

USING SIGN LANGUAGE TO TEACH WRITTEN LANGUAGE:
AN ANALYSIS OF THE STRATEGIES USED
BY TEACHERS OF DEAF CHILDREN
IN A BILINGUAL CONTEXT

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Abstract.

The main objective of this study was to characterize the type of activities and strategies employed by Chilean teachers when using Chilean Sign Language (ChSL) to teach written Spanish. This was achieved through the observation and analysis of three deaf educators, who were in charge of children attending kindergarten, 1st, and 2nd grade. Eight video recordings of written Spanish lessons were analyzed. The results show that, in the early grades, teachers working with written material over a sentence long tend to center their strategies on the general aspects of the texts, such as their structural elements and the comprehension of their global meaning, and on clarifying the meaning of specific words found in the text. We analyzed certain specific episodes in detail, which depict how the teachers work when introducing new words to the children. In this aspect, salient strategies included use of fingerspelling, matching signs and written words, and the explanation of the meaning of a word using signs and pictures. Finally, the article highlights the strengths and potential limitations of the strategies currently employed by these teachers to teach written Spanish as a second language using students' knowledge of ChSL. Also, we make suggestions aimed at optimizing the acquisition and development of lexical and syntactic knowledge of Spanish, as some of the factors that contribute to the improvement of deaf students' reading level.

Keywords: sign language, written language., teaching strategies, deaf students, bilingual education.

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Chinese

[Translation Shek Kam Tse]

此項研究的目的是分類智利教師採用智利符號語言(ChSL)教授西班牙語寫作的活動方式和策略。通過觀察和分析三位工作在幼稚園一年級和二年級的聾啞教育者，分析了8堂西班牙語寫作課程的錄影。結果顯示，在低年級，當教師教授超過一句話長度的寫作題材時，策略主要著重在文字的基本方面，例如：它們的結構要素、理解大意和澄清文字中一些特別單詞的含義等。我們仔細分析了一些片斷，主要是描述教師向學生介紹新單詞，主要的策略包括使用手指拼寫、匹配符號和書面詞彙、和使用符號及圖片解釋含義等。最後，文章強調了現有教師使用的將學生的ChSL知識應用在西班牙語作為第二語言的寫作教學中的優點和不足之處，同時，我們也建議優化學生詞彙和句法知識的學習和發展，這些可以幫助聾啞學生提高閱讀能力。

Dutch

[Translation Tanja Janssen]

TITEL. Het gebruik van gebarentaal voor het onderwijzen van geschreven taal. Een analyse van de strategieën die docenten van dove kinderen gebruiken in een tweetalige context.

SAMENVATTING. Hoofddoel van dit onderzoek was om het type activiteiten en strategieën te karakteriseren die toegepast worden door Chileense docenten wanneer zij Chileense gebarentaal (CGT) gebruiken om geschreven Spaans te onderwijzen. Dit doel werd bereikt door drie dove docenten die werkten met kinderen in de kleuterschool (leerjaar 1 en 2) te observeren. Acht video-opnamen van lessen over geschreven Spaans werden geanalyseerd. De resultaten laten zien dat docenten die in de eerste leerjaren werken met schriftelijk materiaal dat groter is dan één zin, geneigd zijn hun strategieën te richten op algemene tekstenmerken, zoals structurelementen en het begrijpen van de globale betekenis, en op het verhelderen van de betekenis van specifieke woorden in de tekst.

We analyseerden bepaalde episodes in detail, die laten zien hoe docenten te werk gaan wanneer zij nieuwe woorden bij de kinderen introduceren. Opvallende strategieën in dit opzicht waren het gebruik van vingerspelling, het matchen van gebaren met geschreven woorden, en het verklaren van de betekenis van een woord met behulp van gebaren en plaatjes.

Ten slotte laat dit artikel zien wat de sterke kanten en mogelijke beperkingen zijn van de strategieën die deze docenten op dit moment gebruiken bij het onderwijs in geschreven Spaans als tweede taal met gebruik van de kennis die leerlingen hebben van Chileense gebarentaal. Ook doen we suggesties voor het optimaliseren van de verwerving en ontwikkeling van lexicale en syntactische kennis van het Spaans, als enkele factoren die bijdragen aan de verbetering van de leesvaardigheid van dove leerlingen.

TREFWOORDEN: gebarentaal, geschreven taal, onderwijsstrategieën, dove leerlingen, tweetalig onderwijs.

French

[Translation Laurence Pasa]

TITRE. UTILISATION DE LA LANGUE DES SIGNES POUR ENSEIGNER LA LANGUE ÉCRITE : UNE ANALYSE DES STRATÉGIES UTILISÉES PAR LES ENSEIGNANTS D'ÉLÈVES SOURDS DANS UN CONTEXTE BILINGUE

RÉSUMÉ. Cette étude vise à caractériser les activités et les stratégies employées par des enseignants chiliens lorsqu'ils utilisent la Langue des Signes Chilienne (LSCh) pour enseigner l'espagnol écrit. Pour cela nous avons observé et analysé les pratiques de trois enseignants sourds, en charge d'enfants de jardin d'enfants, de 1^{ère} et de 2^{ème} année. Huit enregistrements vidéo de leçons d'espagnol écrit ont été analysés. Les résultats montrent que, dans les petites classes, les enseignants qui travaillent à partir d'unités écrites supérieures à la phrase ont tendance à centrer leurs stratégies sur des aspects généraux, comme la structure du texte et la compréhension de son sens global, et à clarifier la signification de mots spécifiques présents dans le texte.

Nous avons analysé certains épisodes plus spécifiquement, afin d'illustrer la manière dont les enseignants travaillent lorsqu'ils présentent de nouveaux mots aux enfants. Ainsi, les principales stratégies portent sur l'utilisation de la dactylographie, la mise en correspondance entre signes et mots écrits et l'explication de la signification d'un mot au moyen de signes et d'images.

Finalement, l'article met en évidence les atouts et les limites potentielles des stratégies actuellement employées par ces enseignants qui consistent à enseigner l'espagnol écrit en deuxième langue à partir de la connaissance qu'ont les élèves de la LSCh. Aussi, nous faisons des suggestions visant à optimiser l'acquisition et le développement des connaissances lexicales et syntaxiques, considérées comme des facteurs qui contribuent à l'amélioration du niveau de lecture des élèves sourds.

MOTS-CLÉS : langue des signes, langue écrite, stratégies d'enseignement, élèves sourds, enseignement bilingue.

German

[Translation Ulrike Bohle]

TITEL. Einsatz der Gebärdensprache beim Lehren der Schriftsprache: Analyse der Strategien von LehrerInnen, die gehörlose Kinder in einem zweisprachigen Kontext unterrichten

ZUSAMMENFASSUNG. Das Ziel der Studie war eine Charakterisierung der Aktivitäts- und Strategietypen, die chilenische LehrerInnen bei der Nutzung der chilenischen Gebärdensprache (ChGS) anwenden, wenn sie Schriftspanisch unterrichten. Die Studie beruht auf der Beobachtung von drei gehörlosen ErzieherInnen bei ihrer Arbeit mit Kindergartenkindern, Erst- und Zweitklässlern. Analysiert wurden Videoaufzeichnungen von acht Unterrichtsstunden zum Schriftspanischen. Ergebnisse zeigen, dass LehrerInnen, die in frühen Klassenstufen mit schriftlichem Material von mehr als einem Satz Länge arbeiten, ihre Strategien auf zentrale Aspekte des Textes lenken, z.B. auf strukturierende Elemente und das Verstehen der globalen Bedeutung sowie auf die Klärung der Bedeutung einzelner Wörter im Text.

Weiterhin wurden einzelne Episoden, in denen LehrerInnen neue Wörter einführen, im Detail analysiert. Hier stachen als Strategien die Nutzung des Fingeralphabets, die gleichzeitige Darbietung von Gebärden und geschriebenen Wörtern und die Erklärung der Wortbedeutung durch Gebärden und Bilder hervor.

Abschließend beleuchtet der Artikel Stärken und mögliche Grenzen der gegenwärtig von diesen LehrerInnen verwendeten Strategien im Unterricht des Schriftspanischen als Zweitsprache, die die Kenntnisse der chilenischen Gebärdensprache der SchülerInnen nutzen. Außerdem werden Vorschläge zur Optimierung der Entwicklung lexikalischen und syntaktischen Wissens über das Spanische sowie zur Verbesserung der Lesefertigkeiten gehörloser Schüler entwickelt.

SCHLAGWÖRTER: Gebärdensprache, Schriftsprache, Lehrstrategien, gehörlose Studierende, zweisprachige Erziehung

Italian

[Translation Manuela Delfino, Francesco Caviglia]

TITOLO. Usare la lingua dei segni per insegnare la lingua scritta: un'analisi delle strategie adottate dagli insegnanti di bambini sordi in un contesto bilingue

SOMMARIO. L'obiettivo principale di questo studio era quello di caratterizzare il tipo di attività e le strategie utilizzate dagli insegnanti cileni quando usano la lingua cilena dei segni (ChSL) per insegnare lo spagnolo scritto. Ciò è stato ottenuto attraverso l'osservazione e l'analisi di tre educatori sordi, che avevano il compito di badare ai bambini che frequentavano il primo e il secondo anno della scuola dell'infanzia. Sono state analizzate otto registrazioni video delle lezioni di spagnolo scritto. I risultati mostrano che, nelle prime classi, gli insegnanti che lavorano con materiale scritto lungo almeno una frase tendono a basare le loro strategie sugli aspetti generali dei testi, come gli elementi strutturali e la comprensione del loro significato globale, e a chiarire il significato di parole specifiche trovate nel testo.

Abbiamo analizzato in dettaglio alcuni episodi specifici, che descrivono come gli insegnanti lavorino, quando introducono nuove parole ai bambini. In questo caso, le strategie salienti hanno incluso l'uso di alfabeto manuale (dattilogia), la messa in relazione di gesti e parole scritte, e la spiegazione del significato di una parola usando gesti e immagini.

Infine, l'articolo mette in evidenza i punti di forza e i potenziali limiti delle strategie impiegate attualmente da questi insegnanti per insegnare lo spagnolo scritto come seconda lingua, utilizzando le conoscenze di ChSL degli studenti. Inoltre, forniamo alcuni suggerimenti finalizzati a ottimizzare l'acquisizione e lo sviluppo delle conoscenze lessicali e sintattiche della lingua spagnola, come alcuni dei fattori che contribuiscono al miglioramento del livello di lettura da parte di studenti sordi.

PAROLE CHIAVE: lingua dei segni, lingua scritta, strategie didattiche, studenti sordi, educazione bilingue

Polish

[Translation Elżbieta Awramiuk]

TITUL. Używanie języka migowego do nauczania języka pisanego: analiza strategii wykorzystywanych przez nauczycieli dzieci głuchych w kontekście bilingwalnym

STRESZCZENIE. Głównym celem badań referowanych w niniejszym artykule była charakterystyka typów aktywności i strategii stosowanych przez chilijskich nauczycieli podczas używania Chilijskiego Języka Migowego (ChSL) do nauki pisanego hiszpańskiego. Cel ten realizowano poprzez obserwację i analizę trzech niesłyszących nauczycieli, którzy byli odpowiedzialni za dzieci uczęszczające do przedszkola (pierwsza i druga grupa). Zanalizowano osiem nagrań wideo lekcji pisania po hiszpańsku. Rezultaty pokazują, że na wczesnym etapie nauczyciele, pracując z wielozdaniowym materiałem pisanym, mają skłonność do koncentrowania się na całościowych aspektach tekstu, takich jak elementy strukturalne i rozumienie znaczenia ogólnego oraz na wyjaśnianiu specyficznych słów występujących w tekście. Szczegółowo zanalizowano pewne epizody, które przedstawiały, jak nauczyciele pracują podczas prezentowania dzieciom nowych słów. W tym aspekcie nieme strategie zawierały używanie języka migowego do wyjaśniania pisowni, łączenie gestów i pisanych słów, wyjaśnianie znaczenia wyrazów przy użyciu gestów i obrazków.

W artykule nakreślono zalety i potencjalne ograniczenia strategii stosowanych przez tych nauczycieli podczas nauczania pisanego hiszpańskiego jako języka drugiego z wykorzystaniem wiedzy uczniów na temat ChSL. Artykuł kończą sugestie dotyczące optymalizacji akwizycji języka hiszpańskiego i rozwoju leksykalnej i syntaktycznej jego znajomości jako czynników, które wpływają na polepszenie umiejętności czytania uczniów niesłyszących.

SŁOWA-KLUCZE: język migowy; język pisany; strategie nauczania; uczniowie niesłyszący; edukacja bilingwalna

Portuguese

[Translation Sara Leite]

TÍTULO. A UTILIZAÇÃO DA LÍNGUA GESTUAL PARA ENSINAR A LÍNGUA ESCRITA: ANÁLISE DAS ESTRATÉGIAS USADAS POR PROFESSORES DE CRIANÇAS SURDAS EM CONTEXTO BILINGUE

RESUMO. O principal objectivo deste estudo foi caracterizar o tipo de actividades e estratégias utilizadas por professores chilenos quando usam a Língua Gestual Chilena (LGCh) para o ensino da escrita em língua espanhola. Essa caracterização foi feita através da observação e análise de três educadores de surdos, responsáveis por crianças frequentando o primeiro e o segundo nível da educação pré-escolar. Foram analisadas oito gravações vídeo de aulas de língua espanhola escrita. Os resultados indicam que, nos primeiros níveis de ensino, os professores que trabalham com material escrito com extensão superior a uma frase tendem a centrar as suas estratégias em aspectos gerais dos textos, como os seus elementos estruturais e a compreensão do seu significado global, bem como na clarificação do significado de palavras específicas presentes no texto.

Analisámos determinados episódios em pormenor, que mostram como os professores trabalham quando apresentam novas palavras às crianças. Neste aspecto, as estratégias mais evidentes incluem o uso de dactilologia, a correspondência entre signos gestuais e palavras escritas, e a explicação do significado de uma palavra por meio de gestos e imagens.

Finalmente, o artigo sublinha os pontos fortes e as potenciais limitações das estratégias usadas actualmente por estes professores para ensinar a língua espanhola escrita como segunda língua, com base no conhecimento dos alunos da LGCh. Para além disso, deixamos sugestões no sentido de otimizar a aquisição e o desenvolvimento do conhecimentos sintáctico e lexical da língua espanhola, como factores que contribuem para melhorar o desempenho na leitura por parte de alunos surdos.

PALAVRAS-CHAVE: Língua gestual, língua escrita, estratégias de ensino, alunos surdos, educação bilingue.

Spanish

[Translation Ingrid Marquez]

TÍTULO. EL USO DEL LENGUAJE POR SEÑAS PARA ENSEÑAR EL LENGUAJE ESCRITO: UN ANÁLISIS DE LAS ESTRATEGIAS ADOPTADAS POR LOS MAESTROS DE NIÑOS SORDOS EN UN CONTEXTO BILINGÜE

RESUMEN. El objetivo principal de este estudio fue caracterizar el tipo de actividades y estrategias empleadas por los maestros chilenos al usar la lengua de Señas Chilena (LSCh) para enseñar el español

escrito. Esto se logró a través de la observación y análisis de tres educadores de sordos que estaban a cargo de niños en los grados de kindergarten, primero y segundo. Se analizaron ocho videos de lecciones de español. Los resultados muestran que, en grados tempranos, los maestros que trabajan con material escrito de más de una oración de largo suelen centrar sus estrategias en los aspectos generales de los textos, como sus elementos estructurales y la comprensión de su significado general, además de la clarificación del significado de palabras específicas que aparecen en el texto.

Analizamos episodios específicos en detalle, viendo cómo los maestros trabajan al introducir nuevas palabras a los niños. En este aspecto, las estrategias salientes incluyen el uso del alfabeto dactilológico, el encontrar la correspondencia entre las palabras escritas y las señas y la explicación del significado de una palabra usando señas e imágenes.

Por último, el artículo demuestra las ventajas y posibles limitaciones de las estrategias empleadas en la actualidad para enseñar el español escrito como segundo idioma, usando el conocimiento de los estudiantes de LSCh. Además, hacemos sugerencias para optimizar la adquisición y desarrollo del conocimiento léxico y sintáctico del español, como factores que contribuyen a la mejoría de las habilidades de lectoescritura en niños sordos.

PALABRAS CLAVE: Lengua de Señas, lenguaje escrito, estrategias didácticas, estudiantes sordos, educación bilingüe.

1. INTRODUCTION

In general, deaf students' reading achievement has been reported as considerably lower than that of hearing students (Allinder & Eccarius, 1999; Musselman, 2000; Paul, 2003; Schimmel, Edwards & Prickett, 1999; Schirmer & McGough, 2005).

Poor knowledge of vocabulary in the written language is one of the reasons behind the difficulties faced by deaf readers. Studies carried out in Chile have supported previous findings in this area, showing that deaf children have very limited knowledge of Spanish written words, which together with limited syntactic knowledge of the language contribute to explain their low reading achievement (Lissi, Raglianti, Grau, Salinas & Cabrera 2003).

Bilingual education approaches for deaf students emphasize the importance of the acquisition of sign language as the first language (L1) and the subsequent acquisition of the national language (Spanish in this case) as a second language (L2), mainly through its written form (Svartholm, 1994).

Due to increasing evidence pointing to a link between sign language competence and reading level (Hermans, Knoors, Ormel, & Verhoeven, 2008), there is growing interest in fostering the use of sign language for teaching written language to deaf people. Still, it is not certain which specific mechanisms enable deaf people to attain a good command of written language, based on their knowledge of sign language (Kuntze, 1998; Singleton, Supalla, Litchfield, & Schley, 1998).

Some studies, however, point to strategies that appear to enable teachers to use L1 knowledge to develop competence in L2 (e.g., Andrews, Winograd & DeVille; Evans, 2004; Haptonstall-Nykaza & Schick, 2007; Padden & Ramsey, 1998; Rotenberg, 2001; Wauters, Knoors, Vervloed, & Aarnoutse, 2001). A study conducted by Padden and Ramsey (1998) showed that deaf teachers consistently tended to establish connections between L1 and written text in L2. They labeled "chaining" to a type of strategy consisting of using sign language, fingerspelling, and initialized signs in a consistent and redundant way, to show students the meaning and structure of written words. Kuntze (1998) states that deaf adults provide significant contexts, which help deaf children relate to written texts, by explaining how written text re-

lates to meaning and how certain English phrases can be translated into American Sign Language (ASL).

Theoretical developments and empirical findings, related to how learners build vocabulary and grammatical knowledge in a second language, could provide some insights to improve our understanding of deaf children's acquisition of written language. But more research is needed regarding how this can be achieved in the classroom. Therefore, this study had two main objectives: (1) To characterize the type of activities and strategies employed by three Chilean educators, when teaching written language (L2) to deaf children through the use of Chilean Sign Language (ChSL, L1); and (2) To analyze some of these strategies in terms of their potential effect on students' acquisition of written Spanish vocabulary and general knowledge of Spanish as a second language.

2. METHOD

Participants. The participants were three teachers from a bilingually-oriented school for deaf children in Chile, whose students attended the 4th preschool level¹, 1st grade, and 2nd grade.

Procedure. Twelve video recordings were made in the classrooms during written Spanish lessons. We chose eight of them for analysis (two in preschool, three in first grade, and three in second grade), because they involved more situations in which the teacher was working with the whole group. Each lesson lasted between 30 and 60 minutes, which resulted in the analysis of 400 minutes overall.

A special Register Sheet was used for the analysis of each video, which included the following elements: (a) The type of activity performed and support material used; (b) A script detailing the teacher's actions and discourse; (c) An open coding of the actions registered; and (d) A final coding, with the categories created as a result of the analysis.

Analysis. Each video was watched four times in full by at least three of the researchers, who first carried out an open coding process and then began constructing categories to encompass all the types of actions performed by the teachers when using Chilean Sign language in written Spanish lessons. The categories were then grouped to characterize the main types of activities observed in the classrooms. Afterwards, "relevant episodes" were selected in each of the videos, based on whether they were directly related to vocabulary teaching. The analysis of these episodes was focused on identified specific sequences that teachers followed when presenting to the students new words found in the texts.

¹ There are five preschool levels in deaf education in Chile.

3. RESULTS

3.1 Types of strategies employed by the teachers when working with written texts

During reading activities, teachers generally work with a text projected on the board or displayed on a computer screen. Sometimes, each child also has a copy of the text. Other support materials include large sheets with words and matching pictures, notebooks, and worksheets.

The coding of all the actions performed by the teachers when working with written texts led to the creation of a category system, which includes strategies and micro-strategies displayed at different levels. The term strategy is used here to refer to the general approach employed by the teacher to work with a written text. An example of strategy would be to provide the children the general content of a written story and then focus on explaining the meaning of some words in the text. We use the term micro-strategy to refer to a specific action performed by the teacher in the context of displaying a strategy.

The first thing we noticed when looking at the strategies was that when working with written texts, teachers can focus on different levels, which include the words in the text, a specific sentence, a paragraph, or the text as a whole. Within these levels, teachers might display strategies focused on: (a) achieving comprehension, (b) teaching vocabulary, (c) checking comprehension by asking questions, (d) teaching about the structure and characteristics of different texts, and (e) highlighting the importance of written language.

We found that in reading tasks, there is an emphasis on work focused at the word level, through a variety of micro-strategies employed by the teachers when introducing a new word. These micro-strategies include:

- 1) Pointing to/showing a word.
- 2) Underlining/markings a word.
- 3) Providing the sign matching a written word.
- 4) Writing a word on the blackboard.
- 5) Fingerspelling a word.
- 6) Explaining the meaning of a word: (a) Using signs; (b) Using another written word (e.g., to compare them).
- 7) Linking a written word to a picture or other visual aid.

The teachers also use different micro-strategies in order to get the children to read individual words: pointing at a word in the text and asking what it says; asking for the meaning of the word; or asking students to find a specific word in the text.

The teachers frequently use the manual alphabet as a tool to support the memorization and recalling of words, and as support for writing. Sign language is employed to translate written words, to explain the meaning of a word, sentence, paragraph, or full text, or to talk about characteristics of written texts.

The strategies centered on the global comprehension of the text include those involving an introduction about the content to be read, a conversation about the written text, or general explanation of the content of the text made by the teacher.

Generally, we can say that when working with written texts, the teachers tend to move between focusing on certain words and interpreting the text as a whole.

3.2 Episode Analysis

The selected episodes allowed us to analyze in detail how the teachers work with the vocabulary included in the written texts they use in class. The analysis of these episodes showed that frequently, micro-strategies are used in a combined way, in the sense that teachers follow a pattern involving a sequence of micro-strategies when trying to get a response from the children or when presenting the meaning of specific words.

Usually teachers begin by asking the children to respond to a written word, which most of the time involves the combined micro-strategies of pointing to the word and asking students to read it. If one of the children responds correctly (i.e., signs the word), the teachers usually continue with the reading activity, asking the children to read another word in the text. The way the interaction continues when the children do not respond or give a wrong answer seems to be determined by the goal being pursued. If the purpose is just to continue reading the text, the teachers usually provide the correct answer and move on. If the purpose is to focus on that word for a while, the teachers are more likely to display a combination of micro-strategies, which could belong to the category of “present/introduce a word”, or to that of “scaffold/correct”. In the first case, the activity is teacher-centered and in the second case the activity is student-centered.

Below, we present some of the patterns of combined micro-strategies used when a teacher dedicates time to work on a specific word. More specifically, the following sequences are examples of combinations of micro-strategies used to present/introduce a word:

Ask to read a word -- Underline/mark the word -- Write the word on the blackboard -- Explain meaning (using signs).

Underline/mark a word -- Write the word on the blackboard -- Provide the sign matching the written word.

Point to a picture -- Point to/show the word -- Point to the picture -- Point to/show the word -- Fingerspell it -- Point to/show the word -- Point to the picture.

Next, we present the analysis of three episodes² taken from the analysis of the videos of the 2nd grade teacher, in which she introduces a written word and explains its meaning through a combination of specific strategies or micro-strategies.

² The transcription of the episodes uses the following codes: *T* = teacher; *C1*, *C2*, etc. = a specific child; *CC* = several children; uppercase with quotation marks indicate English is used as a translation of something said in ChSL; letters spaced by hyphens indicate fingerspelling; lowercase with quotation marks indicate a written element; text in parentheses refers to an action; [text] is used when a written Spanish word or sentence is translated into English; (.....) indicate the omission of a section of the transcript that does not contribute to the comprehension of the episode.

Episode 1. This episode takes place while reading a story entitled “El Pozo de los Deseos” [“The Wishing Well”], taken from the book “Historias de Ratones” [“Mouse Tales”], by Arnold Lobel. When we began videotaping, each child was sitting at his or her desk, looking at his or her copy of the story. Then, the teacher projected the pages of the story (which include text and illustrations) on the board, one by one. The teacher read the story to the children using sign language, stopping at several points to explain a written word in the text. This episode depicts the strategies employed to explain the word “ratita” [little female mouse].

Episode 1. (1 minute)

- T: (Points at the picture of the little mouse)
 “WHAT IS THAT?” “WHERE IS ITS NAME?”
- C1: (Points at the word “una” [a] and spells u-n-a)
- T: “WHICH ANIMAL IS THAT?” (points at the picture of the little mouse again).
- CC: “MOUSE”
- T: “WHERE DOES IT SAY MOUSE?” “FIND THE WORD” (looking at the text projected on the board)
 (.....)
- C1: (Points at the word “ratita” [little female mouse] in the text).
- T: (Points at the word again) “THERE?” (underlines the word)
 “MOUSE? DO YOU AGREE?” (addressing the whole group)
 (Writes “ratita” on the board) “MOUSE” (Points at the pictures of the little mouse).
 “FEMALE” “BIG OR SMALL?” (Points at the picture).
- CC: “SMALL”
- T: “SMALL, FEMALE, SMALL”. (Points at the word “ratita” she had written on the board) “MOUSE, SMALL, FEMALE”.

The most salient micro-strategies in this episode are linking a written word to a picture and asking the children to find a written word in the text. On the other hand, the general strategy involves an interaction characterized by an attempt to attain comprehension of the meaning of a written word by providing several types of supporting actions such as: showing an image, stating the semantic category to which the word belongs (animal), and explaining its meaning in sign language.

Episode 2. In this class, the teacher projected a text on the board, which contained information about a relevant event in Chilean history (the Naval Battle of Iquique³). In that context, she worked with the time adverb “anteayer” [the day before yesterday], and then moved on to present other sentences that included other adverbs (yesterday, today, tomorrow). The chosen episode shows the strategies the teacher displays for the children to read and understand the word “chilenos” [Chilean].

Episode 2. (1 minute, 31 seconds)

- T: (Points at the word “chilenos”). “WHAT DOES IT SAY?”
- C1: (gives a wrong answer)

³ Which had been commemorated two days before.

- T: "SO SO". (She covers "nos" leaving "chile" visible). "WHAT DOES IT SAY?", "WHICH COUNTRY?", "WHICH COUNTRY?"
- CC: (They give an incorrect answer)
.....
- T: "THINK, IN WHICH COUNTRY DO YOU LIVE?", "WHICH COUNTRY?, DO YOU LIVE IN ARGENTINA?"
- C1: "NO, CHILE"
- T: "CHILE, CHILE". She again covers "nos" in the word "chilenos". "CHILE, CHILE, DID YOU FORGET THE NAME OF THE COUNTRY WHERE YOU LIVE?" "CHILE". (She fingerspells c-h-i-l-e), "DID YOU FORGET? YOU HAVE TO REMEMBER, IT'S IMPORTANT".
- T: (She points at the uncovered part of the word: "chile") "CHILE" (she then uncovers the last syllable of the word: "nos") "PEOPLE CHILE", "ALL CHILEAN". (She points at the children one by one) "YOU ARE CHILEAN" "YOU ARE CHILEAN" "YOU ARE CHILEAN" (pointing at the word "chilenos" every time).

Again, this episode shows how the teacher begins with a direct question, asking the children to read a word, and then continues by providing help so as to decrease the number of possible meanings. This example is also noteworthy since it shows how the teacher attempts to approach the meaning of a new word through a word they already know, highlights the relevance of knowing certain written words, and uses examples to which the students can relate.

Episode 3. This episode takes place while reading a story entitled "El Ratón y los Vientos" ["The Mouse and the Winds"], taken from the book "Historias de Ratones" ["Mouse Tales"], by Arnold Lobel. The teacher was projecting the pages of the story (which include text and illustrations) on the board, one by one. The teacher read the story with the children using sign language, stopping at several points –just as in Episode 1- to explain a written word in the text. This episode depicts the strategies employed to explain the word "montaña" [mountain].

Episode 3. (12 seconds)

Teacher:

(Points to the mountain in the picture).

"MOUNTAIN"

(Describes the picture)

(Points to the word "montaña")

(Points to the mountain in the picture).

(Fingerspells m-o-n-t-a-ña)

(Points to the word "montaña")

(Points to the mountain in the picture).

This is an example of a sequence of micro-strategies, used to present a word. This sequence (point to a picture, provide the sign, point to the word, point to the picture of the word, fingerspell the word, point to the word, and point to the picture of the word) resembles the procedure described by Padden and Ramsey (1998) as "chain-

ing”, but with an added element – the picture – as another resource to reach the meaning of the written word.

4. DISCUSSION

In general, the videos analyzed reflect a way of working with texts in which the teachers tend to focus on the structural characteristics of several types of texts; the global meaning of the text; and, most frequently, the meaning of some of the words included in the text. Regarding students' participation in the reading tasks, their most frequent behavior involves matching a written word with its corresponding sign or vice versa, and using sign language to answer the questions the teacher asks about the texts.

It is relevant to point out that the educators use several micro-strategies described in the literature as useful in teaching vocabulary: use of the manual alphabet, repeatedly matching sign and written word, and explaining meaning in sign language (Padden & Ramsey, 1998). Thus, at the word level, teachers display a variety of micro-strategies, which are usually combined in a way that could be seen as scaffolding, in the sense that they provide gradual support to get children to discover or comprehend the meaning of a specific word. Still, it is surprising to observe that frequently, teachers need to display several micro-strategies in order to get the students to correctly identify some of the words present in the texts. A possible explanation to this is the existence of a mismatch between the characteristics and difficulty level of the task and the children's written language level. Also, it is possible that although the teachers have all these micro-strategies in their repertoire, they are not using them systematically enough. A more consistent use of these micro-strategies, combined with meaningful writing activities could probably contribute to improve vocabulary learning in these children.

On the other hand, when the educators use sign language to refer to the content and global meaning of the text, the activity does appear to match the students' knowledge level, and therefore it develops more smoothly.

The analysis of the video recordings prompts us to formulate the hypothesis that, although the use of sign language is well established in the school, there is a need to develop strategies that enable educators to use it more effectively for teaching written language. For example, there is little work done on teaching Spanish at the level of the sentence, pointing to grammatical features of this language for example. A previous study conducted in Chile found that teachers of the deaf did not perceive they had enough tools to teach written Spanish (Lissi, Grau, Raglianti, Salinas, & Torres, 2001). The use of strategies developed for teaching Spanish as a second language appears as the right thing to do at this point, since it will probably provide improved ways to help deaf children to attain a better understanding of how written language works and how to make meaning of written texts. The literature we have reviewed points to the issue that in a bilingual program for deaf children, Spanish (or any other written language) should be taught as a second language (Svartholm, 1994). We think this is an area in which our teachers need more training; such train-

ing will probably give them more tools to use when teaching written language to deaf students.

However, it is necessary to consider that an important number of Chilean deaf children have not yet acquired, during the early years, a well developed knowledge of ChSL; therefore, it is vital for the school to focus on improving students' knowledge of ChSL, in order to effectively use this knowledge in the process of teaching written Spanish as a second language.

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REFERENCES

- Allinder, R. & Eccarius, M. (1999). Exploring the technical adequacy of curriculum-based measurement in reading for children who use manually coded English. *Exceptional Children*, 65, 271-283.
- Andrews, J., Winograd, P., & DeVille, G. (1994). Deaf children reading fables: Using ASL summaries to improve reading comprehension. *American Annals of the Deaf*, 139, 378-386.
- Evans, C. J. (2004). Literacy development in deaf students: Case studies in bilingual teaching and learning. *American Annals of the Deaf*, 149, 17-27.
- Haptonstall-Nykaza, T. S. & Schick, B. (2007). The transition from fingerspelling to English print: Facilitating English decoding. *Journal of Deaf Studies and Deaf Education*, 12, 172-183.
- Hermans, D., Knoors, H., Ormel, E., & Verhoeven, L. (2008). The relationship between the reading and signing skills of deaf children in bilingual education programs. *Journal of Deaf Studies and Deaf Education*, 13, 518-530.
- Kuntze, M. (1998). Literacy and deaf children: The language question. *Topics in Language Disorders*, 18, 1-15.
- Lissi, M. R., Grau, V., Raglianti, M., Salinas, M. & Torres M. (2001). Adquisición de la lectoescritura en niños sordos: Una visión desde los profesores en Chile [Literacy acquisition in deaf children: The viewpoint of Chilean teachers]. *Psyche*, 10(1), 35-48. 2001.
- Lissi, M. R., Raglianti, M., Grau, V., Salinas, M. & Cabrera, I. (2003). Literacidad en escolares sordos chilenos: Evaluación y desafíos para la investigación y la educación [Literacy in Chilean deaf schoolchildren: Assessment and challenges for research and education]. *Psyche*, 12, 37-50.
- Musselman, C. (2000). How do children who can't hear learn to read an alphabetic script? A review of the literature on reading and deafness. *Journal of Deaf Studies and Deaf Education*, 5, 9-31.
- Padden, C. & Ramsey, C. (1998). Reading ability in signing deaf children. *Topics in Language Disorders*, 18, 30-46.
- Paul, P. (2003). Processes and components of reading. In M. Marschark & P. Spencer (Eds.), *Handbook of deaf studies, language, and education* (97-109). New York: Oxford University Press.
- Rottenberg, C. (2001). A deaf child learns to read. *American Annals of the Deaf*, 146, 270-275.
- Schimmel, C., Edwards, S., & Prickett, H. (1999). Reading?...Pah! (I got it). *American Annals of the Deaf*, 144, 298-308.
- Schirmer, B. & McGough (2005). Teaching reading to children who are deaf. Do the conclusions of the National Reading Panel Apply? *Review of Educational Research*, 75, 83-117.
- Singleton, J., Supalla, S., Litchfield, S. & Schley, S. (1998). From sign to word: Considering modality constraints in ASL/English bilingual education. *Topics in Language Disorders*, 18, 16-29.
- Svartholm, K. (1994). Second language learning in the deaf. In I. Ahlgren & K. Hyltenstam (Eds.), *Bilingualism in deaf education* (pp. 61-70). Hamburg: Signum.

Wauters, L., Knoors, H., Vervloed, M., & Aarnoutse, C. (2001). Sign facilitation in word recognition. *The Journal of Special Education, 35*, 31- 40.

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