

Marcação de tempo por surdos sinalizadores brasileiros***

Tense marking by Brazilian deaf signers

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Abstract

Background: tense marking by deaf signers, in the Brazilian Sign Language and in written Portuguese. **Aim:** to analyze verbal tense inflection in written Portuguese, to verify the relationship between the performance in using verbal tense inflexion and the educational status, and to verify tense marking in the production of sentences in the Brazilian sign language and in written Portuguese. **Method:** participants were 18 deaf signers ranging in age from 15 to 23 years, and with an educational status varying from 3rd to 7th grade of elementary school. Participants were assessed for their knowledge of nine action verbs. Following that, they were asked to elaborate three sentences with each verb using written Portuguese and using Brazilian sign language, one in the past tense, one in the present tense and one in the future tense. Data were analyzed qualitatively and quantitatively. **Results:** Regarding the written productions, there was a predominance of the verb in the infinitive nominal form. Participants adequately used tense markers in most of the sentences produced when using the Brazilian sign language. Four subjects used sign language markers to indicate tense in their written sentences. There was a significant statistical relationship between the use of verbal inflexion in the present tense and higher educational status. **Conclusion:** the deaf participants of the study presented and adequate use of tense markers in most of the sentences produced using Brazilian sign language, however difficulty was observed when using written Portuguese. **Key Words:** Sign Language; Deafness; Evaluation; Language.

Resumo

Tema: marcação de tempo realizada por surdos sinalizadores na Língua Brasileira de Sinais e na Língua Portuguesa Escrita. **Objetivos:** analisar a flexão verbal de tempo na Língua Portuguesa Escrita, averiguar se existe relação entre o desempenho no uso da flexão verbal de tempo e grau de escolaridade e verificar os marcadores de tempo utilizados na produção de frases na Língua Brasileira de Sinais e na Língua Portuguesa Escrita. **Métodos:** participaram do estudo 18 surdos sinalizadores, com idade entre 15 e 23 anos e escolaridade de 3ª a 6ª série do Ensino Fundamental. Os indivíduos foram avaliados quanto ao conhecimento em Língua Brasileira de Sinais de nove verbos de ação, e em seguida foram orientados a elaborar três frases na Língua Portuguesa Escrita e na Língua Brasileira de Sinais com cada verbo, sendo uma no tempo passado, uma no presente e uma no futuro. Os dados foram avaliados qualitativa e quantitativamente. **Resultados:** nas frases escritas houve o predomínio do verbo na forma nominal do infinitivo. Os sujeitos utilizaram adequadamente os marcadores de tempo na maioria das frases expressas na Língua Brasileira de Sinais. Quatro sujeitos fizeram uso de marcadores utilizados na língua de sinais para indicar o tempo nas frases escritas. Houve relação estatisticamente significante entre o uso da flexão verbal do tempo presente com o aumento da escolaridade. **Conclusão:** os surdos do estudo utilizam adequadamente marcadores de tempo na maioria das frases expressas na Língua Brasileira de Sinais, mas apresentam dificuldade na Língua Portuguesa Escrita.

Palavras-Chave: Linguagem de Sinais; Surdez; Avaliação; Linguagem.

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Introduction

Studies have shown the influence of sign language on the written production of Deaf individuals 1-4. According to the literature, the errors observed when learning a second language mainly occurs due to the fact that individuals are based on the structure of the first language 5-9. However, this is not a peculiarity of Deaf individuals. If Deaf children had access to sign language from the earliest years of life, the acquisition of written language as a second language would be faster and more significant 10-12. International studies 13-16 have emphasized the relationship between linguistic competence in sign language and writing acquisition in Deaf children.

In Brazil, there are few studies that relate the linguistic performance of Deaf signers in the use of Brazilian Sign Language (Libras) and written Portuguese. National and international studies on the written production of the Deaf indicate that verbal inflection is a very difficult aspect 3-4, 14, 17-19. Although verbs may be present lexically correct on the writing of the Deaf, they have no domain of tense inflection in the process of sentence building 4, 18. In Libras, as in other sign languages, the marking of time is expressed by pure morphemes 20-22 - i. e. it has no tense inflection as it occurs in Portuguese.

Based on the foregoing, the present study aimed to:

- . analyze the Portuguese tense inflection of Deaf signers;
- . ascertain whether there is a relationship between the performance of Deaf signers in the tense inflection of written Portuguese and educational level;
- . verify the temporal markers used in the production of sentences in Libras and in written Portuguese.

It is hypothesized that the lack of knowledge about the Portuguese rules brings the Deaf difficulties related to tense inflection. Such difficulties would, consequently, cause the use of temporal markers of Libras when elaborating sentences in written Portuguese.

Method

This research, prospective evaluation, was approved by the Ethics Committee for Analysis of Research Projects (CAPPesq) of the Clinical Board from Hospital das Clínicas - Faculdade de Medicina da Universidade de São Paulo under protocol number 0708/07. All participants and their parents or guardians (in the case of adolescents) signed a consent form agreeing with the completion and dissemination of this research.

Participants were selected from a public institution specialized in services for the Deaf located at the interior of Sao Paulo state. Of a total of 98 Deaf recruited, only 18 (18.4%) met the inclusion criteria of this study. The age of the participants ranged from 15 to 23 years (mean 18:2 years). Of these, 12 (66.66%) were male and six (33.33%) were female. All had bilateral profound sensorineural hearing loss (average threshold for 500, 1,000 and 2,000 Hz higher than 91 dB HL). The hearing loss of all participants was congenital or had occurred before the completion of one year of age. All participants had used sign language as their preferred communication mode for more than four years. Participants attended regular classes and had educational level between the 3rd and 6th grade of elementary school. All were children of hearing parents and had no impairments associated to deafness.

The verbs used in the evaluation of the participants were from the Illustrated Notebook of Verbs (Caderno Ilustrado de Verbos) 23. For the selection of verbs, verbs for which the corresponding sign in Libras was equal or similar to their respective noun were avoided - e.g, the sign of "DRIVING" and "CAR". Furthermore, verbs classified as simple according to Quadros 20 were selected - i.e. verbs that do not incorporate locative affixes and require the movement of pointing to indicate the subject. Regarding the Portuguese language, disyllabic regular verbs, according to the Portuguese Grammar 24, were selected. Thus, the following verbs were selected for the assessment: drink, eat, run, close, play, clean, swim, paint and jump (beber, comer, correr, fechar, jogar, limpar, nadar, pintar e pular).

Initially the participants answered a questionnaire for information on linguistic and educational history and background.

Following, participants were presented to illustration cards of the verbs selected. The signing, in Libras, of each corresponding verb was requested. This assured the complete comprehension of the verbs.

Subsequently, subjects were instructed to write the name of the verb and prepare three written sentences in Portuguese and in Libras. Each sentence respectively corresponded to past, present and future tense.

The assessments were individually conducted and recorded by the experimenter. All instructions were given by the experimenter in Libras. The recordings were transcribed and categorized for further qualitative and quantitative analysis.

Criteria for the analysis of results

The Portuguese Grammar²⁴ was used for the classification of verbal tenses and temporal markers used in written productions.

The temporal markers used in the productions of sentences in Libras were categorized into: context, temporal adverb and temporal adverbial adjunct. The sentences on present tense in which no tense markers were used were considered appropriate because, according to Felipe²¹, reference to present has no temporal indication in Libras.

A Deaf teacher from FENEIS was asked to examine the recordings of the sentences produced in Libras of five randomly selected participants. This examination had the aim of measuring the Kappa coefficient of agreement of the sentences analyzed by the experimenter and by the teacher of Libras.

Wilcoxon and Mann-Whitney tests were used to compare the performance of participants in the use of verbal tense inflections in sentences in written Portuguese and its relationship with educational level.

For a better analysis, the sample was grouped according to grades - 3rd and 4th; 5th and 6th. A significance level of 0.05 (5%) was adopted and all confidence intervals were calculated with a 95% statistical confidence.

Results

The Kappa coefficient revealed statistically significant and optimal agreement (above 81%) between the experimenter and the instructor of Libras regarding duration of sentences and markers used to indicate tense.

Thus, the results presented below were analyzed only by the experimenter.

Figure 1 displays the results of verbal tense inflections used by the Deaf in the elaboration of sentences written in the past, present and future tense.

The indicative past tense accompanied by the adverbial adjunct "past" was used in sentences written in past tense with verbs correctly inflected. Verbs inappropriately inflected on this tense were written in the indicative present tense.

All subjects who produced sentences in the present tense flexed verbs in the second person singular of the indicative although the pronoun "I" was used in most sentences. Verbs inappropriately inflected in this tense were written in the past tense of the indicative.

Regarding sentences in the future tense, none of the participants correctly performed the verbal tense inflection. Verbs inappropriately inflected in this tense were written in the present (15.5%) and in the past (1.2%) tense of the indicative.

The Wilcoxon test was used to compare the use of verbal inflections in sentences written in the past, present and future tense (Table 1).

Statistically significant better performance was observed for the verbal inflection of present when compared to past and future tenses.

The Mann-Whitney test was used to compare the participants of different educational levels regarding their use of verbal inflections (Table 2).

The verbal inflections of future tense were not included in this analysis because none of the participants properly flexed verbs in the elaboration of the sentences on this tense.

There was a statistically significant difference between the educational level and verbal inflection of the present tense - participants of 5th and 6th grades more frequently used this inflexion.

Four participants of the study used temporal markers in the production of written sentences to compensate for the lack of or the difficulty in use of tense inflection. These participants used the temporal adverb "before" and the adverbial adjunct "past" to mark the temporal information of sentences in the past. For sentences in the present tense, participants used the temporal adverb "today" whereas for sentences in the future tense they used the temporal adverb "after" and the adjunct "future".

Of the sentences in past tense expressed in Libras, 74.7% of productions were adequate. In these productions, the temporal marker used most often was the adverbial adjunct (33.3%), represented by the sign of "PAST"; followed by the context (24.7%), represented by the signs of "ME CHILD" or by the discourse concerning the past (Example: "IFAT RUN WEIGHT LOSS SLIM* GOOD*"); and temporal adverbs (16.7%), represented by the signs of "PREVIOUSLY",

"NOW", "YESTERDAY", "BEFORE". Of the sentences incorrectly produced in the past tense, 23.5% were produced without temporal markers, 1.2% were expressed in the future tense, and 0.6% were not elaborated.

Participants appropriately produced in Libras 90.1% of sentences in the present tense. The temporal marker used was the temporal adverb (48.8%), represented by the signs of "NOW" and "TODAY". The remaining sentences in present tense considered appropriate (41.3%) were elaborated with no marker. In the present tense, 6.8% of sentence production were inadequate, being that 6.2% were expressed in the future and 0.6% in the past tense, whereas 3.1% were not

elaborated.

Participants appropriately produced in Libras 71% of sentences in the future tense. In these productions, the temporal marker used most often was the adverbial adjunct (39.5%), represented by the sign "FUTURE"; followed by the context (18.5%), represented by the signs of "ME OLD" or by the discourse concerning the future (Example: "SON* VIDEO GAME PLAY GIVE"); and temporal adverbs (13%), represented by the signs of "AFTER" and "TOMORROW".

In this tense, 21.6% of sentences were inadequately produced - 19.1% due the absence of marker, 2.5% expressed in past tense, and 7.4% not produced.

FIGURE 1. Distribution of tense inflection used by participants in sentences written in past, present and future tense

Tense	Correctly Flexed Verb		Incorrectly Flexed Verb		Infinitive Noun Form Verb		Non-elaborated Sentences	
	N	%	N	%	N	%	N	%
past	2	1,2%	33	20,4%	63	38,9%	64	39,5%
present	27	16,7%	2	1,2%	47	29%	86	53,1%
future	0	0%	27	16,7%	41	25,3%	94	58%
TOTAL (N= 486)	29	6%	62	12,8%	151	31%	244	50,2%

Note: N: Number of sentences

TABLE 1. Comparison of verbal tense inflections in the production of sentences written in past, present and future tense.

Verbal Tense Inflection	Past	Present
Present	0,027*	
Future	0,317	0,018*

Note: *: p-values considered statistically significant; Significance level: p ? 0.05.

TABLE 2. Comparison of verbal inflections of past and present tenses between different educational levels.

Series versus Temporal Verb Inflections	Past		Present	
	3rd and 4th	5th and 6th	3rd and 4th	5th and 6th
Mean	0,00	0,22	0,22	2,78
Median	0	0	0	3
standard deviation	0,00	0,67	0,67	2,59
Q1	0	0	0	0
Q3	0	0	0	4
N	9	9	9	9
IC	- x -	0,44	0,44	1,69
p-value	0,317		0,012*	

Note: *: p-values considered statistically significant, CI: Confidence Interval, N: number of participants, significance level: p ? 0.05; Q1: 1st quartile showing the distribution up to 25% of the sample; Q3: 3rd quartile showing the distribution up to 75% of the sample, -x-: not possible to use statistical analyses.

*: The symbol "@" was used in the signs represented by words of Portuguese with marks of gender and number as there are no gender and number markers in Libras. (21)

Discussion

Most of the verbs used in sentences elaborated in Portuguese were written in the infinitive noun form. These results corroborate studies from the literature³⁻⁴ which mention the predominance of the infinitive in the written production of Deaf individuals.

Regarding performance on written sentences, there was a statistically significant difference on the comparison between the use of present tense verbal inflection and past and future tense inflections. The better performance on the use of present tense may have occurred due to the type of the evaluation used in the current study. Elaboration of sentences favors present tense as well as the production of narrative favors the use of the past tense. Another possible explanation for this is that present tense sentences of participants who did not use markers in any of the tenses were considered correct because, according to the literature, this tense has generally no temporal specification²¹.

None of the participants presented verbal inflection of sentences in the future tense. Studies on the Portuguese language have evidenced the decline in the use of synthetic future tense in detriment of the periphrasis²⁵. The use of periphrasis was not observed on sentences produced in the future tense.

Another fact that stands out is the number of sentences that were not elaborated in written Portuguese. This demonstrates that the educational level of the participants (between 9 and 18 years of formal education) was not enough to enable the production of sentences in a second language. The fact that all subjects began the educational process without an established language should be taken into account. According to the literature, the overall delay in language acquisition may slow the process of acquiring written language^{12, 14-15, 19}.

The statistically significant relationship observed between the use of verbal inflection on the present tense and the increase in educational level supports the literature that argues that tense inflection becomes more appropriate with the advancement of educational process and, consequently, with the increased knowledge on Portuguese language^{4, 18, 26}.

The temporal markers used by the Deaf in the elaboration of sentences in Libras corroborate to the literature²⁰⁻²² that mentions the use of temporal adverbs or of a lexical item to indicate time since Libras has no verbal inflection of time.

Adverbs and adverbial adjuncts of time used as temporal markers in the preparation of written sentences show that the participants are transposing the structure of Libras to written Portuguese. According to the literature, the use of features of the first language on the acquisition of the second language is very common^{5-9, 12}.

The use of markers of Libras on writing sentences of Portuguese is an important finding. Although the participants exhibit difficulties in indicating the present tense in the verb, they are aware of the importance of temporal marking in the sentence in order to explain the time of occurrence of the action, showing evidence of metalinguistic skills.

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Conclusion

The Deaf participants of the current study used appropriate temporal markers in most of the sentences produced in Libras. However, they had difficulties related to temporal marking in written Portuguese.

The results indicate better performance of participants in the use of tense inflection with the increase in educational level.

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