2010

Evidence-based (or not!) practices used for reading instruction in oral deaf education schools

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Abstract: This descriptive study aims at determining the most widely used reading instructional practices that are used by teachers of the deaf in oral deaf education schools.
Acknowledgements

I would like to thank Chris Clark for her unfailing support during my endeavor. She was an immense source of encouragement throughout my Independent Study and was a wonderful teacher and advisor to me.

I would also like to thank the following individuals for helping me make my Independent Study a source of pride for me:

Lynda Berkowitz and Barb Lanfer, for their invaluable contributions to my study; for guiding me with their thoughtful feedback and helping me include multiple perspectives in my study. They added immense value to my study.

Dr. Heather Hayes, for owning my Independent Study in an unofficial capacity. She was always there – responsive, encouraging, and ready to listen and talk. Many thanks to her for her patience with me.

Beth Fisher, Rene’ Miller, and Beth Elliott, for responding efficiently and effectively to all my requests for help – which were many!

All the teachers who gave me their invaluable time, effort, and thought and helped me gather my data. My sincere thanks to them for being a part of my study.

Finally, I would like to acknowledge the absolute role of the one person who made everything possible: my husband, Vijay. Without him, I could not have dreamt of succeeding in my venture. I am also grateful to other members of my family: my parents, my parents-in-law, and my children, who were so very patient with me as I struggled to be different people all at once – a student, a wife, a daughter, and a mother – while learning to be a professional.
# Table of Contents

Acknowledgements ................................................................................................................................................................................. ii

Introduction ............................................................................................................................................................................................... 3

Literature Review ..................................................................................................................................................................................... 7

Purpose of the Study ................................................................................................................................................................................ 15

Research Methodology ............................................................................................................................................................................. 16

Results ........................................................................................................................................................................................................ 20

Discussion .................................................................................................................................................................................................. 33

References .................................................................................................................................................................................................. 43

Appendices .................................................................................................................................................................................................. 46

A. Survey Questionnaire

B. Letter to School Administrator

C. Letter to Participating Teachers

D. Glossary of Terms
“Effective teaching may be the hardest job there is.”

~ William Glasser
Introduction

The primary impetus for my study is the changing field of pedagogy in light of the legal changes in the educational system. In 2002, the No Child Left Behind Act of 2001 was passed into law as the United States Congress Public Law 107–110, commonly known as the No Child Left Behind (NCLB) law. According to NCLB, its goal is “To close the achievement gap with accountability, flexibility, and choice, so that no child is left behind.” (p.115 Stat. 1425) Since the passage of the NCLB Act as law in 2002, there have been significant structural and practice-related changes in the educational system in the United States.

One of the basic principles of NCLB is the use of scientifically proven, that is, evidence-based practices to ensure academic success of the students, schools, and states. As per NCLB, its purpose is “To ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State academic achievement standards and state academic assessments.” (p.115 Stat. 1439) One of the ways to accomplish this purpose is by “Promoting schoolwide reform and ensuring the access of children to effective, scientifically based instructional strategies and challenging academic content.” (p. 115 Stat. 1440)

Therefore, NCLB has a direct impact on the teaching methods used by all teachers, including teachers of the deaf, in the classroom. Teachers are mandated to use instructional practices that are based on scientific research, widely known as evidence-based practices (EBPs).

In the discussion of EBPs, one of the questions that arises is - what is an evidence-based practice versus a practice that is not (evidence-based)? Moreover, how does a practice become evidence-based? The U.S. Department of Education has published a guide titled “Identifying and Implementing Educational Practices Supported by Rigorous Evidence: a User Friendly Guide”
which provides guidelines for educators to identify EBPs and help distinguish EBPs from “other” practices. As a teacher, I do not see myself evaluating the evidence-base for each practice that I use in the classroom against the guidelines given in the guide. It would require a thorough search of the research and critical analyses in order to determine the evidence-based nature of an instructional practice. I see a clear need for a pool of EBPs to use with students in the classroom. The U.S. Department of Education has several resources, such as the Doing What Works website at http://dww.ed.gov/ and the National Reading Panel website at http://www.nationalreadingpanel.org, that act as sources of EBPs for teachers in the general education setting.

For the field of deaf education, I could not find a published resource listing EBPs for use with children who are deaf or hard of hearing. As a teacher of the deaf, it is imperative for me to be knowledgeable about educational practices that are successful in the classroom. A search of the literature shows a severe lack of research-based practices in deaf education but revealed several reviews of research discussing educational practices used in deaf education. After reviewing the research literature, the one sound conclusion seems to be that there is more literature that documents and laments the lack of research in the field of deaf education than the research itself! The question that follows is: if teachers of the deaf are unable to find published EBPs, what practices do they use in their classrooms? The answer to this question forms the crux of the present study. In cases when documented EBPs do not exist, I believe that the next best alternative is to have a pool of “practices that work”, regardless of whether they are scientifically proven effective. Then, these practices could provide the basis for future research aimed at determining their effectiveness in experimental trials and other research designs. Thus, I see
merit in the idea of determining prevalent practices, and then evaluating their effectiveness via scientific treatments.

The second consideration for the current study is the improvement in the reading abilities of children who are deaf or hard of hearing. Historically, reading scores of deaf children have been low in comparison with their normal hearing peers. According to Traxler (2000), children who are deaf have median grade equivalent scores of grade 4.0 for reading vocabulary as well for reading comprehension when assessed using the ninth edition of the Stanford Achievement Test; the average 17 year old child who is deaf is able to read at a 4th grade level. However, recent studies show that deaf children with cochlear implants (CIs) who are learning spoken language can achieve scores that are much higher than have been for children who are deaf or hard of hearing in the past. Moog and Geers (1999) studied the speech, language and reading abilities of 22 students with cochlear implants who were enrolled in an oral deaf education school following the auditory oral (A/O) approach. They found that 18 students had reading test scores within 80% of their normal-hearing peers. Geers (2003) studied the reading skills of 181 children 8-9 years old who had CIs and were using one of the two modes of communication, namely, Oral Communication and Total Communication. She found that these deaf children with CIs had mean grade equivalent scores of 2.5 to 2.8 in different reading skills; placing them at the same reading level as their normal hearing peers. What are the factors that contribute to this rise in reading achievement? According to Geers (2002), one factor for the improved reading abilities of children with CIs who are learning spoken language was their placement in an A/O educational program that emphasized the use of audition and speech for learning spoken language.
The Oberkotter Foundation is a non-profit organization that is dedicated to supporting oral deaf education. The foundation provides financial grants and other services for promoting the development of oral language in children who are deaf. The foundation also provides financial grants for professional education in the field of oral deaf education. This includes training programs for teachers of the deaf across the country. According to the Oberkotter Foundation’s website www.oraldeafed.org, there are forty-seven oral deaf education schools in the US. These schools use the A/O approach for developing language and are referred to as OPTION Schools. The philosophy of A/O methodology is based on developing listening and spoken language skills by maximizing the use of residual hearing. Technological advancement has placed deaf students learning through the auditory approach at the best place they could ever be. As stated above, these children are achieving reading abilities comparable to their hearing peers. The question that begs to be asked is - what practices are the teachers using in these schools?

Putting the two considerations discussed above in a global perspective, my study aims at listing reading instructional practices, whether evidence-based or not, that are most widely used by teachers of the deaf in A/O deaf education schools.
**Literature Review**

This review will discuss recent research in the field of effective or evidence-based practices and deaf education. First, it will examine past research in the field of reading instruction focusing on the effective reading instructional practices used with normal hearing children. Then, it will examine the research to determine the evidence-based practices used for reading instruction with children who are deaf. The review will conclude by looking at research to determine the instructional practices used specifically with children who are deaf and are learning spoken language via the A/O approach, if available.

There have been periodic reviews of research in the field of reading instruction with the intent of determining effective reading instructional practices in the classroom. One of the biggest efforts was the review conducted by the National Reading Panel (2000). The National Reading Panel (NRP) was convened in 1997 under the directives of Congress and was asked to examine the research-base in the field of reading and to analyze the effective strategies used for reading instruction.

The NRP identified over 100,000 research studies that had been conducted in the field of reading. It used certain screening criteria to narrow down the focus to studies of interest. The NRP analyzed the studies critically and gave their conclusions and recommendations in different areas of reading instruction. These conclusions can be summarized as follows:

1. Teaching phonemic awareness (PA) to children led to a significant improvement in their decoding, spelling, and reading comprehension skills in comparison to teaching reading without any attention to phonemic awareness. Teaching one or two PA skills at a time led to better reading skills than focusing on three or more PA skills. PA training did not improve spelling skills in disabled readers.
2. Systematic instruction in phonics led to significant improvements in children’s reading skills as compared to instruction that has no or unsystematic phonics component. Phonics instruction is most beneficial at the foundational level before children start reading independently, that is, if they begin receiving it in the early grades, from kindergarten to first grade. Phonics instruction was also shown to be beneficial for younger children who were at risk for reading problems or had demonstrated difficulty learning in to read.

3. Guided repeated oral reading (that included feedback and guidance) led to a significant benefit in word recognition, reading fluency, and comprehension skills in children. Independent silent reading did not improve reading fluency.

4. Vocabulary should be built using both direct and indirect instruction. Making connections across different subjects, repeated exposure and practice in varied and rich contexts, incidental learning of vocabulary, and the use of computer technology are important techniques in developing larger vocabularies.

5. Teachers who provide explicit instruction in reading strategies helped bring about significant improvement in their students’ reading comprehension abilities. Teachers should be trained to explain to students how to use specific strategies for improving reading comprehension.

(National Reading Panel)

The report of the NRP was a huge first step into the investigation of evidence-based reading instructional practices. However, one shortcoming of this review was that it was a comprehensive review and did not distinguish between student population in the general education setting and that in the various special education fields. Although the NRP report does not specify research in the field of deaf education, its findings provide an important overview of
the research and evidence-based practices with potential for use in the field of reading instruction.

Similar review studies have been compiled to examine past research in the field of deaf education. Schirmer and McGough (2005) reviewed reading instruction research studies conducted in the field of deaf education using a methodology similar to that used in NRP’s review. They compared their findings to the findings of the NRP in specific areas of reading instruction. Their findings can be summarized as follows:

1. Although the authors found several related studies, only one study examined the effects of teaching phonemic awareness to deaf students. However, the study did not describe the teaching strategies used for intervention; therefore, they could not draw any conclusions about the effects of phonemic awareness training on reading skills of children who are deaf.

2. They could not find research in the area of phonics training. They found related research in the field of word recognition, specifically about effectiveness of strategies in the area of sight word learning. The authors concluded that children who are deaf could be trained to recognize words automatically.

3. The authors could not find any research examining the effectiveness of guided oral reading with children who are deaf. They found two studies about independent silent reading and concluded that this strategy might be effective in improving fluency of children who are deaf.

4. The authors found three studies examining the relationship between vocabulary and reading comprehension in children who are deaf. They concluded that vocabulary knowledge was positively correlated to comprehension abilities and that vocabulary is a
strong predictor of reading comprehension abilities of children who are deaf. The authors also put forth a tentative suggestion that indirect instruction might lead to improved vocabulary skills. They also suggest that the use of American Sign Language (ASL) and computers as multimedia foster enhanced vocabulary instruction.

5. The authors concluded that facility with syntax affects the reading comprehension abilities of children who are deaf. However, modifying the text to simplify the syntax of the reading does not lead to improved comprehension. The authors also stated that reading comprehension of children who are deaf benefits from instructing them in the use of mental imagery and inference making.

This review focused on children who are deaf, providing specific information for this population. As with the review by the National Reading Panel (2000), the review by Schirmer and McGough was a comprehensive study, adapting its methodology to align with deaf education. One shortcoming of this review is that the studies within the review sampled a variety of communication modes; there was no distinction of practices used with children using different communication modes. The sample populations in the studies used one or more of the communication modes: Oral Communication, Total Communication, Cued Speech, Manually Coded English, and ASL.

Luckner, Sebald, Cooney, Young, and Muir (2005/2006) conducted a meta-analysis of research in the field of literacy in the field of deaf education. They identified 964 articles that discussed literacy and deafness. They examined these articles in light of certain inclusion criteria for the final analysis and found 22 articles that met the requirements. Analyses of these studies indicate that research design and methodology is not applied effectively for research in deaf education. The authors concluded that due to a lack of well-designed group studies and lack of
systematic replication of studies, data is insufficient to discuss evidenced-based practices. Therefore, they did not specify any evidence-based literacy practice for use with children who are deaf or hard of hearing. They concluded that there was a need for improved quality and quantity of research for determining effective instructional practices in the field of deaf education.

As a comprehensive review, the findings of the study by Luckner et al. (2005/2006) were important in underlining the need for properly designed studies in deaf education research. The review revealed that studies were not conducted systematically within an area; there was no replication of earlier studies that would strengthen or refute the findings of earlier studies, and no two studies were conducted to examine the same area within reading, such as reading comprehension. However, despite these important findings revealed by the review, it had a major shortcoming; it did not discuss the communication mode used by the participants in these studies. The primary communication mode is the basis for using specific instructional practices with specific populations. The mode of acquisition of language is an important consideration in the educational practices used with children who are deaf. For example, the practice of using Cued Speech as an aid to develop spelling skills might not be as relevant in an A/O classroom setting as it might be in a Total Communication classroom setting.

Easterbrooks and Stephenson (2006) analyzed the body of research, current practices used by different states, and practices followed by professional organizations to determine effective educational practices used with children who are deaf or hard of hearing. Along with practices for science and math instruction, the authors determined 10 practices for literacy instruction that are effective with children who are deaf or hard of hearing. Of the ten literacy instructional practices, they found strong research-based evidence supporting the effectiveness
for three of the ten practices. One evidence-based practice is teaching metacognitive reading strategies like re-reading, looking at pictures, predicting, and visualizing through guided reading activities for effective comprehension of the text. According to the authors, another evidence-based practice is reading in the content areas to promote reading comprehension skills of students. The authors found that the practice of shared reading activities is backed by scientific evidence when used with developing readers but not with mature readers. The semantic approach to teaching vocabulary is another evidence-based literacy instructional practice. This approach is based on the principle of association; a group of related words are introduced and taught together for building vocabulary. The remaining seven practices that were identified as effective practices lacked the scientific evidence strong enough to interpret them as evidence-based practices.

The review by Easterbrooks and Stephenson (2006) examined the educational practices used in the areas of reading and the content areas of science and math. The authors made a revealing finding that reading skills are affected by the reading in content areas. However, one shortcoming of this review is that it did not discuss the communication mode used by the participants in these studies.

Schirmer (2006) accurately pinpointed the problem when she stated, “Learning language is the single greatest challenge for children who are deaf.” (p. 55). Therefore, “The primary focus of instruction for deaf students is developing a shared language.” (p. 55). Schirmer identified seven practices to develop language used by teachers with children who are deaf or hard of hearing. These practices are instructional conversations, role playing, cooperative learning, peer tutoring, incidental teaching, thematic unit instruction, and bilingual/bicultural approaches. None of these practices showed sufficient evidence of effectiveness to be termed evidence-based practices. In the area of reading instruction, Schirmer identified emergent storybook reading,
word recognition, fluency, and comprehension as the main areas of reading instruction for children who are deaf or hard of hearing. She found a few studies that demonstrated scientific evidence for instructional practices such as use of print and sign in teaching sight words, providing detailed information prior to reading, teaching the structure of the text, and teaching comprehension strategies.

The review by Schirmer (2006) did not discuss the communication mode used by the participants in these studies, which is a limitation of the review.

Luckner and Handley (2008) studied the research to identify evidence-based practices for reading comprehension for use with students who are deaf or hard of hearing. They found 55 studies that met the criteria for inclusion in the review. The authors concluded that none of the practices included in the reviewed studies met the criteria to be defined as evidence-based practices. However, five of the reading comprehension practices studied were supported by some evidence, and qualified to be termed as “tentative evidence-based practices”. These five reading practices are explicit comprehension strategy instruction, teaching story grammar, modified directed-reading thinking activity, activating background knowledge, and the use of well-written, high-interest text.

The review by Luckner and Handley (2008) focused on instructional practices used for reading comprehension. This comprehensive analysis within one area of reading instruction provides detailed information that can be easily applied to the classroom. Although the sample populations in these studies used one or more of the communication modes: Oral Communication, Total Communication, Cued Speech, Manually Coded English, and ASL, the authors did not make any distinction of practices used for these communication modes.
It is clear from the discussion of the research literature so far that none of the reviews has a separate discussion for practices used in A/O language programs. Therefore, the resultant pool of educational practices is a comprehensive list that includes techniques used across all settings and communication modes. No review has focused solely on determining effective and/or evidence-based reading instructional practices for use with students who are deaf or hard of hearing and who are using the A/O mode for learning language and communication.
Purpose of the Study

The purpose of the present study is to identify educational practices that are deemed successful by the teachers using them, for imparting reading instruction to children who are deaf or hard of hearing in an auditory/oral educational setting.
Research Methodology

Scope:

The scope of the present study is limited to A/O deaf education schools. It only examines educational methods and practices that are used in the OPTION Schools with children who are deaf or hard of hearing and are learning spoken language, that is, who are using the phonological basis for learning to read.

Is there a difference in teaching reading to deaf children who sign and those who use speech? Proponents of the two modes of communication, namely sign and speech, have presented evidence from their own perspectives of how children who are deaf learn to read. Wang, Trezek, Luckner, and Paul (2008) reviewed the research to determine the role of phonology in reading instruction for students who are deaf. The authors attempted to support the view that teaching children who are deaf to use phonological skills might be the basis for improving their reading skills. They pressed deaf educators to use all means to help children who are deaf develop phonological skills and related skills like speech-reading. However, the review did not differentiate between children who are using sign language as their primary language and those who are learning only spoken English. Therefore, it is difficult to draw separate conclusions about the two groups of students.

Treiman and Hirsh-Pasek (1983) studied the reading processes of deaf adults. They reported that deaf readers do not use phonological processes while reading; rather, they recode or translate the printed word into sign. Goldin-Meadow and Mayberry (2001) conducted a review of research to determine the process whereby profoundly deaf children learn to read. They stated that for profoundly deaf children, it is necessary to know the mapping or correspondence between the sign language and the print. Although the authors did not specify the primary mode
of communication used by these children, it is logical to infer that they were discussing children who are profoundly deaf and who use sign language as their primary language. The authors concluded, “Children cannot learn a first language through print.” This implies that children who are deaf need to have some language before they can begin to read. This language can be spoken language or sign language.

It would appear that there is a basic difference in how children who are deaf using sign language primarily learn to read and children who are deaf using speech primarily learn to read. Considering their improving reading skills as evidenced through site studies (Moog & Geers, 2003; Geers, 2003), it is apparent that children who are deaf, have CIs, and are placed in an A/O educational setting are benefitting from focus on development of language and repeated practice of skills. Therefore, a good language base and increased opportunities to practice their skills seem to be leveling the playing field for these children, at least for the ages studied.

In view of the discussion above, it seems logical to confine the scope of the present study to the teachers and students in A/O schools.

Research Design:

The objective of the study was to document the reading instructional practices prevalent in A/O deaf education schools in the United States. In addition, the target population encompassed a wide range of people in different parts of the country. Due to the qualitative nature of the study and the wide geographic range of the target population, a survey design was chosen to gather the data. A mix of open-ended and close-ended questions was included in the survey. For the purpose of simplicity, the survey design was anonymous; no identifying information was obtained from the respondents.

Participants and Sampling:
For the purposes of this study, the target population was teachers of the deaf who were working in an OPTION School. The two criteria for inclusion in the study were as following:

i. The teacher had to be certified/licensed in the field of deaf education

ii. The teacher had to have at least one-year’s experience in reading instruction working in an A/O setting.

Administrators of 37 OPTION Schools were contacted to request permission for eligible teachers to participate in the study (see Appendix B). Sixteen administrators responded positively, with some of them giving an exact number of teachers available to participate. The survey was sent to the administrators who distributed them to eligible teachers.

The following is the list of the OPTION Schools that consented to participate in this study:

Central Institute for the Deaf (Missouri)
Clarke School for Hearing and Speech, Jacksonville (Florida)
Clarke School for Hearing and Speech, Northampton (Massachusetts)
DePaul School for Hearing and Speech (Pennsylvania)
Desert Voices Oral Learning Center (Arizona)
Listen and Talk (Washington)
Ohio Valley Voices (Ohio)
Presbyterian Ear Institute (New Mexico)
St. Joseph Institute for the Deaf, Indianapolis (Indiana)
St. Joseph Institute for the Deaf, St. Louis (Missouri)
The Center for Hearing and Speech (Texas)
The Debbie Institute (Florida)
The Hearing School of the Southwest (Texas)
The Magnolia Speech School (Mississippi)
The Moog Center for Deaf Education (Missouri)
Tucker-Maxon Oral School (Oregon)

Procedure:

A literature review looked at previous research in the field to determine what we know of effective reading instructional practices used with the general population and those used with the deaf population. This information was used as a guideline to determine the structure and content of the survey. After the survey design was completed, it was test-administered to two teachers in an OPTION School. Then, 85 packets containing the survey (see Appendix A) and an introductory letter addressed to the participating teachers (see Appendix C) were mailed to the administrators who had consented to their teachers participating in the study. One of the schools had asked for an online version of the survey; www.surveymonkey.com was used to post an online survey for that school.
Results

Eighty-five surveys were mailed to the administrators of fifteen OPTION Schools. One school was sent a link for the online survey. Thirty-one teachers responded to the survey.

The findings in the areas of text material used, grade levels of students, grouping of students, use of assessment instruments, and sources of teaching strategies used for reading instruction as reported by the participating teachers are reported using graphics as follows:

Fig. 1: Distribution of teachers across different grade levels

![Pie chart showing distribution of teachers across different grade levels](chart.png)
Fig. 2: Distribution of teachers across different groups of students

# of students/reading group

# of teachers

- 1-2
- 3-4
- >4
- Variable
Fig. 3: Distribution of teachers by use of remedial curricula

Percentage of teachers using remedial curricula

- Use remedial curricula: 13%
- Do not use remedial curricula: 87%
Fig. 4: Distribution of teachers by use of standardized assessment

**Percentage of teachers using standardized assessment**

- 55% Do not use standardized assessment
- 45% Use standardized assessment
Fig. 5: Bar graph showing the relative ranks given by teachers to the four sources of instructional practices.
The findings showing the instructional practices used that are geared towards children who are deaf are as stated below:

1. One teacher reported using instruction in breathing techniques for improving reading fluency of the students.

2. One teacher reported using the PAWS for Reading program that involves students reading to a trained dog, a non-threatening and non-judgmental listener, to improve students’ reading fluency.

3. One teacher reported using kinesthetic movements to represent smooth reading to promote reading fluency.
The findings of the study within each content area of reading instruction are described as follows:

**Literacy Instructional Practices**

The top practices that teachers use for literacy instruction are as follows:

1. Theme units are used by 71% of the teachers.
2. Experience stories are used by 65% of the teachers.
3. Children’s literature is used by 26% of the teachers.
4. Read-alouds are used by 23% of the teachers.

Fig. 6: Bar graph of literacy instructional practices versus number of teachers using the practices.
Fig. 7: Bar graph showing number of teachers using “Theme Units” in different grade levels
Fig. 8: Bar graph showing number of teachers using “Experience Stories” in different grade levels
Phonemic Awareness and Phonics Instructional Practices

The top practices that teachers use for phonemic awareness and phonics instruction are as follows:

1. Rhyming activities are used by 56% of the teachers.
2. Word families are used by 56% of the teachers.
3. Blending and segmenting are used by 22% of the teachers.

Fig. 9: Bar graph of phonemic awareness and phonics instructional practices versus number of teachers using the practices
Fluency Instructional Practices

The top practices that teachers use for fluency instruction are as follows:

1. Choral reading is used by 59% of the teachers.
2. Modeling-imitation is used by 47% of the teachers.
3. Read-alouds are used by 35% of the teachers.
4. Repeated reading is used by 35% of the teachers.

Fig. 10: Bar graph of fluency instructional practices versus number of teachers using the practices
Vocabulary Instructional Practices

The top practices that teachers use for vocabulary instruction are as follows:

1. Real objects are used by 77% of the teachers.
2. Pictures are used by 58% of the teachers.
3. Teaching use of context clues or contextual analysis is used by 35% of the teachers.
4. Vocabulary cards are used by 35% of the teachers.

Fig. 11: Bar graph of vocabulary instructional practices versus number of teachers using the practices
Comprehension Instructional Practices:

The top practices that teachers use for reading comprehension are as follows:

1. Retelling of story is used by 74% of the teachers.
2. Comprehension questions are used by 65% of the teachers.
3. Acting out stories is used by 42% of the teachers.
4. Sequencing activities are used by 39% of the teachers.

Fig. 12: Bar graph of comprehension instructional practices versus number of teachers using the practices.
Discussion

The goal of the present study was to identify educational practices that are deemed successful by the teachers using them, for imparting reading instruction to children who are deaf or hard of hearing in an A/O deaf educational setting.

At the outset, I would like to emphasize that the discussion of findings is limited to children who are deaf or hard of hearing and are learning spoken language via the A/O approach. Moreover, their educational setting is a private oral school for deaf children. This represents an ideal learning environment for children who are deaf and learning spoken language, or as close to it as possible. Therefore, it would be reasonable to conclude that if teachers are not using specific techniques with these students, then it is unlikely that teachers in a public school setting might be using those techniques, given their larger class sizes and possibly fewer resources.

Of the 31 teachers who participated in the study, only four (13%) were working with grades 3-5 for reading instruction. Eleven teachers were working with grade PreK and 16 were working with grades K-2. No teacher working with students in grades 6 and higher participated in the study. This is an important consideration when discussing the results.

Seventy-one percent of the teachers were working with children in groups of four or less. Thus, for most of the sample population, reading instruction was provided in a small-group setting. Small-group instruction helps in designing and implementing instruction geared towards individual students’ learning needs.

A significant finding of the present study is that only 13% (four) of the teachers reported using remedial instruction with their students. Here, it is important to note that 87% (27) of the teachers worked with students at grade levels Pre-K to 2 for reading instruction. Only four (13%) of the teachers were working with students in grades 3-5. However, it is also important to note
that of the four teachers using a remedial curriculum, one worked with grade levels 3-5, two worked with grade levels K-2, and one worked with grade PreK. Until grade two, children are learning to read and from grade three onwards, they are reading to learn. Does this imply that students in the A/O schools are getting back on the path of developmental synchrony before they are in grade two? On the other hand, does it imply that these students have yet to hit the tough spots in their journey of learning to read? Yet another possibility is that these children simply do not need remedial reading instruction, that their early mastery of language, speech and related skills has put them on the same playing field as their hearing peers for reading abilities. The last possibility sounds very exciting and is not entirely impossible. However, these students will have to be followed and evaluated in a longitudinal design to understand whether their reading skills are sustained at these levels over time.

Another finding of the present study is that only 45% of the teachers reported using some form of standardized assessment of students’ reading skills such as the *Stanford Achievement Test* and the *Woodcock Johnson Tests of Achievement*. Over half of the teachers did not use any form of standardized assessment. Although more than two-thirds of the teachers were working with students in grade 2 or lower, it is important to note that there are several standardized assessments for early literacy. Gunning (2008) has listed formal and informal measures to monitor early literacy. Informal measures include an early reading strategies checklist and a comprehensive observation guide. Formal assessment includes measures like the *Concepts About Print, Observation Survey, Bader Reading and Language Inventory*, and the *Phonological Literacy Screening*.

Another finding of interest is that 55% of the teachers reported using colleagues as their first choice to obtain information about a new instructional strategy, whereas only 13% of the
teachers reported looking at research for the same purpose. It would appear that in the eyes of the teachers, experience outweighs scientific research when evaluating the efficacy of instructional practices. It is also possible that discussion with colleagues is an easier and faster means of obtaining new ideas rather than poring over tomes of research studies.

Yet another interesting finding was the lack of use of computers for reading instruction. It is surprising because the highly specialized field of oral deaf education is based upon the use of sophisticated technology; all teachers are trained in technology related to students who are deaf, such as hearing aids, cochlear implants, and FM systems. It seems logical to assume that almost all private A/O schools have computers in the classrooms; and that teachers have easy access to the computers and to the Internet. Moreover, during all of my student teaching practicum placements (in three different OPTION Schools), I have experienced first-hand the use of computers in imparting reading instruction. It is possible that the design of the survey questions was not conducive to the recall of computers as an educational practice used for reading instruction.

In the area of phonemic awareness and phonics, 56% of the teachers reported using rhyming activities and word families. Less than 22% of the teachers reported using blending and segmenting skills instruction. These figures indicate that teachers do not seem to be focusing on traditional phonemic awareness and phonics activities. This could be explained by the fact that 13% of the teachers were working with older students (grades 3-5) and 35% of the teachers were working with younger students (PreK). Instructional focus on phonemic awareness and phonics would be during the K-2 grades.

One of the areas I was interested in was to determine the practices specifically adapted to children who are deaf that are used by teachers in the A/O schools. The results of the present
study show that teachers of the deaf in A/O schools are using reading instructional practices that are used in the general education classroom across all areas of reading instruction: literacy, phonemic awareness and phonics, fluency, vocabulary, and reading comprehension. There were only three practices used for improving reading fluency that seem to be specifically geared towards children who are deaf. These practices are: use of breathing techniques, use of dogs as the reading audience, and use of kinesthetic movements for smooth reading. It is exciting to see teachers begin to focus on improving the reading fluency of children who are deaf because it signifies a shift from having children attend to the basic skills of the sound of language and moving on to focus on a higher skill of reading with fluency. Gunning (2008) states accuracy and automaticity, and comprehension as the important components of fluency. With focus on fluency, teachers will instruct children in using collective skills for decoding and comprehension to read with fluency.

Interestingly, none of the teachers reported using reading programs or techniques designed for use with children who are deaf such as teaching reading using the Association Method, which is a specialized technique for reading instruction developed specifically for use with children having problems learning to read due to hearing loss or other language delays. None of the teachers reported using Visual Phonics or Cued Speech to augment reading skills. What does this signify? It would appear that students in A/O schools today are taught as if they learn to read just like children with normal hearing learn to read.

In order to understand better the importance of this finding, it is necessary to understand why reading is a difficult skill for children who are deaf. This discussion will provide the background that will aid in understanding the discussion of the current study. Learning to read is
a difficult process. With children who are deaf, it becomes even more complex due to delayed and insufficient auditory information of language along with other factors as discussed below.

As in all other areas, deficits in reading ability in children who are deaf are caused primarily by the lack of language and language affects every facet of reading. Children who are deaf and are learning spoken language learn to read as they are learning language. They may have a limited vocabulary due to delayed access to language. They may miss incidental and natural means of learning new words. They also miss repeated opportunities to use and reinforce their vocabulary. Limited vocabulary leads to limited learning from reading. The vicious circle comes into play; the more you read, the more words you learn and the more words you know, the better reader you become.

According to Gunning (2008), “Reading is a process in which we construct meaning from print” (p.6) This means that reading involves two components, namely, decoding and comprehension. For children who are deaf, both of these processes present difficulties.

Decoding is difficult for these children due to inadequate knowledge of phonology of the language. Children who are deaf do not develop adequate auditory information of language in a timely manner, resulting in inadequate development of phonology. Harris and Beech (1998) reported a strong, positive correlation between phonological awareness and reading vocabulary of children who are deaf. These children may be unable to develop and use phonemic awareness skills adequately to learn new words. Conversely, in order to apply the principle of phonemic awareness, one needs to have a sufficient vocabulary. For example, to understand that substituting one phoneme for another creates a new word, one has to have rhyming words in the vocabulary, such as ban, can, fan, man, etc.
Lack of adequate knowledge of syntax affects reading comprehension abilities of children who are deaf. Kelly (1996) suggests that due to limited syntactic knowledge, children who are deaf are unable to apply vocabulary knowledge to the reading comprehension task.

According to Gunning (2008), one of the word-building skills is the use of morphemic analysis. Morphemic analysis refers to analysis of different word parts such as the prefix, root, and the suffix to arrive at the meaning of a word. Children who are deaf often have a limited vocabulary, which leads to difficulty with learning to apply strategies like morphemic analysis to derive the meaning of unfamiliar words.

Gunning (2008) describes the reading process as an interactive, two-way process with the reader being an active participant in this process. What the reader takes away from the reading depends on what the reader brings to the process of reading. According to Jackson, Paul, and Smith (1997), prior knowledge in children who are deaf is a strong predictor of their reading comprehension abilities. Due to the limiting of language-rich and meaningful life experiences, children who are deaf are unable to bring to the reading the background knowledge necessary for making meaning.

Thus, it can be seen that there is a web of factors that make learning to read a difficult task for children who are deaf. Lack of skills in one area leads to lack in another; in other words, the poor get poorer and the domino effect continues. Given the difficulties experienced by children who are deaf in learning to read, it would appear logical to conclude that teachers are using specialized instruction for these children. However, the results of the present study indicate otherwise.

So why are teachers of the deaf in A/O schools using the same reading instructional practices as those used in the regular educational setting? Is it possible that children who are
enrolled in these schools are merely delayed due to the delay in access to and development of sound and spoken language? Does the process of learning to read have the same milestones as that for children with normal hearing, but at a later point in time? Or, do children who are deaf read in fundamentally different ways than children who are hearing? In other words, are these children delayed or different in their process of learning to read? These questions call for further investigation in order to determine the validity of either conclusion.

Another question that follows naturally from the discussion so far is whether all children who are deaf and enrolled in A/O schools will be successful readers. The answer would be that it cannot necessarily be concluded that all children enrolled in A/Os schools will be successful readers. According to Geers (2002), placement in an A/O setting is only one of the factors that contribute to the success of children who are deaf in reading. The role of other factors will also affect their success in reading. According to the Gallaudet Research Institute (2008), over 39% of children who are deaf have additional medical conditions that can cause atypical physical and/or cognitive development. Therefore, it seems implausible that all children who are deaf and placed in strong A/O educational setting will develop good reading skills.

Although all possible efforts were made in the present study to recruit as wide a sample population as possible, it is possible that this is not the most representative sample of the teachers who are teaching reading in all A/O schools in the United States. Furthermore, it should be borne in mind that this sample is not representative of teachers of the deaf as a whole, which includes teachers using the signing mode for teaching reading.

Another limitation of the present study is that in order to keep the design of the study simple, anonymous surveys were used for data collection. Therefore, there was no way to determine the source of specific surveys. This made solicitation of clarification of survey
answers and obtaining additional data from specific respondents impossible. In addition, the distribution of the surveys was done solely at the discretion of the school administrators. There is a high probability that clusters of responses were received from the same schools. Therefore, respondent teachers working in the same school might have listed the same practices, resulting in skewed data favoring practices used by a large number of respondents from the same school.

In addition, as mentioned earlier while discussing the lack of use of computers for imparting reading instruction, the survey questions might not have been posed in a manner that was conducive to eliciting the most apt responses from the respondents. A better survey design might have resulted in data that are more accurate.

Although the present study is a successful compilation of prevalent instructional practices used for reading, it also opens up numerous questions for further investigation, such as: why do teachers use the instructional practices that they do use? What is the source of the prevalent practices? Are certain practices more effective for use with specific age/grade levels? What practices can be investigated to determine if they can be classified as EBPs?

One of the important findings of the present study was the use of fluency instructional practices of breathing techniques, use of dogs as the reading audience, and use of kinesthetic movements for smooth reading by a few teachers in A/O schools. These practices certainly sound effective in principle. Research investigating the efficacy of these practices might bring new techniques for use in the classroom with students who are deaf.

In responding to the question about the preferred source of information for a new teaching strategy, one of the responding teachers who ranked “Colleagues” as the most important source and “Research” as the least important source commented, “It’s just as important to know your students and understand how a strategy should be used for them.” I believe that the field of
deaf education would benefit from research into deaf educators’ attitudes to the move towards instruction based on scientific research.

The future directions for study could also include a thorough review of the latest research literature to analyze the practices compiled in the current study and determine the practices that qualify to be termed EBPs.

Another area of interest for future and continuing research would be to follow the children who are deaf and have cochlear implants to monitor their reading abilities over time. I would be interested in knowing how well the children studied in the site studies (Moog and Geers, 2003; Geers, 2003) are able to sustain their reading skills through middle school, high school and in college. Geers has performed a large-scale follow-up study of some of the children’s reading skills (besides other cognitive and academic skills) in high school, the results of which have not yet been published (Geers and Hayes, submitted). My hope is that the children who were good readers in elementary school continue to be good readers in high school.

Success in reading is an essential skill for living a rich life, and not merely for gaining academic knowledge during school. Reading for pleasure is one of the greatest pleasures of life. Hayes (personal correspondence, April 28, 2010) puts it best when she states that reading about different times and places is a richer source of information than being a fly on the wall in those settings. As a fly on the wall, one would merely see the events and people’s experiences whereas reading about them would give a greater insight into the people’s beliefs from a retrospective point of view. According to Hayes, the ultimate purpose of reading is in part to acquire practical knowledge, in part to acquire knowledge about other people, cultures, and belief systems, and in part to enjoy fiction. Beyond academic success during the school years, we need the ability to experience the myriad of thoughts and emotions that Nunez experiences in H.G. Wells’s The
Country of the Blind. It is my duty, as a teacher of the deaf, to facilitate the development of reading skills of children who are deaf, so that they may have the same ability to enjoy reading. Having a repertoire of effective, evidence-based (or not!) practices for classroom instruction should aid me and other professionals in performing this duty.
References


Appendices

A. Survey Questionnaire

Survey on Educational Practices Used for Reading Instruction

Instructions: Please respond by writing your answers in the spaces provided. Please write on the back of the pages or attach additional sheets, as needed. Additional comments are welcome. If a question does not apply to you, please write “N/A” next to it.

1. How many years of experience do you have in teaching reading in an oral deaf education school/setting?

2. What age(s)/grade level(s) do you currently have for reading instruction?

3. How many students do you have in a group for reading instruction?

4. Which reading material do you use in the classroom? (Please mark all that apply)
   - Remedial curriculum, such as “Reading Recovery” [___]
   - Children’s literature [___]
   - Teacher-developed materials [___]
   - Experience books [___]
   - Commercial materials (please specify)
   - Others (please specify)

5. Please list (and describe, if relevant) the five instructional practices that you use most often to promote early literacy skills (e.g., theme-based units, experience books, etc.):
   i. 
   ii. 
   iii. 
   iv. 
   v. 

6. Please list (and describe, if relevant) the five instructional practices that you use most often to promote phonemic awareness and phonics skills (e.g., instruction in phoneme isolation, using word families, etc.):
   i. 
   ii. 
   iii. 
   iv. 
   v. 
7. Please list (and describe, if relevant) the five instructional practices that you use most often to promote fluency skills (e.g., choral reading using books on tapes/CDs, etc.):
   i. 
   ii. 
   iii. 
   iv. 
   v. 

8. Please list (and describe, if relevant) the five instructional practices that you use most often to develop students' vocabulary skills (e.g., using real objects, using word walls, teaching strategies like using context clues, etc.):
   i. 
   ii. 
   iii. 
   iv. 
   v. 

9. Please list (and describe if relevant) the five instructional practices that you use most often to develop students' comprehension skills (e.g., having students retell stories, instruction in story-structure, using graphic organizers, etc.):
   i. 
   ii. 
   iii. 
   iv. 
   v. 

10. Do you use a standardized reading assessment? 
    i. If yes, please write the name of the assessment. 

11. When you need a new strategy for any domain of reading instruction, which source(s) do you use? (Please mark all that apply. If marking more than one, please indicate order of preference from 1 to 5, with 1 being most important and 5 being least important.)
    _Colleagues [___]  _Internet commercial websites [___]
    _Research articles [___]  _Books [___]
    _Others (please specify)
B. Letter to School Administrator

January 6, 2010

Robin Feder
825 South Taylor Avenue
St. Louis, MO - 63110

Dear Ms. Feder,

I am a second-year graduate student of the Master of Science in Deaf Education (M.S.D.E.) program at Washington University in St. Louis. I am conducting an Independent Study that will endeavor to identify the prevalent "Educational Practices for Reading Instruction" followed by teachers in oral deaf education schools. I had contacted you earlier regarding my Independent Study; thank you for agreeing to have your teachers participate.

Please find herewith packets for the participating teachers. Each packet contains an introductory letter, my survey questionnaire, and a self-addressed and stamped return envelope. Kindly distribute the survey packets to teachers in your school at your discretion. The two criteria for participation are as follows:

1) The teacher should be certified/licensed; and

2) The teacher should have at least one year’s experience in reading instruction at any age/grade level in an oral deaf education setting.

Please inform the teachers to fill the survey forms and use the included return envelopes to mail the same to me. I would highly appreciate it if your teachers could send the completed surveys within ten days.

If you have any questions or comments, please feel free to contact me at (904) 707-5271 or at the email address shandilgay@wusm.wustl.edu or my Independent Study advisor, Christine Clark, M.A.Ed. at (314) 977-0175 or at the email address cchark@cid.edu.

Thank you for your time and your cooperation.

Yours sincerely,

Geeta Shandilya
C. Letter to Participating Teachers

Washington University in St. Louis
SCHOOL OF MEDICINE
Program in Audiology and Communication Sciences

January 6, 2010

Dear Teachers,

Before anything else, I want to thank you for your participation; I greatly appreciate your willingness to invest your time and effort into my study.

I am a second-year graduate student of the Master of Science in Deaf Education (M.S.D.E.) program at Washington University in St. Louis. I am conducting an Independent Study that will endeavor to identify the prevalent "Educational Practices for Reading Instruction" followed by teachers in oral deaf education schools. As a future teacher of the deaf, I am very interested in understanding the educational practices that make reading instruction for children who are deaf or hard of hearing successful. I am surveying teachers of the deaf; your input will go a long way in making my study meaningful.

Please find herewith my survey questionnaire and a self-addressed, stamped return envelope. Kindly fill the survey forms and use the included return envelope to mail the same to me. I would highly appreciate it if you could send the completed surveys within ten days. Please feel free to attach additional pages if you have any comments, descriptions or explanations regarding the survey or my study.

Also, if you have any questions or comments, please feel free to contact me at (904) 707-5271 or at the email address shadilyag@wsum.wustl.edu or my Independent Study advisor, Christine Clark, M.A.Ed. at (314) 977-0175 or at the email address cclark@cid.edu.

Thanks again for your time and your cooperation.

Yours sincerely,

Geeta Shadilya
D. Glossary of Terms

ASL or American Sign Language is a visual/gestural language used by many members of the Deaf community in the United States and Canada.

Assessment is the process of gathering data about an area of learning through tests, observations, work samples, and other means.

Bilingual/bicultural approach refers to an educational approach wherein children who are deaf are taught ASL as their first language and English as their second language.

Blending is the process of creating whole words by combining word parts – /f/ and /an/ put together make fan.

Choral reading refers to two or more people reading the same text together.

Contextual analysis is an attempt to derive the meaning of a word by examining the context in which the unknown word appears.

Cued Speech is a visual communication system, which, in American English, uses eight handshapes - representing consonant sounds in four different locations near the mouth - representing vowel sounds.

Decoding is the ability to read a word by determining individual sounds and putting them together to form the word.

Direct instruction is a teacher-centered instructional strategy wherein the teacher's goal is to provide information, teach standard procedures, or develop step-by-step skills.

Directed-reading thinking activity is an adaptation of the guided reading lesson (or the guided reading activity) in which readers use preview and prediction strategies to set their own purposes for reading.

Emergent storybook reading is the evolving ability of a child to read storybooks, which progresses from simply telling a story suggested by the book’s illustrations or having heard the book read aloud to reading the book conventionally.

Evidence-based practice (EBP) refers to a practice that has a sufficiently strong scientific basis supporting its effectiveness in the classroom.

Experience story is the text that results from a language experience activity or from the learners' personal experiences.

Guided reading is an instructional framework within which the teacher supplies whatever help or guidance students need to read a story successfully.
Incidental teaching is a systematic protocol of instruction that is provided in the context of natural environments.

Indirect instruction is a learning-centered teaching strategy that promotes student involvement in the learning process and, in doing so, fosters true learning for understanding.

Manually Coded English refers to a group of systems, developed for educational purposes, that use signs, fingerspelling, or gestures separately or in combinations to represent English manually.

Metacognitive reading strategies are strategies that help students to "think about their thinking" before, during, and after they read.

OPTION Schools is an organization whose mission is to advance excellence in listening and spoken language (auditory-oral) education by providing services that assist schools and programs to increase their effectiveness, efficiency and ability to teach children who are deaf to listen and talk.

Oral communication is an approach that combines the use of speech, residual hearing, and speechreading as the primary means of communication for persons who are deaf.

Peer tutoring refers to a teaching strategy wherein students who are grouped in pairs tutor each other on lessons prepared by the teacher.

Phonemic awareness is the conscious awareness of individual sounds in words.

Phonics is the study of speech sounds related to reading.

Phonological awareness is the consciousness of the sounds in words. It includes the ability to detect rhyme and separate the sounds in words. It is a broad term and includes the concept of phonemic awareness.

Phonology is the language component that consists of producing and understanding speech sounds.

Read-aloud is an instructional practice wherein the teacher reads to the whole class, building on students' existing skills while introducing different types of literature and new concepts.

Reading fluency is freedom from word identification problems that might hinder comprehension in silent reading or the expression of ideas in oral reading.

Role playing is the assuming of and acting out the different character roles in the story by the students.

Segmenting is the process of dividing a word into its separate sounds – cat is segmented as /k/ /a/ /t/.

Sequencing activities refers to comprehension activities that require students to comprehend and remember details of reading in a certain order.
**Sight word** is a word that is recognized automatically, without being sounded out.

**Syntax** is the language component that has to do with the way in which words are arranged in a sentence.

**Text comprehension** is understanding what is read, with readers reading actively (engaging in the complex process of making sense from text) and with purpose (for learning, understanding, or enjoyment).

**Thematic unit instruction** is a teaching strategy wherein instruction is based upon creating connected units based on one topic.

**Total communication** is an approach of education of the deaf that advocates use of all possible means of communication, such as sign language, speech, visual and tactile cues etc.

**Word recognition** is the ability of a reader to recognize written words correctly and virtually effortlessly.

The following sources were used to compile the *Glossary of Terms*:


