

## **Language Use with Blissymbolics**

Bitte Rydeman, Lund University, Sweden

Research has shown that utterances produced by users of graphic systems tend to be short (1–2 words) and grammatically incomplete. They often contain few grammatical markers and have unusual word orders (Binger & Light, 2008). This was only partly true for the participants in this study, who tended to use utterances consisting of 4–6 words and had some grammatical markers, and only rarely unusual word order. The use of telegraphic messages may be considered a way of making communication more efficient, particularly within a context of message co-construction (Smith, 1996). This may apply to some extent to the participants in this study, who despite their relatively long utterances often did not use the grammatical markers available to them.

Sutton, Morford and Gallagher (2004) suggest that utterances produced with a graphic system might depend on what graphic symbols are included and how they are organized in the display. They found that grammatical markers tended to be eliminated to make room for content words when the available space was restricted. The participants in this study all used the software Mind Express in their voice output communication aid (VOCA) and had access to some, if not all, of the grammatical markers available in that system. This provided them with means of using the past and present tense, plural forms of nouns and conjugation of adjectives. Since they had the same graphic symbols in their VOCAs as in their low-tech Bliss boards, they had access to all the prepositions, pronouns, conjunctions and other functions that as a standard are available in Bliss boards. This includes functions like “same as,” “almost same as” and “opposite of” that can be used to expand a limited vocabulary.

Bryen (2008) found that many graphic systems lack the vocabulary to support valued adult roles, such as students, workers, friends, partners, citizens and parents. Research by Todman and Alm (2003) has shown that resources for phrase creation in VOCAs can successfully be complemented with pre-prepared, pragmatically relevant phrases, which can give the users opportunity to maintain the flow of conversations, share in control, stay in touch and provide effective repair. A similar approach was used in the present study, where pre-stored phrases for small talk and for a specific activity were added to the participants’ existing systems.

Features that were lacking in the participants’ Bliss vocabularies, but which were included among the pre-stored phrases that they got as supplements, were words and expressions that could be used for starting and ending conversations, for turn taking, and as evaluation and

feedback. These items were only rarely used by the participants. The pre-stored expressions that they did use functioned as greetings, acknowledgements and answers to *yes/no* questions, functions they could already express with their Bliss vocabularies.

The present study describes three young adults with cerebral palsy who used VOCAs with Blissymbolics took part in a study where their use of VOCAs in different activities were video-recorded and analysed (Rydeman, 2010). The activities included semi-structured interviews, conversations with friends, shopping and role-play shopping.

**Participants.** The participants in this study all had severe speech and motor impairments due to cerebral palsy. Lisa was 18 years old at the start of the study, John was 22 and Peter was 19 years old. Lisa used her hands to access a VOCA with touch screen, while John and Peter both used a head mouse.

As most users of Blissymbolics, the three young adults had started with low-tech communication boards where they relied on communication partners to formulate the messages they were constructing (Falkman, Sandberg & Hjelmquist, 2002). When the Bliss boards were moved to VOCAs, they were given a taxonomic organization (Light & Drager, 2007) which was based on the layout of the low-tech Bliss boards. All three participants used their low-tech Bliss boards as well.

**Expressions Constructed with VOCA.** The three participants were interviewed about their shopping habits on two occasions – at the beginning and end of the study, 1½ year apart. They were asked the same open-ended questions, which they had to answer using their VOCAs. Analyses of the expressions they constructed revealed that the participants used longer utterances and more advanced grammar during the second interview, despite the fact that these skills were not targeted during the study. There was a striking difference in utterance length, as can be seen in Figure 1. The number of utterances with seven words or more that were expressed by John, Peter and Lisa, had increased from 2, 4 and 2 in the first interview to 8, 14 and 14 in the second. There was also an increase in the use of utterances with 4–6 words, as well as a decrease in the use of utterances with 1–3 words for all participants.

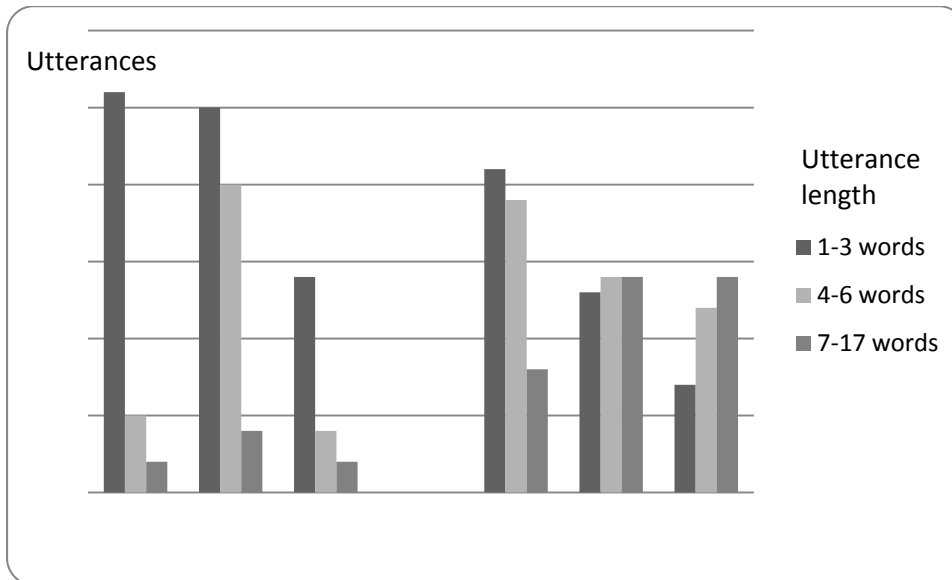


Figure 1. Number of utterances with different utterance length, used during the first and second interviews about shopping habits by three young adults who used VOCAs with Blissymbolics. The mean number of words per utterance had increased for all three participants, from 2.6 to 4.4 for John, from 3.7 to 5 for Peter and from 3.6 to 6.2 for Lisa.

In addition to increases in utterance length, there were also changes in use of grammar. During the first interview, John used a personal pronoun 11 times, predominately *jag* (I), *du* (you) and *mig* (me). During the second interview he used personal pronouns 35 times. In the first interview, John used the prepositions *till* (to), *från* (from) and *på* (on) one time each. In the second interview, he also used the prepositions *i* (in), *med* (with) and *efter* (after), and all in all he used a preposition 15 times. Another change was that John had started to use the past tense, interchangeably with the present tense, but it was not used at all before. During the first interview John used the phrase *Jag inte tycker om går kläder affär* (I not like go clothes shop), with the negation in the wrong position (Swedish). During the second interview he said the same thing, but more correctly: *Jag tycker inte om går kläder affär* (I like not go clothes shop). He also used another negated phrase where the negation was placed correctly.

Peter's and Lisa's language use showed similar developments as John's. Peter increased his use of pronouns from 8 to 28, Lisa from 8 to 31. Peter increased his use of prepositions from 9 to 17, Lisa from 5 to 17. Peter increased his use of the word *som* (as) from 1 to 6, and Lisa increased

her use of the word *att* (to or that) from one to ten times. John and Lisa also showed an increase in total number of utterances, which may account for part of the increase in the number of pronouns and prepositions, but not all of them. John produced 33 utterances in the first interview and 48 in the second. Lisa increased from 20 to 37 utterances, while Peter produced fewer utterances in the second interview, a reduction from 49 to 41. However, the mean length of utterance (in words) increased for all three participants, from 2.6 to 4.4 for John, from 3.7 to 5.0 for Peter and from 3.6 to 6.2 for Lisa.

The pre-stored phrases that the participants were given in the study were not used to the extent that had been expected. They had phrases for shop talk, as well as for small talk, that could be used in many activities. When the participants did use the new pre-stored phrases, they tended to use them only for functions they already had the necessary means for in their Blissymbolics vocabularies.

**Discussion.** There are several reasons why the participants used more advanced language in the interview at the end of the study, 1½ years after the first. One reason might be that interviewer and the participants knew each other better. A more plausible reason is that the participants had started to use their VOCAs more, and also taken an increased responsibility for their language production. With the low-tech Bliss boards it is the communication partner who says the words, often adding inflections that are not present in the Blissymbol utterance. A VOCA says what the user has selected or written, and with the software Mind Express that all three participants used, it was possible to construct grammatically correct sentences through the specification of grammatical markers, such as past tense or plural.

Some features in Mind Express can be set to work automatically, for example so that a verb selected after an auxiliary always takes on a specific verb form, or the selection of a plural marker before a noun makes the gloss on the Blissymbol appear in plural. It may not only have been the way the participants used the software that had changed from the first to the second interview, because the prerequisites for constructing grammatically correct sentences with Blissymbols had to be in the software, and during the first interview Peter and John still lacked a number of grammatical functions that were included later.

When Lisa took part in the first interview, her communication software had recently been modified and she did not yet know how to get around in it and did not use it very often. She had for a long time been keen to express herself grammatically correct, even if that meant that it took longer time for her to construct her utterances. With increased use of her VOCA, she had become both better and faster at it. John regularly met with a speech-language therapist, and

presumably they worked on his language skills. It is also possible that by taking part in the study, the participants became more aware of the way they expressed themselves, even if the construction of sentences word by word had not been focused on.

The three young adults in this study had all developed grown up with Blissymbolics and were used to construct utterances one Blissymbol after the other with their low-tech communication boards. On these boards all the content was visible at the same time, a feature that facilitates the creation of sequences. This, in combination with the specific features of Blissymbolics, might be an important reason why the three participants used longer expressions and more grammatical features than reported in most other studies of individuals who use VOCAs with graphic systems.

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