THE HANDSHAPES IN PORTUGUESE SIGN LANGUAGE: PHONOLOGICAL STUDY

Mara Moita, Patrícia Carmo & Ana Mineiro
maramoita@ics.lisboa.ucp.pt, patcarmo@ics.lisboa.ucp.pt, amineiro@ics.lisboa.ucp.pt
Instituto de Ciências da Saúde da Universidade Católica Portuguesa

INTRODUCTION
Despite the large number of studies of sign language in the last 50 years, Portuguese Sign Language (Língua Gestual Portuguesa, LGP) only began to be scientifically studied since 1980. Although some important studies were carried out and a number of limited sign vocabularies were created, so far LGP has not been studied in a systematic way and with consistent detail in the main areas of linguistics.

In the context of the development of a signing avatar for LGP [1], the LGP’s phonological system has been thoroughly described for computational purposes. Since handshapes are the primary phonological element signed in articulation and there is no detail description of this phonological category in LGP [2, 3], it was developed a phonological study based on signs description to outline the existent phonological handshapes in LGP.

METHODS
SAMPLE
20 Deaf Signers (university students and proficient at LGP).

MATERIALS
500 lexical signs
84 listed handshapes presented in pictures (39mm x 29mm)

PHONOLOGICAL DESCRIPTION TASK
Subjects had to describe each lexical sign by selecting the listed handshapes articulated in the dominant hand and those in the non-dominant hand.

RESULTS

<table>
<thead>
<tr>
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<th>Frequency of Selected Handshapes</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Dominant Hand</td>
<td>7.01</td>
</tr>
<tr>
<td>Non-Dominant Hand</td>
<td>2.98</td>
</tr>
</tbody>
</table>

On dominant hand, 19% of the listed handshapes were never selected and 50% were only selected between one to five times. The highest occurrence was presented concerning one handshape, which was selected sixty-two times.

On non-dominant hand, 42.9% of the listed handshapes were never selected and 45.2% were only selected between one to five times. The highest occurrence was presented concerning one handshape, which was selected sixty-one times.

DISCUSSION AND CONCLUSIONS
Frequency results demonstrate that 50 handshapes (59%) from the listed handshapes had a weaker or null occurrence in dominant hand in these 500 signs comparing with the rest of the 34 handshapes (41% of the listed handshapes). On dominant hand, 74 handshapes (88.1%) from the listed handshapes had a weaker or null occurrence. From the 84 listed handshapes, only 48 (57%) were selected as non-dominant hand handshapes, showing that this second articulator performs a restrict number of handshapes and all produced by the dominant hand.

From the present study, the inventory of LGP’s handshapes was reduced to 68 handshapes, with the elimination of sixteen handshapes that were not selected for any of the articulators (dominant hand and non-dominant hand).

According to the results, dominant hand seems to have more possible handshapes than non-dominant hand. This last articulator presents its role of co-articulation, showing a restrict number of handshapes to be articulated, which are all possible in dominant hand.

We assume that weaker frequency of handshapes in this study may be influenced by the limited described lexical signs or by the phonological value of the handshapes.

FUTURE DIRECTIONS
To continue the delimitation and characterisation of LGP’s handshapes, a study has already begun, based on corpora annotation, to combine the annotated handshapes with the handshapes’ inventory resulted from the present study, in order to define the phone and allophone values of each handshape. After this analysis we will describe and characterise the LGP’s handshapes based on Hand Tier model [4].

References