

THE DEVELOPMENT OF WRITING SKILLS OF DEAF AND HARD OF HEARING CHILDREN

Kleopatra Diakogiorgi, Didamy Katribouza and Katerina Paila

Department of Primary Education

University of Patras

Abstract

The aim of this study was to explore how 7-14 aged children and adolescents with severe and profound hearing impairment with or without cochlear implants (CI) produce picture-elicited written sentences and narratives. The type and amount of participants' errors at both macro and micro levels (spelling, morpho-syntax, semantics and overall organization) of their written products were analysed in order to evaluate these children's different linguistic skills involved in the writing process. Twelve first, second, fourth and fifth graders (ages 7 to 14) attending both the special primary school for the Deaf / Hard of Hearing children and general schools in the city of Patras took part in the study. Children were presented with 5 pictures. First and second graders were asked to describe the content of these pictures by writing a sentence for each of them whereas fourth and fifth graders were asked to produce written narrations based on these pictures. Error analysis indicated important difficulties of participants with internalizing regularities of the Greek orthographic lexicon: a great number of errors, of all categories were found: phonological (grapho-phonemic mappings), grammatical (inflectional suffixes), orthographic (word stems), stress assignment (diacritic), and punctuation. Numerous morpho-syntactic errors concerning the use of function words and subject-verb agreement were also observed. The number of semantic errors was relatively small (e.g. inappropriate use of nouns and verbs in the sentence). Important findings regarding text organization of children's narrations emerged although children made a small or inappropriate use of cohesive devices, they performed better at the level of text coherence. The findings of the present study confirmed previous findings showing that written expression difficulties are one of the most pervasive ones for hearing-impaired children. It is, therefore, essential and urgent to teach these children to read and write competently, enabling them to achieve today's high standards of literacy.

INTRODUCTION

The ability to produce quality written work is critical for an individual's academic and occupational success and participation to the society. Learning to write is hard for all children. This is even more true for deaf and hard-of-hearing (D/HH) children whose writing skills have been shown to be particularly low (see, Marchark, 2001).

There is ample evidence that deaf children with hearing parents display a general delay with respect to the onset of language, as well as slower progress in the development of the crucial language skills. As a consequence, D/HH students continue to lag behind hearing peers even in adolescence (see, Rinaldi & Caselli, 2009).

Due to their difficulties in accessing and learning English syntactical and morphological structures, either auditorily or visually, D/HH face great problems with writing manifested by numerous errors at the sentence. The difficulties these children experience with reading lead them to a limited exposure to models of good writing. In addition, as teachers of D/HH prefer to adopt strategies limited to writing on a sentence level, written products of deaf and Hard of Hearing students, albeit correct, risk to lack interest, informativity and cohesion (see, Antia, Reed, & Kreimeyer, 2005). Although, some progress in the production of syntactical structure with increasing age have been reported (Heefner & Shaw, 1996) this progress is slower than this displayed by their hearing peers.

In addition to these difficulties, authors have found that D/HH students exhibit slower rates of vocabulary acquisition with respect to same-age hearing children. Indeed, it has been shown that the vocabulary of 6-year-old deaf children is comparable to that of 3-year-old hearing children, independently of the degree of deafness (Mayne, Yoshinaga-Itano, Sedey, & Carey, 2000). One of the most important factors that explain why the great majority of deaf children find literacy a challenge is spelling difficulties. It is well documented by now that spelling abilities of students with hearing loss (HL) are delayed or even deficient when compared to students with typical hearing (Apel & Masterson, 2015). Spelling errors made by students with HL are typically categorized as phonological or "phonetic" in nature. That is justified by the fact that, due to their HL, such students are prevented from accessing the phonological information provided by speech which is a key component for spelling. There is also evidence that misspellings are not only due to problems with phonemic awareness, but they are also related to other types of linguistic knowledge which may be necessary to use when spelling such as orthographic patterns or morphological

awareness (Apel & Masterson, 2015). It is beyond the scope of this study to deal with this issue. On the contrary, what is particularly pertinent to consider is that students with HL exhibit poor low-level skills including spelling skills, which, along with high-level skills (e.g., semantics) underpin learning to write. It is noteworthy, that difficulties with low-level writing skills are more pervasive than those with high-level skills. Nevertheless, compared to hearing students' writings, writings of deaf students are noticeably different. They are often characterized as simplistic and rigid due to the use of fewer words, more incomplete sentences and basic syntactic structures, fewer subordinate clauses, fewer nounphrase modifiers, omissions of function words (for a review see, Wolbers, Dostal & Bowers, 2012).

The informational wealth of children's writing with respect to the study of the writing acquisition contrasts with the scarcity of data from children's with or without HL writings. This is especially true for children with hearing impaired children with cochlear implants (CI) (Asker-ϒrnason, Ibertsson, Wass, Wengelin, & Sahlén, 2010).

The present study

The aim of the present study was to assess the writing skills of children and adolescents with severe and profound hearing impairment with or without cochlear implants (CI) in a task of picture-elicited written sentences and narratives in Greek. Although there is an increasing amount of research on language and literacy in deaf children in Greek school setting (for a review, see Lampropoulou, 1999), the writing skills of these individuals have not been systematically explored.

For this reason, before carrying out our main study, participants' writing samples were analyzed to assess their writing skills in relation to language skills involved in the process of writing. Participants' errors were collected and then classified into the areas of psycholinguistic processing, which are the most relevant for the purposes of the present study i.e. phonology, spelling, morpho-syntax, semantics and text organisation. As the majority of the writing samples consisted of written exercises in spelling, grammar and vocabulary, few data about participants' high-level writing skills in producing structured texts were available.

Precisely, this was the focus of the research presented herein. This article presents a method of writing assessment that utilizes a picture-based narrative writing task which is considered as a highly useful and appropriate means to observing and assessing hearing and hearing impaired children's writing skills (see, Asker-ϒrnason, Ibertsson,

Wass, Wengelin, and Sahlén, 2010). The details of the method used will be presented after the analysis of participants' writing samples.

Data analysis

Data analysis showed that the majority of the errors collected were spelling errors, morpho-syntactic errors and semantic errors. More specifically, the analysis of spelling errors showed that the most common spelling difficulties of deaf and Hard of Hearing students were in the use of the phonological units in the written language, manifested by omissions of phonemes (i.e., ζύπιοσ instead of ζύπνιοσ «awake», Πέμτη instead of Πέμπτη «Thursday», substitutions of phonemes (στρακιώτη instead of στρατιώτη «soldier») or simplification of consonant clusters which in Greek consist of sequencies of three or more consonants (στατιώτη instead of στρατιώτη «soldier», anagrammatisms (i.e., τίργι instead of τίγρη «tiger»), and omission of syllables (i.e. πακαλώ instead of παρακαλώ «please»), omission of the final *s* (i.e. ο πίθηκο instead of ο πίθηκος «monkey»). A great number of errors were made in the spelling of word stems (i.e., άνθρωποι instead of άνθρωποι «people»), καλημαίρα instead of καλημέρα «goodmorning») as well in the spelling of inflectional suffixes (i.e., απόδειξει instead of απόδειξη «proof»), φίλυ instead of φίλοι «friends»). Some other types of errors were observed such as omissions of the final *s* (i.e. της πατάτα instead of πατάτας «potato»), while high rates of errors in the stress assignment were found, consisted of omission of stress (i.e. αγελαδα instead of αγελάδα «cow») or misuse of stress (i.e., αγέλαδα instead of αγελάδα «cow»). Punctuation errors have also been found primarily related to the omission of the full stop along with errors in syllabic hyphenation (i.e., φεγγ-άρι αντί φεγγ-γάρι «moon»).

A great number of morphosyntactic errors were also detected: verb omissions (Η Όλγα μήλο instead of Η Όλγα έφαγε μήλο «Olga apple» instead of «Olga **ate** an apple»), omission or misuse of function words: prepositions (πήγαμε το λεωφορείο instead of πήγαμε (με) το λεωφορείο «we went bus» instead of «we went on bus»), articles (εγώ με αδερφό μου και ξαδέρφη μου instead of εγώ με τον αδερφό μου και την ξαδέρφη μου («me with father and cousine» instead of «me with **my** father and **my** cousine»), conjunctions (φάγαμε μήλα πορτοκάλια instead of φάγαμε μήλα και πορτοκάλια «we ate apples oranges» instead of we ate apples **and** oranges), misuse of inflectional morphemes such as 1) use of nominative case inflectional morphemes instead of the genitive case inflectional morphemes (πατάτα instead of πατάτας «potato»), 2) use of

singular inflectional morphemes instead of plural inflectional morphemes (i.e., οι κάστορα instead of οι κάστορες «castor»), 3) use of nominal inflectional morphemes instead of verbal inflectional morphemes (i.e., οδηγό instead of οδηγώ «driver» instead of «drive» which, subsequently, alter the word's grammatical class, 4) violation of the gender agreement between article and noun (i.e. το άλογο*s neuter-masculine* instead of το άλογο *neuter-neuter* «horse»), 5) violation of the verb-noun agreement (εμείς ρίχνετε *first person plural of the personal pronoun-second person plural of the verb* instead of εσείς ρίχνετε *second person plural of the personal pronoun - second person plural of the verb* «to throw») or εμείς ταξιδεύω *first person plural of the personal pronoun- first person singular of the verb* instead of εγώ ταξιδεύω *first person singular of the personal pronoun - first person singular of the verb* «to travel». Lastly, an important number of semantic errors were also found: Children used frequently inexistent words (i.e., έρχοντας or inappropriate words for a given context (ο μπαμπας κανει το αυτοκινητο «the father does the car»). To note also the erroneous use of small letters instead of capitals in the case of proper nouns.

METHOD

Participants

Twelve first, second, forth and fifth graders (ages 7 to 14) attending both the special primary school for the Deaf / Hard of Hearing children and general schools in the city of Patras took part in the study. Four of them were deaf (one second grader, one forth grader and two fifth graders), six Hard of Hearing (two first graders, two second graders, one forth grader and one fifth grader) and two students with cochlear implants (one first grader and one fifth grader). As in the majority of the past studies, participants formed an extremely heterogeneous sample due not only to the degree of hearing loss, but also to their age, their mother tongue, the type of education received (general-education classroom vs. special school), way of communication inside family and school. Consequently, groupings are not possible; instead, each of the participants will be treated as a specific case. The socio-cultural status of deaf subjects could be defined as low to middle.

Procedure

Subjects were tested individually. The experimenters for the study were a signer of the Greek Sign Language and two hearing under graduate student. After participants had

received some explanations about the rationale of the experiment and the task, they were asked to describe the content of five pictures presented with. First and second graders were asked to write a sentence for each of these pictures whereas fourth and fifth graders were asked to produce written narrations based on these pictures.

RESULTS AND DISCUSSION

For the assessment of participants' narrative text production skills, their writing products were analysed as to the characteristics of the two core writing constructs, namely cohesion and coherence. Furthermore, these two qualities will be related: 1) to the effectiveness of children's discourse in terms of respect shown to the linguistic restrictions imposed by narrative genre and 2) to other salient components of language such as spelling, vocabulary and grammar. According to Halliday and Hasan (1976/1993, p. 4), the concept of cohesion is a semantic one, referring to "relations of meaning" that exist within the text, expressed "partly through the grammar and partly through the vocabulary" (p. 5). Grounded in a set of lexical and grammatical relationships, cohesion ensures that sentence sequences will not be understood as autonomous sentences, but, instead, they will be understood as connected discourse. Coherence, on the other hand, allows a text to be understood in a real-world setting, so as to make sense. Coherence is partly established through cohesion (Halliday & Hasan, 1989) and partly through something outside the text such as the listener's or reader's background knowledge (see, Bae, 2001). A major class of cohesive devices in writing is conjunction. The analysis of the participants' written products showed that, although they used conjunctions in their texts, the variability of the conjunctions used was quite limited: the additive conjunctive cohesion was the most prevalent followed by temporal one. The use of causal and adversative cohesion was marginal. On the other hand, reference cohesion established mainly through use of pronominals and definite articles was present in the majority of participants' writing products.

With respect to coherence, the suitability of the text content relative to the situational context was assessed (see, Fterniati, 2013). According to the results, the participants' writing products were focused, with narrations developed relatively sufficiently and clearly, without important digressions, with logical connections throughout the parts of the narration. To note, however, that paragraphs were rarely present in students' writings. Concerning the effectiveness of their narrative discourse, it appeared that the main characteristics of the narrative genre were developed quite successfully: a)

orientation, with sufficient information on the characters/heroes, the place, the time frame, and the initial situation, b) complicating action, with reference to the event that upsets the initial state, sufficient plot/action development and reference to the end of the episode. Only two students displayed a successful coda/resolution (a conclusive statement such as “They lived happily ever after”) whereas only one student referred to the emotional state of the heroes (“happy because the car was fixed”).

Consistent with the results reported by Antia et al. (2005) and Wolbers et al. (2011), even though participants’ writings may be characterized as simplistic and rigid, their high-level abilities are seemingly less impaired than their low-level abilities (e.g., in spelling and in morpho-syntax). Indeed, nonstandard spelling and grammatical forms were present in all participants’ writings while the pattern of errors revealed by their analysis was similar to this obtained by the initial analysis of the participants’ writing samples. The most common spelling errors were phoneme omissions and phoneme substitutions. In addition, in half of the participants’ writings spelling on word stems were detected. Errors in stress assignment (omissions or misuse) were very frequent. Punctuation errors were also found but to a lesser degree. Morphosyntactic errors were very frequent affecting mainly the use of inflectional suffixes, of function words among which that of indefinite and definite articles, of the subject-verb agreement, of capital letters and, to a much lesser degree, the use of the tense of verbs. Lexical errors were also observed with the use of inexistent words or contextually inappropriate being the most frequent among them.

STUDY LIMITATIONS AND CONCLUSIONS

Our findings are preliminary and require replication. Due to the small number of participants, the present study is not intended to compare writing performance of deaf, hard of hearing and cochlear implanted students. Our concern was about the characteristics and trends of deaf students’ writing, educated in general-education as well as special-education classrooms in Greece. However, in accordance with Wolbers et al. (2011), more research is needed in order to explore possible differences in writing development of deaf children with different language histories and profiles.

References

- Antia, S. D., Reed, S., & Kreimeyer, K. H. (2005). Written language of deaf and hard-of-hearing students in public schools. *Journal of Deaf Studies and Education*, 10 (3), 244–255.
- Apel, K., & Masterson, J. J. (2015). Comparing the Spelling and Reading Abilities of Students With Cochlear Implants and Students With Typical Hearing. *Journal of Deaf Studies and Deaf Education*, 20 (2), 125–135.
- Asker-ϳrnason, L., Ibertsson, T., Wass, M., Wengelin, A., & Sahlén, B. (2010). Picture-Elicited Written Narratives, Process and Product, in 18 Children With Cochlear Implants. *Communication Disorders Quarterly*, 31 (4), 195-212.
- Bae, J. (2001). Cohesion and Coherence in Children’s Written English: Immersion and English-only Classes. *Issues in Applied Linguistics*, 12 (1), 51-88.
- Fterniati, A. (2013). Narrative Skills and Genre Based Literacy Pedagogy Teaching Material: The Case of Greek Upper Elementary School Pupils One Year after the Implementation of the Current Teaching Material. *The International Journal of Literacies*, 19.
- Halliday, M. A. K., & Hasan, R. (1976/1993). *Cohesion in English*. London and NY: Longman.
- Heefner, D. L., & Shaw, P. C. (1996). Assessing the written narratives of deaf students using the six-trait analytical scale. *The Volta Review*, 98, 147–168.
- Lampropoulou, V. (Ed.) (1999). *Linguistics and the Deaf Child*. 4th Module of Training, Program EPEAEK, Patras: Department of Elementary Education, University of Patras Publications.
- Marchark, M. (2001). *Language development in children who are deaf: A research synthesis*. Alexandria, VA: National Association of State Directors of Special Education.
- Mayne, A. M., Yoshinaga-Itano, C., Sedey, A., & Carey, A. (2000). Expressive vocabulary development of infants and toddlers who are deaf or hard of hearing. *Volta Review*, 100, 1–28.
- Rinaldi, P., & Caselli, C. (2009). Lexical and Grammatical Abilities in Deaf Italian Preschoolers: The Role of Duration of Formal Language Experience. *Journal of Deaf Studies and Deaf Education*, 14 (1), 63-75.
- Paul, P. V. (2009). *Language and deafness* (4th ed.). Boston: Jones & Bartlett.
- Wolbers, K. A., Dostal, H. M. & Bowers, L. M. (2012). “I Was Born Full Deaf.” Written Language Outcomes After 1 Year of Strategic and Interactive Writing Instruction. *Journal of Deaf Studies and Deaf Education*, 17 (1), 19-38.