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Evaluation of language and communication skills in adult key word signing users with intellectual disability: Advantages of a narrative task

Kristien Meuris [a,*], Bea Maes [b,1], Inge Zink [a,c,2]

[a] KU Leuven, Faculty of Medicine, Department of Neurosciences, Experimental Otorhinolaryngology (ExpORL), Herestraat 49, Box 721, B-3000 Leuven, Belgium
[b] KU Leuven, Faculty of Psychology and Educational Sciences, Parenting and Special Education, Vesaliusstraat 2, Box 3765, B-3000 Leuven, Belgium
[c] Department of ENT, Head & Neck Surgery, MUCLA University Hospitals Leuven, Campus St.-Rafaël, Kapucijnenvoer 33, B-3000 Leuven, Belgium

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ABSTRACT

The evaluation of language and communication skills in adults who use augmentative and alternative communication (AAC) in general and key word signing (KWS) in particular, can be an elaborate task. Besides being time-consuming and not very similar to natural communication, standard language tests often do not take AAC or KWS into account. Therefore, we developed a narrative task specifically for adults with intellectual disability (ID) who use KWS. The task was evaluated in a group of 40 adult KWS users. Outcome measures on the narrative task correlated significantly with measures of standard language and communication tests for verbal language, but not for use of manual signs. All narrative measures, for both verbal language and manual signing, correlated highly with similar measures from a conversation sample. The developed narrative task proved useful and valid to evaluate the language and communication skills of adults with ID taking into account both their verbal language and manual sign use.

1. Introduction

Narrative skills can be defined as those skills needed to tell stories, or to recount "unique past adventures that preserve the chronology of the component events discussed" (Peterson, 1990, p. 434). Because narratives call on semantic, morphosyntactic, and pragmatic language and communication skills (besides other cognitive skills such as working memory and general knowledge base), narrative tasks have proven to be a valid method to collect a variety of information concerning language abilities (Wellman et al., 2011). Narrative tasks have some advantages over standard language tests, by which we mean language tests that evaluate semantic, morphosyntactic, and pragmatic skills separately (for example the Peabody

* Corresponding author. Present address: Helser Weg 22, 34329 Nieste, Germany. Tel.: +32 494 42 48 55/16 33 04 81; fax: +32 16 33 04 86.
E-mail addresses: stien.meuris@med.kuleuven.be, stienmeuris@gmail.com (K. Meuris), bea.maes@ppw.kuleuven.be (B. Maes), inge.zink@med.kuleuven.be (I. Zink).
[1] Tel.: +32 16 32 62 24; fax: +32 16 32 59 33.
[2] Tel.: +32 16 33 04 81; fax: +32 16 33 04 86.

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Picture Vocabulary Test for receptive semantic skills, Dunn & Dunn, 2005). In a relatively short period of time, and in a naturalistic setting, narratives address these different aspects of both language content and form in one task (Pankratz, Plante, Vance, & Insalaco, 2007; Paul & Smith, 1993). Narratives are quite a comprehensive measure of spoken language, because multiple language aspects need to be integrated by the participant to form a cohesive, well-formulated, meaningful story (Seiger-Gardner, 2009). Narrative tasks are used frequently for diagnostic and predictive reasons in children and adults with a suspected communication impairment (e.g. Doyle et al., 2000; Pankratz et al., 2007; Paul & Smith, 1993). For adults with intellectual disability (ID) as well, narrative tasks have been used successfully to map language and communication skills (see Section 1.3). Many adults with ID however, because of their communication problems, use a means of augmentative and alternative communication (AAC; Uliano et al., 2010). To our knowledge, no narrative task directed at adults with ID who use AAC exists. This study focuses on the development and evaluation of a narrative task designed specifically for adults with ID who use key word signing (KWS) as their means of AAC. In this introduction, we first give an overview of different types of narrative tasks (Section 1.1) and of story grammar (Section 1.2). Next, a literature review of studies attending the use of narrative tasks in adolescents and adults with ID is included (Section 1.3). Key word signing and the possible advantages of a narrative task for individuals who use KWS are described hereafter (Section 1.4). Finally, we define the aims of this study (Section 1.5).

1.1. Types of narrative tasks

Different types of narrative tasks exist, for example story telling (narrating a known story), story retelling (reproducing a story that was presented), and story generating (making up a story, possibly with the help of a given story stem). Also, stories can be presented orally, visually, or both orally and visually, using for example pictures, photographs, or film (for a review, see Liles, 1993). The type of narrative task has been found to influence the narratives produced by the participant. Schneider (1996) found that story retelling of a solely orally presented story made children provide more story information than generating a story from pictures. The author attributed this to the fact that orally presented stories provide prior linguistic structuring, while generating a story from pictures without an oral example requires putting an event into words. On the other hand, retelling an orally presented story without the support of pictures, relies more on short term memory skills. Liles (1993) concluded in her review that visual input did seem to facilitate faithful reiteration of the original narrative. When stories are presented both orally and visually, less memory load is required and a linguistic structure is offered, but participants may provide less information to the listener because they may treat the visual information as given (certainly when the listener can see the pictures, which are then shared information). Participants (certainly young children) may also become distracted by the pictures (Schneider, 1996). In studies by Merritt and Liles (1989) and by Westerveld and Gillon (2010), both typically developing children and children with language and reading disorders produced longer and more complete narratives (more story grammar components and more complete episode structures; see Section 1.2) during story retelling compared with during story generating (both with and without picture support). Finally, story retelling narratives take less time to transcribe and can be more reliably scored, because the story model provides the examiner with known story content (Merritt & Liles, 1989).

1.2. Story grammar

The production of narratives is thought to be guided by a cognitive organization, which is called a story schema. This global organization of content is often referred to as the macrostructure of narratives, in contrast with the microstructure which comprises measures such as number of utterances, number of words, mean length of utterance (MLU), and type token ratio (TTR; Liles, Duffy, Merritt, & Purcell, 1995). MLU and TTR are both measures of language proficiency. MLU is calculated by dividing the number of morphemes or words that are produced in a language sample by the number of utterances, and offers an estimate of syntactic ability. In this study, we used the number of words to calculate MLUs. The equivalent term for sign utterances is called mean length of sign turn (MLST, Grove & Dockrell, 2000). TTR is calculated by dividing the number of different words used in a sample by the total number of words, and is related to semantic skills, although the number of different words per se can also be a good index of lexical diversity (Watkins, Kelly, Harbers, & Holly, 1995). An example of the calculated micro- and macrostructural measures of the narrative task used in this study, can be found in Appendix 1. A commonly used set of story grammar rules is that developed by Stein and Glenn (1979, in Liles, 1993; Merritt & Liles, 1987; Merritt & Liles, 1989). They stated that narratives consist of one or more episode structures, each episode structure containing minimum an initiating event or internal response, an attempt, and a direct consequence. In other words: a protagonist faces a problem (initiating event) and may devise a plan (internal response), attempts to solve the problem (attempt), and succeeds or fails in doing so (consequence). Optional components that may be added to these essential components are setting (time, location, context) and reactions (emotional responses to the events), yielding a total of six possible story grammar components. An example of story grammar components applied to the narrative task used in this study, can be found in Appendix 2. Story grammar components are all related, usually temporally or causally, and are believed to be processed as units rather than as series of statements (Liles, 1993). Trabasso and Van den Broek reanalyzed data by Omanson (1982, in Trabasso & Van den Broek, 1985) and Stein and Glenn (1979, in Trabasso & Van den Broek, 1985) of story retelling narratives by normally developing adults and children. They found the following order in which story grammar