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Abstract

Manuel signing is one of the most widely used approaches to support the communication and language skills of children and adults who have intellectual or developmental disabilities, and problems with communication in spoken language. A recent series of papers reporting findings from this population raises some critical issues for professionals in the assessment of multimodal language skills of key word signers. Approaches to assessment will differ depending on whether key word signing (KWS) is viewed as discrete from, or related to, natural sign languages. Two available assessments from these different perspectives are compared. Procedures appropriate to the assessment of sign language production are recommended as a valuable addition to the clinicians' toolkit. Sign and speech need to be viewed as multimodal, complementary communicative endeavours, rather than as polarities. Whilst narrative has been shown to be a fruitful context for eliciting language samples, assessments for adult users should be designed to suit the strengths, needs and values of adult signers with intellectual disabilities, using materials that are compatible with their life course stage rather than those designed for young children.

Keywords:

Intellectual disability; Augmentative and alternative communication; Manual signing; Sign language; Key word signing; Narrative task; Language assessment

I. Background

Manual signing is one of the most widely used approaches to support the communication and language skills of children and adults who have intellectual or developmental disabilities, and problems with communication in spoken language. This paper considers some of the issues involved for professionals in assessing the language skills of key word signers and discusses some of the methodological problems raised by a recent paper on the topic.

1. 1 The nature of key word signing

"Key word signing" is a shorthand for a complex form of human communication, defined by Meuris et. al. (2014b) as follows-

KWS …involves the simultaneous use of spoken language and manual signs, with the key words in the spoken sentence supported by a sign… (2588).

It is apparent what we as fluent speakers mean by key word signing: full sentences are spoken, and key words from those sentences are signed simultaneously. But what does it mean from the perspective of the primary users (those with communication impairments) who may - or may not - use accompanying speech? In this paper, it is argued that the term key word signing (KWS) describes the nature of the *input to*, but not necessarily *output by*, persons with intellectual disabilities (IDs), and that this insight has a direct impact on what we assess and how we do it. This argument demands that closer attention be paid to the relationships between key word signing, sign languages and natural gesture, and to consider the heterogeneity of the population of key word signers.

1.2 The history of sign supported speech and KWS

The use of signs by people with IDs has through long tradition been dissociated from the study of sign language as used by Deaf people, although the landmark research in both fields was contemporaneous. Distinctions are drawn between sign languages (which have their own grammatical structures) and the many sign systems developed within the broad taxonomy of Alternative and Augmentative Communication (AAC: Beukelman & Mirenda, 2013). Here, manual sign is defined as an "unaided" option ("aided" involving an external device), with the lexicon drawn from a natural sign language, and paired with speech, since most of the users are living and operating in the hearing, speaking world. Teaching manual sign to people with IDs has been seen as essentially an instructional task, often using strategies from behaviour modification (eg Conaghan et. al., 1992; Iacono & Parsons, 1986), with little or no attention being paid to the linguistic properties of the medium, and the process viewed as one essentially of learning, reproducing and generalising outside the teaching context.

There are several reasons why the division between sign systems and sign languages has characteristically been presented as absolute. Developers of sign systems have always been very clear that sign is used with disabled populations in the first instance as a supplement to speech; options need to be left open so that users who start by relying on sign may later transfer to speech (see Launnonen & Grove, 2003); anxiety amongst parents and staff that the use of manual signs would interfere with speech acquisition meant that the role of speech needed to be emphasised; developers took account of the sensitivities and attitudes of Deaf people, whose language had long been regarded disparagingly as a pictorial gestural form of communication with no inherent structure. From the perspective of native users, within the education of deaf children signs had too often been employed as a kind of second best, with hybrid signed speech systems employed as an ineffective educational tool to teach the grammar of spoken language.(Johnson et. al, 1979; Marmor & Petitto, 1979). Thus the use of signs paired with speech came to be seen as a vastly inferior means of communication,

associated with institutionalised oppression (children were historically forbidden to use natural sign language in school). Over the past 20 years, however, the Deaf community has become very supportive of others with disabilities who use sign. It was recognised from the outset that there was a continuum of use between "pure" sign language, and the kind of sign + lip patterns or speech that was often used as a *lingua franca* between fluent and non-fluent users of sign language (Ladd & Edwards, 1982). This meant that, in practice, it has always been possible to find something like KWS within the Deaf community, where it is usually described as signed supported speech.

Moreover, some systems designed as KWS explicitly teach features of the sign language. For example, the development of the Makaton Vocabulary (Grove & Walker, 1990; Walker 1976), a widely used KWS approach in the UK, was influenced by social workers with the Deaf and awareness of sign linguistics. The system observes certain syntactic and morphological rules: for example, directionality in signs such as GIVE, modifications of manner to verbs like WALK (eg WALK-*up*, WALK-*down*; size and shape modifiers on verbs such as CARRY[1]). This is largely intuitive rather than motivated - for example, there is no systematic use of classifier handshapes - but nevertheless, Makaton sees it as good practice to maintain certain linguistic features. This is not the case in all KWS systems: for example, in Meuris et al (2014b), features such as indexing and directionality are characterised as "contextual references" (2588). Multimodality is characteristic of all human communication, and there are shifting relationships between deictic, iconic and co-speech gestures, and linguistically governed combinations of form (Perniss, et. al., 2015). KWS sits within this dynamic network.

[1] The notation system from AAC denotes manual signs in capitals and speech in lower case. Inflections on signs are hyphenated and italicised.

It can therefore be seen that the absolute distinction between signing as an AAC prophylactic, and signing as a natural language, starts to break down when real world practices of signing are considered, as opposed to the theory propounded in the handbooks. Consequently, the nature and variety of the user population needs to be explored.

1.3 Who are key word signers?

The boundaries between sign language users and key word signers, already demonstrated to be fluid, become further blurred when taking into consideration native signers who also have IDs and the significant population of deaf children and adults with additional learning needs (Herman, et. al. 2014; Mason et. al., 2010; Shield et. al., 2016; Woll & Morgan, 2012). One question is how to characterise these individuals when they present with what looks on the surface like key word signing. The practical relevance of this question is illustrated by the following example.

The first author and a colleague were called in to provide in-depth assessment of “Sammy”, an individual in a special unit, who was deaf and had intellectual disabilities (unspecified). The question was whether Sammy should be transferred to a specialist facility for Deaf people, where sign language would be the main means of communication, or alternatively one with provision for people with IDs (obviously the cheaper option). The view of the speech pathologist was that Sammy was effectively a key word signer, whose communication showed evidence of autistic type difficulties, because of frequent echoing of the sign input. She, along with other staff, only used key word signs. Our specialist assessment involved an interview entirely in British Sign Language and tests from the BSL Assessment battery. It

was clear to us that Sammy was in fact a fluent and effective communicator in sign language, and we hypothesised that the apparent echolalia was likely to be a compensatory mechanism for the inadequacies of the input - ie, Sammy was checking for understanding. We recommended specialist provision. The outcome is unknown to us.

Considering now the population of signers who have had no contact with the sign language community, and who have been taught KWS as an intervention, von Tetzchner pointed out that this is a varied group, comprising those who need AAC for both comprehension and expression, and those who need AAC for expression alone (von Tetzchner and Martinsen, 2000) . Within both groups there is effectively a continuum from people who rely on AAC/manual sign and who may not have any intelligible speech, to those who use speech most of the time, but will recruit another modality as a back up when necessary. The balance between manual and oral communication can in fact vary with context (Grove & McDougall, 1991) and over time: a case study of a young man with Down syndrome with late onset speech showed him moving from total reliance on manual sign, to being dominant for speech, with accompanying gesture, over a period of 17 years (Launonen & Grove, 2003). Another variable is the interaction between sign and speech in the process of producing an utterance. There are three possibilities for an individual:

Speech = SIGN; Speech > SIGN; SIGN > speech

If input trumps output, and output modality is of no significance, there should be little difference in the output in these three groups; on the other hand, if there are modality effects, these should appear as the balance tips one way or the other.

Yet a third variable is language level, with many individuals communicating only in single signs, but some combining signs into multi-sign utterances. Language level, modality dependence, and context all interact so that at any one period of time, the same individual may be using any or all of the following: complex multi-sign utterances, words with signs,

words without signs, single signs on their own, or just pointing, depending on the situation (and crucially, how many signs they see being used around them, and the nature of the stimulus materials).

Another important consideration is the educational and social context in which individuals function. How do others view their use of signing? - as distinct from, or similar to, users of sign language? Sheehy and Duffy (2009) used a repeat survey to compare the attitudes of teaching staff to Makaton in 1987 and in 2005. They found that "Makaton was almost always looked upon as being a signed language rather than a language development programme of which signing is a part", suggesting that these professionals believe that KWS is effectively a language rather than a support system. They suggest this is partly do with a shift from a preoccupation with speech to the broader category of language, and to a rise in the status of British Sign Language.

Hence the population of those who use key word signs is highly heterogeneous . This is important, because they do not all bring the same sets of resources to the communication task, and although their patterns of sign and speech may look similar at a surface level, the processes that generate these utterances may be disparate.

1.4. Processes underpinning key word signing

KWS is used as a descriptor both for the input – i.e. the use of sign systems by staff and families - and for the output of people with disabilities, as though these were equivalents. Indeed, Meuris and her colleagues (2015) advocate KWS modelling by staff specifically because it will provide a model of what is expected in the output of key word signers. However, research by Grove and colleagues (Grove, et. al., 1996; Grove & Dockrell, 2002) showed that this is an over-simplification of what actually happens. Their participants were

hearing, had been taught Makaton signs, and combined signs and/or signs and speech. If KWS output reflects the input, the word orders used by the participants should match those in English - eg. for "the boy eats the cake", the signed part of the KWS message would be something like (BOY) (EAT) (CAKE), with an option amongst constituents for those who use only 2 per message. In fact, although they showed a tendency to place semantic actors (BOY) before actions (EAT), as would be expected, semantic patients (grammatical objects) were as likely to precede as to follow the action (verb) which governed them - EAT CAKE and CAKE EAT were sometimes used by the same child. This tendency could also be reflected in the accompanying speech - for example CAKE/cake EAT/eat -suggesting that in some way, and rather unusually for English, which is a heavily word order oriented language, they were disregarding the input models. It appeared that the children were not using what might naturally be assumed as the default process in generating key word signs - that is, in very simplistic terms, they were not using inner speech to construct a message, and then translate key content words into sign at the point of production, in contrast to what is done by hearing adults learning sign, as any novice student will testify.

Similar findings by Smith with children using pictorial graphic symbols as their main expressive communication led Smith and Grove (2003) to propose that the problem lay with a discrepancy between the modalities of the input and the output, and with limited exposure to word order in sign - since staff tend to use only one sign per clause in a KWS system (if that), the children did not receive enough modelling of syntactic contrasts in their preferred output modality. These findings suggest that caution must be exercised before concluding that problems with constituent order are due to language or cognitive impairment, rather than the communication environment in which individuals operate. Although Meuris et al (2015) claim that consistent use of KWS input will resolve the symmetry problem, they only looked at the number and frequency of signs used by staff and users of the service. However, when

considering how language can develop through KWS, it is the distribution of signs in the input which is relevant: sequential patterns;, the relationship between sign and speech, and which constituents are involved. This is critical when modality distribution is semantically and syntactically complementary (for example “boy BOX PUT/putting-in”) as it was in 10% of the utterances produced by the participants in Grove’s study (1995).

1.5. Sign specific modifications

A further finding by Grove was that those taught KWS often "go beyond the input” (Goldin-Meadow & Mylander, 1998; Goldin-Meadow et. al, 2007) by introducing creative morphological-like changes to the citation form of signs, which had never been modelled by their teachers. This phenomenon has been observed in Deaf children brought up in purely oral environments, who have apparently discovered for themselves the creative potential of a manual communication system. Examples included the following:-

> A young man who displaced the sign SHUT-UP (modified location and use of directionality) towards his mother, jokingly, as he recounts how he told her to shut up when she was gossiping too long with a friend on the way home.

> A boy with specific language impairments who pluralised the sign MAN by repetition - MAN MAN MAN - to describe a picture of three men at a bus stop (rather than using the expected THREE MAN).

> A man with IDs and severe dyspraxia who used a number of processes observable in a true sign language, in telling the story of how he had been mugged on a bus, including locational agreement and spatial reference.

Two main findings emerged from this study: firstly, that at a morphological level, the changes were clearly contrastive (i.e. both the citation form of the sign and a modified sign were observed in the same corpus of data: eg LIGHT vs. LIGHTS-*flashing-on-and-off*, where the sign for LIGHT is pluralised by using both hands instead of one, and the hands open and close from a 5 (spread) handshape to an A (fist) handshake repeatedly; or WASH where the location changes from the citation form (in neutral space in front of the signer) to the side of the head: WASH-*hair* WASH-*trousers*). They were not however, observed consistently, as the data were not collected over a long enough period of time, so were deemed gestural rather than grammatical in nature.

Subsequently, Rudd et. al. (2007) found that it was possible to teach contrastive use so that the same modifications were elicited consistently by different stimuli. These findings are exciting because they suggest that individuals who are exposed to quite limited sign models can in fact use highly creative strategies to communicate complex information when they need to do so. Unless practitioners know what to look for, they are unlikely to recognise this - and unless tasks are constructed that offer these particular affordances, participants may not produce these adaptations. This issue leads to consideration of the methodology of assessment.

2.0 Assessing language skills in key word signers

Formalised assessment allows a clinician to consider the range of skills that an individual deploys when contextual cues are carefully controlled. These need of course to be complemented by considering real life usage. At a very simplistic level, it might be expected that some people will do better on tests than expected from their functional profiles (for

example because of low expectations, or noise effects leading to confusion), whereas some will do worse, largely because of contextual cues assisting with inference. Procedures need to maximise the chances of getting as close as possible to revealing what the person can achieve. With regard to key word signers, it needs to be taken into account (see above) that some may be functioning within a community of sign language users, whereas others are operating with spoken language input. Hence the assessment should ideally be designed to include both populations. It is particularly important that affordances for creative use of sign and gesture are built into the task. Formalised procedures can of course be norm referenced, which may be important if an individual is to be compared to a peer group. For example, a Deaf child came to the City University Sign Language Assessment clinic[2] because of a dispute about school placement. He had previously been assessed using a verbal scale standardised on hearing children and the therapist had suggested as a result of his low scores that he should go to a special school for pupils with IDs. The BSL tests standardised on Deaf children showed that he was functioning within the expected language range for children of his age.

2.1 Choice of materials

It is common in language assessments to make use of pictures as stimuli since they are cheap to assemble, readily available, and easy to use in test situations. However, there are some very real disadvantages. The first is that pictures often result in simple naming of items rather than more complex expressive language. For example, young children below the age of 5 tend to rely on picture description rather than story narration (Schneider, 1996; Schneider & Dubé, 2005). In McCabe et. al's (2008) comparison of fictional and personal narratives by

[2] http://www.city.ac.uk/health/facilities/the-roberta-williams-speech-and-language-therapy-centre/sign-language-assessment-clinic

children with language impairments, the use of a wordless picture book led to mainly picture descriptions in the present tense, and the authors conclude that this approach is seriously disadvantageous, and tells us nothing about children's ability to relate personal stories that are important to them. Increasingly, there has been experimentation with more dynamic stimuli (eg. Stokes, 2014). These caveats have been found with children who use spoken language; the situation is even more complex for signers. Signing is a dynamic medium which operates in three dimensions. Confronted with pictures, signing children may incorporate the pictures into their narratives by pointing to the image, rather than setting up referents in space. Thus signing narratives elicited from pictures may underrepresent children's use of spatial grammar (Jansma, 1994). For this reason, video is preferred as the stimulus for assessing both comprehension and production of syntax and morphology in sign (Herman et. al., 2004; 2014). Toys or props are alternatives to pictures, however, care should be taken to make sure that participants are not handling the objects whilst using expressive language: Grove & McDougall (1991) suggested that the lack of sign use between peers in their study may have been partly because the children's hands were occupied with toys during the observation.

2.3 Shared reference

Another problem arises when the assessor is clearly seen to be in possession of prior knowledge, and is effectively asking display questions (McCabe et. al., 2008; Menig-Peterson, 1975). If an individual is retelling a story to a clinician who has just told it, and both of them are looking at the pictures, the pragmatic requirements for explicitness and replication are reduced in order to maximise conversational relevance (see Sperber & Wilson,1986) Even when given instructions to pretend that the clinician doesn't know the story (Berman & Slobin, 1994; Meuris et. al., 2014b), individuals may have difficulty

calculating exactly what that clinician sees or knows,. They may rely on the clinician to fill in what they leave unsaid because they understand perfectly well that the clinician does have access to those pictures. In the authors' experience, even people with very limited language and severe intellectual disabilities are highly sensitive to these contingencies.

2.4 *Underlying models and their implications: narrative assessment*

One of the most effective ways of eliciting complex language is to invite the participant to tell a story. Different perspectives on narrative have generated widely varying approaches to its assessment (see Bamberg, 1997; Smith & Sparkes, 2008), with clear distinctions drawn between theorists who view narrative as mainly the product of internally generated cognitive structures (who tend to work with fictional and written stories), and those who consider it as a dynamic interactive process between cognitive and social factors (and focus on personal experiences). When selecting the most appropriate method for a population, it is important to consider the affordances of the framework, the skill mix of the individuals, and the ultimate purpose of the assessment. Story grammar (Mandler, 1984) is the best known tool used by researchers working in language impairment and developmental disability. Because such a wealth of data has been amassed over the years it has become the default for researchers, who are able to compare different populations at different ages with the results of colleagues going back several decades. Based on the analysis of European folktales, it is specific to fictional stories of a certain type (prototypical hero tales and fables), and is by no means universal in its application (see Black & Wilensky, 1979; Klapproth, 1994). With children, assessment tasks often involve generation or retelling a story from wordless picture books. Developmental norms for narrative structure are quite hard to find, partly because variation in elicitation styles has a huge impact on scores (Ukrainetz, 2006). However, it is apparent that young children, aged 5 to 7, have considerable difficulties in producing complete structured

episodes; that this skill emerges between the ages of about 8-10; and that it continues to evolve in the teenage years (McCabe et. al., 2008; Reilly, 1992). Story grammar, in other words, although it may represent children's cognitive comprehension of a certain genre of fictional tale, is not used effectively to construct and tell stories by young children between the ages of 2 and 5 when, as Ukrainetz describes, narration tends to be co-constructed. Berman (1995) found that pre-school children (mental and language age equivalent to 36 - 54 months) could produce personal narratives but engaged in isolated event or picture description when telling "The Frog Story", a wordless story widely used in language development research. This suggests that for individuals whose performance on cognitive and language tests is below the age of 6, story grammar is likely to reveal deficits rather than strengths. Moreover, if the ultimate goal is to support the assessment of real life narrative, story grammar appears to be less effective than other approaches for capturing the underlying structure of oral personal recount narratives (McCabe et al., 2008). For example, High Point analysis (Johnson, 2016; Labov & Waletzky, 1976; Norrick, 2000) was developed through the study of oral personal narratives. It is applicable to both fictional and personal genres, has a looser structure that is not narrowly goal focused, and additionally includes the dimension of evaluation - the meaning and affective components of the story, expressed both verbally and nonverbally (McCabe et. al., 2008; the Narrative Assessment Profile (McCabe & Bliss, 2003) and Stanza analysis (Gee, 2014; Grove, submitted; Hyden & Antelius, 2013). High Point Analysis and the Narrative Assessment Profile have been successfully used to elicit stories from children as young as two years old.

2.5 *Ecological validity and ethics.*

These issues come into play in particular with the assessment of individuals who may be functioning at an early level of language and cognitive development, but who are adults. Care

needs to be taken when employing materials designed for young children with this population, although this may be necessary if no other materials exist. Ideally, tests should be used that employ inclusive design principles. The issue is one that impacts on the rights of people with intellectual disabilities to be treated with dignity and respect.

2.6 Summary

The points raised above suggest that when designing assessment for key word signers, clinicians should:-

- Use materials with dynamic stimuli - film or live action - in addition to 2- dimensional pictures
- Use stimuli that will elicit creative and complex use of sign and gesture
- Take care to ensure that the use of props does not compromise expressive signing
- Incorporate strategies to maximise explicit and expansive use of language, such as use of a naive listener
- Consider underlying perspectives and their implications
- Select approaches that are applicable across the widest possible range of ability
- Avoid using highly child focused materials with adults

3.0 Tools for assessment

With these caveats in mind, practical options will be discussed for the assessment of vocabulary, grammar and narrative skills in key word signers.

3.1 Vocabulary

Assessment of the lexicon is comparatively straightforward. Since the inception of sign systems, teachers have used sets of pictures and objects to determine understanding (typically

a choice of 4 pictures representing the concepts denoted by a sign) and expression - showing a picture of the referent and asking “What’s this?” Vocabularies such as Makaton are divided into stages to make the teaching more systematic, and these can be used to determine the level of knowledge. Given the known contextual variation, standard formal testing must to be complemented by ratings from families, teachers or support staff or by compiling lists of the signs that are used regularly. Decisions can then be taken about how to best expand the lexicon, and/or encourage maximum functional use.

3.2. Assessing grammar: syntax and morphology

A rather broad interpretation of grammar is adopted here, recognising that for key word signers not exposed to fluent sign language input, in all probability a more gestural form of communication is involved. What is important for extended communication is whether signs are combined into longer utterances, and whether complex meaning can be signalled through changes to the form of the signs.

In formal testing situation, pictures can be used to illustrate agents, recipients, patients, locations, in increasingly complex forms. Grove (1995) used contrastive pictures, with child and assessor having two pictures and the child choosing one to sign for the assessor to guess, a form of barrier communication game. This was effective in eliciting contrasts such as *big/small*-HOUSE; FLY-*up*/FLY-*down*; and SVO, SVA structures. Rudd used a set of model toys, working through a matrix of contrasts (Romski & Ruder, 1984), where she performed an action, and the child signed it back to her. For key word signers from a native signing background, the BSL Receptive Skills Test (see Herman & Roy, 2006) has proved to be applicable to participants with IDs and language disorders and can reveal cross-modal deficits and disassociations (Woll & Morgan, 2012).

3.3 *Assessing narrative*

Two narrative tasks available are one designed by Meuris et al. (2014b), specifically for adults with IDs using key word signs; and the BSL Sign Language Production Test (Herman et. al., 2004) which has been used with Deaf and hearing, native and key word signing, children and adults. These tasks are compared below in terms of their appropriateness for key word signers, their functional applicability and ethical stance.

3.3.1 Meuris et al. Narrative task.

The authors' stated aim is to examine the language and communication skills of their 40 key word signers. They developed two assessment contexts: free conversation, with some toys for prompts; and a narrative task which involved the tester telling a short story using key word signs and a wordless picture book, and then inviting the participants to retell it, with the pictures as support. Language and communication were assessed by calculating mean length of utterance, counting functional categories (giving information, requesting, directing, reference to emotion and commenting; conversation task only) and using a scale to count story grammar components.

Looking at language structure in the narrative task, signed and spoken utterances are analysed separately; the emphasis being on lexical size and diversity, witha basic measure of utterance length. Concentrating on the manual sign dimension, there were 35 utterances in the story, with a total of 34 different signs (73 total) and an average of 2.09 signs per utterance. Mean length of sign turn, however, obscures the fact that 40% of utterances used only one sign, a further 23% consisted only of noun lists, and only 25% (9/35) involved verbs. For example, in the utterance "I will bake him a cake" only the noun CAKE is signed, not the verb phrase. It does not appear that any signs were inflected in the input: for example, the contrast

between PUT-*in* and TAKE-*out*, which in sign would be indicated by directionality, is not mentioned.

With regard to narrative skills, 26 story grammar components are identified, comprising setting, initiating events, internal responses, attempts, consequences and reactions. Spoken utterances are rated on a 4 point scale (0 = absent, 1 = list of elements, 2 = use of related elements, and 3 = complete expression). Manual sign utterances, however, are rated on a binary scale (0 = no sign used; 1 = sign used). The authors claim that the scores on this task were strong predictors of language skills demonstrated in natural conversation, although this was not the case for narrative skills. The test proved relatively simple and quick to administer.

4.2 Assessing British Sign Language: Production Test (Narrative skills)

This procedure was developed by Grove and Dockrell (2000) and subsequently refined as a standardised test. It involves:-

- use of a silent film, employing real children in an amusing scenario - thus dynamic movement and use of space is in-built.
- a naive listener - the story is told immediately after seeing it to a familiar adult who they know has not seen the film.
- stimuli to elicit sign modifications. For example, a girl gives a boy sweets, cake and a drink, leading to contrastive handshape incorporation within the verb GIVE; the boy looks straight in front of him; the girl looks sideways at him and then down at the floor, so that the verb LOOK is inflected to indicate gaze direction.
- narrative skills are assessed using High Point Analysis, allowing the meaning of the story to be made explicit

- ecological validity - in real life people do recount to each other the plots of films and tv series.

With regard to language structure in sign, the test targets 30 inflected verbs (spatial; agreement, aspect, manner) 13 handling and whole entity classifiers, and role shift, all of which can sometimes be deployed by non-native signers. Facial expression and eye gaze are also assessed. The narrative structure of the test involves orientation or setting, complicating actions, high point, resolution and evaluation, the latter being marked verbally or nonverbally. Although pragmatic functions are not specifically targeted, the story includes several of those elicited in conversation by Meuris et al., including: rejection, expression of emotion, choosing, attention directing and information giving.

4.0 Discussion

This article is concerned with best practice in assessment of people who use key word signing. After a dearth of relevant research, the series of papers by Meuris and her colleagues (2014a, b; 2015) are to be welcomed. They comprise data relating to sign characteristics and functional use, and a survey to discover the extent of key word signing in adults with IDs in the Netherlands. However, there are several methodological problems with their narrative task (Meuris et al. 2014b). Firstly, the choice of story grammar seems inappropriate. Since the mental ages of the 40 participants in this study range from 24 to 84 months, with a mean of 57.7 and a standard deviation of 15.60, the majority were clearly functioning below the level at which they would be expected to produce a coherent and cohesive story - as is apparent from the low reported scores: a percentage range for spoken language scores of 0 - 47% with a mean of 19.3%, and a similar distribution for signing. The design of materials (picture based, no naive listener) clearly had an impact on the participants, as the authors

state (p. 2597) that as might be predicted, several participants resorted to naming and simple description. No attempts appear to have been made to stimulate or to analyse sign modifications. There is a critical shortage of verbs, compromising the claim that the task successfully reveals language skills in sign. As Grove and Tucker (2003) point out, this has a direct impact on the ability to narrate, since stories involve relationships between actors, patients, objects and recipients. The results do not show how the participants combined signs and words, since these are reported separately. Given that the purpose of communication is to convey information, it makes more sense to combine signs and words when calculating utterance length, particularly given complementary bimodal distribution.

Although language measures did correlate strongly across the two tasks, it is clear that narrative scores were not related, and the task was not designed to elicit pragmatic functions (although it could have been). Hence the conclusion of the authors, that this task could circumvent the need for a lengthier conversation, is puzzling. Their stated purpose, though, is simply to find out how many signs a person can use within a corpus of data and how their language skills compare between modalities. In contrast, when key word signers are assessed using materials designed for sign language users, the interest is on how sign and speech work together, and on the ability of participants to express themselves in creative and complex ways.

A further, serious problem with Meuris et al.'s narrative task, relates to ethics.

> "The story to be retold was adapted from an existing Dutch children story … A cake for little bear … The story is simple and focuses on an everyday activity of baking a cake. The setting is a birthday, which is thought to be an appealing event to many adults with ID. Finally, the pictures of the storybook were judged to be clear and visually attractive." (p. 2590).

> "Play material was used to elicit a conversation: a Playmobil house, animals, furniture, and figurines" (p. 2592).

It is both surprising and disappointing to find that in the 21st century, materials designed for preschool children are chosen for an assessment clearly aiming to be a gold standard for adults with IDs. The authors state that people with IDs like birthdays and simple pictures and animals, and need vocabulary used by six year olds - thus fostering and perpetuating the outdated and patronising view that these adult citizens of our nations are really just overgrown infants, on the basis, presumably, of their supposed mental ages. The authors themselves provide examples of two people who wanted to talk, not about toys, but about serious and critical issues: the impact of a label of intellectual disability and the death of a family member. This is not, of course, to say that using toys and picture books is wrong *per se* for individuals – the first author recently recommended model farm animals as a prompt for a woman who was remembering a trip out, knowing they would be enjoyed. But what we do in specific targeted interventions is quite different from wholesale recommendation as a routine means of assessment. There is certainly a case to be made for designing tasks to suit the needs of adults with intellectual and communication disabilities - but good practice mandates that this should be done through user led consultation, rather than on the basis of paternalistic assumptions regarding their interests and abilities. There is an additional problem of ecological validity, in that when items are presented that are seen as inappropriate to the subject's stage of life, the assessment process is likely to be compromised. So in addition to ethical concerns regarding respect and dignity there is the issue of how people view materials that are inappropriately chosen.

Turning to the alternative approach, the British Sign Language Production test (Herman et al., 2004), it may fairly be argued that the story is one that predominantly appeals

to children. However, video is used and the story is acted by teenagers. The tasks have proved effective in eliciting sign modifications, which has a direct impact on intervention by expanding the communicative power of a limited range of signs. Functionally, it has been shown that although staff do not themselves use sign modifications, they do recognise and understand them when they see them: when one boy describes seeing Concorde and signs "LIGHT-*s-on-and-off*" this is exactly what his support worker glosses: "the lights were flashing". Finally, the use of an analytic framework appropriate for both fictional and personal stories means that it is possible to compare narrative skills directly across the two contexts; High Point Analysis also allows people with limited communicative ability to demonstrate relative strengths as well as deficits.

One question that arises regarding a sign language based approach to KWS is the nature of the relationship between sign and gesture. In studies showing modifications to citation forms of sign by children with IDs, it was concluded that these were - strictly speaking- likely to be gestural rather than linguistic. If this is the case, should these skills be regarded as linguistic, or as more generic communication strategies? The distinction is a relevant one for debates about the nature of language, but from the point of view of key word signers, what is important is the communicative power of their utterances. A broad and inclusive definition of language is therefore advocated when considering this population.

5. Conclusion

Key word signing is a shorthand for a complex mode of communication, and those who use it can teach us much about the nature of creativity and language across the lifespan. Assessments need to be designed to maximise, rather than restrict, modality specific and modality independent potential. For this to happen, sensitive and appropriate ways need to be found to discover what users can do with the resources available to them. The recently

designed narrative task by Meuris and her colleagues, is, regrettably, not fit for purpose because it fails to take account of modality affordances; does not consider the relationship between sign and speech; and infantilises its protagonists.

As a result of this review, it is recommended that clinicians working with key word signers should look for materials that are dynamic, that elicit contrastive use of sign and gesture, and that take the pragmatics of assessment into consideration. It could be useful to design some specific measures for adults, but this should be done through consultation with self advocates who are key word signers, to ensure that the measures have ecological and ethical validity.

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