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Children's identification of graphic symbols representing four basic emotions: Comparison of Afrikaans-speaking and Sepedi-speaking children

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ABSTRACT

Purpose: Speech language pathologists recommend graphic symbols for AAC users to facilitate communication, including labelling and expressing emotions. The purpose of the current study was to describe and compare how 5- to 6-year-old Afrikaans- and Sepedi-speaking children identify and choose graphic symbols to depict four basic emotions, specifically *happy*, *sad*, *afraid*, and *angry*.
Method: Ninety participants were asked to select the graphic symbol from a 16-matrix communication overlay that would represent the emotion in response to 24 vignettes.
Results: The results of the *t*-tests indicated that the differences between the two groups' selection of target symbols to represent the four emotions are statistically significant.
Conclusions: The results of the study indicate that children from different language groups may not perceive graphic symbols in the same way. The Afrikaans-speaking participants more often choose target symbols to represent target basic emotions than did the Sepedi-speaking participants. The most preferred symbols per emotion were identified and these different symbols were analysed in terms of facial features that distinguish them.

Learning outcomes: Readers of this article will (1) recognise the importance of expressing basic emotions for children, particularly those that use AAC, (2) identify the possible limitations of line drawings for expressing and labelling basic emotions in typically developing children and (3) recognise the importance of cultural influences on recognition of basic emotions.

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1. Introduction

Experiencing and expressing emotions lie at the core of being human and it is important for the psychological well-being of individuals that they are able to express and communicate about these emotions (Johnson, 1997). Although emotion is an abstract concept, typically developing children as young as three years old are – with exposure and practice – able to infer basic emotions from facial expressions. At age three, typically developing children start to develop the ability to conceptualise and name different emotions (Greenspan, 2004). They are able to express emotions symbolically by using spoken language.

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Facial expression of emotions is crucial to the development and regulation of interpersonal relationships (Ekman, 1999). Some authors regard recognising basic emotions from facial expressions as a universal phenomenon (Elfenbein & Ambady, 2003; Ekman, 1994; Izard, 1994), while others (Boyatzis, Chazan, & Ting, 1993) caution that cultural differences and differences between individuals also play a role and should be taken into account when discussing emotions and the facial expressions linked to such emotions.

A number of cross-cultural studies on the universality of emotions (Beaupré & Hess, 2005; Shioiri, Someya, Helmeste, & Tang, 1999; Yik & Russell, 1999) showed evidence of cross-cultural agreement in the judgement of facial expression (Ekman et al., 1987). Consensus exists on the universal recognition of the emotions of *happiness*, *sadness*, *surprise*, *disgust*, *anger* and *fear*, although culturally dependent variations in the normal population are possible (Ekman et al., 1987; Shioiri et al., 1999). Four emotions (*happy*; *sad*; *afraid*; *angry*) are viewed as basic emotions (Brown & Dunn, 1996; Denham & Couchoud, 1990; Ekman et al., 1987; Ortony & Turner, 1990; Widen & Russell, 2004) and are regarded as universal; that is, they are experienced across cultural boundaries (Ortony & Turner, 1990).

The recognition of emotion across cultures is similar, while the way in which emotions might be represented or labelled appears to be more culture specific. The symbolic representation and interpretation of emotions may be influenced by cultural differences in the experience of emotions, which might be reflected in how individuals from different cultures identify graphic symbols that represent emotions.

Children with little or no functional speech (LNFS) will probably have difficulty expressing their emotions due to a variety of reasons. A possible augmentative and alternative communication (AAC) strategy in assisting these children in communication and specifically in expressing/labelling emotions involves the use of graphic symbols. These two-dimensional line drawings can be pictorial or more abstract. Picture Communication Symbols (PCS)[TM], for example, constitutes a set of pictorial symbols where the symbols are line drawings with a strong visual link between the objects being represented and the line drawings. Researchers are continually debating the nature of pictorial graphic symbols selected to represent concepts – especially non-picture producing concepts like emotions – and whether these pictorial graphic symbols can successfully depict language. Research studies over the years have revealed that children (even typically developing children) relate to graphic symbols differently from the way in which developers of graphic symbol sets and systems anticipated the children would. As children with LNFS form a heterogeneous group, initial research in different areas in the field of AAC use typically developing children as participants. Once researchers have a better understanding of the researched area, their results can be used as the foundation for further research, including research among children with LNFS.

Several studies have explored graphic symbols in the South African context since 1997. Some used different symbol sets and/or systems and investigated different parameters, namely learnability (Alant, Life, & Harty, 2005; Basson & Alant, 2005), retention (Alant et al., 2005), iconicity (Basson & Alant, 2005; Dada, Huguet, & Bornman, 2013; Haupt & Alant, 2002) and representation of emotions (Visser, Alant, & Harty, 2008). These investigations were conducted in five of South Africa's eleven official languages: Afrikaans, English, Northern Sotho (Sepedi), Setswana and isiZulu (Alant et al., 2005; Basson & Alant, 2005; Bornman, Alant, & du Preez, 2009; Haupt & Alant, 2002; Visser et al., 2008). They focused specifically on theme-based communication overlays and indicated possible cultural differences in the way typically developing children from different language groups selected symbols in response to a spoken label (Basson & Alant, 2005; Haupt & Alant, 2002). The study findings proved to have clinical implications for selecting graphic symbols for AAC intervention and for communication overlays, particularly if the professional came from a cultural background different from that of the AAC user.

Of the above studies, only the study by Visser et al. (2008) focussed specifically on the abstract construct of emotions depicted by means of line drawings, and constituted the first attempt to explicitly investigate the ability of 4-year-old English-speaking typically developing children to identify graphic symbols representing the basic emotions of *happy*, *sad*, *angry* and *afraid*. The study revealed that the highest consensus (99%) between children's actual responses and those anticipated by researchers occurred in respect of *happy*. At the lower end of this scale was *sad* (37%), with *afraid* at 74% and *angry* at 85%.

The present study endeavoured to determine and compare how typically developing South African children, aged 5;00–5;11 (years;months), from two different indigenous language groups (Afrikaans and Sepedi), related to 16 PCS symbols that depict four basic emotions: *happy*, *sad*, *angry*, and *afraid*. The children were from Limpopo, the fourth largest province of the Republic of South Africa (Census 2001, 2003), where Sepedi is the home language spoken by most (52.1%) residents, as well as the fourth biggest home language in the entire country. Although Afrikaans is spoken only by a small portion (2.3%) of the Limpopo population, it constitutes the third biggest home language group in the Republic of South Africa (Census 2001, 2003). The aim of this study was to compare the identification of emotions, and the target and non-target choices of graphic symbols to represent the basic emotions, across language groups, gender groups and vignettes. *Target symbols* in this study refer to any of the four symbols that were systematically identified to represent a specific basic emotion. Table 1 outlines the four target symbols for the emotion *happy* which include symbols 1, 5, 9, 13. The *Non-target symbols* refer to all the remaining symbols that have not been identified as a target symbol. The non-target symbols for the emotion *happy* refer to the remaining 12 symbols in Table 1 (i.e. the target symbols for basic emotions *sad*, *angry* and *afraid*). Due to the nature of the task, the selection of a target symbol is no more correct than the selection of a non-target symbol. In addition, the symbols most preferred by the participants to represent the basic emotions would also be described.