

CHAPTER 1

INTRODUCTION AND RATIONALE

1.1 PROBLEM STATEMENT

Natural speakers conduct conversations at between 150 and 250 words per minute. This allows for efficient communication of messages, which are formulated and spoken virtually simultaneously. However, the rate of communication for people with little or no functional speech, who make use of augmentative and alternative communication (AAC), is only 15 words per minute under most circumstances and in some cases as slow as 2 to 8 words per minute (Goldman-Eisler, 1986; Foulds, 1980, 1987). This is only a fraction (about 10 %) of what is achieved by natural speakers.

This drastic reduction in communication could interfere significantly when communicating with natural speakers who are accustomed to exchanging information at a more rapid pace. Accounts of communication partners walking away from or constantly interrupting the conversation with an AAC user are not uncommon. These AAC users often have difficulty getting into the conversation and meeting the demands of conversations in "real-time" (Light, Lindsay, Siegel & Parnes, 1990, p.184).

The rate of communication is not dependent solely on the number of selections that an AAC user has to make to complete a message, but is also determined by a number of interrelated variables. These include the average number of selections needed to transmit the message (the "linguistic cost"); the average number of motor acts required per selection; the average time per motor act; and the cognitive demands in terms of processing time and cognitive load in the process of deciding which motor acts and selections are necessary (Rosen and Goodenough-Trepagnier, 1981; Light et al., 1990).

The slow rate of communication which hampers many AAC users' effectiveness in communicating, necessitated the development of techniques to accelerate communication and to improve the timing of messages which are constructed making use of aided symbols. These techniques are commonly known as rate enhancement techniques (RETs). One of these

techniques is semantic compaction or Minspeak™ as it is known commercially, and will be the focus of the present study.

"Minspeak" is an acronym for minimum effort speech. It is an iconic encoding system that was developed in the United States and which uses multi-meaning icons to encode messages (see Chapter 2 for a detailed description). The use of iconic encoding techniques such as Minspeak™ requires a related skill, namely association. Individuals need to be able to use various aspects of a symbol to "remind" them of associated concepts or words (Beukelman and Mirenda, 1998, p.208).

The year 2000 marks the start of the third decade of the Minspeak™ approach to encoding messages. Minspeak™ is reportedly distributed and used with much success worldwide, yet in Africa the approach is still relatively unknown. Barry and Baker (1990) stated that although this approach has been well established clinically, it might be useful to review its theoretical status. Crucial aspects such as the appropriateness of the Minspeak™ approach to the South African context, the affordability of its implementation, usefulness of the established icons and associations, adaptations essential for making it culturally congruent need to be established for the South African context.

Ethical codes for accountable and effective service delivery in speech-language pathology require clinicians to develop individualized intervention programmes that are based "on the *specific cultural and linguistic needs* of the client and significant others" [italics added] (SASLHA, 1998, p.2). This requirement necessitates research into the appropriateness of the Minspeak™ icons and associations currently available to the South African population, to investigate local users' familiarity with the symbols and associations used.

When cross-cultural implementation of an intervention technique is considered, many factors like the influence of culture and especially language should be kept in mind. The consideration of linguistic diversity means that variability might exist between groups using different languages and even within a group using the same language (Ellis & Beattie, 1986, p.78). The differences between languages are extensive and immediately obvious: the number and kind of speech sounds and the way they are combined; different forms of nouns, pronouns, adjectives and articles, e.g. masculine, feminine or neutral. Word order and sentence structure varies, as well as different forms of the verbs. Furthermore, we live in a

multi-cultural society with possible additional dialectic variations, due to class, sex, occupation and geographic location. In fact, it seems that the only invariant linguistic units are prepositions (e.g. under, in) and adverbs (e.g. always, never) (Ellis & Beattie, 1986, p.79). It seems clear that AAC systems cannot simply be imported to South Africa to be used without investigation into the appropriateness of their use in the specific context. Although there is existing literature about the Minspeak™ approach including clinical issues, linguistic and cognitive processing, the author was surprised to find little information compared to other areas in the field of augmentative and alternative communication (AAC), and even less that had a strong theoretic/academic background. Information on how to adapt Minspeak™ for different cultures and contexts was very scarce.

This study was intended as a first study about the applicability of the Minspeak™ approach in South Africa, in an attempt to promote the investigation into appropriate strategies and techniques to enhance the communication rate of AAC users in the South African context. The author's intention with this study is to stimulate more systematic research on association-based iconic encoding systems like the Minspeak™ approach. This study is an investigation into the meanings that young adults, specifically tertiary education students, attach to selected Minspeak™ icons that are currently part of the UniChat™ starter pack overlays used with the ChatBox™, and Unity™ software for the AlphaTalker™, DeltaTalker™, Liberator™, Vanguard™, and Pathfinder™. The aim of the study is to compare the words used to describe the associations by the participants with the vocabulary used in Unity™ in the UK and US versions. The list of associated meanings might be useful to South African AAC users and their clinicians to provide guidelines for vocabulary to be included in their AAC systems.

1.2 DEFINITIONS OF TERMS

The following section will provide clarification on the frequently used terms used in this study.

1.2.1 Augmentative and alternative communication (AAC)

Augmentative and alternative communication (AAC) refers to those strategies that supplement or replace natural speech and/or writing making use of aided or unaided systems, in order to enhance the effectiveness of communication skills of people with little or no functional speech (Lloyd, Fuller and Arvidson, 1997, pp.1, 524). It is also described by the

American Speech-Language-Hearing Association (ASHA) as “an area of clinical practice that attempts to compensate - either temporarily or permanently - for the impairment and disability patterns of individuals with severe expressive communication disorders, including the severely speech-language and writing impaired” (1989, p.107).

1.2.2 Voice output communication aids (VOCAs)

This refers to an assistive communication device that can provide the user with either synthesized or digitized speech (Lloyd et al, 1997, p.543).

1.2.3 Unity™ software

Unity™ is the commercially available vocabulary encoded under Minspeak™ icons, which can be used by means of software on Minspeak™-based voice output communication aids, and comes with instructional manuals and materials. Different versions of Unity™ are available from Prentke Romich Company, including a 32-option version, a 128-version and the new 64-option version. A 16-option version is available in the programme called UniChat™.

1.2.4 Associations

When using an iconic encoding technique like Minspeak™, the skill of association is crucial so that individuals can use various aspects of a graphic representation, like an icon, to “remind” themselves of concepts and words coded by the specific icon or icon sequence (Beukelman and Mirenda, 1998, p.208). An association is thus the meaningful link between a graphic representation and the words or concepts represented by the symbol.

1.2.5 Rate of communication

For the purpose of this study the rate of communication will refer to the speed of output in terms of the amount of words expressed per minute (Foulds, 1980, 1987).

1.2.6 Little or no functional speech

Little or no functional speech will refer to individuals who are able to only use 15 or less words functionally and intelligibly (Burd, Hammes, Bornhoeft & Fischer, 1983).

1.2.7 AAC systems

This refers to “an integrated group of components, including the symbols, aids, strategies, and

techniques used by individuals to enhance communication” (ASHA, 1991, p.10).

1.2.8 An AAC user

Beukelman and Mirenda (1998, p.4) postulated that there is “no typical AAC user”. The American Speech-Language-Hearing Association proposes that AAC users are those “individuals with severe communication disorders” who may “benefit from AAC - those for whom gestural, speech, and/or written communication is temporarily or permanently inadequate to meet all of their communication needs.” They add that hearing impairment is not the primary cause of the communication impairment for these individuals (ASHA, 1991, p.10).

1.2.9 Communication

Communication may be linguistic or non-linguistic and refers to the “transmission or exchange of thoughts and information” between individuals by making use of any means, including amongst others speech, manual signs, gestures, traditional orthography, facial expressions, eye gaze, and graphic representational systems (Lloyd et al., 1997, p.526).

1.2.10 Technology

For the purpose of this study, technology refers to the "use of all materials (e.g. paper, board, displays), mechanical devices (e.g. switch-operated toys, electric-operated scan devices), and computerized devices (e.g. computers, communication devices)" (Quist and Lloyd, 1997, p.107).

1.3 OUTLINE OF CHAPTERS

Chapter 1 describes the rationale for this study, as well as an outline of the various chapters and clarification of the frequently used terms in this study. *Chapter 2* provides an overview of different rate enhancement techniques with specific focus on iconic encoding. A discussion of the different types of associations and the impact of culture on making such associations follow. The chapter concludes with a discussion of the cognitive demands facing an individual using a more sophisticated voice output communication aid (VOCA). The details of the research methodology is provided in *Chapter 3*, with focus on the selection and description of participants, the research design, the different phases of the research and the pilot study. This is followed by a description of the material used in this study and an

overview of the data collection procedure and statistical analysis.

In *Chapter 4*, the results of the study are presented and discussed, according to the different sub-aims of the study. The different associations elicited in this study are discussed in terms of areas of commonality and the percentages of the different common associations. This is concluded by a comparison of the elicited associations with the current Unity vocabulary. *Chapter 5* provides an integrated discussion of the results, followed by a critical evaluation of the study. The final section considers the clinical implications of the study and offers recommendations for future research.

1.4 ABBREVIATIONS

The following is a list of abbreviations frequently occurring in the study.

- AAC - Augmentative and Alternative Communication
- RET - Rate Enhancement Techniques
- VOCAs - Voice Output Communication Aids

1.5 SUMMARY

This chapter provided an overview of the rationale for this study, including the difficulties AAC users experience adding to a slower rate of communication and the subsequent development of rate enhancement techniques including encoding techniques. An overview of iconic encoding techniques is given against the background of the lack of culturally congruent intervention material for implementing this approach. This is followed by a clarification of the frequently used terms and an outline of the various chapters concludes the chapter. Chapter 2 will provide a detailed discussion of the different theoretical issues involved in rate enhancement techniques, with specific focus on iconic encoding.