

THE COMPARISON OF WRITTEN LANGUAGE ABILITIES BETWEEN CYPRIOT ORAL DEAF AND HEARING CHILDREN

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Abstract.

A number of studies have reported the beneficial effects of inclusion on deaf children's academic achievements; however, little data are available on their writing ability in comparison to general-education students of their age or grade level. The purpose of the current study was to compare for the first time in Cyprus deaf children's written ability with that of their hearing peers. One group consisted of children all 17 years of age and with congenital hearing losses (mean 75 dB HL in the better hearing ear at 0.5, 1, 2, 4 kHz), and without additional disabilities, who were attending the last grade of various general high schools in Cyprus (n=9). They were trained orally and in general schools, which they attended exclusively. The control group consisted of nine hearing children all of whom were 17 years of age and attending the last grade of high schools in Cyprus. All participants were asked to produce written texts on standard topics required of Cypriot children of that age. The analysis of the written texts was both quantitative and qualitative. Regarding the quantitative analysis, the written language was analysed by focusing on a) text content and structure, b) syntax, and c) vocabulary. Qualitative analysis was employed for further description of the characteristics observed in the texts of the sample. The study revealed that Cypriot deaf participants could achieve almost the same levels of competence in written Greek as the hearing children, at least for the aspects examined. The findings of the study may be of importance for educators and policy makers in Cyprus and elsewhere.

Keywords: written language, narratives, inclusion, Cyprus, oral deaf

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Chinese

[Translation Shek Kam Tse]

不少研究報告了聾啞兒童全納教育對學業成績的說明，但是很少有資料涉及他們的寫作能力相比同齡和同年級學生之間如何，而此項研究的目的就是第一次對比賽普勒斯聾啞兒童和同齡聽力正常兒童的寫作能力。其中一組參與者全部是17歲的先天聽力喪失者（這裡指75dB的聽力損失，最好聽力為0.5, 1, 2, 4

kHz），沒有其他殘疾，均是就讀賽普勒斯各種普通高中的最高年級（9年級）學生，他們都是經過訓練在普通學校進行口語教育。控制組包括9名聽力正常的17歲高中最後一年的學生。所有的參與者被要求按照賽普勒斯這個年紀的學生必須達到的標準題目進行寫作，然後對寫作的文章進行定量和定性分析。定量分析主要包括：a) 文章的內容和結構；b) 語法；和c)

詞彙，而定性分析用於對文字樣本觀察到的特徵進行進一步的描述。研究發現賽普勒斯聾啞參與者至少測試的幾個方面幾乎可以達到和聽力正常兒童相同的希臘語寫作能力和水準。這個發現對賽普勒斯和其他地方的教育者和政策制定者都是很重要的。

Dutch

[Translation Tanja Janssen]

TITEL. Een vergelijking van schrijfvaardigheden van Cypriotische horende en dove kinderen
SAMENVATTING. In een aantal onderzoeken is gewezen op de gunstige effecten van 'inclusion' op de schoolprestaties van dove kinderen. Er zijn echter weinig gegevens over hun schrijfvaardigheid in vergelijking met horende leerlingen van dezelfde leeftijd of van hetzelfde onderwijsniveau. Het doel van dit onderzoek was om de schrijfvaardigheid van dove kinderen op Cyprus te vergelijken met de schrijfvaardigheid van horende kinderen. Een groep bestond uit 17-jarigen met aangeboren hoorstoornissen (gemiddeld 75 dB HL in het best horende oor bij 0.5, 1, 2, 4 kHz), en zonder andere handicaps, die in het laatste leerjaar zaten van verschillende scholen voor voortgezet onderwijs op Cyprus (n=9). Zij ontvingen mondeling onderwijs op openbare scholen; zij bezochten daarnaast geen andere scholen. De controlegroep bestond uit negen horende kinderen die allen 17 jaar oud waren en in het laatste leerjaar zaten van scholen voor voortgezet onderwijs op Cyprus. Alle deelnemers werd gevraagd teksten te schrijven over onderwerpen die gewoonlijk gevraagd worden op Cyprus van deze leeftijdsgroep. De teksten werden zowel kwantitatief als kwalitatief geanalyseerd. De kwantitatieve analyse was gericht op a) tekstinhoud en –structuur, b) syntaxis, en c) vocabulaire. Kwalitatieve analyse werd gebruikt voor het verder beschrijven van de kenmerken die geobserveerd waren in de steekproef. Het onderzoek wees uit dat dove Cypriotische deelnemers bijna dezelfde niveaus van competentie in geschreven Grieks bereikten als de horende kinderen, op de onderzochte aspecten. De resultaten van het onderzoek kunnen van belang zijn voor onderwijsgeevenden en beleidsmakers op Cyprus en elders.
TREFWOORDEN: geschreven taal, verhalen, inclusie, Cyprus, doof.

French

[Translation Laurence Pasa]

TITRE. COMPARAISON DES COMPÉTENCES EN LANGUE ÉCRITE D'ENFANTS SOURDS ET ENTENDANTS CHYPRIOTES

RÉSUMÉ. Un certain nombre d'études a révélé les effets positifs de l'intégration des élèves sourds sur leur réussite scolaire. Cependant, peu de données sont disponibles sur leurs compétences en écriture, comparativement à des élèves issus de l'enseignement général du même âge ou de même niveau scolaire. Le but de cette étude est de comparer, pour la première fois à Chypre, les compétences en écriture d'élèves sourds et de leurs pairs entendants. Un groupe expérimental a été constitué composé d'élèves en dernière année de divers lycées généraux de Chypre, tous âgés de 17 ans, ayant des pertes d'audition congénitales (soit 75 dB HL pour la meilleure oreille à 0.5, 1, 2, 4 kHz) et sans handicap supplémentaire (n=9). Ces élèves ont reçu un entraînement oral et n'ont fréquenté que des établissements d'enseignement généraux. Le groupe témoin se compose de neuf enfants entendants, âgés de 17 ans et en dernière classe de lycées de Chypre. On a demandé à tous les participants de produire des textes sur des sujets standards, sur lesquels tous les élèves chypriotes de cet âge peuvent s'exprimer. Ces textes ont été analysés quantita-

tivement et qualitativement. D'un point de vue quantitatif, l'analyse s'est intéressée a) au contenu des textes et à leur structure, b) à la syntaxe, et c) au vocabulaire. L'analyse qualitative a permis d'appréhender plus finement les caractéristiques des textes recueillis. Les résultats montrent que les élèves sourds chypriotes acquièrent quasiment les mêmes niveaux de compétence en grec écrit que les élèves entendants, du moins en ce qui concerne les dimensions évaluées. Les résultats de cette étude nous semblent importants pour les enseignants et les décideurs, de Chypre et d'ailleurs.

MOTS-CLÉS : langue écrite, récits, inclusion, le Chypre, sourds oraux

German

[Translation Irene Pieper]

TITEL. Der Vergleich von Schreibfähigkeiten zwischen gehörlosen und hörenden Kindern auf Zypern
ZUSAMMENFASSUNG. Zahlreiche Studien haben die positiven Effekte der Inklusion und Integration auf die Kompetenzentwicklung gehörloser Kinder berichtet; allerdings gibt es wenig empirische Evidenz, was ihre Schreibfähigkeiten im Vergleich zu anderen LernerInnen ihres Alters oder ihrer Schulstufe angeht. Das Ziel der vorliegenden Untersuchung war es, erstmals die Schreibfähigkeiten zyprischer gehörloser Kinder mit denjenigen ihrer hörenden Peers zu vergleichen. Eine Gruppe bestand aus 17-jährigen Lernenden und Hörverlust seit Geburt (Mittel 75 dB HL beim besser hörenden Ohr bei 0,5, 1, 2, 4 kHz), und ohne weitere Behinderungen, die die letzte Jahrgangsstufe der höheren Schule auf Zypern besuchten. Sie wurden mündlich geschult und in allgemeinen Schulen, die sie exklusiv besuchten. Die Kontrollgruppe bestand aus neun hörenden LernerInnen, die ebenfalls 17 Jahre alt waren und das letzte Jahr der höheren Schule besuchten. Alle TeilnehmerInnen wurden aufgefordert, einen Text zu einem Standardthema, wie es von SchülerInnen dieses Alters auf Zypern üblicherweise bearbeitet wird, zu schreiben. Die Texte wurden sowohl mit quantitativen als auch qualitativen Verfahren ausgewertet. In quantitativer Perspektive wurden a) Textinhalt und Struktur, b) Syntax und c) Vokabular fokussiert. Die qualitative Analyse wurde verwendet, um weitere Charakteristika der Texte zu untersuchen. Die Studie zeigt, dass die zyprischen gehörlosen SchülerInnen fast das gleiche Kompetenzniveau im Griechisch-Schreiben erreichen konnten wie die hörenden SchülerInnen, jedenfalls was die beobachteten Dimensionen angeht. Die Ergebnisse könnten für die verantwortlichen Instanzen im Bildungsbereich in Zypern und darüber hinaus bedeutsam sein.

SCHLAGWORTER: Schriftsprache, Erzählungen, Inklusion, Zypern, gehörlos

Italian

[Translation Manuela Delfino, Francesco Caviglia]

TITOLO. Confronto di competenze di lingua scritta tra bambini ciprioti sordi educati con il metodo oralista e normoudenti

SOMMARIO. Molti studi hanno riferito di effetti benefici dell'inclusione sui risultati scolastici dei ragazzi sordi; sono tuttavia pochi i dati a disposizione sulle loro competenze di scrittura, a confronto con altri studenti di pari età e livello scolastico. Obiettivo del presente studio era di confrontare per la prima volta le competenze di scrittura dei ragazzi sordi di Cipro con quelle dei loro pari udenti. Un gruppo era costituito da ragazzi di 17 anni di età, tutti colpiti da perdita uditiva congenita (con una media di deficit uditivo di 75 dB all'orecchio meglio udente a 0,5, 1, 2 e 4 Khz) e privi di ulteriori disabilità, che stavano frequentando l'ultimo anno di diverse scuole superiori di Cipro (n=9). Erano tutti stati educati con il metodo oralista ed avevano esclusivamente frequentato scuole comuni. Il gruppo di controllo consisteva in nove ragazzi udenti di 17 anni, tutti iscritti all'ultimo anno di scuola superiore a Cipro. A tutti i partecipanti è stato chiesto di produrre testi scritti su argomenti standard nella pratica scolastica di ragazzi ciprioti di quell'età. L'analisi dei testi scritti è stata di tipo sia quantitativo che qualitativo. Per quanto riguarda l'analisi quantitativa, il linguaggio è stato analizzato con attenzione a a) contenuto e struttura del testo, b) sintassi e c) lessico. L'analisi qualitativa è stata impiegata per un'ulteriore descrizione delle caratteristiche osservate nei testi del campione. Il nostro studio ha rivelato che i partecipanti ciprioti sordi erano in grado di raggiungere quasi lo stesso livello di competenza nel greco scritto dei ragazzi udenti, almeno per quanto riguarda gli aspetti presi in esame. I risultati dello studio possono essere significativi per educatori e amministratori a Cipro e altrove.

PAROLE CHIAVE: lingua scritta, racconti, inclusione, Cipro, educazione oralista per ragazzi sordi

Polish

[Translation Elżbieta Awramiuk]

TITUL. Porównanie właściwości języka pisanego cypryjskich dzieci niesłyszących, ale mówiących oraz dzieci normalnie słyszących

STRESZCZENIE. W wielu badaniach relacjonowano korzystny wpływ kształcenia integracyjnego na osiągnięcia szkolne dzieci niesłyszących. Jednak niewiele jest dostępnych danych na temat ich umiejętności pisania w porównaniu do ogółu uczniów w ich wieku lub w odpowiadającej im klasie. Celem niniejszego artykułu było porównanie (po raz pierwszy na Cyprze) umiejętności pisania dzieci głuchych z umiejętnościami ich słyszących rówieśników. Jedną grupę składała się z 17-letnich uczniów z wrodzonymi ubytkami słuchu (średnia 75 dB HL w lepiej słyszącym uchu na 0,5, 1, 2, 4 kHz) i bez dodatkowych ułomności, którzy uczęszczali do ostatniej klasy różnych szkół ogólnokształcących na Cyprze (n=9). Byli uczeni mowy i uczęszczali jedynie do szkół ogólnych. Grupę kontrolną stanowiło 9 słyszących, 17-letnich uczniów uczęszczających do ostatniej klasy szkół ogólnokształcących na Cyprze. Wszyscy uczestnicy byli poproszeni o napisanie tekstu na temat standardowy dla cypryjskich uczniów w tym wieku. Przeprowadzono analizę ilościową i jakościową tekstów. W analizie ilościowej język pisany był opisywany poprzez a) zawartość treściową i strukturę, b) składnię i c) słownictwo. Analiza jakościowa została zastosowana do dalszego opisu cech obserwowanych w próbkach tekstów. Badanie ujawniło, że cypryjscy uczniowie niesłyszący mogą osiągnąć prawie te same poziomy kompetencji w pisaniem języku greckim co dzieci słyszące, przynajmniej w aspektach, które badano. Wyniki eksperymentu mogą okazać się istotne dla nauczycieli i osób odpowiedzialnych za politykę oświatową na Cyprze i gdzie indziej.

SŁOWA-KLUCZE: język pisany; relacje; kształcenie integracyjne; Cypr; mówiący niesłyszący

Portuguese

[Translation Sara Leite]

TÍTULO. COMPARAÇÃO DE CAPACIDADES EM LÍNGUA ESCRITA ENTRE CRIANÇAS CIPRIOTAS SURDAS E OUVINTES

RESUMO. Um número de estudos já feitos permite concluir pelos efeitos benéficos da inclusão no sucesso académico de crianças surdas; porém, existem poucos dados sobre as suas capacidades de escrita em comparação com estudantes da mesma idade ou nível de ensino. O objectivo do presente estudo foi comparar, pela primeira vez no Chipre, as capacidades de escrita de crianças surdas com as dos seus pares ouvintes. Um grupo era constituído por jovens com 17 anos de idade e com perda de audição congénita (em média 75 dB HL no ouvido menos afectado a 0,5, 1, 2, 4 kHz), e sem outras deficiências, que frequentavam o último ano de diferentes escolas secundárias regulares no Chipre (n=9). Haviam sido educadas oralmente e em escolas regulares, as únicas que haviam frequentado. O grupo de controlo era constituído por nove crianças ouvintes com 17 anos de idade, frequentando o último ano de escolas secundárias no Chipre. A todos os participantes foi pedido que produzissem textos escritos sobre temas padrão normalmente pedidos a crianças cipriotas dessa idade. Procedeu-se a uma análise quantitativa e qualitativa dos textos. No que respeita à análise quantitativa, a análise da língua escrita centrou-se em a) conteúdo e estrutura do texto, b) sintaxe e c) vocabulário. A análise qualitativa foi aplicada para uma descrição mais detalhada das características observadas nos textos da amostra. O estudo revelou que os participantes surdos cipriotas atingiram praticamente os mesmos níveis de competência em língua grega escrita em relação aos jovens ouvintes, pelo menos no tocante aos aspectos examinados. Os resultados deste estudo poderão ser relevantes para educadores e responsáveis por políticas educativas, tanto no Chipre como noutras partes do mundo.

PALAVRAS-CHAVE: Língua escrita, narrativas, inclusão, Chipre, surdos.

Spanish

[Translation Ingrid Marquez]

TÍTULO. UNA COMPARACIÓN DE LAS HABILIDADES ESCRITAS DE NIÑOS CHIPRENSES SORDOS Y SIN DEFICIENCIAS AUDITIVAS

RESUMEN. Varios estudios han reportado los efectos benéficos de incluir a los niños sordomudos en un ambiente de logros académicos; sin embargo, hay poca información disponible acerca de su habilidad de redacción comparada con la de estudiantes sin esta discapacidad a la misma edad o en el mismo grado. El propósito del estudio actual fue comparar, por primera vez, la habilidad escrita de los niños sordos chiprenses con la de sus compañeros sin deficiencias auditivas. Un grupo constó de puros sujetos de 17 años con pérdida de oído por motivos congénitos (promedio de 75 dB HL en el oído más funcional a 0,5, 1, 2, 4 kHz) y sin limitaciones adicionales que cursaban el último grado de varias escuelas preparatorias en

Chipre (n=9). Recibían instrucción oralmente y en escuelas públicas, yendo solamente a éstas. El grupo de control constó de nueve niños que escuchaban bien, todos de 17 años y también cursando el último grado de escuelas parecidas en Chipre. A todos los participantes se les pidió producir textos escritos sobre temas estándares requeridos por jóvenes chiprenses a esa edad. El análisis de los textos escritos fue tanto cuantitativo como cualitativo. Con respecto al primero, el language escrito fue analizado con hincapié en a) el contenido y estructura del texto, b) la sintáxis y c) el vocabulario. El análisis cuantitativo se empleó para describir con más detalle las características observadas en los textos de la muestra. El estudio reveló que los participantes sordos podían llegar a casi el mismo nivel de competencia en el griego escrito que los niños sin discapacidad, cuando menos con respecto a los aspectos considerados. Los resultados del estudio quizás impacten en los educadores y autoridades escolares en Chipre y otros países.

PALABRAS CLAVE: lenguaje escrito, narrativas, inclusion, Chipre, sordo, oral.

1. INTRODUCTION

It is documented in the literature that deaf and hard of hearing (d/hh) children face a number of difficulties with written language (Antia, Reed & Kreimeyer, 2005; Fabretti, Volterra & Pontecorvo, 1998; Makarona & Lampropoulou, 2005). The results of a number of studies provide evidence for the expected parallels between d/hh children's reading and writing performance (Marschark, 1993; Schirmer, 2000). It has also been suggested that d/hh children's literacy development does not proceed at a pace considered average for hearing students (Holt, 1993; LaSasso & Mobley, 1997; Musselman & Szanto, 1998; Yoshinaga-Itano & Snyder, 1985).

In summary, a variety of studies have documented the fact that the written language of d/hh students differs from that of their hearing peers on several dimensions (Antia, Reed & Kreimeyer, 2005; Fabretti, Volterra & Pontecorvo, 1998; Maxwell & Falick, 1993; Nolen & Wilbur, 1985; Yoshinaga-Itano & Downey, 1992). Specifically, d/hh children lag behind their hearing peers in their syntactic constructions; they produce shorter sentences with simpler syntactical structures (Subject-Verb-Object structure). Makarona and Lampropoulou (2005) point out that "sometimes the order of words in the sentence reflects a less complicated way of writing due to the non-conventional grammatical and syntactical structures they use" (p. 124). D/hh children also encounter problems with subordinate clauses, and they face significant difficulties comprehending truncated passives.

Similarly, d/hh children's vocabulary is limited; "they seem unaware of multimeaning words, which comprise two-thirds of the words that appear in spoken and written context" (Luetke-Stahlman, 1998: 318). They mainly use nouns and verbs but rarely adjectives, articles, adverbs and auxiliary verbs. Finally, they face problems in grammatical morphology, including omissions of functional words, inappropriate word substitutions, and additions of various morphemes.

Besides the syntax of written language, a number of studies brought out that d/hh students exhibit difficulty with cohesion of ideas in writing (Antia, Reed & Kreimeyer, 2005), "since they have the tendency to access texts sentence by sentence rather than view the text as an integrated whole" (Makarona & Lampropoulou, 2005: 123). Notably, Maxwell and Falick (1992) found in their study that d/hh students' compositions were less frequently conceptually linked than those of hearing students.

Marschark (1993) points out for many d/hh individuals "writing is often seen as a laborious, sentence-by-sentence task, rather than an attempt at verbal communica-

tion. With such view of writing it should be not surprising that deaf children fail to use pronouns correctly, to use definite and indefinite articles, or to be concerned with intersentence issues of verb tense and agreement.” (p. 223). Webster (1986) ascribes the failure of d/hh children to make use of discourse structure in their writing, to their lack of rules of conversation that are usually acquired from monitoring ongoing verbal interactions.

A number of studies suggest that the writing ability in deaf children is a neglected topic (Fabretti, Volterra & Pontecorvo, 1998); most of the relevant research has been carried out in English speaking countries (Yoshinaga-Itano & Downey, 1992). Antia and her colleagues (2005) stress that “overall, there is little information on the writing achievement of d/hh students in public schools, specifically those who attend general-education classrooms and those with mild or moderate hearing losses.” (p. 247).

Only a couple of relevant studies have been conducted with Greek d/hh participants (Makarona & Lampropoulou, 2005). In Cyprus, there are no available data on the writing ability of d/hh pupils. Since 1999, an inclusion law has been in place in the island, whilst Cypriot d/hh children have been integrated since 1987; it is worth noting, that from 2001 onwards more than 34 d/hh graduates of Cyprus general schools entered higher educational institutions in Cyprus and Greece, taking the same exams as their hearing peers, with some modifications (e.g. extra time, exemption from the listening part of the exam). It must be stressed that before inclusion, only one deaf school graduate attended a higher educational institution. Given the beneficial effects of inclusion on Cypriot d/hh children's academic achievements, as reported by previous studies carried out in Cyprus (Hadjikakou & Nikolarazi, 2007; Hadjikakou, Stylianou & Petridou, 2008), as well as the lack of relevant data on the writing ability of Cypriot d/hh children, the researchers carried out a study to compare, for the first time in Cyprus, d/hh children's written ability with that of their hearing peers.

2. METHODOLOGY

2.1 *Participants*

One group consisted of children who were 17 years of age and with congenital hearing losses (mean 75 dB HL in the better hearing ear at 0.5, 1, 2, 4 kHz) but without additional disabilities; they were attending the last grade of various general high schools in Cyprus (n=9). They were trained orally and in general schools, which they attended exclusively. Out of these children four were boys and five were girls. The control group consisted of 9 children, all of whom were 17 years of age and hearing (without any educational special needs); they were attending the last grade of high school in Cyprus.

2.2 *Design and analysis*

All participants were asked to produce written text on standard topics required of Cypriot children of that age. Writing an essay (50 out of 100 marks) is part of an

obligatory subject (“Modern Greek”) for entering all universities as a student both in Greece and in Cyprus. Our participants were asked to write up to 500 words for a maximum of 80 minutes, on the following topic: “You are participating in a students' congress under the general title 'Consumption.' You are invited as the representative of your school pupils' central council, to present the negative impacts of consuming on society, through enslavement of Cypriots to commercial objects. You are also asked to suggest ways of resisting consumerism.”

The task was administered individually to each participant by a member of the research team. As part of the instructions, each participant was told that he/she would be given five minutes to ask for clarifications (e.g. to pose questions about unknown words in the essay's title). He/she would then have 80 minutes in which to write. Having confirmed that he/she was clear about the procedure, he/she was given in a written form the essay's topic. He/she was given five minutes to read the title, and ask for clarifications. At the end of this time he/she began writing.

The analysis of the written text was both quantitative and qualitative. The analysis of written samples was similar to that employed in a Greek study by Makarona and Lampropoulou (2005), investigating similar issues. It involved three categories of written language: a) text content and structure (clear statement of topic and text structure, use of transitional markers, clear paragraphing, consistent register). Calculations were based on the presence or absence of these elements in each one of the text samples; b) syntactic structure (correct use of sentences, correct use of complex sentences). Calculations examined the ratio of correct use of sentences and of complex sentences to the total number of sentences of each text; and c) vocabulary (type-token ratio). Calculations examined the total number of different words used in each text. SPSS was used for the purpose of analyzing and processing the data.

Qualitative analysis was also employed for further description of some characteristics observed in the texts of our sample, mainly regarding morphology, syntax, and grammar.

3. RESULTS

3.1 *Quantitative data*

Content and organization of text

Table 1 shows that there are no significant differences between the deaf and the hearing participants regarding the content and organization of the text. Specifically, all hearing students wrote about the topic required in a comprehensive and clear way, compared with 88.9% of the deaf. Both hearing and deaf students used paragraphs and at least one transitional marker. Regarding the consistency of register (consistency in style and phrasing), 88.9% of the deaf and the hearing participants used consistently the same person (e.g. consistently singular or plural when addressing a person or more than one person respectively).

Table 1: Characteristics of the the d/hh and hearing participants' written language in percentage (%) in terms of text content and structure present

	d/hh	hearing
Clear statement of topic	88.9	100
Transitional markers (conjunctions)	100	100
Use of paragraphs	100	100
Consistent register (consistency style & phrasing)	88.9	88.9

Syntax

Regarding syntax, two syntactic structures were observed: a) correct use of sentences and b) correct subordinate clauses. We considered as correct sentences, those which were clearly structured and carefully focused, containing at least one V (verb) and one S (subject). For example, a sentence considered correct was the following “*The strong tyrannize over the weak, mainly for business interests,*” whereas the sentence that follows was considered incorrect, “*By reason a recent discussion today, without understanding it.*” (not clearly structured (no V-S), and not carefully focused).

Regarding the subordinate clauses, these were considered correct if sentences began with a subordinate conjunction or a relative pronoun, contained both a subject and a verb, and were attached to a main clause (since the subordinate clause alone does not form a complete sentence). The following example was considered a correct use of subordinate clause “*In this speech I would like to talk to you about the negative consequences, that consuming brings to Cyprus*”, and the following one as an incorrect example “*So that the businessmen misinform us, advertising the goods with a lot of advantages, whereas we believe it*” (because the participant's subordinate clauses are attached to each other, and not to a main clause).

Table 2 shows that the mean of correct sentences used by the d/hh participants in their texts was 0,94 ($SD = 0,04$), while the mean of the correct subordinate clauses was 0,36 ($SD = 0,07$). Respectively, the mean of correct sentences used by the hearing was 0,97 ($SD = 0,07$), and the mean of subordinate clauses was 0,38 ($SD = 0,09$).

Table 2: Characteristics of the d/hh and hearing participants' written language in terms of syntax: Percentages correct sentences and subordinate clauses

	d/hh	Hearing
Correct sentences	0,94	0,97
Correct subordinate clauses	0,36	0,38

Vocabulary

Both d/hh and hearing participants' vocabulary assessment was based on two aspects: a) the ratio of content words to a functional word and b) the proportion of different words used in the whole text. Table 3 shows that d/hh participants used more content words than the hearing, whereas the proportion for the hearing participants was 0,98. Regarding the proportion of different words used in the whole text, Table 3 illustrates that this was rather similar for d/hh and hearing participants.

*Table 3: Characteristics of the d/hh and hearing participants' written language in terms of vocabulary:
Ratio content words/functional words and proportion different words*

	d/hh	hearing
Content words per functional word	1,24	0,98
Variety of words used in the whole text	0,47	0,50

3.2 *Qualitative data*

Apart from the statistical analysis of the texts, qualitative analysis was applied for further description of some characteristics observed in the texts of the d/hh participants, mainly regarding syntax, and grammar. The Greek language is quite complex. For instance verbs, nouns, adjectives, articles, participles, pronouns, and adverbs are conjugated, and congruence is required between subject (personal pronoun) and verb, adjective and noun, article and noun. Modification of endings is required accordingly (e.g. for pluralization, for cases). There are also accents. As a result, in a few texts produced by d/hh children attendant mistakes were observed.

Specifically, disagreements (in gender, number, case) between noun (subject) and verb ([dio gitones agorazi, oi epixeirimaties paraplirofori*]), adjective and noun ([polles katanalosi*]), and article and noun ([ta proiontos, ton kopos, tou fisikous*]) were observed.

Then, in some cases, the following were noted: 1) omissions of articles and conjunctions (for instance, '*as a result not have*' instead 'of as a result not to have', or '*development technology*' instead of 'the development of technology'), 2) excessive use (e.g. '*as a young man who worries about his future, and who worries about the earth's future*' instead of 'as a young man who worries about his future and about the earth's future') and additions (e.g. '*some products in which destroyed our health*', instead of 'some products which destroyed our health').

Additionally, whilst all the participants used both active and passive voice, some participants, instead of using the verbs in passive form, used them in the active form (e.g. our needs *multiply*, the petrol *decreases*).

In some of the participants' texts the accents were not marked on the right syllable, and one sentence was written in one paragraph. Then, in some texts the partici-

pants created phonetically similar but non-existing words (lechemias in place of lefchemias*).

4. DISCUSSION

Writing is one of the most complex and difficult tasks for d/hh students to master (Antia, Reed & Kreimeyer, 2005; Fabretti, Volterra & Pontecorvo, 1998; Makarona & Lampropoulou, 2005). This study brought out that our d/hh participants reached almost native levels of competence in written Greek, at least for the aspects investigated.

These findings are in accordance with data derived from other studies that included d/hh participants with similar characteristics. Specifically, our participants have attended exclusively general schools. It has been reported in the literature that the writing achievements of d/hh children who attend general schools are higher than those of d/hh peers in schools for the deaf (Karchmer & Mitchell, 2003) and rather similar or slightly worse than the achievements of their hearing peers (Antia, Reed & Kreimeyer, 2005; Musselman & Szanto, 1998).

The participants in this study have been educated orally. Other studies reported that students using auditory/oral communication scored higher than students who use sign (Musselman & Szanto, 1998).

Finally, our participants are in the final year at school, and are quite competent in written language. Researchers who authored other studies also reported positive changes in measures of written achievement with increasing age (Heefner & Shaw, 1996; Makarona & Lampropoulou, 2003).

It must be noted that the qualitative analysis of the written texts showed that some of the participants (both deaf and hard-of-hearing) experience some difficulties in areas of contextual language (e.g. morphology, syntax) emphasizing the variation in this area among d/hh students, as similarly reported in other studies (Antia, Reed & Kreimeyer, 2005).

The results of this study must be interpreted with caution, and several limitations must be noted. The sample was small, and the measure of writing was limited to a single essay. Given that there is not available in Greek a standardized written test for the deaf population, a persuasive essay was asked of our participants. Then, all Cypriot graduate children, with congenital moderate to profound losses participated in this study; hitherto, despite the fact that the sample was rather small, this study provided us with valuable information on the writing achievements of an age group in its entirety, of those Cypriot d/hh children who were in the final year at school.

We can conclude that the quality of education that Cypriot d/hh children receive in general schools seems to be satisfactory since it enables them to achieve good levels of writing ability, and as a result, to continue their studies in higher educational institutions.

NOTES

The examples are presented in Greek with Latin characters because they cannot be rendered in English.

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