Evaluative expression in deaf children's written narratives

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Research Report

Evaluative expression in deaf children's written narratives

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Abstract

Background: Deaf children vary in the use of and proficiency in signed language. The majority of studies on writing skills of children who are deaf did not assess deaf children's proficiency in signed language and/or grouped together deaf children with varying sign language skills.

Aims: Adopting a bimodal bilingual perspective, we examined evaluative expression, an important narrative tool in both oral/written languages and signed languages, in narratives written in Dutch by deaf children who are proficient in Sign Language of the Netherlands (SLN) and deaf children who are low-proficient in SLN, and hearing monolingual and bilingual children. We hypothesized that deaf children who are proficient in signed language use their knowledge of evaluative expression in signed language to enrich their narratives in written Dutch, and more so than deaf children who are low-proficient in signed language and hearing monolingual and bilingual children.

Methods & Procedures: We examined the use of eight different evaluative devices in narratives written by deaf proficiently and low-proficiently signing children, and hearing monolingual and bilingual children. Narratives were also examined for morpho-syntactic errors and use of complex sentences.

Outcomes & Results: The results show that proficiently signing deaf children's narratives contain more evaluative devices that enrich the referential structure of the narrative than narratives of low-proficiently signing deaf children, and hearing bilingual and monolingual children.

Conclusions & Implications: We propose that proficiently signing deaf children use their knowledge of SLN to convey evaluation in their written narratives, and thus have an advantage in enriching their narratives. This study also shows that

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in order to gain insight into deaf people's writing, it is important to take variations in sign language proficiency into account.

Keywords: Deaf, narrative, bilingualism.

What this paper adds

What is already known on this subject

It is already known that deaf children have great difficulty with writing. However, the majority of previous studies on deaf children's writing skills did not take into account that deaf children differ in sign language proficiency, and did not distinguish between deaf children with varying sign language skills.

What this study adds

The findings from this study indicate that deaf proficiently signing deaf children use their knowledge of signed language to convey evaluation in their written narratives, and thus have an advantage in enriching their narratives when compared with deaf low-proficiently signing children and hearing monolingual and bilingual children. This study also shows that in order to gain insight into deaf people's writing, it is important to take variations in sign language proficiency into account.

Introduction

Consider the following fragment of a personal-experience narrative dealing with social conflicts, written by a Dutch 11-year-old deaf girl who is highly proficient in Sign language of the Netherlands (SLN):

Soms sneeuw op snelweg tussen Assen. [verb is missing; incorrect use of preposition]
Dan ik wel in taxi zit. [word order violation]
In Assen [determiner is missing] *chauffeur zegt*
Beter ga terug. [word order violation; subject is missing]
Dan ik ben beetje sip. [word order violation]
En mama zegt hoe moet ik nou weer naar [omission of article] *horende* [grammatical gender error] *school.*
Grote [grammatical gender error] *probleem.* [verb is missing; subject is missing]

Sometimes snow on highway between Assen. [verb is missing; incorrect use of preposition]
Then I am in taxi. [word order violation; Not in English]
In Assen [determiner is missing] driver says
Better go back. [word order violation; subject is missing]
Then I am little disappointed. [word order violation; not in English].
And mom says how should I go to [omission of article] hearing [grammatical gender error] school.
Big [grammatical gender error; not in English] problem. [verb is missing; subject is missing]

From a linguistic point of view, this written fragment contains many errors, including word order violations, verb omissions, grammatical gender errors, and errors in the

use of prepositions and articles. Writing a narrative, however, requires more than only using correct linguistic forms. In this paper, we report a study on evaluative expression in narratives written by deaf children who are proficient in SLN and deaf children who are not proficient in SLN. Their data were compared with that of hearing children with different language backgrounds: monolingual children and bilingual children from Turkish immigrant families born in the Netherlands.

   In their classical study, Labov and Waletzky (1967) describe a narrative as a sequence of temporally related clauses from a particular point of view. They distinguish two aspects in narratives: referential and evaluative aspects. Referential aspects constitute the plot and convey information of characters, actions and events in the story. Evaluative aspects, on the other hand, express what actions and events mean. These reveal the writer's reactions to the narrated events and actions, and the writer's attitude towards the characters, actions, and events. To illustrate, in the fragment of the deaf girl's narrative at the beginning of this Introduction, evaluative information is conveyed via different devices. *Disappointed* describes her emotional state about the event she describes. Moreover, *little* in 'Then I am little disappointed' modifies the emotional state of disappointment, and *big* in 'Big problem' intensifies the noun 'problem' to which it refers. Finally, direct speech, such as in 'In Assen driver says better go back' and 'And mom says how should I go to hearing school' makes the narrative more vivid and suspends the action of the narrative. So, despite the many morpho-syntactic errors in this fragment, this deaf girl — who is proficient in signed language — seems well able to enrich her narrative through evaluative devices. In the present study, we hypothesize that the high number of linguistic errors on the one hand and narrative enrichment on the other hand in this high-proficiently signing girl's narrative can be explained by influence of sign language knowledge on writing. Before we describe our study in more detail, we discuss research on evaluation in narratives of hearing children. Then, we review studies dealing with writing in deaf children, and outline the bilingual perspective we adopt to gain insight into deaf children's narrative writing.

Evaluation

Enriching narratives through evaluation involves expressing the interlocutor's knowledge state and involvement. Moreover, it entails that the writer or speaker adjusts the linguistic form and content of the narrative to maintain the recipient's attention and interest. Not surprisingly, enriching narratives through evaluation is a complex skill that requires linguistic, cognitive and affective/social abilities and its achievement exhibits a long developmental route (e.g., Berman and Slobin 1994, Bamberg and Reilly 1996). Most research dealing with evaluation in narratives has examined evaluative expression in spoken narratives, using the wordless picture book *Frog Where are You?* (Mayer 1979), and adopted a developmental perspective. It has been found that 3-year-old hearing children already use paralinguistic devices, that is, facial expressions, gestures, prosodic features and phonological stress to express evaluative functions in their spoken narratives. At around the age of 6 years, children begin to use linguistic devices of evaluation (Reilly 1992, Bamberg and Reilly 1996). Furthermore, the frequency of and variety in evaluative devices increases with increasing age (e.g., Peterson and McCabe 1983, Bamberg and Damrad-Frye 1991, Reilly 1992, Bamberg and Reilly 1996, Peterson and Biggs 2001). In contrast to spoken narratives, evaluation in written narratives has received

little, if any, empirical attention. In the present study, we examine evaluation in narratives written by deaf bimodal bilingual children who use two languages from different modalities: signed language and written language. Their data are compared with evaluation in narratives written by hearing bilingual and monolingual children. We adopt a bilingual approach to gain better insight into the specificities of deaf children's writing.

Deaf children's writing

There is a small body of literature dealing with written language production in deaf children and it demonstrates that deaf children have difficulty with morphology and syntax. The majority of these studies focused on deaf children in English speaking communities (e.g., Power and Quigley 1973, Wilbur and Quigley 1975, Quigley *et al.* 1977, Quigley and King 1980). Quigley and King (1980), for example, analysed written language samples of 450 deaf children between 10 and 19 years old. In these studies, no information is provided about the deaf children's language backgrounds, such as variations in the use of and proficiency in signed language. The analysis focused on several syntactic structures, and demonstrated that deaf children made many errors in word order, use of pronouns, conjunctions and verb inflection. Findings from studies in languages other than English demonstrate that the difficulties with morpho-syntax observed in deaf children's writing in English are not language specific (for Italian deaf children, see Taeschner *et al.* 1988; for Hebrew deaf children, Tur-Kaspa and Dromi 2001). Many of the errors observed in these studies were rarely or never observed in hearing children.

Another line of research studying deaf children's written language adopts a communicative perspective on writing narratives and relates linguistic structures to their communicative functions rather than focussing on isolated clause structures (e.g., Tomasello 1998). Studies within this framework focus on communicative competence and how texts are made coherent and meaningful. Several studies of deaf children's written discourse skills have identified that deaf children are less able to make use of discourse rules in text writing than hearing peers (e.g., Everhart and Marschark 1988, Maxwell and Falick 1992, Yoshinago-Itano *et al.* 1996). For example, Yoshinago-Itano *et al.* (1996) performed a semantic and syntactic cohesion analysis of deaf and hearing children's narratives. Forty-nine pre-lingually, moderately to profoundly deaf children between 10 and 15 years of age participated in this study. Twenty-seven of them were educated via oral methods, and 22 children were educated in Total Communication programmes (i.e., use of manual communication, speech amplification, and lip reading). One of the analyses focused on the frequency and distribution of major and minor propositions. A major proposition consists of a subject and a predicate, such as 'the dog is running'. Minor propositions are modifying elements such as 'the *big brown* dog is running *very quickly*,' The results showed that deaf children used a greater number of major propositions, and a fewer number of minor propositions than hearing children did, suggesting that deaf children introduced more topics in their narratives than hearing children did, but elaborated less on them. Everhart and Marschark (1988) examined creative language use in narratives written by deaf children and hearing children between 12 and 15 years old. The deaf children were educated in Total Communication programmes. Results showed that deaf children, when compared with hearing peers,

used fewer non-literal constructions, such as modifiers, figurative language, and novel linguistic constructions for old or new ideas in their written narratives.

Not all studies found deviant written discourse skills in deaf children. Marschark *et al.* (1994) performed a causal network discourse analysis in written narratives of 18 deaf children between 7 and 15 years old. All children were educated in a Total Communication programme, and used signed language as their primary mode of communication both at school and at home. A causal network discourse analysis describes the organization of stories as goals, actions, and outcomes (GOA), which serve as the foundation of the storyline (Trabasso and Nickels 1992). A GOA sequence is composed of a clearly defined goal, actions or attempts to achieve the goal, and outcomes. In addition to the GOA analysis, a linguistic analysis (including grammatical and stylistic rules, sentence structure, use of modifiers) was carried out. The linguistic analysis demonstrated impeded performance in deaf children: deaf children used fewer modifiers, infrequent words and complex syntactic structures than their hearing peers did (which is consistent with previous findings from studies on morpho-syntactic abilities in deaf children). However, the GOA analysis demonstrated similar use of discourse structures in deaf and hearing children. This suggests that deaf children are indeed aware of discourse rules but lack the linguistic skills necessary for written text production.

A bilingual perspective on deaf children's narratives

The majority of studies on deaf children's writing skills did not assess deaf children's proficiency in signed language and/or grouped together deaf children with varying sign language skills. In the present study, we compared narratives written by deaf children who are either proficient in signed language or low-proficient in signed language, and focused on evaluative expression. Evaluative expression is an important narrative tool in both oral/written language and signed language. It can be expected that deaf children who are proficient in signing write differently than deaf children who are not proficient in signed language and use oral language predominantly. This prediction follows from theories and research dealing with the effects of bilingualism on children's language and cognitive development. This research shows that transfer of cognitive or literacy skills from the dominant language influences learning related skills in the second language (Cummins 1991, Bialystok 2001, MacWhinney 2005).

An important question is whether the mechanisms underlying transfer in bilinguals using oral/written languages also apply to bimodal bilinguals using a signed language and a written language. Few studies have investigated the issue of transfer between a signed language and spoken/written language. Research has only begun to investigate the relation between knowledge of signed language and reading (Strong and Prinz 1997, Chamberlain and Mayberry 2000, Hoffmeister 2000). Findings from these studies suggest that highly developed sign language skills are related to high levels of reading achievement in deaf individuals who use signed language predominantly. Few studies have studied the effect of variations in sign language proficiency on writing skills. Singleton *et al.* (2004) compared the use of vocabulary in the narratives of deaf elementary school children with various levels of proficiency in American Sign Language (ASL) with that of hearing second language learners of English and hearing monolingual speakers of English. Vocabulary

analysis included the use of frequent (content) words (following the list of 105 most frequent words used for coding writing samples; Hillerich 1978, as cited in Singleton *et al.* 2004) and unique words (*type-token ratio*). They found that highly proficient signers' narratives contained semantically richer vocabulary (indexed by the use of a higher number of non-frequent and unique words) than narratives written by low-proficiency signers and hearing second language learners of English. Singleton *et al.* suggest that highly proficient signers drew upon their broad semantic knowledge in ASL and use novel and meaningful vocabulary in their written stories.

Influence of sign language proficiency on writing was also found in narratives and essays written by Dutch deaf children. Van Beijsterveldt and Van Hell (submitted) compared Dutch deaf proficiently and low-proficiently signing children and adults and focused on temporal reference in written narratives and expository texts. Temporal reference marking differs considerably between oral/written language and signed language, with Dutch displaying a wide range of inflected verb forms and lexical expressions of time, and Sign Language of the Netherlands (SLN) having only lexical markers of temporal reference. Sign language proficiency appeared to modulate writing only with respect to grammatical marking of temporal reference (and not lexical marking of temporal reference), and most clearly in the 11–12-year-old proficient signers. Proficiently signing children had particular difficulty with tense morphology, and used the unmarked tense form (present tense) considerably more often than a marked tense form (here: past tense as used by hearing and low-proficiently signing children) to refer to states, actions or events that happened in the past. Further, the proficiently signing 11–12-year-olds often omitted obligatory tense marking and made more errors in tense agreement between temporal adverb and finite verb than their low-proficiently signing peers. (Differences between proficient and low-proficient signers could not be due to differences in text length, since the authors controlled for this.) The proficiently and low-proficiently signing children did not differ in lexical marking of temporal reference. Van Beijsterveldt and Van Hell conclude that the pattern in temporal reference marking as observed in the proficiently signing deaf children reflects the way in which temporal reference is expressed in signed language. Together, these studies on the influence of sign language knowledge on writing and reading suggest that sign language knowledge affects reading and writing, and that the effects of influence of sign language knowledge are different for different aspects of writing (and possibly reading).

Evaluation in signed language

It can be expected that variations in sign language proficiency also affect the use of evaluation in written narratives. Here we describe how evaluation is conveyed in signed language. Signed languages are visual–gestural languages. Signed languages have independent linguistic systems not derived from spoken languages, with both complex organizational properties shared with spoken languages, and grammatical devices that are unique to the visual–gestural modality. In signed language there are many ways of conveying evaluation: lexical signs, eye gaze, body shifts, modifications of sign speed and movement serving as affective prosody, facial expression, and gesture (Reilly 2001, Emmorey 2002). A common narrative technique in signed language is, for example, the use of role shift to express direct

speech as well as to report actions from a particular point of view. A storyteller can take on the perspective of a character by portraying the facial expression, eye gaze, and head movements of that character. Hence, the storyteller demonstrates aspects of the action from the attitudinal or affective perspective of that character (Reilly *et al.* 1990, Emmorey and Reilly 1998, Emmorey 2002). In a study on the development of evaluative expression in narratives in spoken English and American Sign Language (ASL), Reilly (2001) showed the extreme importance of the evaluative aspect of narrative in signed language. Reilly found that deaf mothers when signing to their deaf children used a wealth of channels to convey evaluation, such as modifications in sign movement serving affective prosody as well as face, body and eye gaze shifts. Hearing mothers, on the other hand, used mainly linguistically and lexically encoded evaluation when speaking to their hearing children, e.g., emotional words, intensifiers, or frames of mind. Hearing mothers also employed prosody in an effective way, but significantly less often than deaf mothers did. It was also found that deaf signing children frequently used eye gaze shifts and facial emotional expressions to report actions in direct quotes in their signed narratives in the adult manner by the age of five (Emmorey and Reilly 1998, Reilly 2001). Further, Everhart and Marschark (1988) compared signed narratives of deaf children and spoken narratives of hearing children between 12 and 15 years of age on the use of creative language. They observed that the deaf children in their signed narratives were more likely to use non-literal language, that is, novel and frozen figurative language, gestures, pantomime, linguistic modifications, linguistic inventions, and lexical substitutions, than the hearing children did in their spoken narratives.

The present study

In the present study, we compare deaf children who are proficient in SLN, deaf children who are low-proficient in SLN, and hearing children on the use of evaluative devices in written narratives. Given the importance of evaluation in signed narratives and the many channels signed languages have to convey evaluation, it can be expected that deaf proficient signers use this knowledge of rhetorical devices such as evaluative expression to enrich their narratives in written Dutch, and more so than deaf children who are not familiar with signed language and use spoken language predominantly, and the hearing children. Hence, if variations in sign language proficiency modulate the use of evaluative expression in deaf children's narratives, and deaf proficient signers draw upon their knowledge of narrative techniques in signing, we can expect that proficient signers use more evaluation in their written narratives than low-proficiency signers and hearing children.

Moreover, we compared the written narratives of deaf proficient and low-proficiently signing children with those of hearing children with different language backgrounds: monolingual children and bilingual children. The bilingual children were children from Turkish immigrant families born in the Netherlands. Turkish–Dutch bilingual children are the most representative sample of bilingual children living in the Netherlands, since it is the largest group of bilingual children in the Netherlands. Although Turkish and Dutch differ with respect to linguistic characteristics and rhetorical style, they both express evaluation lexically (in contrast to SLN). By comparing deaf signing children with hearing bilingual children who also deal with two languages, we gain insight into whether the use of evaluation in

proficient signers' narratives can be explained by sign language proficiency or, rather, by more general factors related to being able to use two languages.

Method

Participants

Twenty-six deaf children participated in this study (mean age=12;0, standard deviation (SD)=5.02; eleven girls and 15 boys). They were compared with 20 hearing children speaking one language (mean age=12;2, SD=0.4, ten girls and ten boys), and 13 hearing Turkish immigrant children who speak Turkish and Dutch regularly (mean age=10;6 years, SD=3;9).

All deaf children had a hearing loss of more than 80 dB hearing loss on the better ear (unaided), had normal non-verbal intelligence, and had no learning disabilities or additional handicaps. Proficiency in SLN was measured by means of a signed language fluency test (Hermans *et al.*, forthcoming). Children were administered a production task which assesses the children's use of a variety of SLN structures of syntax and morphology (i.e., verb of motions, verb agreement, aspect, and number marking on verbs). After they had seen an example in which a picture was described in SLN by an SLN speaker, children were asked to describe a comparable picture in SLN. The task consisted of 32 items. On the basis of a visual inspection (box plots) of their scores, children were classified as proficient or low-proficient in SLN. Children who scored 16 or above (mean=19.58, SD=2.50, *n*=13; range=16–22) were classified as proficient in SLN, and children who scored below 11 (mean=3.00, SD=3.76, *n*=13; range=0–11) were classified as low-proficient in SLN.

To gain more insight into the deaf writers' language learning and use, we administered a detailed language background questionnaire. The proficiently signing deaf children were educated in special schools for deaf students. The classroom language of instruction for these children was Sign Language of the Netherlands, which was frequently alternated with Sign Supported Dutch.[1] At home, the dominant mode of communication for the majority of these children was SLN which was frequently alternated with Sign supported Dutch. One child had two deaf parents and only used SLN. The other children in this group had hearing parents.

The children who were low-proficient in SLN were educated in different special schools for deaf students, hard-of-hearing students, or regular schools. Children who attended a regular school were also involved in a special language-remediation programme. Three children learned Dutch in special schools for deaf students, five were educated in special schools for hard-of-hearing children, and seven were educated in mainstream schools. The classroom language of instruction for most children was oral Dutch, sometimes supported with signs at special schools for deaf students. At home, all children used oral Dutch. All of these children had hearing parents.

The proficient and low-proficient signers did not differ with respect to their levels of hearing loss on the best ear (unaided) (*p*=0.88; mean=103 dB, SD=10.79, and mean=103.9 dB, SD=16.36, respectively).[2] Furthermore, proficient and low-proficient signers did not differ on visual working memory capacity, as was assessed by the Visual Matrix task from the Swanson (1996) Cognitive Processing task (*F*(1,

24)=0.38, p=0.54; mean=3.00, SD=0.58 in proficient signers, and mean=3.31, SD=1.70 in low-proficient signers).

The hearing bilingual children were born and raised in families with a Turkish background (first or second generation immigrants from Turkey to the Netherlands). The language spoken at home was Turkish, but all children were educated in primary schools where Dutch is the language of instruction.

The hearing monolingual children were native speakers of Dutch. They were educated in regular primary schools and spoke only Dutch at home.

Materials and procedure

Participants first viewed a 3-minute video clip without words that showed fragments with teenagers involved in different social, moral and physical conflicts. Participants were then asked to write a story about a situation in which they had experienced problems with someone. They were explicitly instructed not to describe what happened in the video, but to write a story about something that happened to them personally. The participants were tested individually, in a quiet room at their school. They were instructed to ask any questions before writing, but did not receive help during writing. Participants were not limited in time when writing their stories. This procedure and elicitation video we used was identical to those used by, amongst other, Berman and Verhoeven (2002), and Van Hell *et al.* (2005). Stories were coded using the CLAN programme of the International Child Language Data Base (MacWhinney 2000).

Coding of stories

Because our review of earlier studies on deaf children's narratives in the Introduction suggests that deaf children perform differently with respect to syntax than with respect to evaluative expression, we coded all narratives for both evaluative devices and grammatical measures.

Morpho-syntax and complex syntax

To assess children's grammatical skills, we counted morpho-syntactic errors and analysed complex syntax. Morphological errors include omissions of auxiliaries, subject–verb agreement errors, errors in pronouns, omissions of determiners, gender and number agreement errors within the noun phrase, and omissions and substitutions of prepositions. Complex syntax included passive sentences (e.g., 'He was teased by a couple of guys') and subordinate clauses, i.e., adverbial clauses (e.g., 'I don't like my sister, *because she always yells at me*', and relative clauses (e.g., 'Then three boys came *who began to shout at us*').

Evaluation

Evaluative elements provide additional information to the plotline, which makes the story more engaging and vivid, and, hence, enrich narratives. Two raters, both MA students, coded the evaluative elements in the narratives after having received a

brief training from the first author. The raters worked independently, and the inter-rater reliability was high (Cohen's kappa=0.87; Cohen 1960). Our coding scheme was based on Labov and Waletzky (1967) and included the following evaluative devices:

- Emotional labels. These devices refer to a character's emotional state, e.g., 'She got *angry*', or emotion-signalling actions, e.g., 'He was *crying*'.
- Evaluative comments. These comments express an opinion about an event or person, e.g., 'That was *fun*', or 'That was such a *troubled* situation'.
- Cognitive states and hedges. References to a character's cognitive state include descriptions of intentions, hopes, and predictions, such as 'I *hope* everything is gonna be all right'. Hedges, specifically, indicate the writer's uncertainty, e.g., as 'I *think* everything went all right'
- Intensifiers and qualifiers. These labels function to emphasize or qualify words they modify, e.g., 'I was *really* mad' and *!!!*.
- Negotiations. This label expresses what did not happen or what is not the case, which serves to define the writer's perspective. An example is 'I like her, but my girlfriends *don't*'.
- Figurative language. This label includes ironic language and names.
- Attention markers. Attention markers draw the attention of the reader to a specific behaviour or episode by using direct speech, e.g., 'I said *go away*', sound effects, e.g., '*Bam* and he fell', and sender-oriented remarks, e.g., *It started like this.*
- Repetition of words or ideas. This emphasizes the importance of words or an expressed idea, e.g., 'It was fun there… *we had fun*'.

Results and discussion

Deaf proficiently signing children, deaf low-proficiently signing children, hearing bilingual children, and the hearing monolingual children did not differ on mean text length, both when expressed in total number of words and when expressed in mean length of utterance (MLU) (Brown 1973). Means and standard deviations are presented in table 1.

To make sure that differences in text length between individual children are controlled for and cannot bias the effects, we divided each score of each writer by the total number of clauses (in analyses of morpho-syntax and complex syntax) and words (in analyses of evaluative devices) in her or his text.

To the best of our knowledge, deaf children's written narratives have never been examined for evaluative expression. Moreover, previous studies on deaf children's

Table 1.   Mean lengths of utterance (MLUs) and number of words (and standard deviations) in children's written narratives

	MLU in words	Text length in words
Proficiently signing deaf children	5.60 (1.17)	109.23 (61.23)
Low-proficiently signing deaf children	5.90 (1.56)	89.08 (21.76)
Hearing bilingual children	5.78 (0.97)	66.69 (36.67)
Hearing monolingual children	6.00 (0.74)	113.20 (72.44)

morpho-syntactic skills in writing (examining narratives written in English, Italian, and Hebrew) did not take variations in proficiency in signed language into account. In order to compare the writing of the deaf children tested in our study with the findings of earlier studies, we first report a basic comparison of deaf children as a group with hearing monolingual peers on grammatical measures and evaluative devices. To gain specific insight into the role of sign language proficiency, we then compare deaf proficiently and low-proficiently signing children separately with hearing monolingual and bilingual children.

Comparison of deaf and hearing children

In order to compare deaf children and hearing monolingual children on grammatical performance, we performed one-factor (hearing status: deaf versus hearing) analyses of variance (ANOVA) on the mean percentage of morpho-syntactic errors and on the use of complex sentences. In this and all following ANOVAs, alpha was set at 5% and post-hoc analysis (Fisher's PLSD) was used if appropriate.

The analysis on the morpho-syntactic errors yielded a significant effect of hearing status, $F(1,44)=17.71$, $p<0.001$, indicating that deaf children (mean=42.18, SD=42.68) made many more morpho-syntactic errors than hearing monolingual children, who made hardly any errors (mean=1.73, SD=4.61).

The analysis on complex sentences also yielded a significant effect of hearing status, $F(1,44)=92.77$, $p<0.0001$, indicating that deaf children used fewer complex sentences than hearing monolingual children (mean=6.06, SD=9.64 and mean=46.28, SD=18.29, respectively).

These results are consistent with findings from studies on morpho-syntactic skills in deaf children from English, Italian and Hebrew speaking communities, which also showed impeded grammatical performance in deaf children (e.g., Quigley and King 1980, Taeschner *et al.* 1988, Tur-Kaspa and Dromi 2001).

Next, we compared deaf and hearing children on the use of evaluation and performed one-factor ANOVAs on the mean percentage of total evaluative devices and on each of the eight evaluative devices. The analyses yielded no significant effects, indicating that deaf children as a group did not differ from hearing peers on the use of evaluative devices. So, although deaf children experience major problems with morpho-syntax and the use of complex sentences, they demonstrate similar performance on the use of evaluative devices when compared with hearing children.

Comparison between deaf proficiently and low-proficiently signing children, hearing bilingual and monolingual children

To gain insight in the role of sign language proficiency on writing, we divided the deaf group into proficiently and low-proficiently signing children, and examined grammatical skills and evaluative expression in these two groups, as well as hearing monolingual and bilingual children.

Morpho-syntax

A one-factor (group: proficiently versus low-proficiently signing deaf children versus hearing bilingual children versus hearing monolingual children) ANOVA on the mean

Table 2. Mean percentages (and standard deviations) of morphosyntactic errors and complex sentences in children's narratives

	Deaf proficiently signing children	Deaf low-proficiently signing children	Hearing bilingual children	Hearing monolingual children
Morphosyntactic errors	49.77 (24.23)	34.58 (55.53)	19.47 (19.86)	1.73 (4.61)
Complex sentences	2.41 (4.19)	9.70 (12.13)	20.86 (16.99)	46.28 (18.29)

percentage of morpho-syntactic errors yielded a significant effect, $F(3,55)=7.55$, $p<0.001$. The means and standard deviations are presented in table 2. The post-hoc analyses showed that proficiently signing deaf children made more morpho-syntactic errors than hearing monolingual children ($p<0.0001$) and hearing bilingual children ($p<0.05$), but not than low-proficiently signing deaf children. Further, low-proficiently signing deaf children made more errors than hearing bilingual children ($p<0.01$). The remaining comparisons yielded no significant differences.

The one-factor ANOVA on the mean percentage of complex sentences also yielded a significant effect, $F(3,55)=29.09$, $p<0.0001$. The means and standard deviations are presented in table 2. Proficiently signing deaf children used fewer complex sentences than hearing monolingual children ($p<0.0001$) and hearing bilingual children ($p<0.01$), but not than low-proficiently signing deaf children. Furthermore, deaf low-proficiently signing deaf children and hearing bilingual children used fewer complex sentences than monolingual children (both p's<0.0001). The remaining comparisons yielded no significant differences.

To summarize, deaf proficiently signing children make more morpho-syntactic errors and use fewer complex sentences than hearing bilingual and monolingual children. Proficiently signing deaf children did not differ significantly from low-proficiently signing deaf children, but as can be seen in table 2, the proficiently signing deaf children tend to make more morpho-syntactic errors and used complex sentences less frequently.

Evaluation

Using a one-factor ANOVA on the mean percentage of total evaluative devices, we compared deaf proficiently and low-proficiently signing children, and hearing monolingual and bilingual children on the use of evaluation in their narratives. The corresponding means and standard deviations are presented in table 3.

The analysis yielded a significant effect of group, $F(3,55)=5.45$, $p<0.01$. Post-hoc analyses indicated that proficiently signing deaf children use more evaluation in their narratives than low-proficiently signing deaf children ($p<0.01$), hearing bilingual children ($p<0.001$), and hearing monolingual children ($p<0.05$). The remaining comparisons yielded no significant differences. To summarize, proficiently signing deaf children use evaluative devices to enrich their narratives more frequently than low-proficiently signing deaf children, hearing monolingual and bilingual children.[3] Interestingly, the analysis on grammatical skills showed that proficiently signing deaf children had many difficulties with morpho-syntax and the use of complex sentences in written narratives. At a more general level, these analyses show that an overall comparison of deaf children with hearing children

Table 3. **Mean of frequency of using evaluative devices (in percentages) in children's narratives**

	Deaf proficiently signing children	Deaf low-proficiently signing children	Hearing bilingual children	Hearing monolingual children
Total evaluative devices	16.81 (8.07)	10.13 (4.60)	9.29 (4.38)	12.39 (3.46)
Emotional labels	2.13 (2.10)	1.16 (1.20)	0.05 (0.18)	1.18 (0.94)
Evaluative labels	4.25 (2.64)	1.74 (1.31)	2.05 (1.90)	2.55 (1.48)
References to perceptual and cognitive state	3.00 (2.33)	1.56 (1.69)	2.52 (2.37)	2.46 (1.73)
Intensifiers	1.75 (1.84)	1.90 (2.20)	1.56 (2.51)	2.38 (1.66)
Negotiations	3.21 (2.43)	2.06 (1.97)	1.89 (2.26)	2.50 (1.90)
Figurative language	0.27 (0.50)	0.30 (0.58)	0.10 (0.36)	0.42 (0.64)
Attention markers	1.96 (4.07)	1.43 (2.08)	1.13 (2.32)	0.54 (1.13)
Repetition of words	0.07 (0.23)	0.00 (0.00)	0.00 (0.00)	0.31 (1.06)

Standard deviations are in parentheses.

without taking variations in sign language proficiency into account gives a distorted view of deaf children's writing performance, in particular, of evaluative expression in writing.

To gain more insight into the distribution of different evaluative devices, we compared the four groups of writers on each of the eight different evaluative devices. The analyses revealed significant effects for number of references to emotional states, $(F(3,55)=6.98, p<0.001)$, and evaluations, $(F(3,55)=4.67, p<0.01)$; remaining effects were not significant. Post-hoc tests indicated that deaf proficiently signing children more frequently expressed references to emotional states (such as 'sad' and 'happy') than deaf low-proficiently signing children $(p<0.05)$, hearing bilingual children $(p<0.0001)$, and hearing monolingual children $(p<0.05)$. Both deaf low-proficiently signing children and hearing monolingual children, in turn, used more references to emotional states than hearing bilingual children (both p's<0.05). Furthermore, deaf proficiently signing children used evaluations (such as 'I didn't *like* that') more frequently than deaf low-proficiently signing children $(p<0.01)$, hearing bilingual children $(p<0.01)$, and hearing monolingual children $(p<0.05)$. The remaining comparisons yielded no significant differences.[4]

Discussion

Narrative performance involves not only producing correct grammatical utterances, but also the speaker/writer must maintain the reader/listener's attention and interest and gauge a character's knowledge state and involvement (Labov and Waletzky 1967), which is referred to as evaluation. Many studies focused on evaluation in spoken narratives (e.g., Peterson and McCabe 1983, Bamberg and Damrad-Frye 1991, Reilly 1992, Bamberg and Reilly 1996, Peterson and Biggs 2001). In this study, we examined evaluation in personal-experience narratives written by Dutch deaf and hearing children. In the overall analysis (combining the data of high- and low-proficiently signing deaf children, and comparing them with hearing monolingual children), we found that deaf children do not differ from hearing children in the frequency and distribution of evaluative devices. This result somewhat contradicts

earlier studies showing that deaf children use few modifying elements and creative language (Everhart and Marschark 1988) in their narratives. Analyses of morpho-syntax and use of complex sentences, in contrast, revealed deaf children's frequently observed difficulties in this area of writing (e.g., Ivimey and Lachterman 1980, Quigley and King 1980, Taeschner *et al.* 1988, Tur-Kaspa and Dromi 2001). The deaf children in our study made many morpho-syntactic errors, and used fewer complex sentences than hearing monolingual children. Such a discrepancy between grammatical errors but intact discourse skills in deaf children was also reported by Marschark *et al.* (1994), a finding they interpret to imply that deaf children are indeed aware of discourse rules but lack the linguistic skills necessary for written text production.

The majority of previous studies on deaf children's writing skills did not take into account that deaf people differ in sign language proficiency, and did not distinguish between deaf children with varying sign language skills. In the present study, we compared narratives written by deaf children who are proficient in signed language and children who are low-proficient in signed language. Consistent with our predictions, writing patterns differed in proficiently and low-proficiently signing deaf children. Specifically, proficiently signing deaf children used evaluative devices more often than low-proficiently signing deaf children and hearing monolingual children. In particular, proficiently signing deaf children relatively frequently used references to emotional states (such as 'sad' and 'happy') and evaluations (such as 'I didn't *like* that'). The differences in the use of evaluation between proficient and low-proficient signers also imply that an overall comparison of deaf and hearing children without taking deaf children's differences in sign language proficiency into account yields an incomplete view of deaf children's written language performance.

The typical pattern of evaluation in deaf proficiently signing children can be explained in terms of transfer processes, and the observation that knowledge and skills in the first language are transferred to the second language, which facilitates learning related skills in the second language (e.g., Cummins 1991, Bialystok 2001, MacWhinney 2005). In signed languages, evaluation is conveyed through many different ways, and evaluative aspects are extremely important ingredients in signed narratives (Emmorey and Reilly 1998, Everhart and Marschark 1988, Reilly 2001). The present study suggests that deaf proficiently signing children use their knowledge of the many ways signed languages have to convey evaluation to enrich their narratives in written Dutch (and more so than children who are low-proficient in SLN). Interestingly, they use evaluative devices in written narratives to express this, suggesting that they can use linguistic devices or have linguistic skill to convey this. This finding is in line with the small body of literature on deaf bimodal bilinguals in which it is found that sign language proficiency is related to writing proficiency. On the one hand, deaf children who are proficient in signed language have been found to write more creative narratives (Singleton *et al.* 2004) than deaf children who are not proficient in signed language. On the other hand, proficient deaf signers seem to have more difficulties than low-proficient deaf signers with grammatical structures that are structurally different in signed languages and written languages, or that are absent in signed languages, like temporal reference marking (Van Beijsterveldt and Van Hell submitted). This strengthens the idea that transfer processes underlying performance of unimodal bilinguals also apply to deaf bimodal bilinguals.

We also compared the proficiently and low-proficiently signing deaf children with hearing Turkish children with Dutch as their second language, to examine whether the extensive use of evaluation in proficiently signing children is related to proficiency in signed language in particular, or to more general factors related to being able to use two languages. The comparison showed that the proficiently signing deaf children also use more evaluative devices than hearing bilingual children (who in turn did not differ from low-proficiently signing deaf children). This suggests that the use of evaluation in proficiently signing deaf children cannot be explained by their bilingualism alone, but rather seems to be a unique pattern in bimodal bilingual deaf children who use a signed language and a written language. Turkish does not differ from Dutch as much as SLN does regarding evaluation. Turkish and Dutch both convey evaluation lexically in writing, whereas signed languages, in contrast, have many different ways of conveying evaluation in narratives. Moreover, as shown by Reilly (2001), evaluation is used more often and is more pronounced in signed narratives.

What are the implications of our findings on deaf children's writing for research and educational practice? Both proficient and low-proficient signers have difficulties with morpho-syntax and the use of complex syntax. However, they may do so for different reasons. In the proficient signers, the relatively high number of morpho-syntactic errors and the relatively low use of complex syntax may hint at a developmental stage in which children mix the syntactic systems of written language and signed language. More exposure to both languages and a skilled teacher who can made the differences between the grammatical systems explicit and explain to deaf bimodal bilingual learners how each of the grammars of the languages operate, may help children go through this stage. On the other hand, the low-proficiently signing children possibly have experienced degraded language input early in life (both in oral language and signed language), and for this reason may not have achieved adequate linguistic competence in written language (Mayberry 2002, Mayberry and Lock 2003).

Van Beijsterveldt and Van Hell's (submitted) cross-sectional study on the development of temporal reference marking in deaf children, however, suggests that eventually both proficiently and low-proficiently signing deaf children master morpho-syntactic skills in Dutch. The high number of errors in tense morphology observed in deaf 11–12-year-old children was strongly reduced in 15–16-year-olds, and was no longer observed in adult deaf writers. This developmental pattern was shown by both proficient and low-proficient signers. Obviously, given the scarce number of empirical studies on writing in deaf children with different language backgrounds there is a need for research that tracks children over time to gain a deeper insight into the developmental patterns of deaf children with different language profiles.

Further, skills developed in signed language (such as evaluative expression) can and should be used to support learning to read and write. However, we still have shallow understanding of how signed language works to support writing and reading development in deaf children (Mayer 2007). This needs to be investigated in future research and it involves thinking about ways in which signed language can be used to give access to oral/written language.

This study shows that although narratives written by 11–12-year-old deaf children contain a relatively high amount of morpho-syntactic errors and contain fewer sentences with complex syntax, proficiently signing deaf children's

narratives are infused with many evaluative devices that enrich the referential structure of the narrative, and considerably more so than the narratives written by low-proficiently signing deaf children, hearing bilingual and hearing monolingual children. The present study also shows that in order to gain more insight into deaf people's writing, it is important to take variations in sign language proficiency into account. As discussed in the Introduction, the potential influence of sign language knowledge onto writing in an oral language has largely been neglected in studies on writing by deaf children. Our study indicates that proficiently signing deaf children have an advantage in enriching their written narratives through evaluation, and use their knowledge of SLN to convey evaluation in their written narratives.

Acknowledgements

Notes

1. Sign Supported Dutch is clearly distinguished from SLN. Sign Supported Dutch is a sign system derived from spoken Dutch; it follows the grammatical rules from Dutch, and it uses partly the lexicon of SLN, and partly invented signs (Schermer 1991).
2. Mean level of hearing loss was calculated by dividing the hearing loss at 500, 1000, 2000, and 4000 Hz derived from recent audiograms. From three low-proficiently signing children there were no recent audiograms available. Yet, these children, who were educated in mainstream schools, were involved in a special-language remediation programme and their remedial teachers confirmed they were profoundly deaf.
3. In a different project, we examined the development of evaluative expression in hearing writers of Dutch, and had collected written narratives in hearing 15–16-year-olds and adults using the same procedures as in the present paper. Analyses of the frequency of using evaluative devices in hearing 9–10, 11–12, 15–16-year-olds and adults showed that the use of evaluation in hearing writers increases with age, and is largest in hearing 15–16-year-olds. Comparison of the deaf proficiently signing children with the older groups of hearing writers showed that proficiently signing children perform at the same level of the hearing 15–16-year-olds.
4. To make sure that the pattern of evaluation in the hearing bilingual children cannot be explained by the fact that they were 2 years younger than the other comparison groups, we compared the hearing bilingual children with 20 age-matched hearing monolingual children (mean age=10;3 years (SD=0.6 years), mean text length=80.00 (SD=47.10), MLU=5.64 (SD=0.96)), and with the 11–12-year-old monolingual children from this study. A one-factor ANOVA on the use of evaluative devices showed no effect of group, indicating that hearing bilingual children did not differ from hearing age-matched and 11–12-year-old monolingual children on the use of evaluative devices.

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