The Development of an Assessment Manual for 4th Grade Oral and Written Narratives

Capstone Project

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By

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ABSTRACT

Despite advances in hearing technology, children with hearing loss remain at risk for having oral and written language difficulties. Assessing a child's narrative ability is one of the most informative methods of measuring language competence. In-depth analyses of narrative ability in children with hearing loss, particularly children who use cochlear implants, are lacking. Furthermore, there is a clear need for research examining the differences in oral and written narrative skills in children with hearing loss. The purpose of this project was to develop an assessment tool that evaluates oral and written narrative abilities in school age children. This document reviews current research on narrative abilities in children with hearing loss, discusses the need for a single assessment tool analyzing both oral and written narrative abilities, and presents the developed tool.

DEDICATION

This document is dedicated to my parents, Beverly and Calvin Low. Their unwavering support, encouragement, and selflessness has allowed me to join a profession that I love.

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CHAPTER 1

Introduction

In the United States, approximately 3 out of every 1,000 children are born deaf or hard of hearing (NIDCD, 2010). It is estimated that the incidence rate of severe to profound sensorineural hearing loss (SNHL) in children 0 to 2 years of age is 5 cases per 10,000 births (Blanchfield, Feldman, Dunbar, & Gardner, 2001). Over 95% of deaf and hard of hearing children are born to hearing parents (Mitchell & Karchmer, 2004). Therefore, the overwhelming majority of deaf and hard of hearing children encounter a world full of barriers to the spoken language (Scheetz, 2012). Spoken language barriers can be alleviated when the deaf child is granted access to speech. Hearing technology, such as hearing aids (HAs) and cochlear implants (CIs), are designed to give users access to speech they would otherwise miss. When deaf and hard of hearing children are able to hear and understand speech, their oral language skills can progress.

Children with mild to severe SNHL can typically develop speech through the support of HA technology. Hearing aids deliver an amplified speech signal to the cochlea. Children with profound deafness often do not receive adequate benefit from HAs because the aids cannot provide enough amplification to overcome a profound loss of hearing sensitivity. Cochlear implants are a commonly used treatment for individuals

who do not receive adequate benefit from HA technology (Scheetz, 2012). A CI differs from a HA in that it does not simply amplify an acoustic signal and send it through the external and middle ear to the cochlea. Cochlear implants actually bypass damaged portions of the cochlea to provide direct electrical stimulation to the auditory nerve. Cochlear implant users wear an external speech processor that picks up sound via a microphone and then converts the sound to an electrical code. A transmitting coil sends the electrical code through the skin to a receiver-stimulator. The receiver-stimulator is connected to an electrode array that has been surgically implanted into the user's cochlea. When the electrode array receives the signal, the user perceives sound.

Cochlear implants have been regarded as the most successful of all neural prosthesis developed to date (Wilson & Dorman, 2008). They have been regarded as such because the majority of postlingually deafened adults with the latest speech processors score over 80% correct on high-context sentences (NIH, 1995). Although this statistic sounds very encouraging, professionals and parents of deaf children must keep in mind that speech and language outcomes of children with CIs vary greatly (Nittrouer, 2009). Outcomes of deaf children with CIs may be influenced by many factors such as: age at onset of deafness, age at implantation, the presence of developmental delays and impairments in addition to deafness, and the presence of cochlear malformations (Edwards, Frost, & Witham, 2013; Filipo, Bosco, Mancini, & Ballantyne, 2004; May-Mederake, 2012; Miyamoto et al., 1994; Quaranta, Bartoli, & Quaranta, 2004; Waltzman, Scalchunes, & Cohen, 2000).

A 2001 study by Blanchfield et al. found that at that time, approximately 44% of individuals with severe to profound hearing impairment did not graduate from high school compared to just 19% of the general population. Only 5% of students with severe to profound hearing impairment graduated from college. Furthermore, 42% of the severe to profoundly hearing impaired population between 18 and 44 years of age did not work, whereas only 18% of the general population did not work. Fortunately, as early implantation of CI technology has become the standard treatment for profoundly deaf children during the past 2 decades, the educational outcomes of deaf children have improved (Boons et al., 2013; Geers & Sedey, 2011). Still, children with hearing loss (HL) remain at risk for language problems that could affect academic and professional success throughout their lifetime (Nittrouer, Caldwell, Lowenstein, Tarr, & Holloman, 2012; Traxler, 2000). In order to determine whether adequate language development and academic progress are being made, researchers must evaluate and monitor the language skills of children with HL.

Assessing Language Using Narratives

Speech and language outcomes of CI users have been a popular area of research in recent years. Improved speech perception and speech production following cochlear implantation has been well documented (Allen, Nikolopoulos, & O'Donoghue, 1998; O'Donoghue, Nikolopoulos, Archbold, & Tait, 1999; Snik, Vermeulen, Geelen, Brokx, & van der Broek, 1997). However, little is known about the effect of cochlear implantation on more complex language, such as narrative production (Boons et al., 2013).

Furthermore, the majority of what is known about narrative production in children with CIs concerns oral language without regard for written language (Boons et al., 2013; Crosson & Geers, 2001; Huttunen, 2008; Huttunen & Ryder, 2012).

Narratives form the basis of many everyday speech acts. Therefore, narrative ability is one of the most informative and ecologically valid ways to measure communicative competence in children (Botting, 2002; 2010). Beginning around preschool age, children are expected to share fictional and personal narratives with others, which is more cognitively demanding than participating in a conversation (Hedberg & Westby, 1993; Reuterskiold, Ibertsson, & Sahlen, 2010). Hedberg and Westby (1993) explain that narrative production is more difficult than conversational speech because during storytelling, the speaker must produce sentences that relate to a central topic and follow one another in a logical fashion. Meanwhile, the listener does not provide the narrator with as much support as they would during a conversation. Furthermore, general conversation is often context-bound, meaning that the partners are discussing something within their mutual environment. Therefore, conversational speech is supported more by environmental cues than is narrative production. During narrative production, the speaker must formulate a story instantaneously, making it a high-level language skill that requires ample cognitive resources.

Narrative production has also been used to analyze the language of school-age children with impairments other than HL. Children with language impairments have been shown to produce poorer narratives than their typically developing peers (Duinmeijer, de Jong, & Scheper, 2012; Fey, Catts, Proctor-Williams, Tomblin, &

Zhang, 2004; Greenhalgh & Strong, 2001; Merritt & Liles, 1987). Children with high-functioning autism and children with learning disabilities have been found to have difficulty creating cohesion through proper referencing in their narratives (Norbury & Bishop, 2003; Roth, Spekman, & Fye, 1995). Lastly, Cain (2003) found that children with reading comprehension difficulties produce narratives with poorer structure and cohesion compared to children without reading comprehension difficulties.

The majority of studies exploring narrative production in children with HL assess narratives produced orally (Boons et al., 2013; Reuterskiold et al., 2010; Worsfold, Mahon, Yuen, & Kennedy, 2010). Some studies allow participants to give narratives using their preferred mode of communication (Crosson & Geers, 2001). Preferred mode of communication may be oral language, sign language, or a combination of both. A few studies have analyzed written narratives of children with HL who use modern hearing technology (Asker-Arnason, Ibertsson, Wass, Wengelin, & Sahlen, 2010; Spencer, Barker, & Tomblin, 2003). Research comparing oral and written narratives produced by the same child is virtually nonexistent. Furthermore, there is a clear lack of research on narrative production of American children with HL.

Narratives can be evaluated at both a micro-level and macro-level (Boons et al., 2013; Kintsch & van Dijk, 1978). Micro-level refers to a local level of discourse, within- and across-sentence structures. Mean length of utterances (MLU), number of subordinate clauses, percentage of incorrect utterances, and use of morphological endings are examples of micro-level variables (Boons et al., 2013; Worsfold et al., 2010). Macro-level is more global, characterizing the discourse as a whole (Kintsch & van Dijk, 1978).

Examples of macro-level variables include story structure or organization, ability to stay on topic, and story cohesion (Boons et al., 2013; Crosson & Geers, 2001; Reuterskiold et al., 2010; Worsfold et al., 2010). Macro-level variables are often scored using a scale where the highest score denotes mastery of the variable.

Literature Review

Reuterskiold et al. (2010) explored differences in the oral narratives of Swedish school-age children with bilateral mild to moderate SNHL and those of children with normal hearing (NH) and normal language development. Eighteen children with HL, all but one of whom wore at least one HA, and seventeen children with NH, produced oral narratives about a sequence of wordless pictures. Narratives were then analyzed in terms of their structure and focus, as well as their morphology and syntax, or morphosyntax. Narrative structure was scored based on the children's use of story-grammar units. Story-grammar units specify the components of a story, their interrelationships, and their roles in the global theme of the story (Hedberg & Westby, 1993). Story-grammar analysis is commonly used in research studies to assess the underlying structure of a narrative. Reuterskiold et al. (2010) also measured the participants' abilities to stay on topic and provide relevant and necessary information. The authors measured the ability to provide pertinent information by computing the "relevance ratio" of each narrative. The relevance ratio was determined by calculating a story-grammar units per number of communication-units (C-units) score. A C-unit is defined as an independent clause and its modifiers (Loban, 1976). Statistical analyses revealed no significant differences

between children with HL and children with NH other than that the children with HL produced significantly lower relevance ratios than their NH peers. This means that the children with HL provided less relevant information per C-unit than their NH peers.

Worsfold et al. (2010) compared the oral narratives of British school-age children who used HAs or CIs to their NH peers. Worsfold et al. (2010) assessed morphology, syntax, and narrative structure and content of narratives produced by 89 children with bilateral SNHL of a moderate degree or greater, and 63 children with NH. In this study, participants gave oral retellings of a picture story first presented by the examiner. Morphologic and syntactic measures included number of complete sentences, number of sentences with multiple clauses, and numbers of morphological endings with acoustic high-frequency sounds (e.g. '-s') and low-frequency sounds (e.g. '-ly' and '-en'). Narrative structure and narrative content were assessed by applying scales from Leitao and Allan's Peter and the Cat Narrative Assessment (2003). These scales have four competency levels, or scores. A structure score of 0 is assigned if a child 'labels or describes characters, objects, actions, or other picture features, with no inter-relationship among the elements'. A structure score of 3 indicates a comprehensive story. A content score of 0 represents 'extremely reduced utterances, perhaps after much prompting', whereas a 3 denotes 'planning and intentions of characters are integrated with the story plot'. Analyses revealed that both groups of children produced similar amounts of complete sentences and low-frequency morphological endings. The NH group performed significantly better than the HL group on all other measures. The NH group produced significantly more high-frequency morphological endings, and their narratives received

significantly better structure and content scores than those of the HL group. Results indicated that the children with HL did little more than name items and produce extremely reduced utterances.

Boons et al. (2013) evaluated the oral narratives of hearing impaired school-age children in Flanders and the Netherlands who wore one or two CIs. Authors administered the Bus Story subtest of the Renfrew Language Scales (Renfrew, 1998) to 66 school-age children with CIs who had prelingual deafness and normal intellectual abilities. The Renfrew Language Scales standardized narrative task elicits story retellings from participants, similar to the methods used by Worsfold et al. (2010). Since the aim of the study was to evaluate how oral narratives of children with CIs deviate from narratives of typically developing children, each child with HL was age and gender matched to a typically developing NH child who lived in the same area. Macro-level analyses included a measure of story-grammar structure and a measure of essential story information and subsidiary information provided by the child. Micro-level analyses included MLU, as well as number of utterances, subordinate clauses, and cohesive devices. Semantic, syntactic and morphological errors were also measured. Results revealed that children with CIs produced narratives with significantly fewer complete story-grammar units, essential elements, and subsidiary elements than the typically developing children. These findings indicate that the children with CIs had greater difficulty with core theme reproduction than their peers. At the micro-level, the narratives of both groups were of similar total length and were equally coherent. However, MLU and number of subordinate clauses were significantly lower for the group

of children with CIs. Children with CIs also produced a significantly higher percentage of incorrect utterances than the NH children. Overall, compared to their NH peers, children with CIs produced narratives that were similar in overall length, but individual utterances were shorter, less complex, and had more errors. Boons et al. (2013) compared the performance of a "high potential subgroup" to the control group as well. The high potential subgroup contained 20 children from the CI group who met four criteria that earlier studies by Boons and her colleagues established as the most important predictors of good language outcomes: (1) implantation of the first CI before 2 years of age, (2) bilateral CIs, (3) no additional disabilities, and (4) one spoken language (Boons et al., 2012a; Boons et al., 2012b). No significant differences existed between the NH group and high potential subgroup for story-grammar structure, essential and subsidiary elements, MLU, and number of utterances, subordinate clauses, and cohesive devices. The only significant difference between the two groups was that the high potential subgroup had a higher percentage of incorrect utterances than the NH group. Indeed, the children in the high potential subgroup closed the gap with typically developing children. This study showed that age adequate narrative skills in oral language are feasible for children with CIs. However, taken as a whole, the population of children with CIs is at risk for developing language difficulties.

Crosson and Geers (2001) also examined oral narrative ability of children with CIs compared to children with NH. Participants' reading competence, receptive language ability, and speech perception ability were assessed as well. Crosson and Geers (2001) hypothesized that better narrative ability would be associated with greater reading

competence. The authors also anticipated that deaf children with above average speech perception ability would produce narratives similar to those produced by their NH peers. Study participants included 87 prelingually deafened American school-age children who were implanted before 5 years of age, and 28 NH age-matched peers. Each child gave a narrative after viewing an eight-picture sequence story. Participants used their preferred mode of communication to give the narrative (i.e., speech, sign, or total communication). Each narrative was given a score based on its structure and cohesion. Crosson and Geers (2001) used a modified version of High Point Analysis (Labov & Waletzky, 1967) to evaluate narrative structure. Scorers evaluated how well each narrative followed the classic narrative pattern of: orientation (e.g., setting, characters, objects), complicating action or problem, characters' reactions to the problem, and resolution to the problem. The use of conjunctions and referents was assessed to score narrative cohesion. Conjunctions (e.g., and, then, but, because) are words that relate linguistic elements to one another (Halliday & Hasan, 1967). Words used to specify characters were considered to be referents. Results revealed that for the group of children with CIs, narrative ability was significantly positively correlated with reading comprehension, receptive language, and speech perception ability. Narratives produced by the NH children displayed cohesion through the correct use of conjunctions and referents and followed the classic narrative structure pattern. The CI users with above-average speech perception abilities produced narratives that were similar in structure and referent use to those of their NH peers. The CI users with below-average speech perception abilities produced narratives that were significantly poorer in terms of structure and cohesion than

both the NH children and the CI users with above-average speech perception skills. Crosson and Geers (2001) concluded that prelingually deafened children are deficient in narrative skill development, but good auditory benefit from a CI can alleviate this deficiency. This finding agrees with the findings of the Boons et al. (2013) study. Crosson and Geers (2001) also concluded that narrative ability is an important measure of language development and academic achievement, since narrative ability was significantly positively correlated with speech perception, receptive language ability, and reading comprehension.

Spencer et al. (2003) designed a study to investigate the relationship between reading and writing skills in children with CIs. Writing proficiency was evaluated through the analysis of written narratives. Written narratives produced by American children with CIs were compared to those produced by children with NH. Sixteen prelingually deafened school-age children with CIs and sixteen children with NH participated in the study. Authors used a procedure developed by Fey et al. (2004) to elicit the written narratives. Participants were presented with a set of three pictures depicting a setting, problem, and resolution. Children read over an example story that included a problem and resolution, and then wrote their own story. Spencer et al. (2003) analyzed sentence productivity and complexity using the Systematic Analysis of Language Transcripts (SALT) computer software (Miller & Chapman, 1999). Sentence productivity and complexity were measured by calculating total words and words per C-unit. Sentence formulation was assessed by coding each word according to its grammatical word class. Word classes included nouns, pronouns, verbs, determiners,

adjectives, adverbs, conjunction, and prepositions. The authors also computed the number of errors in each narrative. Results revealed that children with CIs produced fewer words per C-unit and fewer total words. The narratives produced by children with CIs were significantly shorter than those produced by the NH group. It is therefore not surprising that results also revealed fewer pronouns, verbs, determiners, adverbs, conjunctions, and prepositions in the CI group's narratives compared to the NH group's narratives. The finding of fewer conjunctions is indicative of fewer complex sentences produced by the children with CIs. Narratives written by the CI group contained more grammatical errors than those by the NH group. The most common error type for both groups was use of incorrect verb forms. The NH group clearly outperformed the CI group on the written narrative task.

Asker-Arnason et al. (2010) elicited written narratives from 18 Swedish children with CIs and a control group of 75 children with NH. Instead of hand-writing their narratives, participants in this study actually typed their narratives because the authors wanted to analyze the narrative writing process in addition to the product. Children viewed a sequence of pictures presented on a computer and were told to imagine they were writing a story for someone who was unable to see the pictures. The children then typed their story while viewing the pictures one at a time. Regarding the writing process, results revealed that children with CIs were slower in producing their narratives than the children with NH. To evaluate the written product, total narrative ability was measured according to the method used by Crosson and Geers (2001). This method scores narratives according to their structure and use of cohesive devices (i.e. conjunctions and

referents). Also measured were number of complex clauses, number of words, percentage of spelling errors, percentage of grammatical errors, and percentage of content words (i.e. verbs, nouns, and adjectives). Percentage of content words serves as a measure of lexical density. Statistical analyses revealed that narratives produced by the children with CIs had more content words, fewer complex clauses, and more grammatical errors than those produced by the children with NH. A large amount of content words can be associated with a telegraphic language style, which often used by younger children. A telegraphic style indicates less sophisticated language use. The CI group also received lower total narrative ability scores than the NH group. Interestingly, the NH group had more spelling errors than the CI group. Asker-Arnason et al. (2010) concluded that their data reflected linguistic and cognitive processing limitations in complex language tasks like narration for the group of children with CIs compared to their NH peers.

The aforementioned studies examined either oral or written narratives skills in children with HL. This review of the literature indicates that children with HL produce narratives that are of poorer quality compared to their NH peers. However, none of the research discussed compared oral narratives and written narratives produced by the same group of children. In fact, studies that compare the oral and written narration of children with HL are rare, especially in children who use CIs. Exploring differences between a child's oral narrative and written narrative would help to identify whether a deficiency exists in either mode of communication. It is important to identify which mode of communication is deficient (i.e. oral, written, or both) so appropriate interventions can be

employed. For example, a young child with CIs may undergo a multi-factored evaluation to determine eligibility for special education services. If the evaluation only assesses oral language skills, deficits in written language may be overlooked. If written language deficits exist but are not addressed using appropriate written language interventions early on, deficits may compile, only to be discovered when the child is older and their deficits more severe.

A review of the literature revealed only one study that compared oral and written narratives in children with HL (Asker-Arnason et al., 2012). Like in their 2010 study, Asker-Arnason et al. (2012) collected typed narratives from participants in order to analyze the writing process. Twenty Swedish school-age children with varying degrees of HL and who used HAs participated in the study. Their performance was compared to that of 63 age-matched NH children. The children were instructed to tell a story orally based on a series of pictures and then type the story on a computer. The same set of pictures was used to elicit both narratives, but children were told that there was no need for their written story to be exactly the same as their oral story. Measurement parameters included story-grammar analysis, number of words, percent content words, and lexical diversity. Lexical diversity refers to the extent in which vocabulary varies. Results revealed that at a group level, the children with HL resembled their NH peers in many ways. The only significant group difference that was found was a difference in lexical diversity. The NH children had higher lexical diversity than the children with HL. In other words, the children with HL had less varied vocabulary in both their oral and written narratives than the children with NH. Both groups of children produced written

narratives that had higher story-grammar scores and lexical diversity compared to their oral narratives. The authors suspected that higher story-grammar scores for written narratives might be explained by the fact that participants had already told the story orally and were familiar with the pictures. Written narratives also had a greater proportion of content words than oral narratives, and this difference was larger for the group of children with HL. Asker-Arnason et al. (2012) concluded that the finding that children with NH had greater lexical diversity and used fewer content words than children with HL merited a focus on vocabulary development in children with HL.

In conclusion, current research indicated that children with HL produce oral and written narratives that are shorter, less complex, and contain more errors than children with NH (Asker-Arnason et al., 2010; Boons et al., 2013; Spencer et al., 2003; Worsfold et al., 2010). Children with HL have also demonstrated difficulty with narrative structure, cohesion, core theme production, vocabulary, and staying on topic (Asker-Arnason et al., 2012; Boons et al., 2013; Crosson & Geers, 2001; Reuterskiold et al., 2010; Worsfold et al., 2010). Narrative ability has been shown to be an important measure of language development, as it is significantly positively correlated with speech perception, receptive language ability, and reading comprehension (Crosson & Geers, 2001). A review of the current literature demonstrated a clear lack of research on the written narrative skills of children with HL, particularly in comparison to their oral narrative skills.

Purpose

The purpose of the current project was to create an assessment rubric and manual that can be used to evaluate and compare oral and written narrative abilities of school age children. Comparing oral and written narrative abilities can help researchers and educators identify language development problem-areas. The assessment rubric described therein was created for use by a range of professionals, including researchers, educational audiologists, teachers of the deaf, and speech-language pathologists. Professionals are encouraged to use the rubric to assess and monitor language development in school-age children. Researchers are encouraged to use the rubric to add to the area of research concerning oral and written language development of children with CIs. The assessment rubric has been titled, *4th Grade Oral & Written Narrative Assessment*, and the user manual for this rubric is presented in Appendix I of the current document.

CHAPTER 2

Methods

The primary model for the development of the *4th Grade Oral & Written Narrative Assessment* rubric was the narrative scoring rubric used by Nittrouer et al. (2012). The Nittrouer et al. (2012) study was designed to examine relationships between literacy and other skills thought to underlie literacy acquisition in kindergartners, specifically phonological structure, executive functioning, and general language abilities. General language abilities were measured by analyzing oral language samples using a narrative scoring rubric. The narrative scoring rubric used by Nittrouer et al. (2012) was primarily based on work by Heilmann, Miller, Nockerts, and Dunaway (2010). The rubric was successful in identifying age-appropriate narrative skills in kindergartners. As would be expected, the rubric became less sensitive as children progressed through elementary school and their language skills developed. Therefore, the original rubric was revised to address more age-appropriate language skills of fourth graders instead of kindergartners.

The author of the current document, who served as a narrative scorer in the Nittrouer et al. (2012) study, first revised the original scoring rubric by removing assessment categories that applied to oral narratives only. Again, the goal was to create

one assessment rubric that could be used for both oral and written narratives, allowing comparisons to be made. Next, the author used information and knowledge gleaned from Crosson and Geers (2001), Fey et al. (2004), Hedberg and Westby (1993), Loban (1976), Labov and Waletzky (1967), and Stein and Glenn (1979) to update the categories and scoring criteria to reflect age-appropriate narrative abilities of fourth grade children.

After revisions and updates were made to the original rubric, the author and a second lab member, the project director, worked together to apply the rubric to 40 narrative transcripts (20 oral and 20 written) produced by 20 fourth graders (10 HL, 10 NH). Applying the rubric to actual narrative transcripts helped the author identify weaknesses in the scoring rubric and address them. For example, if the author and project director encountered a narrative that was difficult to score because it did not clearly fall within a level of narrative development, scoring criteria were refined. Refinement continued until the criteria comprising different levels of narrative development were detailed enough that all 40 narratives could be easily assigned scores.

Once scoring criteria were refined, the author presented the rubric to four other Early Development of Children with Hearing Loss (EDCHL) lab members. Lab members were given several narrative samples and were instructed to assess the narratives independently, using the rubric. The lab members were encouraged to provide feedback to the author regarding the ease of narrative assessment with the rubric. Feedback from lab members helped the author to make any final changes to the rubric.

CHAPTER 3

Assessment Rubric Description & Conclusion

Assessment Rubric Description

The *4th Grade Oral and Written Narrative Assessment* rubric has 12 categories, or areas of assessment. The 12 categories are: Introduction/Setting, Plot, Character Descriptions/Development, Mental States, Referencing, Focus, Order, Details, Narrative Tense, Vocabulary, Ending, and Cohesion. Several of these categories have been explored in other narrative studies, including Plot (Asker-Arnason et al., 2012; Crosson & Geers, 2001; Worsfold et al., 2010), Referencing (Crosson & Geers, 2001), Focus (Boons et al., 2013), Narrative Tense (Spencer et al., 2003), Vocabulary (Asker-Arnason et al., 2012), and Cohesion (Crosson & Geers, 2001). The remaining categories (i.e., Introduction, Character Description/Development, Mental States, Order, Details, and Ending) were examined in Nittrouer et al. (2012). Analyzing multiple features of narrative discourse is beneficial because it allows educators to identify specific areas in need of improvement and tailor intervention strategies for the individual student. Analyzing numerous features of narrative discourse is precisely what the *4th Grade Oral and Written Narrative Assessment* rubric aims to do.

Each assessment category contains four levels of criteria, constituting scores of 0, 1, 2, and 3 points. A score of 0 indicates unsatisfactory development; 1 indicates that improvement is needed; 2 indicates satisfactory development; and 3 indicates excellence. The highest total score that a narrative can receive is 36 points (scores of 3 in all 12 categories), denoting mastery of narrative discourse.

The complete *4th Grade Oral and Written Narrative Assessment* rubric manual, which describes the format of the rubric, how to use it, and suggests procedures for eliciting narratives from school-age children, is provided in Appendix I of this document.

Conclusion

The *4th Grade Oral and Written Narrative Assessment* rubric is currently being used by the EDCHL lab. To date, 110 narratives (55 oral, 55 written) that were produced by 55 fourth graders (28 children with CIs and 27 children with NH) have been assessed using the rubric. Preliminary data indicated that children with CIs produced significantly poorer oral narratives than their NH peers. Both the children with CIs and the children with NH performed better on the written narrative task than on the oral narrative task. The EDCHL lab is currently in the process of having a second scorer assess each narrative. To obtain a measure of reliability, 24 randomly selected narrative transcripts were scored by a second lab member. Mean percent agreement across assessment categories for all 24 narratives was found to be 95.7%, with a range across categories of 87% to 100%. Lab members using the rubric have described it as easy to use and believe it to be a practical method for identifying language areas of improvement.

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