are disciplinary subculture, experience in pre-service education, chances for giving feedback regarding the pre-service experiences, individuals’ definition and purpose of education, nature of knowledge, and group ideals (Fang, 1996; Yero, 2002). Pajares (1992) reported that teachers’ perceptions were dependent on the relationships between teachers’ responses and actions, as indicated by a vast amount of research. The best way to assist teachers’ perceptions is to analyze their responses and their actions (Pajares, 1992). Although teachers’ perceptions are not explicit, teachers can present their perceptions through their behaviors, instructions, and decisions (Yero, 2002). Richardson (2003) found that teachers’ perceptions control their decision, actions, and educational preparations to teach in classrooms. Conversely, Fang
(1996) stated that some studies suggested that the limitations in the classroom environment prevent the association between the teachers’ instructions and their perceptions or beliefs. In other words, a teacher might not have the resources to teach according to his or her personal perceptions.

**Factors that influence teachers’ perceptions.** The relationship between practice and perception is not easily understood; in fact, it is a dynamic process that is based on the experience of the practice (Tompson et al. as cited in Muijs & Reynolds, 2002). It is clear that teachers’ perceptions influence their teaching and learning methods (Fang 1969; Yero, 2002). Different scholars asserted that most teachers have been influenced by their perception, which invariably affects their decision-making processes (Feng & Etheridge, 1993; Maxson, 1996). The students’ learning outcomes are also affected by teachers’ perceptions (Rubie-Davies, Flint, & McDonald, 2012). It is logical to recognize that teachers’ perceptions are the result of different experiences, accumulated knowledge, and observations, which are personal and professional (Richardson, 2003; Yero, 2002). Research on teachers’ perceptions in literacy indicated that teachers’ perceptions controlled their actions and behaviors in the classroom (Richardson, 2003).

Fang (1996) stated that there are some studies that indicated that teachers’ perceptions of literacy instruction construct their use of strategies in educational settings. In reading and writing, Feng and Etheridge (1993) showed that the majority of teachers plan their reading and writing methods based on their perceptions of literacy strategies and content. Squires and Bliss (2004) agreed that the teachers’ previous experiences and perceptions influence their day-to-day decision making. In turn, the
decision of which instructional strategy is used influences the students’ learning experiences, either in a positive or negative way (Rubie-Davies et al., 2012). The following paragraphs review more studies that focused on the influence of the teachers’ perceptions in reading literacy.

In 1989, Wing conducted a study to interview two directors of nursery programs and observed 10 children from each program. The study indicated that it is important to realize the influence of teachers’ perceptions on children’s literacy conceptions. That is, instructions are powerful tools that shape children’s literacy conceptions, and by recognizing the relationship between teachers’ perceptions and the children’s conceptions, the teacher is able to make an appropriate decision for instruction. The results of Wing’s study (1989) suggested that children’s conceptions about reading and writing are influenced by teacher’s instructional perceptions and decisions.

Feng and Etheridge (1993) conducted a study focusing on the relationship between theoretical orientation to reading and the instructional practices in the classroom for 259 first grade teachers. In addition, the study examined the factors that influence teachers’ perceptions, which ultimately influence their practices during reading instruction. Fifteen teachers were observed and interviewed to collect information on their reading instruction, which was measured by the Classroom Analysis of Teachers’ Theoretical Orientation to Reading (CATTOR), the process of choosing reading programs and materials, and the factors that influenced their perceptions about reading and instructional practices. The findings of this study showed that 60% of teachers taught
reading based on their perceptions. Researchers determined that most of the teachers’ theoretical orientation is associated with teaching to read.

Another study conducted by Maxson (1996) examined the influence of teachers’ perceptions on first grade students who were at risk for reading disabilities in order to find out the congruencies between teachers’ perceptions and practices. This comparative study examined five case studies of five first-grade teachers for one year. Maxson collected the data of different cases through observations, interviews, questionnaires, and reflective activities to examine the connection between teachers’ perception and their actions in the classroom with students who were at the risk. The study provided evidence that there is a relationship between teacher’s perceptions and their practice in the classroom, that specific instructional strategies were influenced by teachers’ perception, and that teacher’s perceptions were influenced by theoretical, practical, and personal knowledge.

Foote and colleagues (2004) examined the teachers’ perceptions of teaching literacy, and the relationship between teachers’ perceptions and practices during early childhood literacy instruction. They interviewed and observed eight teachers in four different centers for young children. The study’s findings revealed that there was a positive relationship between the teachers’ perceptions and practices in the classroom; thus, their literacy experiences with their young children were appropriate for developing literacy skills. In some events, however, there were disconnections between teachers’ perceptions and their practices; the factors that caused this disconnection were not clear.
Teachers’ perceptions of reading literacy. The following sections discuss studies that focus on literacy for the students who have typical hearing and for students who are d/Dhh. The research on students with typical hearing is categorized based on the area of each study--teachers’ perceptions of content area at the elementary level, teachers’ perceptions of content area at the secondary level, teachers perceptions of reading instructions, teachers’ perceptions of parents’ involvement with literacy, and teachers’ perceptions of early literacy. The research on students who are d/Dhh includes--teachers’ perceptions of reading comprehension, teachers’ perceptions of literacy development, teachers’ perceptions of home literacy, and teachers’ perceptions of phonological awareness in ASL.

Teacher’s perceptions and research on students with typical hearing. There is little research that has explored elementary school teachers’ perceptions toward content area reading (Grierson & Daniel, 1995). For the purposes of creating a positive learning environment, it is critical to understand elementary school teachers’ perceptions about academic content (Midcalf, 2008) because it is crucial for our understanding of teachers’ reading instruction (Grierson & Daniel, 1995; Midcalf, 2008).

Grierson and Daniel (1995) analyzed 55 educators’ perceptions toward the use of reading strategies during content area instruction at the elementary school level. After dividing the participants into three groups, Grierson and Daniel distributed a survey to measure the teachers’ perceptions toward content area reading (ATCAR). The study’s findings revealed that the pre-service group agreed that every teacher is responsible for teaching reading, regardless of the core subject, because reading is associated with every
subject. The second group (in-service teachers) had common responses, namely, that content area reading should be applied to all subjects, and that cooperative learning is critical. The third group (content area experts) agreed that the use of reading comprehension instruction during the content area is required in order to enhance comprehension. Thus, all groups showed a common response: all teachers should instruct reading in all content areas.

Midcalf (2008) expanded on the study conducted by Grierson and Daniel (1995), which explored the commonalities among different teachers’ perceptions by providing a deeper analysis of teachers’ perceptions. This study examined pre-service teachers’ perceptions toward the use of reading strategies in content areas based on their major or minor, and teachers’ experiences with any given content area. Midcalf surveyed and informally interviewed 150 pre-service elementary school teachers. The results of this study indicated that (1) teachers had strong perceptions about reading instruction in their content areas, (2) teachers’ content area had no influence on their perceptions toward reading instruction based on their major or minor, and (3) in general, pre-service teachers were indifferent when it came to skimming or scanning a text.

**Teachers’ perceptions of content area reading at the secondary level.** It is important to review the secondary school teachers’ perceptions about content area reading (Grierson & Daniel, 1995; Midcalf, 2008). There is limited research that addresses instructional perceptions of content area reading for in-service teachers (Readence, Kile, & Mallette, 1998).
Readence et al. (1998) investigated the responses of secondary teachers' instructional perceptions of different content areas. They divided the responses into three groups that include (1) reader-based instruction, which reflects teachers’ experiences with teaching reading comprehension strategies, such as the use of prior knowledge, (2) text-based instruction, which reflects teachers’ experiences with giving information directly to students, and (3) interactive instruction, which reflects a combination of text-based and reader-based instruction. The findings indicated that most teachers had more experience with reader-based instruction.

Dillion, O’Brien, Moje, and Stewart (1994) discussed three case studies that examined secondary school teachers’ perceptions, teacher and student interactions during science lessons, and how these interactions were influenced by the use of literacy instruction. They observed three teachers and their students in collaborative working groups for a year in order to understand the teachers’ perceptions about a combination of topics, including literacy, science, and teaching. In other words, they intended to examine how literacy instruction was used while participating in science-based activities. In these case studies, teachers’ perceptions shaped the classroom environment and their lessons were associated with literacy instruction. That is, teaching science is intertwined with literacy instruction. The results of the study revealed that there is a strong connection between the complexity of teachers’ perceptions and the implementation of reading instruction. All the teachers believed in and used different literacy strategies that intertwined with science lessons. Based on their observations, researchers suggested that literacy strategies were important for students to comprehend the subject’s content.
Most recently, Ness (2007) examined the frequency of reading comprehension strategies on content areas (science and social studies) based on teachers’ perception and practices on a secondary level. Ness observed and interviewed eight teachers’ about reading comprehension strategies based on the NRP suggested strategies discussed previously. The results of Ness’s study showed that the strategies occurring in the classroom during science and social studies lessons were only utilized for 82 minutes, which was only 3% of the total observations. These findings suggest that reading comprehension strategies are more frequently used in middle school than in high school. Also, the findings displayed that social studies teachers utilized reading comprehension strategies more than science teachers. Finally, the study indicated that all teachers preferred using question answering, text structure, and summarization more often than other reading comprehension strategies.

**Teachers’ perceptions of reading instruction.** A study conducted by Richardson and colleagues (1991) examined the relationship between teachers’ practices and perceptions during reading comprehension instruction. They interviewed and observed 39 teachers in the fourth through sixth grades. This study intended to understand teachers’ practices while teaching reading in the classroom. In addition, the researchers conducted different case studies in order to determine if there was a disconnection between teachers’ perceptions and their practices during reading comprehension instruction. The results of this study showed that there was a strong relationship between teachers’ perception and their practices during the use of reading comprehension instruction. Also, the researchers were able to explore the process of reading comprehension instruction. They
recommended that the disconnection of perception and practice might reflect a process of change that the teachers went through.

Byrd (2008) examined teachers’ perceptions on specific reading instruction. Byrd surveyed 30 teachers from kindergarten to third grades. He examined phonics and whole language instruction. The teachers responded to an online survey that focused on phonics perception, phonics practices, whole language perceptions, and whole language practices. The results of this study revealed that the majority of the teachers used and preferred whole language instruction rather than phonics instruction. The teachers who used whole language practices believed that their program balanced the two types of instruction. Because of this, they believed that they could use both instructional strategies, as long as the students benefited from the instruction (Byrd, 2008).

In regard to those who require special educational needs, Taylor et al. (2010) examined teachers’ perceptions during reading instruction for students with disabilities. There were six teachers in the classrooms that included students with severe and multiple disabilities (K-5), autism (K-5), and moderate cognitive disabilities (K-3). The investigators observed and interviewed all six students who volunteered to participate in the research project. These teachers used experimental curriculums, which focused on phonological awareness (phonics skills) and reading a book aloud in small group. The findings based on observations and interviews indicated that using experimental curriculums improved students’ performance in different areas, including phonological awareness, phonics skills, word recognition, knowledge of the concept of the print, and reading comprehension. In addition, the study revealed that teachers indicated that these
curriculums enhanced reading instruction for students with developmental disabilities (Taylor et al., 2010).

All three previous studies indicated that teachers’ perceptions are associated with reading instruction implemented in the classroom. It is important to note that perceptions played an important role during reading instruction at all grade levels. Thus, it is important to recognize these perceptions in order to understand why teachers use specific instructional reading practices instead of others inside the classroom.

**Teacher’s perceptions and research on d/Deaf and hard of hearing students.**

Teachers hold different perceptions with regard to literacy development for d/Dhh children based on theories and personal experiences (Reed, 2003). The following paragraphs contain reviews of different studies that explored teachers’ perceptions on reading instruction for d/Dhh readers and the importance of literacy development for d/Dhh readers (Crume, 2013; Ewoldt et al., 1992; Reed, 2001; Watson & Swanwick, 2008).

A study conducted by Ewoldt and colleagues (1992) compared teachers’ and students’ perceptions of reading various types of text. This study examined the interests and the difficulties of three different kinds of texts. Sixteen deaf students and nine of their teachers (two deaf and seven hearing) took a test to examine if they could identify each type of text and participated in an interview. The results of this study indicated that teachers and students considered all three texts difficult; however, students still found the texts interesting. In addition, the texts required the use of effective metacognitive strategies. Thus, Ewoldt *et al.* (1992) recommended that teachers should not avoid using
difficult materials when teaching deaf students.

Reed (2001) conducted a study exploring teachers’ perceptions of literacy development for d/Dhh children. Using individual interviews and observations, Reed collected data from five teachers at an elementary school. The results of the study indicated that teachers believed that d/Dhh students go through the same learning process for reading as their typically developing peers, and early interventions are needed to address the reading performance gap between d/Dhh and their peers, which support the QSH. All of these perceptions were evident during the observations. Thus, the teachers’ practices and perceptions were matched.

Watson and Swanwick (2008) discussed the comparison between parents’ and teachers’ perceptions of home literacy for d/Dhh. Twelve 3-5 year old d/Dhh children were videotaped while reading a book with their parents; six of the parents used British Sign Language (BSL) and six used spoken language at home. Teachers of d/Dhh students who were working with the children’s families reported that they focused on multiple areas of literacy development. The results revealed that hearing parents of deaf children showed eagerness in developing their child’s reading ability by focusing on the print materials. Therefore, the teachers of these students have a similar outlook, which is to incorporate various strategies to develop English proficiency. However, for parents who used BSL, their perspectives focused on improving reading comprehension more than an overall understanding of the English language.

Recently, Crume (2013) conducted a study to examine d/Dhh teachers’ perceptions about promoting phonological awareness when using ASL in order to
enhance students’ literacy. Crume (2013) interviewed nine teachers and one ASL specialist who taught preschool and kindergarten at a bilingual (ASL/English) school. The two major themes of the interview were teaching perceptions and instructional strategies. The findings of this study indicated that teachers had strong perceptions of using various methods in order to improve students’ phonological awareness by using ASL as well as the awareness of the manual alphabet for literacy development to improve students’ literacy acquisition.

**Conclusion**

Overall, many d/Dhh students experience ongoing challenges with English language (through-the-air) comprehension as well as in decoding and English reading comprehension areas. To address these challenges, in part, Baker (2005) suggested that formal instruction/intervention that utilize reading comprehension strategies with elementary age students may enhance early English reading development. Thus, it is critical to specifically examine the area of reading comprehension in relation to d/Dhh students, especially within classroom instruction, so that teachers of d/Dhh students can help their students overcome reading comprehension challenges. Because of the dearth of studies related to understanding the teacher process for selecting and using appropriate comprehension strategies with d/Dhh students, the major objective of the present study is to examine the teacher’s selection and use of comprehension strategies and the influence and application of the NRP’s (2000) recommended strategies for developing comprehension skills.
Chapter 3: Methodology

As discussed in Chapter 2, a number of d/Dhh students experience difficulty in developing adequate, on-grade-level reading skills throughout their primary, middle, and secondary years of schooling. This results in low reading achievement levels upon graduation from high school. Overall, these students experience ongoing challenges in general English language (through-the-air) comprehension as well as in decoding and reading comprehension areas. To address these challenges with appropriate interventions as early as possible, Baker (2005) suggested that using formal instruction in reading comprehension strategies with elementary age students, in general, could be beneficial for enhanced reading development. In this view, it is critical to specifically examine the area of reading comprehension in relation to d/Dhh students, especially within classroom instruction, so that teachers can help students face their particular reading comprehension challenges early on. I suggest that by providing d/Dhh students with a strong foundation in reading comprehension skills tailored to their special needs, they will be more likely to improve their reading skills.

There is little research on how teachers select and use reading comprehension strategies during classroom instruction with d/Dhh children (Trezek et al., 2010). Because of the dearth of literature in this area, it is important to examine the influence and application of the National Reading Panel’s (NRP) (2000) recommended strategies for
developing and improving reading comprehension skills. This should provide implications for the implementation of reading comprehension strategies specific to the needs of d/Dhh learners.

In order to understand the individual teacher’s process for selecting and using appropriate reading comprehension strategies for d/Dhh students, this study examined two elementary teachers’ perceptions of the strategies they chose to implement during classroom instruction in reading. By understanding the process that participants use to select reading comprehension strategies, potentially revealing strategies that are effective as well as those that are less effective, this study shed light on an area of education that deserves more attention. Moreover, by advancing this area of inquiry through future studies, researchers could potentially assist other teachers of d/Dhh students in rethinking or enhancing their current uses of reading instruction strategies as new findings emerge.

**Research Questions**

This qualitative case study of a small sample of teachers, responsible for teaching reading comprehension skills to d/Dhh students, addressed the following questions:

1. What reading comprehension strategies do the two teachers use in the elementary classroom with their d/Dhh students?

2. What processes do the two teachers follow while selecting appropriate reading comprehension strategies? What rationale do these teachers give for their decisions?
Rationale for Research Approach

In my role as researcher, I used the case study approach—a particular methodology within qualitative inquiry—in order to answer this study’s research questions by investigating an instructional process/phenomenon involving selected teachers working in the natural settings of their schools. As a qualitative methodology, the case study offers the researcher an opportunity to explore unique qualities and perspectives (often as they emerge) specific to the phenomenon, process, program, or institution under study. The case study is intended to “optimize understanding of the case rather than generalization beyond” (Denzin & Lincoln, 1994, p. 236). Case studies are intended to capture the complexity of a single case.

A single leaf, even a single toothpick, has unique complexities—but rarely will we care enough to submit to a case study. We study a case when it itself is of very special interest” (Stake, 1995, p. xi). Thus, the goal of a case study is to capture the complexities of a process or phenomenon that are difficult to describe according to traditional methods associated with statistical research and analysis (Jeffries, 2010). Furthermore, Stake (1995) emphasized that a case study is not only a methodological choice, but is also understood as a choice of object to be studied.

This case study allowed me to look at two teachers/study participants (the study sample) closely in order to understand the process of selection that each teacher used to determine the reading comprehension strategies implemented in the classroom. As such, this case study did not include a focus on students’ performance or the environment of the classroom. Instead, it purposefully focused on the teachers’ perceptions and
implementation of instructional reading comprehension strategies with deaf and hard of hearing students.

Based on this intentional focus on teachers, and relative to the dearth of research on the use of reading comprehension strategies with d/Dhh students (as noted earlier), I suggest that this particular study might provide a broad, possibly transferable view of the case and its findings. Thus, this would potentially serve as a starting point for future qualitative research projects within this area of inquiry. Further, I suggest that this case could potentially yield other insights into reading comprehension instruction, conceivably impacting a wider range of student populations, even crossing academic disciplines. The following passage speaks to the range of possibilities that could emerge from a single case study.

With broader purview than that of crafters of experiments and testers of hypotheses, qualitative case researchers orient to complexities connecting ordinary practice in natural habitats to the abstractions and concerns of diverse academic disciplines. This broader purview is applied to the single case (Denzin & Lincoln, 1994, p. 237).

For the qualitative researcher, there are also contingent factors to be considered when planning and conducting a case study, such as the researcher’s investment of time and the depth of attention to be given to the project. Such factors highlight the researcher’s relative freedom and subsequent responsibility to make choices/execute decisions regarding the study’s planning and implementation processes. On this aspect of case study research, Stake (1995) stated:
The case study researcher faces a strategic choice in deciding how much and how long the complexities of the case should be studied. "Not everything about the case should be studied. Not everything about the case can be understood – how much needs to be? Each researcher will make up his or her own mind. (p. 238)

**Role of the Researcher**

My background in deaf education inspired me to study the processes that teachers follow when selecting and using appropriate instructional strategies with d/Dhh students. Underlying these processes, I aimed to understand how teachers’ perceptions influence their decisions in the classroom. I was introduced to d/Dhh children during my undergraduate program at King Saud University in Saudi Arabia. Before graduating with my Bachelors degree in Saudi Arabia in 2008, I worked at an elementary school for d/Dhh students for one semester. Afterwards, I worked at Prince Sattam University, in Saudi Arabia, as a teaching assistant in the special education department.

In 2009, I was awarded a scholarship to pursue my masters and doctorate degrees in special education in the United States. Before graduating with my Master’s degree in 2011 from Ball State University, I worked with d/Dhh students at the Indiana School for the Deaf. Currently, as a doctoral student at Ohio State University (OSU), I have been exposed to different perspectives and different types of research in the field of d/Deaf education. I have participated in various classroom observations, especially reading comprehension instruction for d/Dhh students. My educational background has helped me recognize the real challenges that d/Dhh students face while learning to read. In this
study, I participated as an observer, interviewer, data interpreter, and researcher. These roles guided my understanding of different stories and perceptions that relate to the selection and use of reading comprehension strategies by the teachers who participate in the study.

As researcher, it is important that I acknowledge the assumptions that I bring to this study. They are as follows:

1. Reading comprehension strategies advocated by the National Reading Panel (NRP) are effective for hearing students as well as for d/Dhh students.
2. Most reading comprehension strategies are not used frequently with d/Dhh students, in total communication program, due to the low reading achievement levels of deaf and hard of hearing students.
3. d/Dhh students are not well served by reading comprehension strategies.
4. Teachers of d/Dhh students will not be well prepared to use effective reading comprehension strategies in the classroom.
5. Teachers may believe that certain strategies are judged as effective - such as reading comprehension strategies recommended by NRP or QARs (question-answer relationships)- but, in general, they will not implement these strategies in the classroom.
6. Teachers need to develop skills that will help them adapt to the use of alternative reading comprehension strategies that have been successful with d/Dhh students.
Research Setting and Sample

As researcher, I conducted this case study in two elementary schools, both belonging to the same school/district and located in a mid-western state in the United States. There are different schools in the selected district that serve the growing population of d/Dhh students. In large part, the increasing population of d/Dhh students across the district’s schools is due to a ruling that opened the doors for expanded d/Dhh placements. In other words, with the passage of legislation known as US 94-142 in 1975, students are no longer required to attend separate schools and, ultimately, can be placed in various general education schools in this district. Consequently, the elimination of a separate school requirement enables d/Dhh students to interact with their typical peers as well as receive education services from specially trained staff members.

The program for d/Dhh students in this district provides services to over 200 students in general education settings (School administrator [anonymous], interview, October, 2014). One of the programs has been in existence for more than 65 years, since 1950 (Ohio Department of Education, Office of Special Education Programs, 2014). Currently, d/Dhh children who are diagnosed with at least a mild hearing loss by age three are accepted to participate in full-day classes in either oral-aural (speech only) or total communication (speech and sign) classrooms. A professional team assesses each student to determine if he or she qualifies for service in the d/Dhh program.

Specific to the two elementary schools selected for this study, educational services are available at each grade level for d/Dhh students. The current law mandates that classrooms can serve no more than eight d/Dhh students in a self-contained
classroom (School administrator [anonymous], interview, October 11, 2014). One school uses an oral-aural approach, whereas the other school uses a total communication (speech and sign) approach. Two teacher-participants from each school were selected for the study; one teaches in an oral-aural classroom while the other teaches in a total communication classroom. Both communication methods will be represented in this study.

The participants in this case study were two teachers who met the criteria that I, as a qualitative researcher, established with regard to the study’s purpose, research questions, and general design. In other words, contributing to a qualitative sampling process, criterion sampling is used to select cases, along with study participants, that meet predetermined criteria (Gay, Mills, & Airasian, 2012) deemed essential to the planning and implementation of the project. On this basis, participants for this study had to meet the following criteria: (a) work as a third or fourth grade teacher at one of the elementary schools designated for the study and (b) hold a valid license to teach d/Dhh students. As to my reason for choosing third and fourth grade teachers for this study, findings from prior studies (in general education) have indicated that students in these grades tend to gain greater benefits for improving their reading comprehension skills from exposure to classroom instruction incorporating different kinds of reading comprehension strategies (Duffy et al., 1986; Raphael & Au, 2005). Thus, by drawing a grade level parallel between my study participants and those teachers addressed in prior studies, I was able to recognize similarities and differences specific to the ways in which this study’s two teachers selected and used reading comprehension strategies with their students. Overall,
the purpose for setting these criteria was to represent unique perspectives from each participant in order to generate valuable data that would provide insights and answer the research questions of this study. Finally, administration (from the two elementary schools) selected the two teachers based on the study’s criteria while also confirming each teacher’s acceptance to participate in this project. The first teacher addressed in the chapters to follow represented the Total Communication program of d/Dhh instruction that focuses on speaking and signing at the same time during the teaching/learning process. Throughout the dissertation, I refer to this teacher as Total Communication Teacher, or TC Teacher. The second teacher represented the Oral-Aural program that focuses on only speaking during instruction with d/Dhh students (no simultaneous signing). Similar to the pseudonym used for the first teacher (Total Communication or TC Teacher), I refer to this teacher as Oral-Aural Teacher, or OA Teacher. Regarding the classroom reading curriculum, both teachers used Riggs that incorporates phonics based on spelling. They used the manual, called *The Writing and Spelling Road to Reading and Thinking*, as well as different kinds of stories categorized according to students’ various reading levels.

Socio-demographic information on the teachers such as gender, educational level, background in reading, number of years of teaching, and type of program (oral or total communication) was documented. In addition, socio-demographic and developmental information pertaining to the children in their classrooms, including degree of hearing loss, gender, ethnicity, amplification usage, type of language (English, etc.), and reading profile (achievement level, etc.), was documented and supplied by the teachers.
Design of the Study

The primary sources of data for this qualitative case study were participants’ responses to semi-structured interviews, field notes generated through classroom observations, and information collected through the teacher’s use of Experience-Sampling Methodology (ESM). For this study, the semi-structured interview instrument was designed to intensively explore the implicit experiences, perspectives, and interactions that underlie the teacher’s process of selection and use of particular reading comprehension strategies with d/Dhh students. My observations focused solely on the teacher's implementation of his/her chosen reading comprehension strategies in the classroom. Finally, the purpose for using Experience-Sampling Methodology (ESM) in qualitative research is to examine changes in the individual’s stream of consciousness and the links between external contexts and the contents of the individual’s mind (Hektner, Schmidt, & Csikszentmihalyi, 2007). ESM focuses on the immediate responses that relate to variations of participants’ experiences and reactions in the moment (Hektner, Schmidt, & Csikszentmihalyi, 2007). For this study, I used ESM to examine participants reflections on their momentary experiences related to selecting and implementing reading comprehension strategies aimed at their d/Dhh students; in other words, to examine participating teachers’ personally documented reactions and understandings of their roles and the overall teaching/learning experience across this process.

My systematic approach for collecting the data for this case study involved three sequential steps planned to cover the period of one month. I intended a one-month time frame for this study because I wanted to control the data more effectively and efficiently
by adhering to a consistent and concentrated research procedure. This process is illustrated in Table 1, located in the Data Collection section that follows this discussion of the study’s research design. Following are descriptions of the three steps that constitute this research design:

**Step 1.** I conducted the first round of semi-structured interviews with each teacher, individually, during the first week of the study.

**Step 2.** I observed each teacher during selected instructional periods in her classroom. The two teachers responded to ESM questions (via e-mail) after two of their instructional lessons. Classroom observations took place four times across the designated period of two weeks, scheduled during class reading lessons. In turn, each observation period was scheduled to last at least 30 minutes.

**Step 3.** I conducted a second round of semi-structured interviews with each teacher, individually, during the fourth week of the study.

**Data Collection**

In this qualitative case study, I focused the data collection process on exploring and identifying teachers’ perceptions, experiences, and actions as these elements speak to their unique efforts to select and use strategies with which to effectively teach reading comprehension skills to their d/Dhh students. As researcher, I have determined that semi-structured interviews, classroom observations, and Experience-Sampling Methodology (ESM) served as the most relevant and meaningful data collection instruments for this project. I have made this determination based on the research problem and research questions that ground this study.
Furthermore, as a qualitative researcher, I directly interacted with the two selected participants. As such, I conducted two rounds of semi-structured interviews, with each interview lasting approximately one hour. The first interview was followed by four classroom observations per teacher and two ESM documentations for each of the teachers. The fourth and final observation was followed by the second semi-structured interview. To sum up, my subsequent data analysis process depended on the data obtained from two rounds of semi-structured interviews, four classroom observations, and two ESM documentations for each teacher.

Table 1, shows the framework within which the semi-structured interviews, classroom observations, and Experience-Sampling Methodology (ESM) documentations were utilized, all within a one-month period.

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<thead>
<tr>
<th>Name of the Teacher</th>
<th>Timeframe: One Month</th>
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<tr>
<td></td>
<td>Phase 1</td>
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<tr>
<td></td>
<td>1st Semi-Structured Interview [During the first week]</td>
</tr>
<tr>
<td>TC Teacher</td>
<td>1/4/17</td>
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<tr>
<td>OA Teacher</td>
<td>1/5/17</td>
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I now follow with a description of each data source, illustrating its significance to the data collection process. A schedule for collecting and analyzing the data is also provided.
Semi-Structured Interviews

In order to understand the processes that these teachers experience while selecting and using reading comprehensions strategies in their classrooms, the semi-structured interviews included questions and prompts intended to inspire participants’ capacities for in-depth, critical, and reflective thinking about their experiences working with d/Dhh students. Through these intensive interviews, I explored the implicit experiences, perspectives, and interactions that underlie and inform teachers’ selection and implementation processes. Thus, there were two interviews for each teacher, one at the beginning of the study, and one at the end of the study. To assist in making the teachers/participants feel comfortable, they had the option of choosing their preferred times and locations for each of their interviews. Specifically, each participant was individually interviewed and audio recorded.

In advance of the interview process, I presented the goal of the study to the two teachers. Then, the teachers were given a consent form to read and sign once they agreed to be involved. The two teachers selected to participate in the study were asked to provide socio-demographic information about their personal experiences, qualifications, and educational preparation for working with d/Dhh students. Information about their students was also documented and collected by the teachers.

After final selection of the study participants, including obtaining the above information, I proceeded with the first round of interviews in which I asked the teachers open-ended questions related to the study’s purpose; that being to investigate the process each teacher employs when selecting and using reading comprehension strategies with
their students. The use of open-ended questions minimizes the effects of unstructured loaded questions, wards off the influences of narrow categorical responses, and elicits relevant information (Charmaz, 2014). These questions were broad so that the teachers could respond without any restrictions that might block their motivation to go further. In addition, this approach helped me, as researcher, to more effectively recognize critical themes that emerged from participants’ freely given responses. Finally, based on participants’ responses during interviews, additional questions that were related to the discussion emerged; questions that, I, as qualitative researcher, considered important to pursue. For example, when the teachers offered personal terms that were not clear or familiar, I asked, “What does this term mean to you?” This approach encouraged the teachers to contextualize their remarks and provide additional reflections about their perceptions and experiences specific to the challenges of working with d/Dhh students.

Extending the interview process, I also examined the teachers’ reflections and thoughts and reactions when exposed to different (real and fictional) cases, all representing different individual unique needs pertaining to d/Dhh students’ reading abilities. This aspect of the investigation was considered as a follow-up approach within the interview process, allowing the data to become richer and, thus, fill any gaps that existed in the general interview data.

Below are the interview questions (1st round of interviews), arranged in categories and incorporating a few modifications, based on Reed’s work (2001):

- **Certification and education**: What can you tell me about your educational background (undergraduate/major, graduate/major, where, when)? What is the
highest educational degree you have obtained? How did you get interested in teaching d/Dhh students? How much formal education have you had in teaching reading? When? Where? What kind of formal education?

• **Employment:** How many years have you been a teacher? How long have you worked as a teacher of d/Dhh students? What is your favorite part about your position?

• **Characteristics of students:** How many students do you have in your classroom? How many of your students fall into the following unaided categories of hearing loss: mild, moderate, severe, and profound? How many of your students have disabilities in addition to their hearing loss? What other disabilities do they have? Do your students use assistive listening devices such as hearing aids or cochlear implants? Tell me the ages, gender, ethnicity, and language use (English or other languages) of your students. Tell me the reading achievement levels of your students.

• **Reading:** What is your philosophy about reading instruction? Do you ascribe to a particular reading instructional methodology? Do d/Dhh children develop reading proficiency within the same time frame as typical literacy learners? Do d/Dhh children develop reading skills in the same manner as typical literacy learners? Why or why not?

• **Reading comprehension strategies:** What process do you follow in selecting and using appropriate reading comprehension strategies with your d/Dhh students? What reading comprehension strategies do you use in your classroom?
Which reading comprehension strategies do you use the most? Why? Which reading comprehension strategies do you use the least? Why? Have your reading comprehension strategies changed over time? How? Which strategies work for you as a teacher? Which strategies do not work for you? How do you know that your selected strategies are appropriate for your d/Dhh students?

• **Perceptions and actions:** As teacher, how do you put your perceptions about reading comprehension strategies into action? What supports you in putting your perceptions about reading comprehension strategies into action in the classroom setting? What prevents you from putting your perceptions about reading comprehension strategies into action in the classroom setting? What most influences your methods of reading instruction? (Reed, 2001, pp. 381-390)

The next group of questions are examples (2nd round of interviews) taken from Richardson, Anders, Tidwell, and Lloyd (1991) with some modifications:

• How would you describe the way you teach reading comprehension on a typical day? Do you use methods such as reading out loud? Vocabulary activities? Remembering ideas? Memorizing facts? Asking students questions? Student-generated questions?

• Have you ever tried something different from what you learned in your formal education program? Why? Have you ever taught a whole group of d/Dhh students at one time? Under what conditions would you do so? Do you do use different reading comprehension strategies for different groups? Why? What indicates that a reading comprehension strategy is going poorly?
• For example, there are strategies that are recommended by the National Reading Panel (2000), such as comprehension monitoring, graphic and semantic organizers, story map, question answering, question generation, and summarization. Which of these strategies do you use the most and least with your students? Why? What are the challenges that prevent you from using these strategies, or some of these strategies, with your students? Do comprehension strategies improve reading achievement? If so, how is this instruction best provided? Have you used question-answer relationship strategies (QARs) with your students?

Below are examples of follow-up probes (fictional cases, think aloud).

1. You have six d/Dhh students in the Xth grade (the grade level of the teacher being interviewed) who are non-readers at their designated grade level. How are you going to select appropriate reading comprehension strategies? How are you going to teach reading comprehension strategies?

2. You have students who use American Sign Language or students who sign only and who have low levels of reading comprehension. What reading comprehension strategies are you going to use with these students? Why?

3. You have students with cochlear implants who have low levels of reading comprehension. What reading comprehension strategies are you going to use? Why?
Classroom Observations

To understand a teacher’s perceptions of his/her instructional capacities in relation to the needs of his/her students, it is important to analyze information based on observations of classroom instruction and discourse (Pajares, 1992). Collecting data through classroom observations is a reliable and valid method for obtaining information on teachers’ approaches to comprehension strategies (Coyne, 1981) because I was able to see the teacher in action—demonstrating those instructional approaches in real time. For this study, classroom observations revealed a teacher’s perceptions of d/Dhh students’ ability to learn as well as perceptions of his/her own ability to effectively teach them. Therefore, not only did the observations help me to document teachers’ activities specific to the implementation of reading comprehension strategies in the classroom, the observations also yielded understandings regarding how teachers’ perceptions inform their selection of these strategies.

I documented the classroom observations through writing field notes for each observation experience. As stated earlier in the chapter, the observations focused solely on the teacher's use of reading comprehension strategies. As researcher/observer, I looked for any potential matches and mismatches between teacher/participants’ perceptions and their classroom actions relative to the use of reading comprehension strategies with their students. Thus, the observations served as a measure against what teachers said during the first round of interviews. I observed each teacher for two hours in total: four observations for each teacher, with the minimum length of each observation set at 30 minutes. These observations supplemented the information gained from the
initial interviews, as well as the ESM (Experience-Sampling Methodology) documentations that were provided by the participants.

In terms of the technique I used during my actual classroom observations, I structured my process around observation systems used in other, similar studies (Ness, 2006, 2011). More specifically, I included all the reading comprehension strategies recognized by the NRP (2000) in my observation system. Thus, the identified NRP strategies facilitated my observation process by serving as a reference resource during the task of writing field notes, making my observation process more systematic. Similar to Ness’s work, the focus was on teachers’ behaviors, not the students’ behaviors. Given the range and amount of information gathered in these observations, it was important to narrow the number of codes. This simplified the coding process, making it much easier during the time of observation to identify each teacher’s selection of reading comprehension strategies (Ness, 2006). Some of the codes in Ness’s work - such as non-comprehension instruction codes that include Didactic Instruction, Participatory Approach, Assignment, Transition, and Non-Instruction - were removed because of their irrelevance to the present study.

**Explanation of observational codes.** To document study participants’ use of reading comprehension strategies during my classroom observations, I used a checklist that divided the strategies into two categorical codes or headings: Formal and Informal. This checklist, headed by these two simple categorical codes, helped me to organize, under either of the headings, specific reading strategy codes more easily and effectively during my field note writing process. I used formal strategy codes, including reading
comprehension strategies taken from the National Reading Panel (2000), with some modification: Comprehension Monitoring, Cooperative Learning, Graphic Organizer, Story Map, Question Answering, Question Generation, Summarization, and Multiple-Strategy. In turn, I identified informal strategy codes as alternative reading comprehension strategies offered by teachers during the first round of interviews, indicating reading comprehension strategies that are not in the NRP’s report.

The first category of codes, formal reading comprehension strategies based on NPR, were composed of eight strategies. For example, based on the Comprehension Monitoring code (FS-CM), I expected to observe how the individual teachers strive to improve the reader’s ability to be aware of his/her understanding processes while actively reading, as well as how the students demonstrated an ability to deal with any comprehension obstacles he/she encountered during the activity. With the Cooperative Learning code (FS-CL), I observed how the teachers asked/guided students to work together, such as reading to their peers and helping each other to increase their reading comprehension capacities through interactive communication about the activity at hand. Relative to the Graphic Organizer code (FS-GO), I observed how the teachers used visual displays, designed to help students visualize ideas, to construct meaning from the ideas or concepts represented in the text under study. In addition, based on the Story Map code (FS-SM), I expected to observe how both teachers use visual tools that represent and organize the content of the text to help students analyze and comprehend the components of the story (or passage). Story Map components focus on the main characters, setting, problem, and the solution to the story’s problem (Who? Where? What? When? and
Why?). Using the Question Answering code (FS-QA), I observed when the teachers asked students questions about the text in order to examine students’ comprehension skills and how students respond. Based on the Question Generation code (FS-QG), I expected to observe how both of the teachers work to improve students’ ability to ask themselves, “Why, How, When, Which, and Who?” about what they read during and after reading. Using the Summarization code (FS-S), I observed how the teachers instructed students to recognize the main ideas of the text in order to summarize information. Finally, using the Multiple-Strategy code (FS-MS), I observed how the teachers interacted with students in order to teach them how to use two or more of these strategies to enhance their reading comprehension skills.

Following are two tables that illustrate the use of reading comprehension strategy codes as they inform my classroom observation process. Table 2 presents the list of observation codes, and Table 3 shows the teacher observation checklist.

<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading comprehension Strategy based on NRP</td>
<td>Comprehension Monitoring (FS-CM)</td>
</tr>
<tr>
<td></td>
<td>Cooperative Learning (FS-CL)</td>
</tr>
<tr>
<td></td>
<td>Graphic Organizer (FS-GO)</td>
</tr>
<tr>
<td></td>
<td>Story Map (FS-SM)</td>
</tr>
<tr>
<td></td>
<td>Question Answering (FS-QA)</td>
</tr>
<tr>
<td></td>
<td>Question Generation (FS-QG)</td>
</tr>
<tr>
<td></td>
<td>Summarization (FS-S)</td>
</tr>
<tr>
<td></td>
<td>Multiple-Strategy (FS-MS)</td>
</tr>
<tr>
<td>Other Strategy</td>
<td>Offered by Teachers/Participants</td>
</tr>
</tbody>
</table>

Table 2. The List of Observation Codes Used in the Study
### Date:  
Teacher’s Name:  

<table>
<thead>
<tr>
<th>Time of the Observation:</th>
<th>Observation Length:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
<th>Number of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading comprehension Strategy based on NRP</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehension Monitoring (FS-CM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperative Learning (FS-CL)</td>
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<td></td>
</tr>
<tr>
<td>Graphic Organizer (FS-GO)</td>
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<tr>
<td>Story Map (FS-SM)</td>
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</tr>
<tr>
<td>Question Answering (FS-QA)</td>
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<tr>
<td>Summarization (FS-S)</td>
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<tr>
<td>Multiple-Strategy (FS-MS)</td>
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</tbody>
</table>

### Experience-Sampling Methodology (ESM)

The purpose of using Experience-Sampling Methodology (ESM) is to examine the momentary experiences, recorded by participating teachers, related to the processes each teacher used in selecting and implementing reading comprehension strategies with d/Dhh students in the classroom (Hektner et al., 2007). ESM data supplemented the information gained from the teachers’ interviews and from the classroom observations. I suggest that ESM data was valuable to this case study because the nature of this kind of additional information (i.e., *phenomenological self*) supported and enhanced both interview data (i.e., *reflective self*) and the data obtained from classroom observations for building a more substantive analysis of the study findings.

The initial documentation of ESM data occurred after the second observation. The second documentation of ESM data occurred after the forth observation. Note that the schedule for obtaining data using ESM was provided in Table 1, presented earlier in this
section on data collection. In order to implement these scheduled ESM sessions, the teachers were directed to document their responses (via e-mail) to the following questions immediately after teaching a reading lesson:

1. What are the reading comprehension strategies that you used in the lesson?
2. What were the processes that you followed to choose these strategies?
3. Which of the following NRP strategies were not used in your lesson?
   Comprehension Monitoring, Cooperative Learning, Graphic and Semantic Organizers, Story Map, Question Answering, Question Generation, and Summarization, and Multiple-Strategy [Note: This would be provided as checklist as shown in Table 3]
4. What are the challenges that prevent you from using any of these NRP strategies with your students?

**Data Analysis**

Data collected for this case study were initially divided into four different categories in order to facilitate an early organizational approach to the data analysis and triangulation processes. These initial categories helped me to organize the teachers’ perceptions and actions, as they proved significant to the early findings and to the subsequent analysis of those findings. Therefore, I first organized the data according to the following four categories:

1. Teaching preparation
2. Teaching experience
3. Teaching reading comprehension strategies based on NRP and other
strategies.

4. Selecting reading comprehension strategies

To reiterate, all data derived from teacher interviews, classroom observations, and ESM documentations, initially, were placed under one of the pre-determined categories listed above. As I continued to analyze and interpret the data, also addressing other emergent categories and patterns, I created new categories of themes that revealed a more complete refinement of the findings. Each piece of interview data was analyzed individually by using analytic memos for each participant (each case). All analytic memos about the two participants were reviewed across the study sample; that is, were contrasted and compared, through in depth analyses, in order to determine similarities and differences among the participants. This comparison helped me to both merge and separate categories relative to how they indicate teachers’ selection and use of reading comprehension strategies with their d/Dhh students. In addition, I used triangulation to establish trustworthiness with regard to my analysis and interpretation of the findings.

Trustworthiness

For any kind of research, it is important to validate the data and to determine the reliability of the collected data (Jeffries, 2010). Miles and Huberman (1994) explained triangulation in this way, “Stripped to its basics, triangulation is supposed to support a finding by showing that independent measures of it agree with it or, at least, do not contradict it” (p. 266). Therefore, by incorporating multiple data resources in this study, my use of triangulation can be considered as a means with which to validate the results of this case study and make the interpretations of the results more reliable.
After composing analytical memos based on different data resources and that included systemic coding, the memos were used to define emerging categories. All interview data were coded and re-coded in order to establish a stable premise upon which to assert that the findings of this study were dependable relative to the constructs of a qualitative study. Furthermore, through data triangulation based on interviews, observations, and ESM documentation, thematic categories became interconnected. In this way, the triangulated data established sufficient conformability so as to support the idea that “the data and interpretations of the findings are not figments of the inquirer’s imagination, but are clearly derived from the data” (Tobin & Begley, 2004, p. 392). For example, as a teacher-generated resource, Experience-Sampling Methodology (ESM) data contributed to the triangulation process by adding more information to data derived from the interviews and classroom observations. In particular, ESM, as a unique source of teacher feedback, helped me to confirm what I observed in the classrooms and what I heard in the interviews about teachers’ experiences with selection and implementation of reading comprehension strategies with their respective students. To clarify, the first ESM responses confirmed what I observed in the second observation of each teacher, and the second ESM responses confirmed what I observed in the fourth observation. In addition, participants’ ESM responses confirmed the perceptions communicated by each teacher during the interview process, specifically, perceptions related to the selection and implementation of reading comprehension strategies in their elementary d/Dhh classrooms. Essentially, in order to establish trustworthiness with regard to my analysis and interpretation of the findings from the coded interviews (the study’s primary data
collection instrument), I confirmed the final categories and sub-categories through the triangulation of classroom observations and ESM codes. Thus, this study’s use of multiple data collection instruments (triangulation) contributed to the process known as “recursivity;” that is, “the cyclical nature of qualitative research where all procedures can be undertaken repeatedly until a specified condition is met” (Given, 2008, p. 745). In other words, “the process of collecting and then analyzing the data continues until saturation is reached—that is, until no new or relevant information data emerge” (Given, 2008, p. 745). Ultimately, the use of three different data sources enabled me to make connections across teachers’ perceptions of their selection/use of reading comprehension strategies as expressed during their interviews, teachers’ actions and instructional practices as observed in the classroom, and their immediate responses after finishing a lesson (ESM).

Adding another layer to the researcher’s use of strategies that contributed to a study’s creditability, Denzin and Lincoln (1994) stated, “The researcher needs to find a way to allow for the participants to review the material one way or another” (p. 216). Thus, the participants reviewed my notes related to their responses from the interviews, observations, and ESM documentation in order to ensure that I had recorded their responses correctly. This kind of review from participants, as well as triangulation, helped me, as researcher, to control my assumptions and control any kind of bias that would influence my results. I consistently incorporated this strategy to ensure trustworthiness of my data gathering, data analysis, and data reporting. In order to establish the transferability of this study’s findings, I presented the data using a thick
description of my data. I also used purposive sampling in order to establish criteria specific to the qualifications of acceptable participants for my study. On these points, other researchers can then determine this study’s degree of transferability—in terms of setting, study sample, findings, etc.—in relation to their own research aims and potentially replicate it within their particular study constructs (Tobin & Begley, 2004). In all, through my efforts to establish credibility, transferability, dependability, and conformability within the realm of qualitative inquiry, my aim as researcher has been to explore and clarify these teachers’ perceptions and uses of reading comprehension strategies with d/Dhh students in order to answer the research questions that are the foundation of this study.

Summary

This qualitative study, grounded in case study methodology, focuses on examining the processes that teachers follow in selecting and using appropriate reading comprehension strategies with d/Dhh students. Two teachers of elementary level d/Dhh students participated in the study, executed over the span of one month. The setting of the study involves two elementary schools and two classrooms in which teachers use either an oral-aural or a total communication method. The data collection process included two rounds of teacher interviews, one at the beginning of the study and the second round at the end of the study; four classroom observations, scheduled between the two sets of interviews; and two documentations of ESM for each participant, following two designated reading lessons. Data analysis processes involved the triangulation of data from interviews, classroom observations, and ESM documentation. Furthermore, I
analyzed each piece of data, individually, by using analytic memos. As a result of my intentional use of multiple data sources and procedures, I established a foundation of trustworthiness for the implementation of this study, along with its reliability regarding its findings.
Chapter 4: Findings

The purpose of this case study was to examine reading comprehension strategies selected and used by two teachers of d/Dhh (deaf/Deaf and hard of hearing) students in their respective elementary school classrooms. By exploring their educational/professional backgrounds, perceptions, and various other factors that could influence the teachers’ instructional decisions, I aimed to uncover the steps of their individual decision-making processes regarding the choice and use of comprehension strategies specific to the needs of d/Dhh students.

The first three chapters of this dissertation set the stage for this chapter’s presentation of the study findings. To clarify, in Chapter 1, I introduced the issues involved in educating d/Dhh students in the area of reading comprehension; as such, focusing on the difficulties these students experience in terms of developing adequate, on-grade-level reading skills throughout their primary, middle, and secondary years of schooling. In Chapter 2, I presented a review of the literature in which I addressed research studies focused on English reading comprehension strategies, along with theoretical insights advanced by other researchers and educational experts. In Chapter 3, I addressed the study’s design specific to case study methodology as well as data collection and analysis processes. Therefore, in this chapter, I present the findings that emerged
from data collected across four semi-structured interviews, eight classroom observations, and four selections of Experience-Sampling Methodology (ESM).

Two elementary school teachers served as study participants, providing the data collected from the combination of interviews, observations, and ESM. Overall, the data represented teachers’ perceptions, choices, and actions involving the selection and use of reading comprehension strategies with d/Dhh students in the third and fourth grades. In order to recognize and document teachers’ actions (methods of instruction), I relied on classroom observations of the two teachers, also correlating my observations with ESM data. Essentially, all the data sources were designed to intertwine—so as to facilitate integration of participant feedback—in order to answer the research questions and to provide a clear and comparative picture of the two cases. Note that in referring to participants throughout the research/reporting process, I used pseudonyms to ensure that their identities were kept private.

All of the findings presented in this chapter served to answer the following research questions that guided the study.

1. What reading comprehension strategies do the two teachers use in the elementary classroom with their d/Dhh students?
2. What processes do the two teachers follow while selecting appropriate reading comprehension strategies? What rationale do these teachers give for their decisions?

I used Patton’s (1990) framework to analyze the qualitative data generated by this study. As the first step of this process, I read all the data derived from participants’
interviews that include the responses to probe questions. Second, I reread and individually coded the interview data, adding analytic memos for each participant (each case). Third, I reviewed, combined, and grouped all the codes of interviews data in order to substantiate the emergent categories and sub-categories and, thereby, refine the study findings. Fourth, I confirmed the categories and sub-categories through the triangulation of classroom observations and ESM responses in order to establish trustworthiness with regard to my analysis and interpretation of the findings from the coded interviews. As to this chapter’s presentation of excerpts from participants’ feedback (both interview and ESM responses), I selected those responses that best illustrate the relationship between the coded materials and the thematic categories and sub-categories that constitute the findings. On this basis, I include and discuss selected responses—from interviews and teachers’ self-recorded ESM entries—throughout this chapter in order to answer the study’s fundamental research questions.

In direct response to the research questions, four major categories or themes emerged from the data: (a) the teacher’s educational background and personal characteristics, (b) the teacher’s experiences with selection and use of reading comprehension strategies, (c) factors that influenced the teacher’s decision in the selection and use of reading comprehension strategies, and (d) factors that improved the use of reading comprehension strategies. The first category/theme reveals information specific to the participants as individuals and as teaching professionals, each with a particular point of view and teaching style. The remaining three categories represent the teachers’ perspectives and approaches to the selection and use of reading comprehension
strategies, also indicating the important areas of d/Dhh reading comprehension strategies that need particular consideration at the elementary school level. Based on the patterns reflected in participants’ interview responses, my argument rests on the claim that these four categories play an important role in delineating the steps of the decision-making process that informed each teacher’s selection and use of certain reading comprehension strategies. Further, my reasoning holds that these thematic categories are intertwined; as such, inter-dependent and mutually influential as associated with the decision-making processes and outcomes for each teacher. I support this argument by addressing how the teachers’ backgrounds and personal/professional perceptions informed their instructional choices of reading comprehension strategies as implemented in their respective classrooms of d/Dhh students.

Finally, I organized study findings specific to each participating teacher, using the following pseudonyms to refer to them individually: Total Communication Teacher (TC Teacher) and Oral-Aural Teacher (OA Teacher). Thus, each teacher is presented as a separate case based on the four thematic categories that emerged from the findings. In turn, an across-case analysis follows the presentation of each teacher case.

Case Study 1: Total Communication Teacher – Speech and Sign Classroom

Teacher’s Background and Characteristics

The Total Communication Teacher (TC Teacher) taught third grade that include six students when this study was conducted. Regarding her educational background, she graduated from a 4-year university with a Bachelor’s degree in Deaf Education in 2012. In addition to obtaining her Bachelor’s degree, she was certified in elementary education.
Initially, this teacher became interested in working with deaf students when she took American Sign Language (ASL) classes in high school, leading her to pursue the Deaf Education major and a future profession as an educator of deaf children. At the time of this study, she had been a teacher for d/Dhh students more than four years. The following interview excerpts provide insights into this teacher’s personal attitudes, perceptions, and educational influences.

Early into the process, TC teacher expressed her love of working with children, especially deaf children, as noted in the following passage.

*I know I want to do something with kids because I have always been good with kids. I love working with d/DHH kids and learning more about how language works, and how their language develops ... especially when I compare it to a hearing child.* (Total Communication Teacher, interview, January 4, 2017)

Also, she communicated her enjoyment of teaching children by using sign language, describing herself as a visual person and citing this point as another reason she chose to become a teacher of d/Dhh students.

*My teacher told me that my options were to teach with d/Dhh students or to interpret ... I knew I did not want to interpret and started looking to teaching. I talked a lot with my hands, and I am very visual because it came very, very natural to me, so I know I want to keep going with that. I like the fact that I need to sign every day. Also, teaching reading comes naturally because like what I said, I naturally picked up reading for myself. So, I do not have to be in completely explicit and I was used to that. So, I like the fact that I need to teach*
During observations, I noted that TC Teacher demonstrated a high level of passion for teaching and interacting with students. On this aspect of the observation, I perceived that this teacher’s expression of energy and commitment promoted good relationships with her d/Dhh students, evidenced by the positive ways in which the children generally behaved and how they responded to her during instruction. In addition, she paid a great deal of attention to students’ feedback before, during, and after instruction in order to maintain their high levels of motivation and engagement. I further observed that this teacher implemented good time management strategies in the classroom, working effectively with students both individually and in small groups. Overall, TC Teacher’s passion for teaching d/Dhh students was quite visible during this and other classroom observations, thus reflecting her engaged teaching style and dedicated approach in working with her students.

Specific to the study’s focus on reading comprehension strategies, TC Teacher presented herself confidently when teaching reading to her d/Dhh students. Her background (training and credentials) in deaf education—along with personal characteristics of passion, commitment, energy, and self-confidence—were important to recognize in order to make connections with the other thematic categories related to selection and use of reading comprehension strategies. As a matter of fact, TC Teacher’s high level of self-confidence, as consistently demonstrated in her instructional approach with students and her overall passion for teaching, actually reinforced her motivation to improve the reading comprehension skills of these d/Dhh students. In other words, this
teacher’s educational experience and personal qualities reflected on her choices and uses of reading comprehension strategies. Moreover, these same characteristics enhanced her abilities to work with d/DHH students, helping them to move forward in their reading activities while also demonstrating more patience with students’ progress.

**Total Communication Teacher’s Experiences with Selection and Use of Reading Comprehension Strategies**

Reading comprehension involves prior knowledge, metacognition, and working memory in order to understand the written information from the text (Trezek et al., 2010). Baker (2005) suggested that formal instruction and interventions that utilize reading comprehension strategies with elementary age students may enhance early English reading development. As stated earlier, TC Teacher has had more than four years of experience working with d/Dhh students, including both positive and challenging experiences based on the kinds of reading comprehension strategies she used during those years. Over time, such teaching experiences helped her to understand which strategies worked better than others. Therefore, TC Teacher used those reading comprehension strategies that proved to be effective in working with her students and also learned to avoid ineffective strategies and advanced strategies that would not benefit her students’ reading progress at their current reading levels. Squires and Bliss (2004) agreed that teachers’ previous experiences and perceptions in the classroom influence their day-to-day decision-making. Thus, I suggest that TC Teacher’s different experiences over four years of teaching d/Dhh students shaped her understanding of how to best teach reading to these students; thus, applying her experience and knowledge to decide which
instructional practices and reading comprehension strategies would consistently work best for her students. In addition, TC Teacher communicated her perception that appropriate and effective reading comprehension strategies are important for d/Dhh students in order to comprehend the material and to meet school achievement requirements. Following is how she responded to this interview question:

_Do comprehension strategies improve reading achievement? If so, how is this instruction best provided?_

_A lot of reading achievement testing is based on reading comprehension strategies, so your question is based on how to teach it. Also, I do believe a lot of reading comprehension strategies help the kids in being able to understand the basic text to harder text and keep going._ (Total Communication Teacher, personal communication, January 23, 2017)

In the sections that follow, I discuss the reading comprehension strategies that TC Teacher either selected and used or those that she actually rejected. As such, the discussion covers this teacher’s experience with those reading comprehension strategies that she considered appropriate for her d/Dhh students: (a) Question-Answering, (b) Summarization, (c) Story Map and Graphic Organizer, (d) Cooperative Learning, (e) Prediction, (f) Activation of Prior Knowledge, and (g) Inferences. In contrast, TC Teacher revealed that strategies known as Comprehension Monitoring and Question Generating did not work well with her d/DHH students based on their feedback and reactions during the use of these other strategies.
**Question-Answering Strategy**

The Question-Answering strategy is considered the most common strategy used to improve students’ acquisition of reading comprehension skills (Durkin, 1979). Correlating with Durkin’s (1979) premise, TC Teacher used the Question-Answering strategy regularly during all the observed reading lessons. In comparison with the other reading comprehension strategies used throughout the course of the study, this teacher used the Question-Answering strategy most frequently. Further, TC Teacher confirmed her preference of this strategy through the perceptions she communicated during the interview sessions and in her ESM documentation. She also noted that she used this strategy in conjunction with several other strategies such as the Graphic Organizer, Story Map, and sometimes with teaching Summarization.

*I do a lot of Question-Answering, especially story maps, so I have characters.*

*Then I ask them [her students], Who are the characters? And they have to tell me first and then write it down.* (Total Communication Teacher, interview, January 4, 2017)

Emphasizing the importance of the Question-Answering strategy, TC Teacher used different kinds of questions before the reading, during the reading and after the reading. Some of the questions were related to the text, some were related to readers’ prior knowledge, and some were related to the pictures in the books. Even though I observed that d/Dhh students struggle at times with Question-Answering, she consistently used this strategy as a foundational component of her reading comprehension instructional approach. On this point, TC Teacher explained,
I do a lot of question-answering, because my kids often struggle with question-answering, so I teach them how to answer questions because these are very important things to learn. (Interview, January 23, 2017).

As witnessed during my observations, TC Teacher taught d/Dhh students Question-Answering by signing different kinds of questions in order to help them comprehend the text effectively. In turn, the d/Dhh students answered the questions posed by the teacher, and she provided (through signing) immediate feedback on the correctness of their responses. As noted earlier, this teacher used different kinds of questions related to text and to students’ prior knowledge in order to draw out inferences and make connections that foster critical thinking skills important for improving reading comprehension. Based on the observations, it was clear that TC Teacher used Question-Answering Relationship (QAR) principles and concepts, even though she was not aware of the term QAR in a formal sense. For example, she did use different kinds of questions that were consistent with the categories formally associated with QAR: (a) “Right There,” (b) “Think and Search,” and (c) “Author and Me.” It should be noted, however, that TC Teacher did not use the QAR category of questions titled, “On My Own.”

**Summarization**

In teaching summarization skills, the main goal is to teach the reader to recognize the main ideas of a text. According to Jones (2007), summarizing supports the reader’s ability to comprehend a text as well as assist them with their writing. However, it is not an easy task to teach summarization. Though TC teacher perceived Summarization as an advanced strategy, she used it often with her d/Dhh students.
I do summarizing a lot with sequencing. Like, they can tell me the story in order, but that is also a hard skill because a lot of the time they do not know how to pick important things, and then they tell me little details, so summarizing I do with sequencing .... (Total Communication Teacher, interview, January 4, 2017)

As part of my observation process, I witnessed TC Teacher using Summarization as an additional reading comprehension strategy during the four reading lessons. As she had explained, her goal was to make sure that the students comprehended the main idea and main details of the book they were studying. However, because all of TC Teacher’s summarization strategies were implemented “through the air” only, she acknowledged that teaching advanced Summarization would be more difficult since her students faced reading challenges with Summarization through the air. TC Teacher explained,

*It is hard to pick the important ideas. I avoid the advanced summarization because that is too hard for them to tell me the important details.* (Interview, January 4, 2017)

Based on her students’ feedback struggling with Summarization, TC Teacher spent more time teaching them the basic of summarization skills, as noted in the following Experience-Sampling (ESM) excerpt.

*I have noticed that many of my students struggle to pick important events from the story to summarize or to retell the story in the correct order. So, I worked with individual students—one-on-one—to help them practice this skill.* (Total Communication Teacher, personal communication (ESM), January 12, 2017)

The difficulty of Summarization did not prevent TC Teacher from using the
strategy with her students. This finding is consistent with the work of Ewoldt et al. (1992) who recommended that teachers not avoid using difficult materials when teaching deaf students. Thus, TC Teacher continually tried to teach her d/Dhh students the basics of Summarization in order to prepare the students for later, effective use of Summarization skills.

**Graphic Organizer and Story Map**

When using the Graphic Organizer and Story Map instructional strategies, TC Teacher provided her d/Dhh students with visual formats with which they were able to write/represent the meanings and relationships of an idea from a story. To clarify, graphic organizers and story maps serve as visual tools (print or electronic format) that ask students to answer who?, what?, when?, where?, and why? questions by representing and organizing the content of a text. The purpose of such organizers is to help d/Dhh students analyze and comprehend the components of the story. In terms of their overall effectiveness, Duke and Pearson (2000) claimed that the use of graphic organizers helps readers recognize and remember important content—in both narrative and expository texts—in order to increase reading comprehension of the texts. TC Teacher preferred to use the Graphic Organizer and Story Map strategies together because, in her view, their functions tend to coincide and overlap. The following comments, from multiple interview sessions with TC Teacher, demonstrate the various benefits of these strategies as used with d/Dhh students.

*I think the story map and graphic organizer go hand and hand. So, I use both of those hand and hand … I use a lot of Graphic Organizers and Story Maps*
because that gives my kids a visual way to organize the information ... Graphic Organizing and Story Map work really well for my students ... I feel that this Graphic organizer and Story Map [enable me] to teach a child this [is] how you organize information and this is how [a] story works ... So, I do a lot of Graphic Organizer and Story Map (Interview, January 4, 2017).

Story Map and Graphic Organizer strategies give my kids visual ways to organize their thinking and gets them to start thinking about a book. (Interview, January 23, 2017).

TC Teacher also acknowledged that she used the Graphic Organizer and Story Map strategies frequently because they worked well with her d/Dhh students. Overall, this teacher’s perceptions about the Story Map strategy are consistent with the NRP (2000) report indicating that the strategy consistently shows a positive effect on the development of memory and identification skills, specifically for poor or below average readers. Thus, based on the frequency of TC Teacher’s use of the Graphic Organizer and Story Map strategies, these two strategies, implemented together, assumed the position of second place usage after the Question-Answering strategy.

As noted during my observations, TC Teacher used the Story Map strategy to specifically direct students to respond to when?, who?, where?, and what? questions, requiring them to write responses reflecting the main idea of the story and, then, the main details of the story. During that process, she offered corrections and feedback to student’s responses to further guide their understanding of the reading. To reiterate, Story Map and Graphic Organizer strategies involve Question-Answering strategies in the sense of
posing questions to students that will prompt their comprehension of both story 
organization and content, including vocabulary. TC Teacher shared the following 
thoughts across two interview sessions,

Typically the students read, and then I ask questions throughout the week, and 
will do a story map. (Interview, January 23, 2017).

I teach word knowledge and word recognition by using graphic organizers. 
(Interview, January 4, 2017)

At the beginning of each reading lesson, TC Teacher used the Graphic Organizer 
strategy to teach word recognition (definition) pertaining to new words introduced in the 
book being studied. For example, during a game called “Capture Pyramid,” d/Dhh 
students worked with high frequency words from the story whereby they would pick a 
word, and sign it to the teacher. Then, as a group, students would use the word in 
sentences with different tenses. Ultimately, use of these particular tools helped TC 
Teacher’s d/Dhh students deal with important words—visually—by recognizing the 
meaning, and the use of the words.

Cooperative Learning

In some cases, TC Teacher allowed her d/Dhh students to work together, but this 
practice was conditional on the basis that the students in each group were at the same 
reading level. The premise for this practice of cooperative learning was that the students 
could collaborate and exchange their understandings of the ideas represented in the story 
content under study.

I try to do Cooperative Learning as much as I can, if I can. Often times, when I
have beginning of kindergarten to middle kindergarten readers, it is hard to do Cooperative Learning with them. (Total Communication Teacher, interview, January 4, 2017)

During the observations, I noticed that TC Teacher sometimes used Cooperative Learning only if she worked with one student individually. Thus, she let every two students work together, before or after the reading, because she considered Cooperative Learning to be an effective learning strategy for her d/Dhh students. In other words, she believed that peer to peer learning was especially beneficial for these students because their sharing of personal knowledge/understandings could stimulate new pathways of learning. Thus, this perception is consistent with Balkcom’s (1992) theory that cooperative learning is an effective learning strategy among small groups whose members vary in academic achievement. In addition to facilitating the cooperative learning process, TC Teacher monitored students’ work individually. As such, she used this monitoring strategy to introduce or to review areas of text with the students as a whole. At the same time, while students worked cooperatively, she was also able to work with a student who needed more individualized attention and practice. TC Teacher’s overall rationale for using Cooperative Learning to support reading comprehension instruction with d/Dhh students follows.

I do Cooperative Learning because my kids are really doing well learning from each other, so that’s why I used cooperative learning. The students learn from the background knowledge of the other students which they did not have. (Total Communication Teacher, interview, January, 23, 2017)
As observed, the Cooperative Learning strategy worked well with TC Teacher’s d/Dhh students. It kept groups of students engaged with the text and with each other instead of waiting for the teacher to finish working with another student in order to continue the learning process. At the same time, the teacher worked with all students engaged in the Cooperative Learning process to make sure that they comprehend the text correctly. In addition, while using Cooperative Learning to teach vocabulary, the strategy enabled a focus on the use of high frequency words by encouraging students to build complete sentences—through the air—while interacting with one another. Based on my observations of TC Teacher’s use of Cooperative Learning, this strategy ranked as the fifth most used reading comprehension strategy for this teacher.

**Prior Knowledge, Prediction, and Inferences Strategies**

In this section, I combine discussions of these three reading comprehension strategies—Prior Knowledge, Prediction, and Inferences—because they inherently inform one another in both theoretical and practical terms. TC Teacher used these additional reading comprehension strategies, all of which involved Question-Answering. As such, she used Activation of Prior Knowledge and Prediction strategies before reading. During the actual reading activity, she used the Inferences strategy to help students develop their meaning making skills. The use of these three strategies can be considered a metacognitive process in which readers need to create meaning for unfamiliar content in the text by making inferences. At the same time, the practice of making inferences is connected to the use of prediction and the activation of students’ prior knowledge relative to previous learning activities and lived experiences (Jackson et
TC Teacher introduced and implemented all three strategies with her d/Dhh students by asking questions.

Within the following Question-Answering exchange, TC Teacher used the strategies of Prediction and Activation of Prior Knowledge to introduce a new book, *The Bee*, to her students.

Teacher: What is the title of this book?
Student 1: *The Bee*
Teacher: Yes, The Bee
Teacher: Before we open the book, what do we see in the front of the book?
Student 2: *Flower*
Teacher: Yes, we see the flower.
Teacher: Ok, what is the bee doing?
Student 2: *Take honey.*
Teacher: Ok, what do you think?
Student 1: *The bee want to drink from the flower.*
Teacher: *What is he drinking from the flower?*
Student 2: *Honey*
Teacher: Do you think the bee is drinking honey? (asked student 1)
Student 1: Maybe he get water from the flower!
Teacher: Maybe, I do not know. What do we see about the flower? About the picture?
Teacher: I think of the flower calling rose ... rose.
Student 1: *Oh ... Same name of the student in other class like name Rose, right?*

Teacher: *Yah! That is a good connection. She got her name from the flower.*

Student 1: *Maybe the bee think the flower is pretty.*

Teacher: *I don’t know, maybe. I have not read this book before. I need you to look and see what happens in the picture because these pictures help you to understand the text ... because I am giving you a hard book, because this book is a little bit harder. You need to cover the text and look only at the picture... I need you to think what is happening... I need your prediction. Ok?* (Total Communication Teacher, observation, January 18, 2017)

As observed, the interactions between TC Teacher and d/Dhh students were consistent with theories advanced by Rawson and Van Overschelde (2008) who posited that readers who have some prior knowledge about a topic are more likely able to comprehend a text. Thus based on the importance of prior knowledge, TC Teacher connected the use of prior knowledge with the use of prediction by asking her d/Dhh students to look at all the pictures in order to make connections/inferences about these visual cues, create meanings, and apply such meanings to the story. As represented in the pictures, she asked each student to tell her what they thought was happening. In addition, TC Teacher created text-to-self connections. For example, when Student 1 connected the word, Rose, to the name of another student, TC Teacher confirmed Student 1’s response by saying and signing, “That is a good connection.” She discussed each picture in order
to teach/point out all the visual details that might be connected to the text, thereby reinforcing students’ reading comprehension skills. Essentially, TC Teacher taught her d/Dhh students how to make predictions from viewing and analyzing the book’s pictures and, with that, how to make cognitive connections to their prior knowledge. These strategies then supported students’ inferencing processes through which they could create meaning about the story. Simply stated,

*I can look at the picture, and the picture can tell me about what is happening in the story, and that can help me to move on.* (Total Communication Teacher, interview, January 4, 2017)

The process of using these three integrated strategies—Activation of Prior Knowledge, Prediction, and Inferences—helped TC Teacher communicate to her d/Dhh students that all the pictures in this particular book (illustrated books, in general) can help the reader to make sense of the story during active reading. In other words, pictures can be used as a means to introduce the story before interacting with the text, and they can be used during the course of reading to comprehend the text. During my observation of *The Bee* reading lesson, TC Teacher explicitly used the Prediction strategy with this new book, while she used the Prior Knowledge strategy relative to books previously studied and the new book. Specific to Inferences, she used this strategy in direct relation to the Prediction strategy. For example, she asked,

*How did the author help us to understand that the bee is sad? How did the illustrator help us to understand that the bee is sad?* (Total Communication Teacher, observation, January 18, 2017)
Essentially, she used different kinds of questions to teach students how to make inferences before, during, and after the reading. Such questions included, “How do the characters feel?” and “How do you know that?” It was evident that TC Teacher used these kinds of probing/prompting questions to stop the guessing and proceed to a deeper level of thinking.

Overall, I noted that the combined strategies of Prior Knowledge, Prediction, and Inferences successfully enhanced students’ engagement and understanding of the new material. The use of visual cues proved to be especially significant in activating d/Dhh students’ prior knowledge. On this point, Raphael and McKinney (1983) argued that readers who have a large amount of prior knowledge relevant to the topic at hand are better able to answer questions than readers with a low amount of prior knowledge, especially when it comes to inferential questions. I suggest that this point is particularly significant to the learning needs of d/Dhh students.

Finally, by teaching her d/Dhh students how to analyze the text through visual cues representative of characters’ feelings and actions as shown in the book’s pictures, they also learned how to make additional inferences about the bee by recognizing the words that the author wrote in the story itself, while continually making connections to the pictures. For example, students were able to notice how the illustrator made the bee’s feelings more visible to the reader, thus preparing the reader to better understand the textual content connected with that picture.
Total Communication Teacher’s Use of Multiple Strategies

TC Teacher introduced several reading comprehension strategies to d/Dhh students and regularly used them together during reading instruction. In fact, she combined various strategies in all the reading lessons I observed. Specifically, TC Teacher integrated two or more of the following strategies when instructing her d/Dhh students: (a) Cooperative Learning, (b) Graphic Organizer and Story Map, (c) Question-Answering, (d) Summarization, (e) Prediction, (f) Prior Knowledge, and (g) Inferences. TC Teacher’s perceptions, selection processes, and subsequent implementation of multiple strategies were consistent with the National Reading Panel’s (2000) recommendations stating that the use of a combination of strategies would more likely and more effectively improve students’ reading comprehension skills as well as improve their overall academic achievement.

In the first reading lesson, TC Teacher used Question-Answering, Story Map, and Summarization strategies. The Question-Answering strategy continued throughout the lesson in this way: (a) before reading, to establish Prior Knowledge; (b) during the reading, for understanding the textual content; and (c) after the reading, in conjunction with the Story Map and Summarization strategies. The second reading lesson served as a continuing study of the book introduced in the previous (first) lesson. In this instance, TC Teacher used the same combination of strategies as before—Question-Answering, Story Map, and Summarization strategies. After completing the story, she used Question-Answering in conjunction with her use of the Story Map. In turn, she used the Summarization strategy after writing students’ Story Map responses on the paper. TC
Teacher recorded her thoughts, specific to the lesson, in one of her immediate responses as part of the Experience-Sampling Method’s documentation process.

*I used repeated readings, decoding practice, Question-Answering, and Summarizing in this lesson.* (Total Communication Teacher, personal communication (ESM), January 12, 2017)

In the third reading lesson that involved the introduction of a new book, she used two strategies: Question-Answering and Summarization. She initially used Question-Answering when teaching Prediction and determining students’ Prior Knowledge specific to the new book, including their initial understandings based on the use of picture predictions. Based on her d/Dhh students’ understandings of the story after having made predictions from the story’s pictures, TC Teacher’s use of Summarization was evident. During the fourth reading lesson, she used Question-Answering, Inferences, and Summarization strategies. She used Question-Answering after completing the reading in order to ensure that the students understood the story. Then, she used Summarization to let each student summarize the story through the air. The following excerpt represents one of this teacher’s immediate ESM responses for the fourth reading lesson.

*I used repeated readings, decoding and phonics practice, Cooperative Learning, Question-Answering (about characters, setting, and plot; but also about inferential questions and what the author and illustrator are doing throughout the story), self-monitoring for fluency, and Summarizing in this lesson.* (Total Communication Teacher, personal communication (ESM), January 18, 2017)
It should also be noted that TC Teacher used the Cooperative Learning strategy during the second and fourth reading lessons. She did this to introduce the book to groups of students who were working independently at that point and with other groups of students for the purpose of reviewing the story after having finished working with the teacher. In addition, she used the Graphic Organizer strategy to teach important words in the story throughout all of the reading lessons. Table 4 shows TC Teacher’s use of different reading comprehension strategies during the four reading lessons.

<table>
<thead>
<tr>
<th>Reading Comprehension Strategy</th>
<th>1st Reading Lesson</th>
<th>2nd Reading Lesson</th>
<th>3rd Reading Lesson</th>
<th>4th Reading Lesson</th>
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<td>✓</td>
<td>✓</td>
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<tr>
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<td>✓</td>
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<td>✓</td>
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<tr>
<td>Question Generating (QG)</td>
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Table 4. TC Teacher’s Four Reading Lessons: Use of Reading Comprehension Strategies
Advanced Strategies: Comprehension Monitoring and Question Generating

In general, students’ reactions to instructional strategies play an important role in terms of influencing why/how a teacher selects and uses certain reading comprehension strategies—sometimes resulting in the choice to eliminate or switch to other strategies. In the case of TC Teacher, prior instructional experiences with d/Dhh students provided essential insights into the selection of strategies that proved to be ineffective. For example, during her first years of teaching third grade, she attempted to use advanced reading comprehension strategies: Comprehension Monitoring and Question Generating. However, the negative reactions and outcomes she experienced while using these advanced strategies influenced TC Teacher to stop using them. In other words, the fact that her students did not benefit from using these strategies can be considered as a valid, student-based influence on her selection process.

So, I came in starting to do more of this question generating, comprehension monitoring ... but I realized very quickly they were not developmentally ready for some of these strategies yet. (Total Communication Teacher, interview, January 4, 2017)

As evidenced by the previous statement, and based on her early experiences in using Comprehension Monitoring and Question Generating, TC Teacher recognized very quickly that her d/Dhh students were not yet ready to use such advanced strategies. It was her perception that Comprehension Monitoring strategy should be used for higher-level readers in general, and this is typically not the case for the majority of her d/Dhh students. As discussed in this study’s review of the literature, d/Dhh students are
considered lower level readers (especially in their earlier years of schooling) when compared to their hearing (typical literacy learners) counterparts due to their reading challenges. Thus, TC Teacher’s perception was consistent with Grabe and Mann’s (1984) view that skilled readers have greater comprehension monitoring abilities when compared with poor or less skilled readers. Consequently, and as confirmed by this teacher’s experiences, students’ reading skill levels are especially significant for teachers of d/Dhh students whose particular challenges must be considered primary in the selection of appropriate and meaningful reading comprehension strategies.

*With my higher readers, I try to do Comprehension Monitoring. Like I said, with lower readers it is hard because they still do not know what they have to monitor, if that makes sense. I like to teach them monitoring because they do not realize what they are trying to keep track of ... However, Comprehension Monitoring works for one student who needs to be all ready for mainstreaming.*

(Total Communication Teacher, interview, January 4, 2017)

As for the advanced Generating Question strategy, TC Teacher indicated that her students did not respond/perform well when she used this approach during her earlier teaching experiences with the Generating Question strategy.

*Also, Generating Questions do not work well for my kids ... I don’t do Generating Question because that is still a very high level skill for my students, and they don’t have the skills to use this strategy ... and they struggle to answer questions rather than generating questions ... so, I learned very quickly it is not going to work because a lot of my students could not do it. I get nothing back!!* (Total
Communication Teacher, interview, January 4, 2017

Overall, TC Teacher confirmed that both the Comprehension Monitoring and the Generating Question strategies are more appropriate for higher-level readers because at the time of the study, her students were not yet reading at that level. This determination was the reason why she had not used the two advanced strategies during my observations of her working with her d/Dhh students. Finally, of these two strategies, TC Teacher considered the Generating Question strategy the most difficult in terms of what did not work for her students.

The Signs of Inappropriate Reading Comprehension Strategies

TC Teacher was able to “read” the different signs that indicated whether certain reading comprehension strategies were working well for her d/Dhh students and when particular strategies proved to be more challenging for them. As such, she could discern when a student or groups of students needed more attention from her. She could also determine when it was best to switch to a different reading comprehension strategy that would elicit a greater degree of engagement and understanding from the students. With time and teaching experience, these signs became more easily recognizable by TC Teacher as she explored and assessed the use of various reading comprehension strategies in her classroom instruction. For example, TC Teacher cited “seeing progress” as a sign that students were positively engaged in the lesson. She described progress as being related to each student’s ability to work with challenging text as well as the ability to give her feedback during the use of each strategy and in response to direct questioning. Another indicator of progress was demonstrated by students’ ability to follow TC
Teacher’s instructions during their interactions with the text. As such, she determined that this kind of student feedback, indicating progress, confirmed that a strategy worked effectively for her d/Dhh students.

*Seeing them progress in their reading and being able to start to read more challenging text. Also, [if] they are able to do what I am asking them to do.* (Total Communication Teacher, interview, January 4, 2017).

In contrast, TC Teacher considered students’ body language as a significant sign that a strategy was not working well with her d/Dhh students.

*There are other signs that tell me this strategy is not effective. I would say if they are easily frustrated, that would be a big sign. I have a student who just gets very frustrated with reading and says they cannot do it ... Also, this puzzled look, “What you asking me to do?” it is big sign ... That gives me a sign that I need to switch... Also, level of engagement plays an important role to tell me if certain instruction works well or not.* (Total Communication teacher, interview, January 4, 2017).

In line with her self-description as a visual person, TC Teacher paid a great deal of attention to students’ body language; that is, how the visual cues of body language explained students’ engagement levels according to her interpretations. As stated in the preceding interview excerpt, TC Teacher used students’ body language—facial expressions and physical movements—as a sign to change to another strategy that might work better for them. In fact, TC Teacher’s awareness of students’ body language cues was noticeable to me during classroom observation sessions, evidenced by changes in her
instructional strategies when she noticed student engagement waning based on students’
expressions of quick frustration or their silence as associated with lack of student
feedback.

Factors that Influenced Total Communication Teacher’s Decisions in the Selection
and Use of Reading Comprehension Strategies

This section focuses on findings related to factors that influenced TC Teacher’s
use and selection of reading comprehension strategies with her third grade, d/Dhh
students. As perceived by TC Teacher, these factors were associated with (a) students’
abilities, (b) students’ personal characteristics, and the (c) presence (or lack) of a
foundation of reading indicative of a student’s early childhood exposure to books (within
the family unit and across the very early grades of schooling). On this last point, TC
Teacher’s perception was that a student’s foundational relationship with books and the
early acquisition of basic reading skills better positioned her to effectively use reading
comprehension strategies with d/Dhh students. According to Wray, Medwell, Fox, and
Poulson (2000), the representation of teachers’ perceptions contributes to the quality of
education and the development of the field of education. Furthermore, Yero (2002)
affirmed that while perceptions are not explicit, they play an important role in the context
of an individual’s decision making processes. In line with these views, TC Teacher’s
perceptions proved to exert significant influences on the teaching/learning activities
implemented in her classroom.

Throughout this section, I discuss factors that indicated a direct relationship to TC
Teacher’s perceptions of her students’ abilities, characteristic, and backgrounds; and how
such factors influenced TC Teacher’s process of making decisions regarding the different reading comprehension strategies she ultimately chose to use with her d/Dhh students.

**Students’ Abilities and Characteristics**

At the time this study was conducted, TC Teacher’s third grade classroom was comprised of six students—three boys and three girls—who were either eight or nine years of age and who represented different ethnicities (Caucasian, Mixed-Caucasian, African American, Latino, and Somali). While all of the students demonstrated profound hearing loss, their different backgrounds and home languages (other than English) impacted their reading abilities. Two of the students used Cochlear Implant (CIs), and they spoke Spanish at home. One student used American Sign Language (ASL) at home, and two students used English with the support of signing at home. Another student had recently moved to the United States from his country of Somalia, and his family communicated in Somali at home. Consequently, his skills in English sign were very poor. Relative to these characteristics and personal circumstances, each student’s reading level was different from that of the other students, ranging from a kindergarten level to a third grade level. The student who was assessed at the third grade reading level had already been mainstreamed into a reading class with hearing students. By observing all the reading lessons that TC Teacher instructed, I was able to witness and account for the ways in which she worked with and accommodated her d/Dhh students’ skill levels (from kindergarten to third grade), while also making connections between students’ demonstrated skills and their individual backgrounds. Table 5 illustrates each student’s background information, including ethnicity, home language, and reading level.
Consequently, the apparent differences in reading levels, students’ use of home language outside of school, and the degrees of hearing loss among these d/Dhh students brought other challenges to TC Teacher’s classroom. For those students whose first language was not English, the reading challenges that they already faced as d/Dhh students increased during interactions with English text. These same challenges impacted TC Teacher in terms of choosing and implementing appropriate instructional strategies that would speak to the needs of all the students in her class. For example, the Somali student (number 6) who had recently moved to the United States demonstrated very poor English signing skills because his home (first) language was Somali. As a result, he faced many difficulties when communicating with his teacher during the reading lesson. To both lesser and greater degrees, this was also the case with the two Latino students.
(number 2 and 3) in the class who were accustomed to speaking Spanish in their homes. However, unlike the Somali student, they had CIs, which facilitated exposure to English during the school day and during other social interactions with English speakers. As another example of the diverse language backgrounds represented in TC Teacher’s d/Dhh classroom, ASL (American Sign Language) was the home language for an African American student (number 4). Because the syntax of ASL is not similar to English syntax, this divergence can impact English reading comprehension because of the disconnection between the two languages for the d/Dhh students who are using ASL (Trezek et al., 2010). Further, while ASL has grammar rules, ASL grammar is different when compared with that of spoken English. Clearly, English was not the home language for the most of TC Teacher’s students. Thus, their exposure to English, as a common language, was limited or non-existent. Overall, because of their diverse needs, TC Teacher communicated that she would prefer to work with each d/Dhh student individually in order to use the reading comprehension strategies that would best suit each student, but that was not possible:

*It is best to use reading comprehension strategies—one by one—with my kids, but that is not realistic. I do not have the time . . . to do that in small groups, that [would be] a good balance between [the students].* (Total Communication Teacher, interview, January 23, 2017)

Clearly, while TC Teacher expressed her desire to work with each d/Dhh student individually in order to more effectively address each of their different needs with the appropriate reading comprehension strategies, she did not have enough time to do so.
Thus, she dealt with these challenges by dividing her d/Dhh students into small groups based on their reading levels.

**Challenges for d/Dhh Students**

One of the major challenges for many d/Dhh students is acquiring communicative language as well as academic language for literacy development (Paul, 2009). In contrast, typical literacy learning students at the same grade level do not often face the same language development challenges. For a number of TC Teacher’s d/Dhh students, challenges around language development were further complicated by the lack of an early foundation in reading. This deficit in reading exposure and practice made the situation more complicated for TC Teacher because these students needed a more intensive teaching style compared to that for typical literacy learning students. On this point, TC Teacher compared the language development of her third grade, d/Dhh students to typical literacy learning students in the same grade, asserting that the delay of language development affected the reading progress of her d/Dhh students.

*In my experiences, I have some [students] who are developing reading proficiency within the same time frame, but those are typically the kids [who] have more hearing ... and have a lot more support at home. But the majority do not. They tend to develop slower.* (Total Communication Teacher, interview, January 4, 2017)

Because the language development of her d/Dhh students progressed at a slower pace, this issue emerged as a key factor when comparing their development of reading proficiency within the same timeframe as that associated with typical, hearing literacy
learners. Ultimately, TC Teacher pointed to d/Dhh students’ limited access to sounds as playing a major role in accounting for this difference in language development and reading proficiency skills relative to timeframes. She further emphasized that the slower pace of language development of her d/Dhh students was connected to the deficits they experienced as babies and young children who could not hear sounds during the typical, early phases of language acquisition.

*Typically, their language development is impeded because they missed out on a lot of those formative times of learning language... when a typical newborn can hear everything going on and can pick up language, can talk to you and have conversation with you, but a deaf child typically can’t because they are not hearing what is being said in the background. They have not much exposure to talking to adults as typical hearing [children]. Their language is slower development because they are missing out their formative years, a really important time for language learning. Because we have some kids who are not identified [until] after two years old, and so they are missing out two years of potential language learning, and so that slows down their reading. So, I think, therefore, if your language is not developed then, your reading can’t develop. Just one of the sayings that I really like is “language is first of all spoken,” so you have to know the spoken through the air language before you can start [to] learn print. And, typically, a lot of deaf kids are really behind on that area. I think they also do not always get exposed to how important reading is.* (Total Communication Teacher, interview, January 4, 2017)
Essentially, it was TC Teacher’s perception that the reality of missing early English language exposure through the air had affected her d/Dhh students’ language development and English reading skills because language development and the capacity to read are intertwined. Through the air language is acquired naturally, which was not the case for her d/Dhh students who represented a variety of different home languages, and who required explicit and direct instructional strategies from TC Teacher in order to fill this English language development gap. For example, some of her d/Dhh students were initially identified with hearing loss after two years of age. Thus, during those two years, their language development was delayed.

*I need to be much more explicit in my instruction and much more direct because I think there is more opportunity for that social learning for typical learners versus d/Dhh learners … they do not have as much opportunity to look around … and kind of have that social learning of language in reading.* (Total Communication Teacher, interview, January 4, 2017)

TC Teacher’s perceptions of language development were consistent with the Qualitative Similarity Hypothesis (QSH) (Paul et al., 2013), a model that asserts that d/Dhh learners who learn English as a first or second language go through similar developmental steps as do typical literacy learners. In general, d/Dhh learners make the same errors in a qualitatively or developmentally way as do typical literacy learners (Paul et al., 2013; Paul & Lee, 2010). Nonetheless, the basis of the QSH holds that a number of d/Dhh students’ rate of acquisition commonly occurs at different stages when compared to that of typical literacy readers despite the similarities across developmental processes.
for both groups. Furthermore, in addition to the challenges posed by delayed English language development among her d/Dhh students, TC Teacher indicated other learning difficulties experienced by the students related to a lack of cognitive organizational skills.

*What I have been seeing ... a lot of my kids lack a way to organize their own information because their brain does not know how to organize something. So, how to put something into a certain category ... so that stays there. It just all kind of jumbled around. It is just taking them forever for their brain to find the information that it needs to find ... so my kids often not that high..* (Total Communication Teacher, interview, January 4, 2017)

**Discovering Students’ Reading Abilities and Needs**

According to her perceptions of her d/Dhh students’ initial abilities, TC Teacher determined that they needed to acquire a solid reading foundation, first, in order to eventually achieve appropriate reading comprehension levels. She aimed to help her students reach these goals by using different kinds of instructional, reading comprehension strategies. Thus, TC Teacher’s first step in the process of selection and use of reading comprehension strategies was to discover the students’ needs based on their test results, along with their feedback during reading instruction. This kind of inventory helped TC Teacher determine whether or not her d/Dhh students already had the reading foundations required in order to make the best use of the various reading comprehension strategies available to her. As such, by initiating this assessment/feedback process early on, TC Teacher was able to provide her d/Dhh students the
One of the first things that I do is kind of inventory what they already know. So, I kind of try to do comprehensive inventory of what they are coming to me with. Do they know the alphabet? Do they know the upper case and lower case? Because if they do not know ... the foundation of print language is knowing these letters represent every sound, ok ... so we move from that. Do they know the sound that sounds connect with that? Ok, can they tell me the parts of the book? (the title, the cover, how I read in what direction ... that kind of thing). Often time, by third grade, they get that ... they know the principles of a book and that kind of thing.

(Total Communication Teacher, interview, January 4, 2017)

Try to gather as much information as possible from the students: what they can or what they cannot do. So, I don’t want to cover something that they cannot do, or do something they do not have the foundation for yet! Then, I look at which of the reading comprehension strategies would best meet students’ needs right now. If lower level needs, then it might just be story map and graphic organizer. If it is high level need, then start some question generation and comprehension monitoring, if that is what I’m noticing they need. (Total Communication Teacher, interview, January 23, 2017)

As seen from TC Teacher’s perceptions, it was important to establish reading foundations for her d/Dhh students because they needed to have a more solid grounding
before starting to engage with reading comprehension strategies. At the same time, reading foundations needs differed among her d/Dhh students. Their varied reading levels required that TC Teacher divide her students into two groups based on their reading levels. In this way, she could address their individual needs and use appropriate reading comprehension strategies, such as the Graphic Organizer and Story Map with students of lower reading skills and Question-Answering for students with higher level reading skills. As demonstrated by her processes of selection/use of strategies, TC Teacher’s perceptions and actions were aimed at accounting for the needs of her d/Dhh students. Her approach was consistent with the views of Trezek et al. (2010) who asserted that English instruction should be designed based on the child’s needs, thus affirming that different children have different needs with respect to language development, comprehension skills, and various other components of English reading.

_I have two reading groups that I work with. First reading group, they need a lot of work on sounds, on how I combine sounds in a word, how I combine letters to form sounds that I need for this word, and how those specific sounds with that specific sounds combination makes one word ... that kind of idea. So, they need that. My other group understands that, so we moved on, I am working on more ... So, I think one of the most important steps is getting that kind of comprehension inventory, what they already know, that based on their individual needs._ (Total Communication Teacher, interview, January 4, 2017).

The reading foundations that most of TC Teacher’s d/Dhh students needed comprised three areas: (a) vocabulary, (b) phonics, and (c) building background
knowledge. As part of her foundations-building process, TC Teacher used explicit strategies to improve students’ reading abilities, focusing on these three foundational areas in order to provide students a strong starting point from which to later comprehend text through her selection and use of appropriate reading comprehension strategies.

*My students are often not to the level of being able to effectively use reading comprehension strategies, so I am building other strategies before they learn and practice these more.* (Total Communication Teacher, personal communication (ESM), January 12, 2017)

To clarify, TC Teacher used foundation reading strategies at the beginning of all of her reading lessons, starting with asking students questions about the principles of the book. She followed this activity by building background knowledge. Then she introduced new vocabulary words from the story, taught their meanings, and taught strategies for word recognition. During the teaching of the words, she used phonics instruction. With this approach, she taught her d/Dhh students the rules of phonics in order to help them learn to recognize the sounds and make the connection between sound and print. In fact, TC Teacher taught vocabulary—as well as phonics strategies—before, during, and after every reading lesson.

*We do vocabulary activities every day. We often used explicit phonics instructions and then English language word structure, knowing nouns and verbs … how to put them in the sentence.* (Total Communication Teacher, interview, January 23, 2017)
I used explicit phonetic instructions ... like special explicit phoneme, vocabulary instruction of words they might encounter with high frequency, but also the words that they are going to see in the book. (Total Communication Teacher, interview, January 4, 2017).

TC Teacher’s perceptions about the importance of phonics were consistent with the views of McGuinness (2004, 2005) and Whitehurst and Lonigan (2002), all of whom asserted that children need an understanding of phonemes, graphemes, and letter-sound connections along with morphology, syntax, and semantics to improve their reading and writing skills. In addition, TC Teacher’s perceptions and actions regarding her focus on teaching vocabulary during the reading lesson were consistent with Vaughn and Linan-Thompson’s (2004) definition of reading comprehension as an engaging process; that is, a process during which the reader uses his/her previous understanding of vocabulary, concepts, idea processes, and knowledge to formulate his/her own individualized meaning of the text and to link key ideas together. Consistent with this view, TC Teacher introduced new vocabulary words every day because she understood the importance of this foundational strategy to the reading comprehension process as noted by Vaughn and Linan-Thompson (2004). Further, she continued to implement phonics strategies at the beginning of each reading lesson because she considered these strategies (both phonics and vocabulary instruction) to be the reading foundations upon which other reading comprehension strategies need to build. On this point she stated,

*I am building other strategies before they learn and practice reading comprehension strategies more. I don’t want my students to feel overwhelmed*
with strategies that they are not yet ready for. I want them to have a solid foundation in the strategies I worked on before moving onto to harder concepts.

(Total Communication Teacher, personal communication (ESM), January 12, 2017).

Thus, TC Teacher affirmed her use of phonics and vocabulary instruction as foundational strategies for her d/Dhh students in order to prepare them to engage in higher level reading comprehension strategies such as Comprehension Monitoring and Question Generating.

From the successful building of reading foundations, TC Teacher then moved forward to teach her d/Dhh students basic comprehension strategies about the elements that make up a story.

Then they do basic comprehension. Can they tell me about the characters, setting, and the plot? Can they tell me the sequence—first, second, and third—that kind of thing? Ok, if I tell you who are my characters, can you name all the characters? What are my settings? Can you automatically tell me the place and the time? What is my plot? Can you start from the beginning and tell me the full story without looking back? Can your brain hold on all information at the same time? And then, as we do that, we can do that for harder tasks and start to say ok. Have you experienced this? (Total Communication Teacher, interview, January 4, 2017)
I have groups of students [who] struggle with basic comprehension—like knowing the title of the book, characters, setting. I have others that struggle with knowing inferential ideas, things that are [not] explicitly stated in the text, but they should be able to understand. (Total Communication Teacher, interview, January 23, 2017)

To conclude this section, it was clear to see that TC Teacher taught reading comprehension skills with a sequential order in mind—moving from basic to advanced instructional methods—in order to make sure that her d/Dhh students had the foundations needed for working with more complex reading comprehension strategies. It was also clear that she selected and used these strategies based on her d/Dhh students’ abilities and needs at various stages of instruction. In other words, TC Teacher continually assessed their understandings and feedback in order to determine when students were ready for more advanced reading comprehension strategies. With respect to intensity and time frames, she differentiated her use of reading strategies according to the needs of the child based on specific problems he or she may have had with any of the story components (Paul et al., 2013). For example, when TC Teacher noticed that her d/Dhh students struggled with retelling the story after the reading, she decided to use Summarization with each student.

I have noticed that many of my students struggle to pick important events from the story to summarize or to retell the story in the correct order. So, I worked with individual students, one-on-one, to help them practice this skill. (Total Communication Teacher, personal communication (ESM), January 12, 2017)
Also, TC Teacher used more Question-Answering based on students’ test results when those results indicated that students were continuing to struggle with some of the more basic reading comprehension skills.

_Recently, I tested my students’ reading levels and noticed that many of my students, if not all, struggled in these areas (especially fluency and inferential questioning). I wanted to help address these issues with my students as a whole. I wanted to do it in a small group so that I could address these struggles at their specific reading levels while also having the support of their peers._ (Total Communication Teacher, personal communication (ESM), January 18, 2017).

As demonstrated by the findings associated with this exploration of TC Teacher’s instructional methods, her students’ needs and abilities exerted a big influence on her decisions about the selection and use of reading comprehension strategies in her d/Dhh classroom. As she communicated, TC Teacher strongly perceived that it was necessary to monitor each student’s needs individually in order to address these needs effectively.

_The kids influence my methods of reading strategies. Like I said, I try to do advanced strategies, and I realized very quickly what they did not get. So, I have to switch and use different strategies and methods._ (Total Communication Teacher, interview, January 4, 2017).

To reiterate, most of her d/Dhh students’ reading deficits/needs were caused by delays in English language development due to the lack of through the air language use throughout the early childhood years; as such, causing negative impacts upon their reading skills in the classroom setting. In particular, the lack of reading foundations
development (phonics, vocabularies, building prior knowledge) contributed to TC Teacher’s decision to focus on establishing reading foundations prior to using more advanced reading comprehension strategies with her d/Dhh students. This issue required a great deal of work on her part to build the reading foundation skills necessary to move forward, evidenced by the fact that TC Teacher covered these skills at every reading lesson—starting from the basic skills of identifying parts of a book and story components to the more advanced, higher-order thinking/comprehension skills. Thus, inventory assessment of her d/Dhh students was the first step that TC Teacher took in order to select and use appropriate reading comprehension strategies.

Factors that Improved Total Communication Teacher’s Use of Reading Comprehension Strategies

The fourth and the final category identified from the data—factors that improve the use of reading comprehension strategies—was evident from the examination of TC Teacher’s interviews. Three factors related to improvement of this teacher's abilities and knowledge about teaching reading comprehension for d/Dhh students emerged from the data: (a) preparation received during the undergraduate level, (b) engagement in professional development activities while teaching d/Dhh students, and (c) the availability of relevant resources inside the school. These factors of improvement also intersected with other factors involved in TC Teacher’s experiences teaching reading comprehension in her d/Dhh classroom.
**Teacher Preparation**

TC Teacher was exposed to eight reading courses, focused on reading pedagogy, at the undergraduate level. Some of these courses addressed reading instruction for typical hearing students, and some addressed reading instruction methods for d/Dhh students. In addition, she took one course about language development for d/Dhh students. She summed up her undergraduate coursework in reading as revealed in the following interview excerpt.

*I had eight teaching reading classes that focused on foundations of teaching reading and teaching reading for the deaf. In addition to that, I had a language class: Language Development for d/Dhh Children.* (Total Communication Teacher, interview, January 4, 2017)

While taking these courses, TC Teacher was influenced by a professor’s analogy about teaching reading to d/Dhh students—correlating the deficits or gaps in d/Dhh students’ brains to holes in certain kinds of cheese. In addition, her undergraduate, reading coursework taught her the importance of focusing on those skills and points of knowledge that d/Dhh students already have as well as those skills/aspects of knowledge they are missing. The significance of this lesson was that it oriented TC Teacher to prioritize students’ individual needs and, from there, take the necessary first step in the selection of reading comprehension strategies.

*One of the first things that I do is kind of inventory what they already know, because one of my professors described teaching deaf students when I was going to college, and she was like, “Their brain is like cheese: they got holes. They got*
holes in kind of random places where you will not necessarily think there is a hole because they got this, but not this, and I ... so, I kind of try to do comprehensive inventory of what they are coming to me with ... The cheese example stuck in my mind since the first class of Deaf Ed because they do not understand everything. That analogy is one of my perfect .... (Total Communication Teacher, interview, January 4, 2017)

This analogy helped TC Teacher work with d/Dhh students on the basis of understanding and prioritizing their needs, and she could apply this analogy to her process of selection and implementation of reading comprehension strategies as well. In addition, TC Teacher made connections between what she learned from her undergraduate college education and her ongoing teaching experiences in terms of what has worked well for her d/Dhh students. Consistently aware that her students would not understand everything at first, she reinforced the importance of working with their individual needs as they presented themselves, further acknowledging that individual needs can be similar and/or different among groups of d/Dhh students. Ultimately, TC Teacher made it her priority to first identify d/Dhh students’ current skills and knowledge before initiating any reading comprehension strategies.

**Professional Development**

TC Teacher engaged in different professional development activities that improved her teaching skills and increased her knowledge about teaching reading comprehension for d/Dhh students. In fact, she communicated her perception that involvement in professional development has been very important for her as teacher.
Thus, her professional development experiences influenced the way that she taught reading in the d/Dhh classroom during the time of this study.

*My second and third year of teaching, I started learning more about Riggs and Orton-Gillingham Theory, and kind of this explicit instruction, and teaching writing and reading and that kind of thing. And I would say that has really informed my reading instruction understanding ... A lot of what I received in the class and trying since I became a teacher has also had a huge influence on how I teach reading. When I first started, I went to a summer training right after school ended for three days, [a training] in which I was learning about Riggs and Orton-Gillingham and kind of teaching that way. I went to that first summer [training], and I went to it again in the second summer just having got my feet wet, so I can hear this with more experienced ears. And I am going again after school for a couple of hours for a total of nine weeks, once a week for 30 hours....* (Total Communication Teacher, interview, January 4, 2017)

TC Teacher further described the influences that emerged from the combination of knowledge obtained from professional development activities, the Riggs and Orton-Gillingham approach, and her experiences as a reading teacher for d/Dhh students. She explained that she liked to engage professional development training with more prior experience in order to use the approaches about which she was learning more effectively. As result of this perspective, TC Teacher elaborated on her plans to do more professional development in the future. In particular, she expressed her interest in learning more about the Riggs and Orton-Gillingham’s focus on a multisensory approach to working with
d/Dhh students instead of an auditory approach.

*I really like the science behind Riggs and Orton-Gillingham. I think it made a lot of sense that how we teach reading is not a necessarily efficient way to teach reading, especially for kids that struggle, because the way we teach reading is very auditory. We read to the kids, the kids read to us. They are hearing it, they are seeing it, they’re supposed to make those connections. And for kids who struggle, those connections are not often made. So they tend to struggle to pick up reading because they are not making the same connections that everybody else is.*

*So, I like the science behind that system ... explicitly teaching reading and writing and explicitly teaching the rules of English ... I mean, I try to stick on that Riggs and Orton-Gillingham teaching writing to reading, being very explicit in the rules of English and teaching the rules of writing, teaching how language works ... but it is based on where they already are and seeing the holes that need to be filled in.*

(Total Communication Teacher, interview, January 4, 2017)

The explicit teaching techniques associated with the Riggs and Orton-Gillingham approach of using visual processing, auditory processing, and motor movement processing (hand movement) were the main influences on TC Teacher’s selection and use of this approach. In addition, she was able to apply these techniques based on assessments of her d/Dhh students’ unique abilities and needs. Thus, the knowledge she gained from her professional development activities specific to Riggs and Orton-Gillingham, in conjunction with her own teaching experiences, confirmed that this approach was appropriate for students who struggle with reading, including her d/Dhh
students.

Based on my observations, TC Teacher used the Riggs and Orton-Gillingham approach with different reading comprehension strategies during the reading lessons. In these instances, it was clear to see the positive impact of her professional development experiences on her teaching skills, and how she effectively used these new approaches with her d/Dhh students during reading instruction. By learning new approaches and strategies, TC Teacher was able to combine and apply the reading comprehension strategies she considered most useful to improve her d/Dhh students’ reading skills. In addition, she was able to make connections between her Riggs and Orton-Gillingham professional development training and her observations of other teachers using this approach.

*I learned Riggs from professional development. I tried it because I saw that other teachers used them effectively.* (Total Communication Teacher, personal communication, January 23, 2017)

**Available Sources of Support**

TC Teacher indicated the importance of having sources of support inside and outside the school building that helped improve and reinforce her reading instruction efforts with her d/Dhh students. During the interviews, she reflected on the collaboration of co-workers who exchanged experiences about teaching reading comprehension to d/Dhh students and the support of parents who worked with their children in the home by practicing reading; how these sources of support were important for her as a teacher of d/Dhh students.
I have a good support team of other people who believe the same things about reading comprehension and believe the same things about deaf kids that I do. I would say my co-workers support me a lot. We are collaborating, and we are exchanging ideas, and we are exchanging resources and papers and that kind of thing. And I think that it’s really great having the person who taught me the current way that I teach reading in the building. It has been really, really nice! So, having that in the building, accessible to me, has been a huge help, especially when I was first getting started with teaching reading the way I do now ... that was a huge help. Also, I think the support of parents is important too. (Total Communication Teacher, interview, January 4, 2017)

TC Teacher highly valued co-worker support and the support of parents, considering both sources necessary to her effectiveness as a teacher. She was convinced that such sources of support actually ease and enhance her use of reading comprehension strategies with d/Dhh students. In other words, having good sources of support inside the building (co-workers) and outside (parent support) encouraged her selection and implementation processes with respect to applying the most appropriate reading comprehension strategies possible. In fact, she explained that a lack of these sources of support would prevent her from putting her perceptions about reading comprehension strategies into action in the classroom setting and would make the process of teaching that much more challenging.

*Either not having the resources that I need in school or not having a lot of parent support is hard just because the parents are going to help me in the home. If they*
are reading with their child every day, that would help me and help them as well.

(Total Communication Teacher, interview, January 4, 2017)

In all, TC Teacher concluded that these three primary factors—(a) preparation/undergraduate education, (b) engagement in ongoing professional development activities, and (c) the availability of relevant resources inside and outside the school—have played positive roles in enhancing her work with d/Dhh students. As such, the effective selection and use of reading comprehension strategies cannot be separated from these factors. To summarize, TC Teacher detailed the following elements as necessary to her selection and implementation process: (a) early and continuing assessments of d/Dhh students’ needs and abilities, (b) learning from the teaching experience, (c) good preparation in terms of educational background, (d) ongoing professional development, and (e) sources of support from both inside and outside of the school.

Many reading classes from college, learning different philosophies of teaching reading, learning from experience, learning from other teachers what worked for them, and different professional development since I worked here ... helped me a lot. (Total Communication Teacher, interview, January 23, 2017)

Case Study 2: Oral-Aural Teacher – Speech Classroom

As stated earlier in the chapter, an examination of the data collected across the two case studies revealed that there were four categories involved in how the study participants/teachers navigated the process of selecting and using reading comprehension strategies with their d/Dhh students: (a) the teacher’s background and characteristics, (b)
the teacher’s experiences with selection and use of reading comprehension strategies, (c) factors that influenced the teacher’s decision in the selection and use of reading comprehension strategies, and (d) factors that improved the use of reading comprehension strategies. The interactions among these categories led the Oral-Aural Teacher (OA Teacher) to make decisions about using certain kinds of reading comprehension strategies while avoiding other strategies with her d/Dhh students.

**Teacher’s Background and Characteristics**

OA Teacher worked with d/Dhh students for more than four years in an oral-aural classroom with 4th grade d/Dhh students. She focused her studies in higher education in preparation for this work. Thus, during her undergraduate years, she spent one semester in audiology where she studied the science of hearing and eventually completed her Bachelor’s degree in Speech and Hearing Science (2010). In December 2016, OA Teacher earned her Master’s degree in d/Dhh education.

OA Teacher initially became interested in teaching d/Dhh students because she had known deaf people when she was younger. Furthermore, her own father has had CIs for more than 10 years. Overall, she considered working with d/Dhh students to help them improve their reading comprehension skills as her favorite part of teaching.

*Seeing them learning things, seeing their success, and seeing their progress and growth, and compare them from the beginning of the year... I think that is my favorite part of my position. Seeing them when they get excited doing well rather than earning prizes. When they are excited from learning, that is probably my favorite part to see, especially in fourth grade. That starts to happen a little bit...*
more, and seeing them understand why I am teaching this—because you need to do this—they start to get it. (Oral-Aural Teacher, interview, January 5, 2017)

OA Teacher exhibited her passion for teaching d/Dhh students by focusing heavily on their academic successes as she demonstrated in the classroom. In fact, the success and progress achieved by her d/Dhh Students exerted a positive influence on her instructional efforts, thereby increasing her motivation to work with d/Dhh students. Thus, her experiences working with these students and her passion for teaching them, in combination with other factors, inspired her to select and use additional reading comprehension strategies that she considered appropriate for her students. In particular, OA Teacher demonstrated that she cared about the level of student engagement during instruction of reading comprehension skills by adding a playful component to her use of strategies. For example, she often connected her use of reading comprehension strategies such as Question-Answering with a game to more strongly encourage student interest and participation.

Sometimes I choose reading comprehension strategies that use games to keep the level of engagement at a good level. (Oral-Aural Teacher, personal communication, January 25, 2017)

**Oral-Aural Teacher’s Experiences with Selection and Use of Reading Comprehension Strategies**

As described in Case Study 1, reading comprehension involves prior knowledge, metacognition, and working memory in order to understand the written information from the text (Trezek et al., 2010). In turn, Baker (2005) suggested that formal
instruction/intervention that utilizes reading comprehension strategies with elementary age students may enhance early English reading development.

At the time of this study, OA Teacher had four years of experience using reading comprehension strategies with d/Dhh students in a 4th grade elementary classroom. These teaching experiences constituted one of the factors that intersected with other factors in shaping OA Teacher’s selection and use of reading comprehension strategies in her d/Dhh classroom. Such experiences involved challenges concerning attempts to use certain kinds of reading strategies that had not been especially productive, as well as the use of reading comprehension strategies that proved to be more appropriate and that worked well with her d/Dhh students. This perception around “what works” and “what does not work” correlates with Squires and Bliss (2004) who maintained that teachers’ previous teaching experiences and perceptions influence their day-to-day decision-making. OA Teacher expressed this point in the following passages.

*If I have something that I am going to try but I am not sure about it, but I have a positive experience, I will do more of that. If it was a negative experience, I will not do it ever again.* (Oral-Aural Teacher, interview, January 5, 2017)

*One project I did not want to do because it is so hard, but I decided to do it [with] one group together, and it was actually fun. So, then I decided that everybody should do it on their own because the experience was positive. If something goes well, I will do it again.* (Oral-Aural Teacher, personal communication, January 5, 2017)
In the following sections, I discuss all the reading comprehension strategies that OA Teacher selected, rejected, and ultimately used with her students. Thus, the next discussion covers OA Teacher’s experiences with those reading comprehension strategies that proved to be appropriate for her d/Dhh students: (a) Question-Answering, (b) Summarization, (c) Graphic Organizer, and (d) Prior Knowledge and Prediction strategies. I then discuss OA Teacher’s experiences with a reading comprehension strategy that did not work well with her d/Dhh students based on their feedback and reactions: the Cooperative Learning strategy. Finally OA Teacher did not use Comprehension Mentoring, Question Generating, and Story Map strategies due to other reasons that will be addressed.

**Question-Answering**

As noted in Case Study 1, Durkin (1979) indicated that the Question-Answering strategy has been considered the most common method used to improve students’ acquisition of skills during reading comprehension activities. The data from this study revealed that OA Teacher frequently used Question-Answering strategies during the reading lessons, thus demonstrating consistency with Durkin’s (1979) premise. In addition, she used the strategy in combination with other reading comprehension strategies. Thus, OA Teacher used Question-Answering regularly with her d/Dhh students—whether alone or in combination with other strategies—because it carried important benefits for both her and her students.

*Mostly, I used Question-Answering because it provides the most support for them as far as language goes, and [it] provides a lot of feedback. Also, these strategies...*
will let my students become more independent because they are so dependent on me. (Oral-Aural Teacher, interview, January 5, 2017).

OA Teacher explained the main benefits of using Question-Answering strategy with d/Dhh students. First, it helped her students comprehend the text more effectively while also providing feedback to the teacher, thereby enabling her to take extra time/measures to ensure that they comprehended the text correctly. Similarly, she used the Question-Answering strategy as an opportunity to monitor her students more effectively. Secondly, OA Teacher considered this strategy appropriate for use with a whole group approach. The following two, interview excerpts indicate her thoughts on these two primary benefits of the Question-Answering approach.

I used the Question-Answering the most with my students because I developed the question that I wanted them to answer and things that I want them to look for. And especially for the lower kids who do not really have a lot of self-teaching, they are not really self-guided. (Oral-Aural Teacher, interview, January 25, 2017)

For whole group lessons, it is more about question and answering. (Oral-Aural Teacher, interview, January 5, 2017)

As observed during all three reading lessons and as further supported by her ESM data, OA Teacher used Question-Answering before reading the text in order to use and build upon students’ prior knowledge about the book. She also used this strategy during the reading—when the students were reading aloud—by asking questions about what they had already read as a whole group. As stated in one of the interviews, “We do questions and answering during read aloud” (Oral-Aural Teacher, interview, January 5,
2017). After the reading, she asked about the main idea of the book and also asked about some important story details. Thus, among all the reading comprehension strategies available to her, OA Teacher considered Question-Answering the most frequently selected and used. To reiterate, her reasons behind this preference had to do with the flexibility of using Question-Answering with the whole class and the ability to monitor students’ reading comprehension skills and to receive their feedback.

Regarding the use of Question-Answering Relationship (QARs) strategy, OA Teacher used one of the categories of question levels: “In the Book” (which includes two components, “Right There” and “Think & Search”). She did not use other levels of questions, such as “In My Head” (which includes “Author & Me” and “On My Own”) because she was not aware of QARs as a formal strategy.

*I have really thought I used QARs explicitly because I have asked some questions in that manner, but I don’t call them QARs.* (Oral-Aural Teacher, personal communication, January 25, 2017).

In addition, her d/Dhh students’ reading levels prevented OA Teacher from using “In My Head” questions because, as witnessed during observations, these students already struggled with questions related to “Right There,” considered an easier level of questions compared to “In My Head.” In summary, OA Teacher depended heavily on Question-Answering strategy throughout her reading instruction activities, and she based this frequent use on her perceptions of her students’ abilities, levels of engagement, and classroom actions.
Summarization

According to the National Reading Panel (NRP) (2000), the main goal of summarization is to teach the reader to recognize the main ideas of a text. OA Teacher taught her d/Dhh students to identify the main or most important ideas of the story that unite the other ideas or meanings of the text into a coherent whole. She conducted this process out loud for the whole class. However, OA Teacher also used advanced skills of summarization by including summary writing tasks in the lesson after identifying the important ideas about the text with the group.

_We do summarization. Two of my students have a log...what they actually have to summarize is what they have read, or write some sort of responses to what they have read._ (Oral-Aural Teacher, interview, January 5, 2017)

As I observed during three reading lessons, OA Teacher’s use of the Summarization reading comprehension strategy incorporated a sequential process. After the reading, she did through the air (spoken) summarization for each of the three lessons. She furthered engaged students in the summarization process by using a form of Question-Answering, posing questions such as “What is the main idea of the chapter?” and “What are the main details of the chapter?” (Oral-Aural Teacher, Observations, January 10, 11, & 18, 2017). When students did not respond to a particular summarization question correctly, OA Teacher showed them the main ideas and main details of the story. Thus, emphasizing her initial through the air communication process with her d/Dhh students, OA Teacher expressed her perception that if they are able to answer through the air, then they will be able to write their responses as an additional
form of communication to express their understandings of the story.

The summarization will let my students become more independent because they are so dependent on me. Because some of them... they asked me questions, and they say they do not know. So, if they can understand and answer the question through the air, then they can write it. To me, writing is important, but at the same time, it is difficult. (Oral-Aural Teacher, interview, January 5, 2017)

Based on OA Teacher’s heavy use of the Question-Answering strategy, even during the use of Summarization, I saw her d/Dhh students writing the responses to summarizing questions only once (third reading lesson). This writing activity was connected to the graphic organizer design, implemented after she had made sure that the whole class understood the correct responses. In addition, OA Teacher did not use the Summarization strategy during the fourth reading lesson. Instead, she focused on other strategies—reading foundation strategies—as opposed to the more advanced reading comprehension strategies addressed in this chapter.

**Graphic Organizer and Story Map**

According to the NRP (2000), the Graphic Organizer reading comprehension strategy enables readers to represent graphically (write or draw) the meanings and relationships of the ideas that underlie the words in the text. OA Teacher used Graphic Organizer only one time in conjunction with Summarization, during the third reading lesson. In this instance, the purpose was to have students write the meanings and the relationships between the main details of the book. She expressed her confidence that the Graphic Organizer strategy was appropriate for her d/Dhh students.
I have some students in different reading levels, but they still benefit from using graphic organizer and visuals things like that. (Oral-Aural Teacher, personal communication, January 5, 2017)

OA Teacher’s perceptions about the productive use of graphic organizers with d/Dhh students were consistent with the body of literature that espouses the benefits of using the Graphic Organizer strategy (Duke & Pearson, 2000; NRP, 2000). For example, OA Teacher used graphic organizers to introduce high frequency words that students need at the beginning of each lesson to better understand the story. I really do vocabulary with graphic organizers (Oral-Aural Teacher, interview, January 5, 2017). Nonetheless, the Graphic Organizer was the least used strategy based on the instructional activities I observed in OA Teacher’s classroom. Finally, with regard to the Story Map reading comprehension strategy, OA Teacher saw no need to use Story Map with her d/Dhh students because she felt that it did not generate information that was not already covered by her use of other strategies.

I do not use Story Map, because I feel we cover that so much through the Question and Answer and Summarization, so I don’t really do Story Map. (Oral-Aural Teacher, interview, January 5, 2017)

Based on OA Teacher’s expressed perceptions of her students’ abilities/needs and the instructional activities observed during her classroom reading lessons, study findings demonstrate that this teacher considered the Question-Answering and Summarization strategies to provide the same benefits as those associated with Story Map. Thus, OA Teacher’s perception about the use of Story Map as unnecessary for her d/Dhh students
was not consistent with NRP’s (2000) position that the Story Map strategy shows a positive effect on developing memory and identification—specifically for poor or below average readers. As a matter of fact, and in contrast to OA Teacher’s perceptions, her d/Dhh students’ reading levels were low enough to make use of the Story Map strategy as an appropriate choice to develop their reading skills according to the NRP (2000) recommendation.

**Prior Knowledge and Prediction Strategies**

After introducing new vocabulary words from the book under study, OA Teacher used the Activation of Prior Knowledge reading comprehension strategy the majority of the time with her d/Dhh students. The following passage refers to the study of a nonfiction book about the city of Venice (Italy) that OA Teacher introduced to the class.

> So, basically, what I do when we start a new book—I allow them to look through the book, we talk about vocabulary, and I give them background knowledge about the city of Venice. I show them where Venice is. I show them what is happening. I show them pictures of Venice. (Oral-Aural Teacher, interview, January 25, 2017)

As observed during these lessons, before starting the reading, OA Teacher asked questions about the previous chapter they read in order to examine the students’ prior knowledge. Such questions included, *Is Venice a city or a country? and Who can show us the city of Venice on the map?* (Oral-Aural Teacher, observations, January 10, 2017). If the book was new and her d/Dhh students did not have prior knowledge about the topic, she started to build their background knowledge by giving them information about the topic to which they were going to be exposed; in this case, the city of Venice. Thus, in
order to establish this background knowledge, OA Teacher showed the students pictures and video clips about the city of Venice before reading the new book.

*I like to use video clips that go along with the book, so I want them to see a video to understand the story.* (Oral-Aural Teacher, interview, January 25, 2017)

As a result of providing her d/Dhh students background knowledge of Venice, OA Teacher had essentially established a foundation of prior knowledge about the topic of the book. As such, she used this prior knowledge before reading any new chapters in different reading lessons that followed the introductory lesson. In fact, OA Teacher used the Prior Knowledge strategy as an introduction before the start of reading for each of the three reading lessons or as a review when she repeated the topic. Thus, I observed that OA Teacher used the Prior Knowledge strategy and the Summarization strategy equally in terms of frequency.

With regard to the Prediction strategy, OA Teacher used it only one time, during the third reading lesson and in conjunction with the Activating Prior Knowledge strategy. For example, she asked students to predict the content of the chapter by analyzing the chapter’s title, “Secret of Venice.” In addition, she asked students to use the prior knowledge gained from the previous chapter, “How to Grow,” in order to predict the content of the new chapter. Such questions included, *What does this title mean?; What does the secret of Venice mean?; and How is this title connected to the previous chapter?* (Oral-Aural Teacher, observation, January 18, 2017).

To conclude this discussion of Prior Knowledge and Prediction strategies as observed during her reading lessons, OA Teacher used the summary of the previous
chapter to inform the prior knowledge related to the new chapter, thereby connecting both chapters. She tried to teach her d/Dhh students how to use their prior knowledge to predict, as well as to comprehend, the new text by making that connection. This kind of process is consistent with Anderson and Pearson’s (1984) assertion, which states that prior knowledge is an important variable in reading comprehension because it entails the use of previous information and experience to create meaning of new content.

**Oral-Aural Teacher’s Use of Multiple Strategies**

OA Teacher used a combination of different reading comprehension strategies during her reading lessons. Based on her perceptions as they informed her choice and implementation of strategies, as well as my classroom observations of her instructional methods, it was clear that she combined the strategies of Question-Answering, Summarization, and Prior Knowledge to teach reading comprehension. Confirming this approach, she stated, *My reading instructional methodology is kind of everything’s combined* (Oral-Aural Teacher, interview, January 5, 2017). Thus, her perceptions and classroom actions were consistent with NRP’s (2000) recommendation that a combination of strategies could be used together effectively in order to improve reading comprehension as well as overall academic achievement.

It was clear from my observations of the first, second, and third reading lessons that OA Teacher routinely used a combination of reading comprehension strategies. First, she used the Prior Knowledge strategy to introduce the new text and make connections with the previous text. During the use of Prior Knowledge, OA Teacher also employed the Question-Answering strategy to further aid students’ comprehension skills. She also
used Question-Answering during the reading to see if they comprehended the important details in the chapter. At the end of the reading, she asked every student to summarize the chapter using through the air communication. Clearly, the OA Teacher was dependent on the combination of Prior Knowledge, Question-Answering, and Summarization to effectively teach reading comprehension to her students. In contrast, during my observation of the fourth reading lesson, OA Teacher only focused on the reading foundations strategies that addressed vocabularies, fluency, and phonics. Table 6 shows OA Teacher’s use of the more specific reading comprehension strategies used during the first three reading lessons.

<table>
<thead>
<tr>
<th>Reading Comprehension Strategy</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Reading Lesson</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; Reading Lesson</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; Reading Lesson</th>
<th>4&lt;sup&gt;th&lt;/sup&gt; Reading Lesson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question Answering</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Summarization</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Activation of Prior Knowledge</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Prediction</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Graphic Organizer</td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Story Map</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperative Learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehension Monitoring</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question Generating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6. OA Teacher’s Four Reading Lessons: Use of Reading Comprehension Strategies
Advanced Strategies: Comprehension Monitoring, Question Generating, and Cooperative Learning

As a result of my analysis of the observation data, it was evident that OA Teacher did not use the Comprehension Monitoring, Question Generating, and Cooperative Learning strategies with her d/Dhh students. Furthermore, during the interview process, I learned that OA Teacher was not aware of Comprehension Monitoring and Question Generating and, therefore, had no experience with these strategies. This lack of knowledge explained why she did not use them. In addition, OA Teacher believed that Comprehension Monitoring and Question Generating are still too high a level skill (Oral-Aural Teacher, interview, January 25, 2017). Based on her past attempts to use Cooperative Learning in the classroom, she found that it was not working well with her d/Dhh students since this strategy requires more intense monitoring by the teacher in order to be used effectively. The following interview and ESM excerpts illustrate OA Teacher’s perceptions about these more advanced strategies in terms of not being useful to her instructional efforts.

*I have not used Comprehension Monitoring and Question Generating, and I do not do Cooperative Learning much because I find when they work like that, it is only one student giving another student the answer when they work like that. We do a lot of discussion and these kinds of things as a group.* (Oral-Aural Teacher, interview, January 5, 2017)
It is difficult to use Cooperative Learning due to the varied reading levels in the room. We do it on occasion, but it takes a strong level of monitoring to make sure each student is contributing at their specific level of ability. (Oral-Aural Teacher, personal communication (ESM), January 11, 2017)

I do not let my students to work together for Cooperative Learning for reading comprehension because I do not think they are doing the right things most of the time. I don’t know if the work generated is from one person or two, at least not for reading. (Oral-Aural Teacher, interview, January 5, 2017)

Ultimately, the variety of different reading levels among her students, as well as the need for intense monitoring on her part, prevented OA Teacher from using the Cooperative Learning strategy. Additionally, she directly communicated that she did not believe she could rely on her students to work to the best of their abilities when working together on reading comprehension tasks. For these reasons, OA Teacher chose to work with her d/Dhh students as a whole group, with the intention of ensuring that all of her students were engaging the reading comprehension strategies and interacting with the text correctly.

The Signs of Inappropriate Reading Comprehension Strategies

By limiting herself to the use of only a few reading comprehension strategies, OA Teacher could quickly determine whether a particular strategy was effective with her d/Dhh students. Furthermore, feedback from the students—indicating their comprehension levels during a lesson—let the teacher know if a specific strategy worked well or not.
If the kids do not answer any questions, then probably the strategy did not work well ... if there is no feedback, when I have students who answer every question incorrectly. So, if I have these signs, I need to go back and repeat and reteach the comprehension. (Oral-Aural Teacher, interview. January 25, 2017)

In turn, OA Teacher explained those signs that indicated a strategy was working well with her students; specifically, signs indicating engagement with the lesson, accurate comprehension of the book or story, and seeing students move up to a higher reading level. The following interview excerpts illustrate these points.

When we are at the end of the story, if they were able to comprehend it and are able to tell me about what they read, that means the use of the strategy was successful. (Oral-Aural Teacher, interview, January 5, 2017)

If they are moving up to the next reading level, and if the strategy helps a student to work more independently, this will give me a sign that all the strategies with my d/Dhh students are working. If they were able to work on their own, I feel the strategies are more successful. (Oral-Aural Teacher, interview, January 5, 2017)

While signs based on direct student feedback typically corresponded to their academic success specific to the lesson at hand, there were other signs that may have helped OA Teacher manage the use of certain kinds of reading comprehension strategies. Such signs were related to students’ body language, usually indicating their frustration during the lesson.

Their body language sometimes can tell me. They are not shy to express their frustration, so I can tell. But sometimes I tell them that while I want to be a fun
teacher, not everything is fun, and we all know it is just life. If they don’t like a strategy, it does not mean that this strategy is not effective, but the first priority is understanding. (Oral-Aural Teacher, interview, January 5, 2017)

Based on my observations of the first three reading lessons, OA Teacher used the same reading comprehension strategies for each lesson. Despite her choice to limit the number of strategies she used, she explained that I do not always know if I am using a successful strategy or not (Oral-Aural Teacher, interview, January 5, 2017). Thus, this perception of her own self-doubt indicated that she struggled to assess the effectiveness of the reading comprehension strategies she used with her d/Dhh students. I suggest that the problem of monitoring the effectiveness of certain strategies can be related to OA Teacher’s decision not to use additional reading comprehension strategies with her d/Dhh students.

Factors That Influenced Oral-Aural Teacher’s Decisions in the Selection and Use of Reading Comprehension Strategies

As described in Case Study 1, there are factors that play an important role in the decision-making process of selecting and using appropriate reading comprehension strategies in the d/Dhh classroom. These factors were related to two key areas: (a) Students’ abilities and characteristics and (b) the presence or lack of reading foundations—among her students—that every d/Dhh student needs in order to be taught reading comprehension strategies effectively. Similar to Yero’s (2002) statement that perceptions are not explicit but play an important role in individuals’ decisions and concerns. Thus, the factors discussed in this way show the strong influence they played in
OA Teacher’s decision-making process for the selection and use of reading comprehension strategies.

**Students’ Abilities and Characteristics**

OA Teacher’s fourth grade class consisted of eight students (three girls and five boys), seven of whom wore hearing aids while the remaining student had two CIs. Six of the students spoke English at home, and two students spoke Spanish in their homes. None of the students tested at the fourth grade reading level, with the highest level reader among them being a student at the third grade level and the lowest student reader designated at the Reading Behaviors (RB) level; that is, knowing only the basics of reading. Background information for each of the students in OA Teacher’s class is presented in Table 7.

<table>
<thead>
<tr>
<th>Student</th>
<th>Gender</th>
<th>Age</th>
<th>Hearing Loss</th>
<th>Ethnicity</th>
<th>Home Language</th>
<th>Reading Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC</td>
<td>Boy</td>
<td>10</td>
<td>Mild-Moderate (2 hearing aids)</td>
<td>Caucasian</td>
<td>English</td>
<td>2nd grade to 3rd grade</td>
</tr>
<tr>
<td>IC</td>
<td>Boy</td>
<td>10</td>
<td>Moderate-Severe (2 hearing aids)</td>
<td>African American</td>
<td>English</td>
<td>1st grade</td>
</tr>
<tr>
<td>AF</td>
<td>Boy</td>
<td>11</td>
<td>Profound (2 CIs)</td>
<td>Caucasian</td>
<td>English</td>
<td>1st grade</td>
</tr>
<tr>
<td>AJS</td>
<td>Girl</td>
<td>10</td>
<td>Mild-Moderate</td>
<td>Hispanic</td>
<td>Spanish</td>
<td>2nd grade</td>
</tr>
<tr>
<td>MK</td>
<td>Girl</td>
<td>10</td>
<td>Moderate-Severe</td>
<td>African American</td>
<td>English</td>
<td>1st grade</td>
</tr>
<tr>
<td>AL</td>
<td>Boy</td>
<td>10</td>
<td>Mild-Moderate</td>
<td>Caucasian</td>
<td>English</td>
<td>Kindergarten</td>
</tr>
<tr>
<td>DM</td>
<td>Boy</td>
<td>11</td>
<td>Mild-Moderate (2 hearing aids)</td>
<td>Caucasian</td>
<td>English</td>
<td>End of 1st grade - Beginning of 2nd grade</td>
</tr>
<tr>
<td>GO</td>
<td>Girl</td>
<td>11</td>
<td>Moderate-Severe</td>
<td>Hispanic</td>
<td>Spanish</td>
<td>RB</td>
</tr>
</tbody>
</table>

Table 7. OA Teacher’s Fourth Grade d/Dhh Students: Background Information
As represented in the preceding table, the disparities among the students’ reading levels (all below fourth grade) required that OA Teacher spend more time teaching reading foundations and less time using more advanced reading comprehension strategies.

_I have a student, she is really low level due to English proficiency … so the students are struggling a lot. They need so much support to just get through the text that I am there to help them with. I think this prevents me … not to have enough time to work with more reading comprehension strategies because they are very needy for foundation skills. They really need repeated practice, repeated practice. That’s why we often practice the same thing over and over. Everything needs to take a lot longer._ (Oral-Aural Teacher, interview, January 25, 2017).

Thus, OA Teacher explained that having d/Dhh students at such disparate reading levels prevented her from using additional reading comprehension strategies due to the fact that their different abilities and needs required more time and intensive instruction to first build their reading foundation skills. For example, GO recently moved to the United States from another country and was not yet proficient in English. Therefore, it was too difficult for OA Teacher to introduce advanced reading comprehension strategies when instructing the whole group because GO did not have the foundations of reading necessary to engage these strategies. In fact, this issue applied to most of her students due to their very low reading levels. Consequently, OA Teacher found that she needed to spend more time and effort working with her d/Dhh students to fill in the reading foundation gaps that existed among them as compared to typical literacy learners.
Challenges for d/Dhh Students

Similar to Case Study 1, OA Teacher’s d/Dhh students faced multiple challenges that exerted negative effects on their reading abilities and caused delays in their language development skills. As evidenced by the data for this case study, such challenges correlated to the fact that most of OA Teacher’s d/Dhh students missed high frequency sounds. She specifically linked the missing of high frequency sounds to the delay of language development and the difficulties it brings to the overall learning process for these students. The following three interview excerpts reveal OA Teacher’s concerns about her students’ situation of “missed language” and how that impacts her instructional approach.

_They miss a lot of sounds, especially high frequency sounds like [s] and [z]. They missed those sounds, so they have to be taught them sometimes._ (Oral-Aural Teacher, interview, January 5, 2017).

_A lot of them, the main problem I believe, when we are talking about d/Dhh students is that they have missed language. If they have missed language, the brain wants to learn language, and if you miss that, it is harder for you to catch up._ (Oral-Aural Teacher, interview, January 5, 2017)

_Whereas some other students may not be able to pick up something, especially figurative language, deaf students often do not understand what that means. So, they have to be taught everything, in my experiences, more explicitly than general_
education students. Because they do not have language, they don’t know what the words mean. They do not know how they work together. So, I need to give them language so that they can understand what I always think about. It is important to know that they don’t have all the language that they need, just to know they do not have the language that they need to be successful at the fourth grade level. (Oral-Aural Teacher, interview, January 5, 2017).

Although her d/Dhh students presented hearing/learning deficits that made reading instruction more challenging, OA Teacher maintained that d/Dhh students generally develop reading skills in the same manner as typical hearing (literacy learning) students.

I would say they can learn in the same manner, but it has to be broken down more. For example, in spelling, because they are still learning … the vocabulary and language really need to be broken down in order for them to move on to be more successful. I fully believe they are able to learn from the same materials and same concepts, but a little bit in a different way. For the majority, [they] can go through the same process as hearing learners, but they need more practice. (Oral-Aural Teacher, interview, January 5, 2017)

Thus, Oral-Aural Teacher’s perceptions about the development of her d/Dhh students’ reading skills were consistent with the Qualitative Similarity Hypothesis (QSH) (Paul et al., 2013), which holds that d/Dhh learners who learn English as a first or second language go through similar developmental steps as do typical learners. In general, both groups of learners make the same errors in a qualitatively or developmentally similar way
(Paul et al., 2013; Paul & Lee, 2010). At the same time, OA Teacher agreed that some d/Dhh students’ rates of acquisition might be quantitatively delayed when compared to that of typical readers.

Overall, OA Teacher summarized the primary difficulties caused by the delay of language development for her d/Dhh students; specifically, the lack of access to sound and the lack of vocabularies (known as reading foundations). OA Teacher’s explanation was consistent with that of Trezek et al. (2010), who stated that reading problems for d/Dhh children are associated with the inherent challenges posed by their lower levels of language proficiency in English. In recognizing these challenges, OA Teacher chose to expend more effort on her students’ weaker areas; as such, focusing more on reading foundation skills (e.g., phonics, vocabulary) before attempting to teach the more advanced reading comprehension strategies. She addressed this approach in the following interview excerpt.

*I would say my philosophy is kind of ... I used phonics. I used vocabulary. Then I used comprehension because phonics builds on vocabulary, and vocabulary builds on comprehension.* (Oral-Aural Teacher, interview, January 5, 2017)

**Discovering Students’ Reading Abilities and Needs**

As described in Case Study 1, it was essential for OA Teacher to establish a grounding of reading foundations for her d/Dhh students before using reading comprehension strategies. Therefore, she had to identify students’ needs in this area. The identification of their reading abilities and needs was the first step in the overarching process of selecting appropriate reading comprehension strategies to use with her d/Dhh
students. In her words, this was an important first step because “it depends on what they need to work on” (Oral-Aural Teacher, interview, January 5, 2017).

Based on their reading level, based on individual needs and student’s experiences with reading comprehension strategies ... it’s what guides my method. Do they need vocabulary? Do they need extra background? That’s what guides my methods the most, and understanding where they are. (Oral-Aural Teacher, interview, January 5, 2017)

OA Teacher acknowledged the fact that her prior teaching experiences confirmed the need to establish reading foundation skills as the precursor to more advanced instructional strategies. As such, she tried to address different challenges related to the under-development of reading foundations that she encountered among her students. She did this by working on vocabularies, phonics, and by building background knowledge. The following interview excerpts illustrate these points.

I mostly, I do a lot of phonemic awareness—phonics-based to get them all ready for the vocabulary, and then we start reading. So, I spent a lot of time looking for phonics and vocabulary because that is important for d/Dhh students. I would say the phonics and decoding (how many sounds in the words, how many letters in the words, parts of speech) and vocabulary ... is kind of what I think about teaching. They have to learn about vocabulary to have the language to build on because they [are] not going to be successful without it. (Oral-Aural Teacher, personal communication, January 5, 2017)
My first time, teaching, I did not spend much time on vocabulary or on background knowledge. I did not spend much time on that. I should have because I assumed a lot of things that they should know, but they did not. So, now I spend more time on building that. Even if it seems easy and clear to me, I know that it is not easy and clear to them. So, that’s one way that I have improved. Now I choose more appropriate books for them. I spend more time building the background knowledge before we even start reading because they build on that in order to gain the comprehension. (Oral-Aural Teacher, interview, January, 5, 2017)

With the selection and use of reading comprehension strategies influenced by her d/Dhh students’ pre-existing abilities and her primary focus on reading foundations instruction, OA Teacher discussed her early process of strategy selection and use, largely based on students’ reading levels.

Normally, I base it on their reading level as to what strategies I am going to use. The higher students—I am able to give them longer questions, so it is kind of based on their reading level what I am going to do because sometimes I gave them short answers … kind of worksheets. They have to go back and forth to find answers in the text, whereas the other students have some sort of visual activities or even more multiple choice … even though I do not really love those, but just based on what they can do, you know. I have one student who, he gets frustrated, and he is frustrated a lot. So, for him, I really need to find something that is not going to frustrate him. But really … it’s based on their reading level, their comprehension level, and what kind of strategies they are going to do for that
day. Sometimes we do small group when I am working with three or four students at a time. And sometimes we do like a whole class for the same book. (Oral-Aural Teacher, interview, January 5, 2017)

It was clear that OA Teacher could not ignore her d/Dhh students’ needs since they helped direct her to a more effective course of action concerning her instructional choices. In fact, her students’ needs and abilities had a major influence on her decision-making process specific to choosing certain book genres and topics for her reading lessons.

*One of the things that I believe is that to use science books and social studies books for reading. These are going to be whole language approach. I really like the idea of whole language as an idea, but that it is not going to work for these students. I don’t use it because they need phonics, vocabulary. They need to understand how the words work.* (Oral-Aural Teacher, interview, January 5, 2017)

OA Teacher’s perceptions and actions regarding the importance of tailoring reading instruction around students’ needs and abilities were consistent with those of Trezek et al. (2010), who asserted that English instruction should be designed around the child’s needs. In other words, different children have different needs with respect to various components of English reading and language use. Thus, OA Teacher focused on the reading foundations needs of her students by differentiating her students into two groups on certain days based on their specific needs and the appropriate strategies required to address those needs.
I have higher group and lower group. My lower groups need to work on decoding, phonograms, spelling patterns ... just being able to read what is on the page. My higher group really needs to work on reading behind the text inference and connections. My higher group does not really need decoding ... and then pull them for smaller group on Thursday when half of the class goes to art and the other half stay. And then on Friday, we do the opposite. I do a lot of small group because other kids are here, and I can work with kids in a smaller group for an hour on those days. (Oral-Aural Teacher, interview, January 25, 2017)

OA Teacher did not have the class separated into two groups during my observation times. Instead, I observed that she worked with the whole group in every lesson. However, OA Teacher indicated that she worked with small groups on certain days if the other group was not in the classroom. In addition, these two smaller groups were differentiated based on their reading levels, which allowed OA Teacher to work with each group more intensively based on their needs:

The lower students are going to have more support, and my higher students are going to read on their own. So, they have more independent work when I am working in groups. (Oral-Aural Teacher, interview, January 5, 2017)

In general, based on my observations and OA Teacher’s stated perceptions, I noted that she focused on reading foundations activities at the beginning of each lesson. As a matter of fact, she spent most of the time in the fourth reading lesson teaching vocabularies, phonics, and building students’ background knowledge. Thus, OA Teacher initially focused on teaching all of her d/Dhh students together by using a text and
strategies that she considered appropriate for most of the students.

To teach the whole group makes more sense. I did not feel really each group was getting what they needed, so I found text that was in the middle. So, when we are all together, just reading to understand what is in the story, what’s happening there is the purpose of a whole group lesson. Just reading the story because being able to comprehend the main points and the main details, building background knowledge that would be the purpose for the whole group. (Oral-Aural Teacher, interview, January 25, 2017)

In summing up her approach to the selection and use of reading comprehension strategies with her d/Dhh students, OA Teacher explained the necessity of making sure that the students had all the necessary reading foundations (to prepare them for more advanced reading comprehension work) by exploring these foundations at the beginning of each lesson. She stated, They need a lot of skills down before working with reading comprehension strategies (Oral-Aural Teacher, interview, January 25, 2017). She started building background knowledge and vocabulary first and then proceeded to focus on reading and decoding. From there, she pulled spelling words from the book they were reading in order to tie all of these foundational skills together. By intensively working on these missing skills with her d/Dhh students, OA Teacher was better positioned to use appropriate reading comprehension strategies that matched students’ abilities and needs.
Factors that Improved Oral-Aural Teacher’s Use of Reading Comprehension Strategies

As indicated in Case Study 1, the fourth and final category identified from the data—\textit{factors that improve the use of reading comprehension strategies}—was evident from the examination of interviews with OA Teacher. Three primary factors contributed to the improvement of her instructional abilities as well as to an increase in her knowledge about teaching reading comprehension with d/Dhh students. These factors were: (a) teacher preparation specific to her graduate level work in d/Dhh education and actual teaching experiences with d/Dhh students, (b) professional development training as a working (inservice) teacher, and (c) the availability of resources inside and outside the school.

Teacher Preparation

Because her Bachelor’s degree focused on Speech and Hearing Science, OA Teacher was not exposed to many courses that directly addressed reading instruction with d/Dhh students during the undergraduate phase of her higher education experience. Instead, she completed most of her d/Dhh reading instruction coursework at the graduate level.

\textit{We didn’t really have a lot in my undergraduate courses of reading instruction. I took one reading class, but mostly from masters level of classes. I took four classes (both for hearing and deaf) in graduate level.} (Oral-Aural Teacher, interview, January 5, 2017)
OA teacher communicated that the degree of educational preparation she received for d/Dhh reading instruction was not sufficient to properly prepare her for the real challenges she faced in the classroom. Further, she attributed the lack of preparation at the undergraduate level as one of the reasons that led her to use only a few reading comprehension strategies with her students. On this point, the data indicated the link between OA Teacher’s limited knowledge of reading comprehension strategies and her limited use of these strategies in the classroom. Furthermore, the data may also show that she was unable to recall any reading comprehension preparation received at the graduate level since her only statement regarding teacher preparation at that level was, “A large section about my paper was about vocabulary, and it’s just because of the importance of it” (Oral-Aural Teacher, interview, January 5, 2017). This apparent lack of remembering could be more accurately attributed to when she graduated from the master’s program than how much preparation she actually received at the graduate level. In addition, OA Teacher admitted that her choosing not to use certain reading comprehension strategies could have been related to her own limitations.

*My own limitations would prevent me from using some of the reading comprehension strategies.* (Oral-Aural Teacher, interview, January 5, 2017)

The lack of preparation in d/Dhh reading instruction at the undergraduate level could be one of the limitations to which OA Teacher referred because, as noted earlier, she was not aware of some of the reading comprehension strategies at the time of the observations.
Even though OA Teacher received more reading classes at the graduate level and recently graduated at the end of 2016, she did not indicate any theory or philosophy that influenced her use of reading comprehension strategies in the classroom. When asked directly about theories that might have influenced her teaching approach, she responded with the following statement.

*I do not think that I was influenced by a specific theory or philosophy. I was with wonderful teachers, with students, teaching.* (Oral-Aural Teacher, personal communication, January 5, 2017)

According to OA Teacher, most of her improvement as a d/Dhh teacher came from her professional experiences: (a) working with students, (b) collaborating with other teachers in the school, and (c) the professional development she received since becoming a teacher.

*Mostly, what I really found a lot of value was from my student teaching experiences and co-workers ... that is really how I just got different methods and things to do from those teachers.* (Oral-Aural Teacher, interview, January 25, 2017)

**Professional Development**

OA Teacher participated in various professional development training sessions that helped her make better decisions regarding her selection and use of appropriate reading strategies for her d/Dhh students, at the same time, expanding her own self-learning processes about best practices of these strategies.
Different professional developments were offered through that program that were really helpful to me. So, I spent a lot of time looking for phonics and vocabulary, and why that is important for Dhh students—the phonics and phonemic awareness. (Oral-Aural Teacher, interview, January 5, 2017)

In addition, OA Teacher explained that the most helpful professional development training was based on the Riggs and Orton-Gillingham model with its focus on phonics.

I have a variety of professional development sources that I use for instruction. The main professional development that I find to be helpful is our Riggs trainings. I am going through one right now that meets weekly for 10 weeks. It is to enhance my understanding of the Riggs curriculum and phonics-based instruction. I use the strategies learned there for decoding practice especially. When students can spell and decode, it greatly enhances their ability to comprehend higher-level text. (Oral-Aural Teacher, interview, January 25, 2017)

Essentially, OA Teacher believed that Riggs trainings helped her to establish one of the core reading foundations: the use of phonics skills for decoding practice. Establishing this foundation was important for improving her d/Dhh students’ abilities to interact with higher-level text. Similarly, OA Teacher continued her professional development activities because she believed such trainings helped her to improve her teaching skills. Therefore, in addition to attending professional development sessions outside school, she also participated in different professional development events held within her school.
I also use some professional development opportunities offered at our school. Generally speaking, the professional development offered at school is for the general education classrooms. However, I am able to take the information presented and modify it for my needs. I will speak to other XXX teachers about what was presented at the school and how to best use it for the hearing-impaired students. (Oral-Aural Teacher, interview, January 25, 2017)

Professional development offered by the program encouraged OA Teacher to look to different sources that focused on phonics, phonemic awareness, and vocabulary. This process was important for her as a d/Dhh teacher because it helped fill any gaps that existed relative to the limitations of the teacher preparation that she received specific to her undergraduate and graduate experiences. By having ongoing professional development training that supported her self-learning, she was able to improve in the areas that matched the needs of her d/Dhh students. Thus, these kinds of professional development opportunities were available to her as a source of support both inside and outside of the school in which she worked.

Available Sources of Support

In addition to her classroom experiences working with d/Dhh students, OA Teacher’s collaborative experiences with other teachers served as a great source of improvement of her reading instruction skills. She explained that exchanging teaching experiences with other teachers exerted a positive influence on her own teaching and represented a very important source of support for her and her d/Dhh students.
I was with a wonderful teacher with students teaching. I did math lessons, and I asked students to count the animals, and it was a first grade, total communication classroom. I said, “Count the animals,” and they looked at me ... animals? Count them? And I was like stuck, and I did not really know what they were thinking. So, they could not count the animals. So, she said you need to make sure they know what “animals” mean. They may know what the dog is, what the zebra is, but they don’t necessarily know that group of things is called “animals.” So, I always just remember that philosophy—to give them the language based on their needs first.

(Oral-Aural Teacher, interview, January 5, 2017)

This kind of process—the exchange of teaching experiences between the two teachers—helped OA Teacher greatly, and she remembered this exchange as a philosophy of teaching. As discussed previously, OA Teacher used this kind of inventory (monitoring students’ abilities and needs) as the first step when deciding which reading comprehension strategies she was going to use; again, based on her d/Dhh students’ abilities and needs. Thus, having teacher/peer support in the building was very helpful for OA Teacher in terms of expanding her own skills and improving instruction for her d/Dhh students.

I shared a classroom with another teacher for the last two years. I learned a lot from her, and we learned a lot from each other. But watching her teach and how she taught ... she really used that vocabulary and background knowledge. I took a lot from her, and just my co-workers and my co-teachers, especially in hearing-impaired program. And different professional development that were
offered through that program were really helpful to me. (Oral-Aural Teacher, interview, January 5, 2017)

It was clear that OA Teacher learned from the available sources in the hearing-impaired program, especially noting the exchange of teaching experiences as a primary source of support. This process of learning shaped her perceptions about the necessity of first establishing reading foundations, resulting in her increased focus on building students’ background knowledge, vocabularies, and using phonics strategies—all important for effectively implementing other reading comprehension strategies as appropriate to students’ developing abilities.

Through collaboration with other teachers, as well as learning from her own teaching experiences in the d/Dhh classroom, OA Teacher was better prepared to select and use reading comprehension strategies that were appropriate for her d/Dhh students, even more so than from her preparation at the undergraduate level. Ultimately, OA Teacher communicated that her professional development trainings and the available sources of support at her school had reduced any gaps that might have existed due to the lack of teacher preparation during her undergraduate educational experience.

Cross Case Analysis and Conclusion

Upon initially conducting this study, as researcher I assumed that Total Communication Teacher and Oral-Aural Teacher would select and use different reading comprehension strategies from one another. This assumption stemmed from the fact that the two teachers worked in different schools and taught in different kinds of classrooms (total communication classroom versus oral-aural classroom; different grade levels), with
two different groups of d/Dhh students. Thus, I anticipated seeing fewer uses of reading comprehension strategies from TC Teacher due to the greater degree of hearing loss represented among her students as compared to OA Teacher’s students and their focus on use of speech similar to that of typical hearing students. However, OA Teacher appeared to use fewer reading comprehension strategies than TC Teacher.

Importantly, both d/Dhh teachers followed the same process of selecting and using appropriate reading comprehension strategies with their students: (a) first identifying which reading skills their students had and which skills were missing (assessing abilities and needs); (b) filling in gaps by focusing on building the reading foundations that d/Dhh students need (i.e., phonics, vocabularies, and background knowledge) in order to eventually move forward; (c) in moving forward, applying appropriate reading comprehension strategies based on d/Dhh students’ positive experiences with other reading comprehension strategies; and (d) keeping the reading comprehension strategies that worked well with d/Dhh students.

Table 8 illustrates the similarities and differences between TC Teacher and OA Teacher, as determined from my examination of the data collected during a one-month period. The main finding that emerged from the data, as presented in the Table, is that both teachers took the same factors into consideration and were similarly influenced in their decisions regarding the selection and use of reading comprehension strategies with their d/Dhh students. These influential factors included: (a) actual experiences of implementing reading comprehension strategies in the classroom, (b) degree of teacher preparation at the undergraduate and graduate levels, (c) involvement in professional
development activities, (d) awareness of d/Dhh students’ abilities and needs, and (e) sources of support inside and outside the school building. Overall, there were fewer differences than similarities between the two teachers.

<table>
<thead>
<tr>
<th>Teacher’s Background and Characteristics</th>
<th>TC Teacher</th>
<th>Similarities</th>
<th>OA Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 4+ years of working experience with d/Dhh students</td>
<td>- 4+ years of d/Dhh teaching experience</td>
<td>- 4+ years of working experience with d/Dhh students</td>
<td></td>
</tr>
<tr>
<td>- Bachelor’s degree: Deaf Education with Elementary Certification</td>
<td>- Bachelor’s degree: Speech and Hearing Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 4+ years of d/Dhh teaching experience</td>
<td>- Master’s degree: Deaf Education</td>
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<tr>
<td>- Bachelor’s degree: Speech and Hearing Science</td>
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<tr>
<td>- Master’s degree: Deaf Education</td>
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</tbody>
</table>

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<thead>
<tr>
<th>Teachers’ Experiences with Reading Comprehension Strategies</th>
<th>Used: Story Map, Graphic Organizer, Question-Answering, Cooperative learning, Prior Knowledge, Inferences, Prediction, and QARs, Multiple-Strategies.</th>
<th>Used: Graphic Organizer, Question-Answering, Summarization, and Multiple-Strategies, Prior Knowledge, Prediction, and QARs. Did not use: Comprehension Monitoring and Question Generating Story Map Cooperative learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Did not use: Comprehension Monitoring and Question Generating</td>
<td>- Did not use: Comprehension Monitoring and Question Generating</td>
<td></td>
</tr>
</tbody>
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<tr>
<th>Teacher Preparation</th>
<th>- 8 reading classes</th>
<th>- 5 reading classes</th>
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<tr>
<th>Professional Development</th>
<th>Both teachers Engaged in professional development, including Riggs and Orton-Gillingham training</th>
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<tr>
<th>Available Sources of Support</th>
<th>Support available inside and outside the school building for both teachers.</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Awareness of d/Dhh Students’ Abilities and Needs</th>
<th>Addressed students’ needs and abilities by focusing on reading foundations.</th>
</tr>
</thead>
</table>

Table 8. Similarities and Differences Between Total Communication Teacher and Oral-Aural Teacher
As discussed earlier in this chapter, the National Reading Panel (NRP) (2000) addressed five fundamental components of effective reading instruction: (a) phonemic awareness, (b) phonics, (c) fluency in reading, (d) text comprehension, and (e) vocabulary instruction. Based on the findings gained from my classroom observations, teachers’ interview responses, and their ESM entries, TC Teacher and OA Teacher both implemented the five components recommended by NRP. Most significantly, they focused on phonemic awareness, phonics, fluency, and vocabulary as the core reading foundations needed by their d/Dhh students as preparation for working on the components of text comprehension. Upon establishing their students’ skills in reading foundations, the two teachers could then advance their reading instruction methods through the use of appropriate reading comprehension strategies.

The main difference that existed between the reading instruction approaches used by TC Teacher and OA Teacher was the number of reading comprehension strategies each implemented in her respective classroom. Clearly, TC Teacher used all the reading comprehension strategies recommended by NRP (2000), except Comprehension Monitoring and Question Generating. She explained that these last two strategies were too advanced for her d/Dhh students based on their abilities as well as her own teaching experience. In comparison, OA Teacher used some of the reading comprehension strategies recommended by NRP (2000), including Graphic Organizer, Question-Answering, Summarization, and Multiple-Strategies. However, OA Teacher did not have any experience using other advanced strategies such as Comprehension Monitoring and Question Generating due to the fact that she was not aware of these strategies. In
addition, her initial opinion of these advanced strategies was that they would not work well with her d/Dhh students. Thus, reading comprehension strategies such as Prior Knowledge and Prediction were used by both teachers, while neither teacher used Comprehension Monitoring and Question Generating. The two teachers differed further in their reasons for not using Comprehension Monitoring and Question Generating with their students. While TC Teacher was aware of these advanced strategies, she chose not to use them based on her perception that they were not effective with her students. On the other hand, OA Teacher was simply—at least initially—not aware of these strategies.

In general, TC Teacher and OA teacher engaged in similar professional development opportunities, such as Riggs training. In addition, both teachers used sources of support—like the exchange of teaching experiences with other teachers/peers—that were available inside their schools, and they recognized the beneficial influences of these supports. However, in terms of prior educational preparation as a source of support for d/Dhh classroom reading instruction, TC Teacher received more reading classes than OA Teacher during their individual undergraduate and graduate experiences. The findings indicate that this disparity in educational preparation between TC Teacher and OA Teacher led to the difference in the number of reading comprehension strategies used by each of the teachers with their respective d/Dhh students. Finally, although TC Teacher and OA Teacher differed in teacher preparation/educational backgrounds, the two teachers demonstrated the same awareness of how d/Dhh students’ needs and abilities played a major role in the selection and use of reading comprehension strategies. Both teachers clearly took into consideration their
students’ needs and abilities, making this focus on skills assessment the first step in the process of selecting and using appropriate instructional strategies. Finally, my cross case analysis suggests that different experiences with implementing reading comprehension strategies in their classrooms, disparities among their d/Dhh students’ reading abilities and needs, different teacher preparation experiences, and various professional development trainings intersected with one another, thus, informing each teacher’s process of selection and subsequent use of reading comprehension strategies.

Summary

The findings across both case studies suggest that four intersecting categories informed the process of selection and use of reading comprehension strategies for working with d/Dhh students, as represented by TC Teacher and OA Teacher: (a) the teacher’s background and characteristics, (b) the teacher’s experiences with selection and use of reading comprehension strategies in the school setting, (c) key factors that influenced the teacher’s decisions regarding the selection and use of reading comprehension strategies, and (d) key factors that improved the teacher’s use of selected reading comprehension strategies. Ultimately, students’ reading abilities and needs emerged as a primary factor for each teacher’s selection and implementation process. As such, assessing and identifying students’ abilities and needs was the first step taken to identify and address gaps in essential reading foundations skills—phonics, vocabularies, and background knowledge—in order to apply appropriate reading comprehension strategies going forward.
Chapter 5: Discussion

In this qualitative study, I examined reading comprehension strategies selected and used by two teachers of d/Dhh (Deaf and Hard of Hearing) students in their respective elementary school classrooms: Total Communication Teacher (signing and speaking, third grade classroom) and Oral-Aural Teacher (speech only, fourth grade classroom). By exploring their educational backgrounds, their perceptions of students’ abilities and needs, and other factors (internal and external) that impacted the teachers’ decisions, this study illuminated the steps of their decision-making processes in choosing and using reading comprehension strategies they determined to be most beneficial to their students. In terms of the study’s design and implementation, I framed the project as two case studies that constituted the whole. The following questions served to underscore the study’s problem and purpose:

1. What reading comprehension strategies do the two teachers use in the elementary classroom with their d/Dhh students?

2. What processes do the two teachers follow while selecting appropriate reading comprehension strategies? What rationale do these teachers give for their decisions?

In my role as researcher, I collected data using three different data collection instruments: (a) two semi-structured interviews, (b) eight classroom
observations, and (c) four Experience-Sampling Methodology (ESM) documentations. I assigned pseudonyms for both participants in order to ensure that their identities were kept private. Specific to the interviews, I transcribed data into a Word file and analyzed interview transcripts using an inductive approach of coding in order to discover emergent patterns and themes within each interview transcript. In addressing each case, I discerned final themes and categories in relation to the research questions and theoretical framework, using data from the classroom observations and the ESM documentations in addition to the interview data. In turn, the across case analysis served to illustrate the similarities and differences between the two cases.

Going forward in this chapter, I interpret the findings of the study (reported in Chapter 4) for the purpose of assigning meaning to them and drawing out their significance to current theories and practices pertaining to d/Dhh education—with a specific focus on the elementary classroom. In turn, I address the implications of the findings and make recommendations for future research in this area.

**Interpretation of Findings**

In this section, I analyze and interpret the findings in relation to the two research questions. The aim is to establish meaning by examining findings as they inform these questions, thus providing the reader with additional perspectives from which to further consider the credibility of the study, its implications, and its overall significance to the field.
First Research Question

What reading comprehension strategies do the two teachers use in the elementary classroom with their d/Dhh students?

TC Teacher and OA Teacher each spoke of their background experience using certain reading comprehension strategies—reflecting prior teaching experiences (before this study) and teaching experiences specific to their current situations (including reading lesson observed during the study). As researcher, I assumed that Total Communication Teacher and Oral-Aural Teacher would select and use different reading comprehension strategies from one another. This assumption stemmed from the fact that the two teachers worked in different schools and taught in different kinds of classrooms (total communication classroom versus oral-aural classroom; different grade levels), with two different groups of d/Dhh students. Thus, I anticipated seeing fewer uses of reading comprehension strategies from TC Teacher due to the greater degree of hearing loss represented among her students as compared to OA Teacher’s students and their focus on use of speech similar to typical hearing students. However, OA Teacher appeared to use fewer reading comprehension strategies than TC Teacher. During classroom observations, I noted that TC Teacher used the following strategies: (a) Cooperative Learning, (b) Graphic Organizer, (c) Story Map, (d) Question-Answering, (e) Summarization, (f) Prior Knowledge, (g) Inferences, (h) Prediction, and (i) Multiple Strategies. OA Teacher used all the same strategies in her reading lessons with the exception of Story Map, Inferences, and Cooperative Learning. Both TC Teacher and OA Teacher used some level of Question Answer Relationships (QARs) such as “In the
Book.” Neither teacher used Comprehension Monitoring and Question Generating. With these observations in mind, I compared the strategies used by each teacher to the reading comprehension strategies recommended by the National Reading Panel (NRP) (2000). Relative to the organization’s in-depth research on reading instruction, the NRP (2000) has recommended implementation of the following formal reading comprehension strategies for all students, especially as they might be used in combination during cooperative learning activities: (a) Comprehension Monitoring, (b) Semantic or Graphic Organizers, (c) Generating and Answering Questions, (d) Summarizing and Synthesizing, and (e) Story/Passage Maps.

Clearly, both teachers successfully used some of the strategies recommended by NRP (2000), signifying that recommendations aimed at the nation’s general student population (i.e., typical literacy learning hearing students) can be used effectively with d/Dhh students. As such, based on their students’ abilities and needs at the time of this study, TC Teacher and OA Teacher selected and used those NRP-sanctioned reading comprehension strategies they judged to be most appropriate. Further, both teachers expressed their desire to use additional strategies, over time, based on their perceptions of student readiness. Thus, I submit that their approaches to d/Dhh reading instruction demonstrated that both teachers believed that their d/Dhh students could respond to reading comprehension strategies typically associated with typical literacy learning hearing students and achieve positive outcomes.

Although the strategies recommended by the NRP (2000) focus on typical literacy learning hearing students, the Quality Similarity Hypothesis (QSH)—discussed in
Chapter 2—asserts that d/Dhh learners who learn English as either a first or second language proceed through similar developmental steps as do typical literacy learners. Thus, QSH framework supports the preceding discussion of TC Teacher’s and OA Teacher’s use of numerous NRP strategies in their d/Dhh classrooms. In fact, d/Dhh learners make the same reading comprehension errors in qualitatively or developmentally similar ways (Paul & Lee, 2010; Paul et al., 2013). Therefore, with respect to the first research question’s focus on the identification of reading strategies actually used by TC Teacher and OA Teacher, the major finding from the data indicated that most (but not all) of the reading comprehension strategies recommended by NRP (2000) were effectively used by these teachers with their d/Dhh students. The positive feedback that both teachers received from their students reinforced the teachers’ decisions to continue using these strategies in their respective classrooms. Thus, the significance here is that the d/Dhh students demonstrably benefitted from reading instruction strategies correlating to the NRP (2000) recommendations, thereby validating their teachers’ choices and uses of specific strategies. While the NRP (2000) recommendations were created with the expectation that they would work well with typical literacy learners, the findings indicated that these strategies also worked well with d/Dhh students, while at times requiring modifications for some d/Dhh readers.

**Second Research Question**

*What processes do the two teachers follow while selecting appropriate reading comprehension strategies? What rationale do these teachers give for their decisions?*

TC Teacher and OA Teacher followed the same processes and were influenced by
the same factors when making decisions about their selection and use of appropriate reading comprehension strategies with their d/Dhh students. In particular, both teachers emphasized the essential first step of assessing students’ current abilities and needs in order to determine the best strategies to use with them as a starting point. As noted in Chapter 2, many researchers have maintained that English instruction (including reading comprehension instruction) should be designed around the child’s needs because different children have different needs with respect to recognizing, decoding, and understanding various components of English reading (e.g., Trezek et al., 2010). With respect to instructional intensity and appropriate instructional timeframes, reading interventions should be differentiated according to the needs of the child based on specific reading comprehension problems he or she has demonstrated in the classroom and on formal assessments (Paul et al., 2013). In line with these assertions, the first step that both TC Teacher and OA Teacher took was to assess and acknowledge their d/Dhh students’ specific needs to establishing and reinforcing basic skills known as reading foundations—teaching phonics, vocabularies, and building background knowledge—in order to maintain the necessary baseline of skills from which to ensure effective use of more complex reading comprehension strategies. These reading foundations skills match some of the components of effective reading instruction advocated by the NRP (2000), and both teachers recognized the need to ensure that their students were well-grounded in these skills before moving on to more challenging reading comprehension strategies. I suggest that, if TC Teacher and OA Teacher ignored the necessity of establishing reading foundations skills with their d/Dhh students, their selection and use of other strategies...
would have been frustrating and ineffective. Ultimately, then, both teachers recognized that the lack of access to English as the home language (through the air and print) caused delays in the rate of language and literacy acquisition for their d/Dhh students as compared to typical learners assessed at third and fourth grade reading levels. Clearly, this delay influenced both teachers to spend most of their time building on the area of “learning to read” in order to eventually be able to move their d/Dhh students forward to the “reading to learn” area of reading instruction and comprehension.

Based on data collected from interviews, observations, and ESM documentations, I found that both TC Teacher and OA Teacher have been strongly influenced by their perceptions of their students’ abilities and needs, which invariably affects their decision-making processes (Feng & Etheridge, 1993; Maxson, 1996). Squires and Bliss (2004) asserted that, in general, teachers’ previous instructional experiences and their ongoing perceptions of their students’ abilities and behaviors influence their day-to-day decision making. However, in the case of d/Dhh students and the special challenges they typically present in the classroom, I suggest that the perceptions of TC Teacher and OA Teacher were particularly significant in terms of the choices they made to strengthen their instructional efforts. Specifically, their positive and negative perceptions of students’ responses and behaviors during instruction affected their assessments of their own teaching efforts. In turn, such perceptions—related to both negative and positive classroom experiences—influenced their decision-making processes regarding which reading comprehension strategies they would use going forward.

Overall, TC Teacher’s and OA Teacher’s individual experiences and perceptions
of their students’ abilities, needs, and behaviors exerted what both considered to be necessary influences on their evolving choices and uses of reading comprehension strategies in their d/Dhh classrooms. Therefore, I posit that reliance on their subjective perceptions (further supported by other objective assessment tools) helped each of these teachers determine which strategies to keep—those perceived to have worked well during active instruction—and which strategies to avoid—those perceived as being poorly received/understood by their students. In other words, these teachers’ perceptions of students’ reactions and behaviors during reading instruction activities served as key information for their judgments of a strategy’s effectiveness. For example, lack of student response or feedback, along with a lack of demonstrable understanding of text specific to the use of a particular reading comprehension strategy during a lesson, served as strong indicators of a strategy’s ineffectiveness. Such student reactions, including lack of reactions, served as cues that were recognized and interpreted by both teachers as signs to choose other reading comprehension strategies that might be more effective with their d/Dhh students. Specific to the influence of teacher perceptions on selection and use of strategies, I suggest that this finding underscores a kind of in-action, decision-making process based on each teacher’s trial of a certain strategy, followed by a relatively simple assessment of the strategy’s perceived effectiveness in terms of students’ reactions.

As reported in Chapter 4, several other factors contributed to TC Teacher’s and OA Teacher’s decision-making processes surrounding the selection and use of reading comprehension strategies: (a) teacher characteristics, such as passion for teaching and working with d/Dhh students specifically; (b) the number of reading instruction courses
they had during their years of teacher preparation in higher education; (c) consistency and quality of professional development trainings, past and ongoing; and (d) access to sources of support both inside and outside of the school building (Yero, 2002).

**Implications for Practice**

The findings of this study suggest that each of the participating d/Dhh teachers had positive experiences using reading comprehension strategies with their d/Dhh students. I suggest that the significance of these findings lies in the fact that regardless of their different programs—total communication program, as represented by TC Teacher and oral-aural program, as represented by OA Teacher—these teachers relied upon the use of reading comprehension strategies typically recommended for the general population of student readers (i.e., typical literacy learning hearing students). Moreover, they determined each strategy’s suitability and applicability to d/Dhh students in recognition of underlying conditions and issues such as varying degrees of hearing loss, intellectual readiness, and other developmental dynamics. Ultimately, I isolated five areas for consideration as representing implications of this study, all informed by the factors that influenced TC Teacher’s and OA Teacher’s process of selection and use of reading comprehension strategies.

First, and taking into account the different programs that fall under the heading of d/Dhh education, d/Dhh teachers need to make sure that every student is taught the reading foundations skills of vocabulary, phonics, and background knowledge-building. As evidenced by the d/Dhh classrooms observed in this study, reading foundation skills must be intensively addressed, as early as possible, so that teachers can use more
advanced reading comprehension strategies effectively at the third and fourth grade levels. Moreover, d/Dhh teachers should know and subscribe to the principle that learning to read is an essential foundational skill that will then enable their d/Dhh students to progress to the stage of reading to learn through the use of appropriate reading comprehension strategies. Thus, the use of reading comprehension strategies needs to be correlated to d/Dhh students’ needs, with reading foundation skills established as the first layer of skills upon which to build more complex skills.

Second, d/Dhh teachers need to be aware of reading comprehension strategies recommended by the NRP (2000), along with any other reading comprehension strategies that might benefit d/Dhh students’ development of competent reading skills. From an assessment and student achievement standpoint, it is important that d/Dhh teachers implement carefully selected reading comprehension strategies to help their students improve their scores on standardized tests. Such reading comprehension strategies include summarizing, questioning, and predicting (Duffy et al., 1986). Thus, the findings implicate the need for d/Dhh teachers, in particular, to rely more strongly on a purposeful selection and use of reading comprehension strategies process, in this way, gaining valuable experiences and insights as to the variety of strategies available for use with their students. In addition, by using a wider range of reading comprehension strategies, d/Dhh teachers can better recognize and fill in gaps perceived as preventing d/Dhh students from benefiting from other instructional strategies.

Third, Deaf Education programs at the university level should include intensive reading courses for pre-service teachers. These courses should include the teaching of
appropriate reading comprehension strategies for d/Dhh students. Further, they should include the strategies recommended by the NRP (2000) for all students, but with necessary accommodations in order to be appropriate for the varying abilities and needs of d/Dhh students. General reading knowledge, incorporating reading foundations skills, should be connected to the field of d/Dhh education/teacher preparation as a natural component of reading instruction. On this point, pre-service teachers would have a foundation from which they could later access and choose reading comprehension strategies most appropriate to their classrooms. Overall, based on the findings, I suggest that the educational backgrounds of this study’s d/Dhh teachers influenced their processes of selection and use of reading comprehension strategies once they took charge of their own classrooms. Again, I recommend that higher education teacher preparation programs include focused attention on the specialized area of d/Dhh reading education.

Fourth, the findings reinforced the value of professional training for d/Dhh teachers as an ongoing feature of their teaching careers. I submit that d/Dhh teachers must participate in quality professional development activities at least once a year in order to fill any gaps that might yet exist from the lack of teaching preparation at the university level. In addition, professional development helps d/Dhh teachers stay up-to-date on best practices in reading instruction and also introduces new reading comprehension strategies that might work well with d/Dhh students. Thus, this area of the findings implicates the need for quality professional development throughout the individual’s teaching career, supporting the idea that teaching experience, supplemented
by ongoing teacher training, helps d/Dhh teachers better select and use appropriate reading comprehension strategies with their d/Dhh students.

Fifth, school administrators should encourage peer interaction as a source of support for d/Dhh teachers inside their schools, along with encouraging access to sources of support outside the school building. For example, support from teaching peers and other staff members is important for d/Dhh teachers because this kind of collaboration enables the exchange of experiences regarding another person’s actual use of reading comprehension strategies that worked well for d/Dhh students. In addition, d/Dhh teachers who have engaged in effective professional development training sessions, and who have had positive teaching experiences as a result, can exchange that kind of training information with other d/Dhh teachers who did not attend the same professional development activity. Other kinds of collaborative teaching experiences between d/Dhh teachers inside the school building can create and strengthen a supportive environment for them.

**Limitations of the Study**

In looking back upon the planning and implementation of this study, it is important to note those limitations that could have impacted the findings. First, the one-month timeframe for conducting the observations was not enough to provide a clear and consistent image of a match between the teachers’ perceptions (as expressed in their interviews and ESM documentations) and the observed classroom actions. In other words, it was difficult to determine whether or not 343 minutes of classroom observations provided a sufficient amount of time in which to observe the reading comprehension
strategies TC Teacher and OA Teacher used in their respective classrooms.

Secondly, the presence of me, as researcher/observer, during the time of an observation could have influenced the teacher to use more or different reading comprehension strategies than she might otherwise have chosen to use with her d/Dhh students during an unobserved lesson. Thus, as researcher and stranger in the classroom, I recognize the inherent limitation to obtaining a consistent sense of what an everyday reading lesson would look like in terms of each teacher’s ongoing selection and use of reading comprehension strategies.

In addition, another limitation could be interpreted as the purposefully imposed, narrow range of exploration incorporated with this study based on the research questions. As such, the study did not address a number of other questions, such as the following: Were the reading comprehension strategies used by the two teachers actually effective with their d/Dhh students? Which of these reading comprehension strategies increased the level of text comprehension for d/Dhh students at the third and fourth grade levels? Are all of the reading comprehension strategies recommended by the NRP (2000) appropriate for d/Dhh students when they already have reading foundations skills (learn to read skills)? How can the teachers of d/Dhh students use the Question Generating and Comprehension Monitoring strategies more effectively with d/Dhh students?

The findings of this study highlighted the reading comprehension strategies used by two teachers in their d/Dhh classrooms, also addressing the factors that emerged as playing important roles in TC Teacher’s and OA Teacher’s selection and use of strategies specific to the perceived abilities and needs of their students. Because of the subjective
nature and unique contexts of qualitative case studies such as this one, the goal is not to
generalize the findings of the study to all teachers of deaf and hard of hearing students.
Rather, the qualitative researcher’s purpose is to explore the case with as much depth as
possible in order to provide greater insights into the problem/phenomenon/case under
study. Thus, this particular study could provide a transferable view of the case and its
findings as it might be related to similar settings and populations. Furthermore, it could
serve as a potential starting point from which to advance future qualitative, as well as
quantitative research projects, within this area of inquiry; that is, d/Dhh education
specific to reading instruction and explorations of effective reading comprehension
strategies as selected and implemented in elementary level d/Dhh classrooms.

**Recommendations for Future Research**

There is little research focused on how teachers select and use reading
comprehension strategies during classroom instruction with children in special education
programs (Donne & Zigmond, 2008; Woolsey, Harrison, & Gardner, 2004). This is also
the case for teachers who instruct children who comprise the category of d/Dhh education
(Trezek et al., 2010). Therefore, due to this lack of research on the use of reading
comprehension strategies with d/Dhh students, I maintain that additional studies are
needed in this area.

Based on the findings, I recommend several areas within the broad scope of
d/Dhh education that need to be studied in the future. First, since this study was limited to
two teachers of d/Deaf and hard of hearing students, additional replication studies are
needed that would involve a larger sample size in order to compare findings of this study
with other studies covering a broader range of participants. In this way, findings across a broader range of studies would provide greater opportunities to assess similarities and differences. Furthermore, replication studies based on this singularly small study should focus on the area of reading comprehension for d/Dhh students and confirm what was concluded in this study.

As a second recommendation, I submit that the reading comprehension strategies used by TC Teacher and OA Teacher need to be researched further in order to more fully examine how these strategies are (or are not) effective with d/Dhh students in general. While the strategies used by the participating teachers were found to be appropriate to the needs and abilities of their d/Dhh students, more studies are needed to examine the present and ongoing effectiveness of these strategies—specific to the d/Dhh classroom—in order to confirm (or not) what has been indicated by this study.

Third, intervention studies about reading comprehension strategies recommended by the NRP (2000) should be investigated with a specific focus on d/Dhh education in order to determine if these strategies can be effective with d/Dhh students who are placed in different programs (in addition to total communication and oral-aural) as assessed by students’ degrees of hearing loss and various other intellectual/developmental issues.

Overall, these recommendations represent next steps that could contribute to improving and expanding the body of research pertaining to the field of d/Dhh education, particularly with respect to the teaching of reading comprehension skills. As researcher, I posit that this area of educational study needs focal attention because reading—as a skill involving technical ability and comprehension/critical thinking abilities—is one of the
major challenges that d/Dhh individuals face in their educational development. Further, understanding that reading is the foundational skill of all academic learning makes this issue even more significant.

Summary

This chapter provided a discussion that included: (a) analyses and interpretations of the findings first presented in Chapter 4, (b) discussion of the findings’ implications for practice, and (c) recommendations for future research. In my role as researcher, I interpreted TC Teacher’s and OA Teacher’s collective emphasis on their perceptions of students’ abilities and needs as crucial to their selection and use of the reading comprehension strategies. The ultimate meaning to be drawn from this finding is that these teachers prioritized what they saw and what they perceived in their classrooms as pivotal to being effective reading teachers with their d/Dhh students. Second, based on their prior experiences as pre-service teachers and their current experiences as d/Dhh classroom teachers, along with other factors that influenced their selection and use of reading comprehension strategies, important implications for practice emerged. Specifically, it is important that d/Dhh education programs, administrators, and teachers pay attention to the following points: (a) teach the reading foundation skills first by recognizing and assessing students’ needs in this area, (b) require high quality teacher preparation programs to better prepare new d/Dhh teachers for the classroom, (c) provide ongoing professional development training specific to d/Dhh reading comprehension strategies, (d) provide in-school sources of support whereby d/Dhh teachers can exchange teaching experiences with other teachers, and (e) adapt the reading comprehension
strategies recommended by the NRP (2000) for d/Dhh students. On this last point, elementary d/Dhh teachers can incorporate the NRP (2000) reading strategy of Summarization by adapting or adjusting basic instruction in this area to the needs of d/Dhh students. Over time, with the basics of Summarization in place, d/Dhh students would be better prepared for later, more advanced instruction on the effective use of Summarization skills. I recommend that future research in this area be focused on: (a) the replication of this study using larger and broader study samples, (b) new studies that will further examine the effectiveness of reading comprehension strategies used by the participants of this study, and (c) conducting intervention studies about the effectiveness of reading comprehension strategies recommended by the NRP (2000), specific to the abilities and needs of d/Dhh students.
References


Appendix A: Participant’s Consent Form
Appendix A: Participant’s Consent Form

Study Title:

Examining Reading Comprehension Strategies Selected and Used by Two Teachers of d/Dhh Students in Elementary School Classrooms

Researchers: Ali Alasmari
LES Doctoral student
The Ohio State University

This is a consent form for research participation.
It contains important information about this study and what to expect if you decide to participate.

Your participation is voluntary.
Please consider the information carefully. Feel free to ask questions before making your decision whether or not to participate. If you decide to participate, you will be asked to sign this form and will receive a copy.

The purpose:
The purpose of this study is to focus on a few major components of reading comprehension. Specifically, this study intends to examine reading comprehension strategies selected and used by two teachers of d/Dhh students in elementary school classrooms. By exploring the backgrounds, perceptions, and other various factors that might affect a teacher’s decisions, this study intends to uncover the steps of the decision-making process for selecting and using comprehension strategies.

Procedures:
If you agree to participate in this study, you will participate in two interviews and in answering questions at the end of two of your instructional lessons. Each interview will require one hour of your time; the interview will take place at your convenience. You may answer the questions about the two lessons at your convenience also, hopefully on the same day of the lesson. I will observe you four times, and each observation will last 30 minutes. With your permission, your interviews and observations will be audio recorded. After each of the two lessons, you may record your responses to the questions, or you can tell me your responses at your convenience.
**Duration:**
The study will take place over a period of one month. You will be able to review your responses to the questions at any time. You will also be able to review the final report and make any suggestions or edits as needed. You may leave the study at any time. If you decide to terminate your participation, there will be no penalty, and you will not lose any benefits to which you are otherwise entitled. Your decision will not affect your future relationship with The Ohio State University.

**Risks and benefits:**
There is a minimal risk to your privacy. However, you have the right to refuse to answer any question and to not permit me to observe any particular lesson. At the end of this study, you will be aware of strategies that have been recommended by the National Reading Panel (NRP) and National Early Literacy Panel (NELP). This study may assist you in rethinking or enhancing your selection and teaching of reading comprehension strategies to d/Dhh students.

**Confidentiality:**
I will not share any information with others, and all records of this study will be kept private and strictly confidential. All data will be protected in a hard drive of the computer with a password, and backed up on another hard drive of a second computer, which also needs to be accessed with the use of a password.

Efforts will be made to keep your study-related information confidential. However, there may be circumstances where this information must be released. For example, personal information regarding your participation in this study may be disclosed if required by state law. Also, your records may be reviewed by the following groups (as applicable to the research):

- Office for Human Research Protections or other federal, state, or international regulatory agencies;
- The Ohio State University Institutional Review Board or Office of Responsible Research Practices;

**Participant rights:**
If you choose to participate in the study, you may discontinue participation at any time without penalty or loss of benefits. **You can skip any questions you do not wish to answer.** By signing this form, you do not give up any personal legal rights you may have as a participant in this study.

This study has been determined Exempt from IRB Review.
Contacts and questions:
For questions, concerns, or complaints about the study, or you feel you have been harmed as a result of study participation, you may contact Dr. Peter V. Paul at paul.3@osu.edu.

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Signing the Consent Form

I have read (or someone has read to me) this form, and I am aware that I am being asked to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to participate in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this form.

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Investigator/research staff

I have explained the research to the participant or his/her representative before requesting the signature(s) above. There are no blanks in this document. A copy of this form has been given to the participant or his/her representative.

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Appendix B: Interview Questions
Appendix B: Interview Questions

1st round of interviews:

- **Certification and education:** What can you tell me about your educational background (undergraduate/major, graduate/major, where, when)? What is the highest educational degree you have obtained? How did you get interested in teaching d/Dhh students? How much formal education have you had in teaching reading? When? Where? What kind of formal education?

- **Employment:** How many years have you been a teacher? How long have you worked as a teacher of d/Dhh students? What is your favorite part about your position?

- **Characteristics of students:** How many students do you have in your classroom? How many of your students fall into the following unaided categories of hearing loss: mild, moderate, severe, profound? How many of your students have disabilities in addition to their hearing loss? What other disabilities do they have? Do your students use assistive listening devices such as hearing aids or cochlear implants? Tell me the ages, gender, ethnicity, and language use (English or other languages) of your students. Tell me the reading achievement levels of your students.
• *Reading:* What is your philosophy about reading instruction? Do you ascribe to a particular reading instructional methodology? Do d/Dhh children develop reading proficiency within the same time frame as typical literacy learners? Do d/Dhh children develop reading skills in the same manner as typical literacy learners? Why or why not?

• *Reading comprehension strategies:* What process do you follow in selecting and using appropriate reading comprehension strategies with your d/Dhh students? What reading comprehension strategies do you use in your classroom? Which reading comprehension strategies do you use the most? Why? Which reading comprehension strategies do you use the least? Why? Have your reading comprehension strategies changed over time? How? Which strategies work for you as a teacher? Which strategies do not work for you? How do you know that your selected strategies are appropriate for your d/Dhh students?

• *Perceptions and actions:* As teacher, how do you put your perceptions about reading comprehension strategies into action? What supports you in putting your perceptions about reading comprehension strategies into action in the classroom setting? What prevents you from putting your perceptions about reading comprehension strategies into action in the classroom setting? What most influences your methods of reading instruction?

2\textsuperscript{nd} *round of interviews:*

• How would you describe the way you teach reading comprehension on a typical day? Do you use methods such as reading out loud? Vocabulary activities?
Remembering ideas? Memorizing facts? Asking students questions? Student-generated questions?

- Have you ever tried something different from what you learned in your formal education program? Why? Have you ever taught a whole group of d/Dhh students at one time? Under what conditions would you do so? Do you do use different reading comprehension strategies for different groups? Why? What indicates that a reading comprehension strategy is going poorly?

- For example, there are strategies that are recommended by the National Reading Panel (2000), such as comprehension monitoring, graphic and semantic organizers, story map, question answering, question generation, and summarization. Which of these strategies do you use the most and least with your students? Why? What are the challenges that prevent you from using these strategies, or some of these strategies, with your students? Do comprehension strategies improve reading achievement? If so, how is this instruction best provided? Have you used question-answer relationship strategies (QARs) with your students?

Follow-up probes (fictional cases, think aloud) for the 2nd interview:

1. You have six d/Dhh students in the Xth grade (the grade level of the teacher being interviewed) who are non-readers at their designated grade level. How are you going to select appropriate reading comprehension strategies? How are you going to teach reading comprehension strategies?
2. You have students who use American Sign Language or students who sign only and who have low levels of reading comprehension. What reading comprehension strategies are you going to use with these students? Why?

3. You have students with cochlear implants who have low levels of reading comprehension. What reading comprehension strategies are you going to use? Why?
Appendix C: Observation Forum
Appendix C: Observation Forum

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* Informal reading comprehension strategies strategy were influenced by 1st round interview’ responses, observations, and ESM’s responses from both teachers.
Appendix D: Experience Sampling Methodology (ESM) Questions
Appendix D: Experience Sampling Methodology (ESM) Questions

1. What are the reading comprehension strategies that you used in the lesson?
2. What were the processes that you followed to choose these strategies?
3. Which of the following NRP strategies were not used in your lesson?
   Comprehension Monitoring, Cooperative Learning, Graphic and Semantic Organizers, Story Map, Question Answering, Question Generation, and Summarization, and Multiple-Strategy
4. What are the challenges that prevent you from using any of these NRP strategies with your students?