



CHAPTER 1 ORIENTATION

1.1 INTRODUCTION

This introductory chapter provides the background and purpose of the research. It also includes an overview of the contents of the chapters included in the study.

1.2 THE CONTEXT AND STATEMENT OF THE PROBLEM

The ultimate goal of Augmentative and Alternative Communication (AAC) is to enable the person with little or no functional speech (LNFS) to communicate effectively in their daily interactions with others. The person using AAC needs to successfully interact and communicate with both familiar and unfamiliar partners in everyday situations within the natural contexts of home, school/work and the community.

Communication is the essence of being: We communicate in order to share our basic wants and deepest needs, to reveal our thoughts and ideas, to express our feelings and emotions, to disclose our likes and dislikes, to share our joys and sorrows, to reflect our personalities and most importantly to connect – to touch others and to be touched by them. People who have LNFS have often been described as living silent, isolated existences and AAC has often been described as the “magic” that can transform their lives. Yet there is no magic if the AAC system does not allow persons who use AAC to communicate easily with those whom they come into daily contact. People who use AAC often have extremely limited social networks and many only communicate with immediate family or caregivers and with those who are paid to communicate with them. Children and adolescents who use AAC often have no real interaction with peers or with the wealth of unfamiliar partners that typically developing children and adolescents engage with in the community.

AAC clinicians frequently execute extensive assessment procedures that result in detailed plans for the implementation of multi-modal systems of AAC to meet the communication

needs of children and adolescents with LNFS. Yet, despite the provision of extensive AAC systems and intensive training of the children and adolescents to promote communication competence, peer interaction remains problematic. Both clinicians and researchers have confirmed inadequate or a total lack of interaction between disabled children who use AAC and their peers.

To achieve an acceptable level of social communicative competence it has become increasingly apparent that the training of communication partners is an essential component of effective AAC intervention. Empirical research and clinical experience have proved that intervention directed solely at the person who uses AAC is insufficient to ensure social competence (Light, Dattilo, English, Gutierrez, & Hartz 1972; McNaughton & Light 1989). It has become clear that it is as critical to address partner training as it is to address the skills and strategies involved in the development of the social competency of the person using AAC. This ensures the optimum outcomes for both children and adolescents who use AAC.

The pattern of typical development clearly demonstrates that interactions with peers become increasingly important as the child matures and are considered of utmost consequence during adolescence. The development of psychosocial abilities required for positive adulthood depends on the ability to interact appropriately with peers during adolescence. The development of training programmes for the peers of children and particularly adolescents who use AAC is thus essential. Best practice suggests that AAC intervention for children and adolescents needs to be twofold: (a) addressing the needs and building the competencies of the person using AAC and (b) instruction and training of significant communicative partners including parents, teachers, facilitators and peers (Carter & Maxwell 1998; Light, et al., 1992; McEwen & Karlan, 1990). As Sack and McLean (1997) point out professionals in the field of AAC must conceive an expanded role that includes training and supporting daily communication partners of people who use AAC in addition to teaching new interaction skills and communication strategies to the person who uses AAC. Although partner training is widely recommended in current AAC literature, there are few studies describing partner training and even fewer studies on peer programmes (Sack & McLean 1997).

In order to develop effective AAC intervention programmes involving children and adolescents who use AAC and their peers we need to gain insight into what actually happens when children and adolescents who use AAC communicate with their peers. Both problematic and successful interactions in daily situations need to be studied to assist us to gain perspective on the efficacy of our AAC interventions with children and adolescents who have LNFS. It is not possible to measure the success of AAC interventions within a closed setting such as “the therapy room” or the “research laboratory”. Certain aspects such as accuracy in retrieving vocabulary or measuring the increased rate of message formulation may be assessed but as AAC clinicians and researchers we need to observe and understand the interaction opportunities and challenges faced by the person using AAC in their natural settings. We need to gain knowledge of how to improve the effectiveness with which children and adolescents who have disabilities and use AAC manage their daily interactions and discourse with peers.

In South Africa learners with disabilities have experienced great difficulty in gaining access to education (Department of Education, 2001). The Education White Paper 6 on special needs education indicates that currently an estimated minimum number of 280,000 learners with disabilities do not have access to either special or mainstream education (Department of Education, 2001). The report bases this figure on World Health Organisation projections that between 2.2% and 2.6% of learners in any school system could be identified as disabled, and that only 64,200 learners with disabilities or learning impairments are presently enrolled in the 380 special schools in South Africa (Department of Education, 2001). The report acknowledges that support and preparation are required for inclusion to be a successful experience for both the learners with disabilities and their typically developing peers. At present few learners with LNFS have been included in mainstream schools but the results of a prevalence study indicated that 39% of the students in schools for children with severe cognitive impairments in the Pretoria area had LNFS (Alant, 1999).

For children and adolescents with LNFS, irrespective of concurrent cognitive impairments, to be socially included in an inclusive educational system the following areas need to be addressed:

- i. Facilitation of positive attitudes of the typically developing children and adolescents to their peers with disabilities including LNFS.
- ii. Direct AAC intervention for children and adolescents with LNFS including the provision of AAC systems and training in linguistic, operational, strategic, and social competency skills to ensure the optimal communicative competency of the child or adolescent who uses AAC.
- iii. The training of peers.
- iv. The training of significant adults including teachers and facilitators within the educational setting and parents.

A barrier to improving the interaction of children and adolescents who use AAC through peer training is the lack of validated peer training guidelines, procedures and materials. This study is an attempt at describing the interactions of an adolescent who uses AAC with his peers within the natural setting of his classroom and the effects of a peer training programme on the interactions of the adolescent with his peers. The peer training programme was devised and implemented as part of the study and aspects of the psychosocial background are also described. The possible impact of the effects of the programme on the interactions of the adolescent who used AAC are evaluated by means of an analysis of observational data derived from extensive videotaping in the classroom as well as by evaluation procedures carried out with the adolescent who used AAC, his peers, teachers and parents.

1.3 OUTLINE OF CHAPTERS

Chapter 1 provides the background and the motivation for the study. Chapter 2 describes the theoretical issues related to the importance of the development of communication and social skills in adolescence, the necessity to train partners and the rationale of peer training. Chapter 3 discusses the complexity of describing and analysing interactions involving a person using AAC, including the issues of notation, transcription and segmentation of discourse involving AAC. In addition, the theoretical basis for the evaluation of the psychosocial background of the person using AAC is briefly discussed.

In chapter 4 the methodological procedures applied to the study are presented. The main study is described in detail and data collection and analysis procedures are presented. The results and the relevant discussion of the results are discussed in chapter 5. Chapter 6 concludes the study with a discussion of the integration of the results, the evaluation of the study, the clinical implications and recommendations for further research.

1.4 DEFINITION OF TERMS

The following key terms are used frequently and require clarification:

- i. **Adolescence:** A normal developmental period of transition between childhood and adulthood that is characterised by rapid changes in physiological, psychological and social development (Whitmire, 2000).
- ii. **Augmentative and Alternative Communication:** '(1) The supplementation or replacement of natural speech and/or writing using aided and/or unaided symbols. The use of aided symbols requires a transmission device whereas the use of unaided symbols requires only the body. (2) The field or area of clinical/educational practice to improve the communication skills of individuals with little or no functional speech' (Lloyd, Fuller, & Arvidson, 1997, p. 524).
- iii. **Behaviour rehearsal:** This involves the practicing of a modeled skill in a simulated or natural setting with reinforcement and feedback (Cartledge & Milburn, 1995).
- iv. **Communication:** In this research proposal it is considered to be a multimodal composite of behaviours for the purpose of exchanging thoughts or ideas from one person to another irrespective of the means e.g. speech, gestures, writing or graphic representations. Communication may or may not be linguistic and takes place between people to achieve the communicative functions of the expression of needs, the transfer of information, the promotion of social closeness and to meet social etiquette norms.
- v. **Initiation:** An attempt using any mode to instigate an interactional event by either the person who uses AAC to a peer or by a peer to the person who uses AAC.

- vi. **Interaction:** ‘The process that occurs when people come together’ (Bullock 1979). It does not necessarily imply that words are spoken but that a cyclical interplay of actions and reactions between two or more people takes place (Kraat, 1987).
- vii. **Interchange:** Defined for this study as a single initiation, or a series of initiations and responses that are thematically related and have discernible boundaries between the person using AAC and one or more peers. Interchanges thus correspond to a single initiation of a series of turns referred to as a conversational interchange within the field of conversational analysis. A single initiation is included as it is regarded as an attempt to initiate an interchange. Interchange is a term used in discourse analysis to describe a “coherent segment of interaction” (Stubbs, 1983). The interchange is usually further divided into smaller units for analysis. In this study interchanges were divided into “messages”, the basic unit of analysis.
- viii. **Message:** A message can be either an initiation or a response or a follow-on and is the smallest unit of analysis. Message is equivalent to the term “utterance” in spoken language studies where one or more messages constitute a communicative turn.
- ix. **Reinforcement:** This procedure includes arranging relevant settings for the adolescent to practice the social skills with different partners in various settings. Once skills are learnt additional strategies to promote generalisation and maintenance may be required (Cartledge & Milburn, 1995).
- x. **Response:** Any endeavour of a peer or peers to react to an initiation by the person using AAC or any endeavour of the person using AAC to act in response to an initiation by a peer or peers.
- xi. **Social modeling:** Also referred to as learning by imitation involves the production of a social behaviour to facilitate learning through observation and imitation by another (Cartledge & Milburn, 1995).



- xii. **Voice Output:** The output mode of a communication device that utilises either digitized or synthetic speech output. Digitized speech is 'electronically produced when the human voice is recorded and digitized' (Lloyd, Fuller, & Arvidson, 1997, p. 528). Synthesized speech is 'artificially produced (e.g. by electronic means) rather than by the human vocal tract. It is highly flexible and can use text-to-speech to produce virtually any typed message. There is a wide range of quality depending on the rules/algorithms stored in the computer memory. In general the intelligibility of synthesized speech is not as high as digitized speech' (Lloyd, Fuller, & Arvidson, 1997, p. 540).

1.5 ABBREVIATIONS

AAC	Augmentative and Alternative Communication
CP	Cerebral Palsy
I/R	Initiation followed by response
I/R/F	Initiation-response-follow-up exchange
LNFS	Little or no functional speech
MSCS	Multidimensional Self Concept Scale
OBE	Outcome based education
PACT	Partners in Augmentative Communication Training
SDQ II	Self Description Questionnaire II
SEM	Standard error of measurement
VOCA	Voice output communication aid

1.6 SUMMARY

This chapter provided the motivation and background to the study. The focus was on the necessity to train partners of individuals who use AAC, in particular the peers of adolescents who use AAC. A brief outline of the chapters included in the study was provided. The key terminology used in the study was then defined and followed by an explanation of the abbreviations used in the study.



CHAPTER 2
THE SOCIAL INTEGRATION OF AN ADOLESCENT WHO USES AAC:
THE NECESSITY OF PEER TRAINING

2.1 INTRODUCTION

The social integration of an adolescent who uses AAC, even if he or she has gained a high degree of operational, strategic and linguistic competency skills, cannot be assumed and is unlikely to occur without effective peer training. This chapter discusses the importance of social interactions with peers during adolescence for the development of mature social, cognitive and linguistic abilities required in adulthood. The skills required by adolescents to interact socially are considered, as well as the influence of peer attitudes on the interactions of adolescents. The interaction patterns of children and adolescents who use AAC are described, and the necessity to train the communication partners of adolescents who use AAC is highlighted. Finally the rationale and the underlying principles for peer training programmes are discussed.

2.2 ADOLESCENCE AND THE IMPORTANCE AND FUNCTION OF PEER GROUPS

Adolescence, more than any other period of development, is strongly linked to the importance of the peer group. As a normal developmental period of transition between childhood and adulthood adolescence is characterised by rapid changes in physiological, psychological and social development (Whitmire, 2000). It differs markedly from both childhood and adulthood and has distinct developmental objectives in cognitive, linguistic and social areas that involve identity formation, the foundation of personal beliefs and value systems as well as a deeper understanding of society and socio-cultural conventions (Whitmire, 2000). Deficient experiences in adolescence can result in alienation from parents and society and it is crucial that the goals of adolescence are positively accomplished for the individual to successfully transition to adulthood.

One of the primary goals of adolescence is the realisation of self and personal identity (Harter, 1990; Whitmire, 2000). The development of mature self-conceptualisation is engineered through multiple and varied peer interactions and relationships that are invariably accompanied by changes in the parental and family relationships of the individual (Whitmire, 2000). Overall, adolescent parent relationships are positive but the nature of the relationships change and become more reciprocal and equal than those of children and their parents (Whitmire, 2000). Successful adolescent peer relationships form the foundation for positive relationships in adulthood just as early positive family relationships contribute to successful adolescent peer interaction (Whitmire, 2000). Peer relationships in adolescence are more complex and differ in both quality and quantity from those of childhood (Meyer, Minondo, Fisher, Larson, Dunmore, Black, & D'Aquanni, 1998).

In early adolescence small groups of friends function as the primary base of interaction with peers and allow for regular interaction that is more spontaneous and relaxed than that with adults (Nippold, 2000; Whitmire, 2000). For the purpose of this study the definition of a group by Sherif and Sherif (1973) was adopted. They state that a group is a social unit which consists of a number of individuals who stand in definite status and role relationships to one another and which possesses a set of values or norms of its own, regulating the behaviour of individual members (Sherif & Sherif, 1973). Early adolescent groups are generally comprised of only one gender. Groups of adolescent boys are generally fairly structured with some members having more prestige and status than others and it is through communicative interactions that individuals assert their dominance within the group (Romaine, 1984).

These peer groups give adolescents the opportunity to develop social skills, share personal problems, support one another and develop mutual intimacy allowing the adolescents to develop autonomy from parents (Nippold, 2000; Whitmire, 2000). As they develop adolescents spend significantly greater amounts of time socialising with friends (Nippold, 2000; Rubin, Bukowski, & Parker 1998). The development of social competency skills and mature social behaviours in typically developing adolescents is dependent on peer interactions and relationships (Bigelow & La Gaipa 1980; Cartledge &

Milburn, 1995). Both friendships and peer group acceptance are important influences on the development of social competence and on the self esteem of the adolescent (Azmita, Kamprath, & Linnet, 1998). Peer acceptance also has a dynamic influence on adolescent friendships (Asmita et al., 1998).

Adolescents and children who have disabilities and LNFS have limited opportunities to interact in peer group and this negatively influences the development of social and communicative abilities (Beukelman & Mirenda, 1992). Adolescents and young adults who use AAC have described feelings of isolation, barriers in getting to know peers, barriers to meeting and making friends, frustrations with respect to initiating and maintaining relationships with peers and profound frustration with negative experiences related to attempts at peer acceptance and socialisation (McCarthy, Light, & McNaughton 2002).

2.3 SOCIAL COMPETENCE OF THE ADOLESCENT

Social competence impacts significantly on social acceptance. Adolescents who have developed the interaction skills of employing appropriate greetings, making eye contact, complimenting, answering peers questions, listening attentively and taking conversational turns rank high on social acceptance by peers. Research on social status has shown that popular children and adolescents expect to be accepted by peers, have greater self-esteem, use more varied initiation strategies, are more responsive and throughout their interactions show more communicative competence (Ramsay, 1991). They are described as positive, considerate, emotionally appropriate and confident (Ramsay, 1991).

Many of the characteristics that determine the social competence of children and adolescents in the opinion of peers involve communication skills (Cartledge & Milburn, 1995). The ability to be outgoing, the capacity to amuse peers, the ability to actively participate in peer activities, the nature and extent of the adolescent's vocabulary as well as the content and use of language all determine the social competence of typically developing adolescents (Cartledge & Milburn, 1995).



The growth of such sociolinguistic skills is totally dependent on social interaction (Romaine 1984). It is through competent communication skills that children and adolescents explore and manipulate their social environments and establish their status and role relationships within these environments (Romaine, 1984). Communication competence therefore implies not only interactional and linguistic skills but social cultural skills as well. This is particularly true of adolescents who develop distinctive in-group vocabulary, language forms and ways of communicating that are important and help to identify their position within the social group. This use of slang or in-group vocabulary by adolescents maintains their identity with the peer group (Whitmire, 2000). To be considered communicatively competent, an adolescent must not only know how to interact with adults in varied settings and degrees of formality but also how to interact with his peers both when in the presence of adults and when within familiar groups. Research into non-standard language use by adolescents has shown the language used to be as structurally complex and rule-governed as the standard language (Romaine, 1984).

The acquisition of adult norms in sociolinguistic patterning takes place mainly between 10 and 15 years of age (Romaine 1984). However, from a young age children are able to monitor and even correct linguistic errors such as mispronunciations. Adolescents become far more skilled as they develop in the evaluation of their own language and communication and that of their peers. They learn to make judgments about the appropriateness of their communication, taking situational variables such as audience into account (Romaine, 1984). Thus correlations between language use and social structure, 'sociolinguistic patterns', comprise part of communicative competence (Romaine, 1984). Adolescent peer verbal input is therefore important in facilitating emerging communicative competence (Romaine, 1984). Peer pressure within same-sex adolescent groups ensures the use of communication behaviours that are conformist as part of the socialisation process (Romaine, 1984). Adolescents even adapt their communication to indicate to which peer groups they belong (Romaine, 1984). Thus the development of peer group communication styles is a significant part of the socialisation process.

Peer groups during adolescence enforce the use of specific vocabulary and precise forms of interaction to denote in-group membership of that age range. During adolescence peers become more important than adults in providing models. Sociolinguistic research on the structure of intragroup communication has disclosed that both the nature of peer group interactions and the constant monitoring that occurs amongst members of the group is important to the evolvement of communicative competence (Romaine, 1984). Thus conformity with peer group pressures results in changes in the manner, style and linguistic content of communication by the adolescent.

The goal of communication which aims to develop interpersonal relationships is particularly relevant to the adolescent phase compared to the goals of expressing needs and wants, exchanging information and meeting social etiquette or norms. It is in meeting the goal of developing social closeness that people communicate to initiate, develop or sustain personal relationships and friendships (Light, 1988). The focus of the communication is on the interpersonal relationship and the content of the interaction is not significant (Light, 1988). Thus, in considering the relative importance of the four objectives of communication at different stages of life, communication to develop social closeness with peers is of supreme importance for adolescents (Light, 1997a). Social closeness is critical for adolescents as it is during this life period that peer relationships and peer acceptance assume prominence and take priority over family relationships (Fine, 1980).

Different forms of peer interaction reflect the development of social-cognitive skills and acceptance into a close and integrated group of peers is essential to the founding of mature adult relationships (Bigelow & La Gaipa, 1980). Thus, meaningful participation of adults in varied roles in family, social and community contexts is dependant on the development of interpersonal skills during adolescence (Meyer et al., 1998). Numerous correlation studies investigating the association between early peer relationships and later social disorders have indicated that problematic classroom peer relationships are related to poor social adjustment in adults (Ladd & Asher, 1985).

Communicative interaction is essential to develop friends and certain adolescents find it difficult to interact and make friends, later becoming socially detached and as adults have poor interpersonal relationships (Meyer et al., 1998). Although the lack of social development may be due to the individual adolescent's personal deficiencies it is widely accepted that environmental circumstances may be responsible for an adolescent's inability to progress socially (Meyer et al., 1998). These environmental situations are generally beyond the control of the individual adolescent and include the interactions and attitudes of peers to adolescents with disabilities (Meyer et al., 1998). Limitations in peer interactions by adolescents who use AAC may be due to limited opportunities to interact with peers, limited social competency skills of the adolescent who uses AAC or limited understanding and abilities of the peers to interact with the adolescent who uses AAC. Peer attitudes to communicating and developing interpersonal relationships with adolescents who use AAC are an additional important consideration.

2.4 THE IMPORTANCE OF PEER ATTITUDES

To understand the influence of the attitudes of adolescents to their peers we need to look at how attitudes influence behaviour. The ABC model of attitudes helps us to understand this influence as the model suggests that any attitude has three interrelated elements, namely an affective, a behavioural and a cognitive component (Feldman, 1993). The affective component comprises the emotional feeling, whether positive or negative, the behavioural component is the predisposition to act in a way that is relevant to an attitude, and the cognitive component refers to the thoughts and beliefs relative to the attitude. Every attitude an individual has consists of all three components but in varying degrees of prevalence (Feldman, 1993). Attitudes revealed by behavioural responses to a person situation or issue, are often those of which an individual may not be fully conscious (Aitkin, 1996).

Attitudes influence the interaction of peers in terms of the partners they select and how they interact with them. This profound effect of attitudes on interactions highlights the need to improve the attitudes of typically developing adolescents to their peers who have

disabilities including those with little or no functional speech (LNFS). Extensive research findings substantiate negative attitudes toward disabled persons as well as the modification of the social behaviour of typically developing adolescents when in the presence of disabled peers (Bender, 1980; Fiedler, & Simpson, 1987; King, Rosenbaum, Armstrong, & Milner, 1989; Warrick, 1988). More specifically, negative attitudes of typically developing children to peers with even mild speech disorders were found to be prevalent (Kalinowski, Lerman, & Watt, 1991; Lass, Ruscello, Bradshaw, & Blankenship, 1991; McKinnon, Hess, & Landry, 1986; Williams, & Dietrich, 1996).

Adolescents with poor communication skills are unable to engage in strategic peer interactions, which results in feelings of lower status and being ignored or rejected (Whitmire, 2000). Without the emotional support of peer group friends they are not able to develop their self identity and separate from their families (Whitmire, 2000). In addition they are unable to establish the interpersonal skills that they will require for mature, adult relationships (Whitmire, 2000).

The behavioural interaction between the peer partner and adolescent with disabilities is strongly influenced by attitude. The attitudes of children and adolescents to peers with disabilities are multidimensional with several factors having been identified as influencing these attitudes. The importance of the communication competence of children with disabilities, when peers assign status to them, has been highlighted (Horne, 1985; Romaine, 1984). Modified social behaviours by peers to adolescents with disabilities include reduced eye contact, shortened interaction time and decreased verbal communication. These behaviours arising from attitudes are barriers to peers' communication with children who have disabilities including those with LNFS. There is a need to understand how attitudes can be made more positive in order to facilitate positive interaction with resultant peer acceptance and the formation of friendships.

Although the potency of the link between an attitude and the resultant behaviour does vary, people generally maintain consistency between their attitudes and behaviour, which form a logical behavioural framework (Feldman, 1993). It would therefore seem logical that if behaviour is to change it will occur in response to a change in attitude.

Researchers in the field of social cognition have investigated the mental processes by which we understand, process information, and make judgments and decisions about our social world. They have determined that adults and children develop complex schemas about people and social experiences. These schemas regulate information and memories and provide a framework for categorising and interpreting social stimuli (Feldman, 1993). It is recognised that it is these schemas that have to be changed when dealing with the attitudes to peers with disabilities including LNFS. Mere exposure to children with disabilities is not effective in improving peer attitudes, rather contact has to be interactive and to extend over a prolonged period (Armstrong, Rosenbaum, & King, 1987).

2.5 THE INTERACTION OF ADOLESCENTS WHO USE AAC

Studies of children and adolescents who use AAC seldom describe communication between individuals of equal status. Generally, the partners described were adults and were familiar to the child or adolescent who used AAC. The social relationships of the dyad were usually asymmetric, with the partner being of a higher status (Light 1988). In the school setting, children using AAC are rarely described interacting with their peers, interactions taking place mainly with teachers (Harris, 1982). Kraat (1987) confirmed this contention and stated that in most of the interactive research studies of children using aided systems, the children communicated in a dyad with a staff member or caregiver.

In addition, research into the interaction patterns of individuals who use AAC and their speaking partners have shown that the partners generally dominate and take control of the conversation (Buzolich & Lunger, 1995). Children and adolescents who use AAC have been described as passive, responding rather than initiating interaction and giving short often yes/no responses (Buzolich & Lunger, 1995). Different partners do vary in the way they interact with children and adolescents who use AAC and partners can determine whether the interaction is successful or not (Kraat, 1987; Light, 1988).

The child or adolescent with LNFS is at risk of becoming socially incompetent as studies show that positive peer relationships are necessary for social learning and development (Ladd & Asher, 1985; Romaine, 1984). Adolescents who use AAC, like their typically

developing peers, must function effectively from a social perspective if they are to become productive adults in society and it is essential to determine which strategies and techniques contribute to communicative competence (Light, 1988). Communicative competence implies that the adolescent who uses AAC is able to achieve their communication goals including the goal of social closeness (Light, 1997).

Communicative competence for a person who uses AAC was defined by Light (1989) as consisting of linguistic competence, operational competence, social competence and strategic competence. However, the communicative competence of the adolescent who uses AAC is only part of the equation for successful interaction with peers. Calculator (1999) discusses five sets of variables that may influence interaction:

- i. Features of the AAC system or device
- ii. The characteristics of the adolescent who uses AAC including abilities, personality, motivation and attitudes.
- iii. The characteristics of communication partners including their attitudes, perceptions, knowledge, style of interaction and motivation to interact with adolescent who uses AAC. In addition, the character, experience and the familiarity of the peer partner with the adolescent who uses AAC as well as the level of the support they have received are important.
- iv. The quality and content of the instruction given to both the adolescent who uses AAC and the partners.
- v. Additional associated variables such as opportunities and reasons to communicate and so forth.

Thus it can be seen that achieving successful communication for adolescents who use AAC is a complex and demanding process.

2.6 THE NECESSITY TO TRAIN COMMUNICATION PARTNERS

Communication cannot occur in the absence of a partner. The importance of the communication partner or partners in influencing the success or failure of the interactions of adolescents who use AAC has been found to be decisive by many researchers (Bedrosian, Hoag, Calculator, & Molineux, 1992; Light, 1988). Some partners are

instinctively far more competent in adapting to the distinctive requirement of interacting with a person who uses AAC, whereas other partners need to receive effective training in strategies to improve communication with persons who use AAC (McNaughton & Light, 1989). A survey of persons responsible for the implementation of AAC indicated a great need for skills in methods to train communication partners as well as methods to support people who used AAC in their daily interactions (McCall & Moodie, 1998). This survey highlighted the specific need for training of the professionals in methods to support the communication of persons who used high-technology AAC and had C.P (McCall & Moodie, 1998). The value of training the peer partners of children or adolescents who use AAC is clearly evident when looking at outcomes of students who use AAC in inclusive classrooms. With respect to the participation of AAC students in inclusive classrooms in America, Calculator (1999) observed two possible outcomes: (i) little or no evidence of social inclusion of some students using AAC despite good operational competency skills and (ii) students using AAC who are active participants in academic and other activities and who interact by initiating and responding to varied partners including peers (Calculator, 1999).

There is an interactive effect between the competence of the peer partner and the competence of the person using AAC, each impacting on the other. The development of communicative competence is therefore inseparable from socialisation and partner interaction (Butterfield, Arthur, & Sigafos, 1995; Whitmire, 2000). The adolescent with LNFS needs to be an active participant with peers in the communicative processes in order to develop the required social skills (Nippold, 2000). Learning of these social processes can only take place by regularly interacting with and developing friendships with peers. The necessary processes can only be assimilated by adolescents who use AAC if he/she is an interactive and integral member of a social peer group. Furthermore, to enable adolescents who use AAC to generalise communication skills, it is essential that opportunities exist with varied peer partners in natural settings. Thus communication and social skill learning cannot be considered as goals in themselves but as interactive processes essential to social participation (Butterfield et al., 1995).

To be effective AAC intervention should address communication competency skills through direct training of the significant communication partners as well as the adolescents who use AAC (Light et al., 1992; Mc Naughton & Light, 1989). Whereas in the past focus has been placed on training the person using AAC these issues are equally important and it is essential that peer training be addressed if AAC intervention is to be meaningful. Although both aspects need to be integrated into the AAC intervention of adolescents who have LNFS, the latter issue is the main topic of this study.

2.7 THE TRAINING OF PARTNERS IN AAC RESEARCH

Training of communication partners has been addressed in different ways in the field of AAC. Training partners with a focus on creating opportunities for communication has been promoted as particularly relevant for individuals who use AAC and have severe cognitive disabilities (Arthur, Butterfield, & McKinnon, 1998; Butterfield, Arthur, & Sigafos, 1995; Light et al., 1992; Calculator, 1988; Sigafos, 1999).

Training of significant adults (including staff and/or parents) in appropriate communication strategies has also received attention (Arthur et al., 1998; Butterfield et al., 1995; Calculator & Luchko, 1983; Culp, 1989, Culp & Carlisle, 1988; Granlund, Terneby, & Olsson, 1992; Light, Collier, & Parnes, 1985 (b), McNaughton & Light, 1989).

With respect to creating opportunities for communication for individuals with developmental disabilities in communication Sigafos (1999) highlights the importance of developing training programmes and support for peers. Five typically developing adolescents acted as peer facilitators in a study by Hunt, Alwell, & Goetz (1988) to encourage the conversational interactions of three adolescent students with severe cognitive disabilities and limited speech. In a later study, the same authors trained regular education peer students as peer tutors to facilitate the conversational exchanges of three children (Hunt, Alwell & Goetz, 1991). Buzolich and Lunger (1995) did not use direct training of peer partners but trained the adolescent who used AAC to recognise the interactive patterns of her peer partners and to use direct and indirect strategies to gain

increased conversational control with her peer partners. Another approach proposed by Van Tatenhove (1992) was to use persons who were competent in their use of AAC as peer trainers and mentors.

Although widely advocated training of peer partners of children and adolescents has received little attention. One study that focused exclusively on training peer partner skills to increase the interaction of four children, three 5-year-old boys and a girl of nine years of age, was conducted by Carter and Maxwell (1998). The intervention did not address the communication skills of the children who used AAC and the results indicated that improving the partner skills resulted in increased interaction of the children who used AAC and their peers (Carter & Maxwell, 1998). During their baseline observations the peers seldom waited for a response from the child using AAC and frequently ignored the communication initiations of the child using AAC (Carter & Maxwell, 1998). An increase in the use of the communication strategies that had been taught to the peers was noted following the intervention (Carter & Maxwell, 1998). There was also an increase in the social interaction of the children who used AAC and Carter and Maxwell (1998) suggest this might have been due to one or more of the following reasons:

- i. Increase in the number of opportunities for interaction.
- ii. Imitation of the peers who demonstrated the interaction strategies they had been taught.
- iii. As a process of natural peer reinforcement that occurred when the children using AAC attempted to communicate.

Butterfield et al. (1995) emphasize three aspects related to partner skills, (i) attitudes, (ii) knowledge/information and (iii) increasing opportunities to communicate. These three aspects are interrelated, as providing information and knowledge about the peer with LNFS has a positive effect on attitudes to the individual with LNFS (Gorenflo & Gorenflo, 1991). Providing information and knowledge of how peers can improve their ability to communicate with the adolescent with LNFS will generate increased opportunities of such interactions (Butterfield et al., 1995). Adolescents who use AAC frequently lack opportunities for interaction and partner expectations, internal states and

the demands of the environment all influence opportunities for communication (Zangari & Kangas 1997).

Additional characteristics of conversational partners mentioned by Calculator (1999) that could be addressed in peer training include familiarity with the AAC system, motivation to communicate with the adolescent who uses AAC and the nature of the messages including the verbal input of the partners. It would appear imperative to address all of these issues in the peer training component of AAC intervention with adolescents who use AAC and to increase the peers' awareness of the value of their own skills as communication partners. In developing training programmes for adolescents who use AAC it is imperative to identify the requirements of training and to ensure the training as well as the training procedures have a sound theoretical basis.

2.8 THEORY AND PRINCIPLES OF PEER TRAINING

Models for peer training to improve social and communicative skills have developed from behavioural, cognitive and affective theories of learning. There is evidence that approaches based on all three of these areas need to be included for the most efficacious training (Cartledge & Milburn 1995). Social perception and social learning are developmental processes that are affected by the behavioural, affective and cognitive status of the individual and the peers. Vygotsky (1962) offers a developmental theory that assists us to understand how socially more developed behaviours, emotions and thought processes can be developed through peer interaction.

2.8.1 Vygotsky's Developmental Theory and Zone of Proximal Development

Facilitating more socially mature processes in adolescents is more likely to occur when they are guided, given a model to imitate or in co-operation with more advanced individuals (Cole & Wertsch 2000). Vygotsky's theory forms the theoretical basis for the presentation and teaching of interaction skills within the adolescent peer group, using the context of the classroom and culturally acceptable tools and games (Cole & Wertsch, 2000). Central to Vygotsky's social developmental theory of learning is the construct

that the process of becoming socialised gives rise to individual growth that is fundamentally mediated by ideas, words or objects (Cole & Wertsch, 2000). Vygotsky theorised that cognitive development is profoundly influenced by social interaction (Riddle & Dabbagh, 1999). Vygotsky explains this process of how an individual's cognitive (intramental) development is acquired as a result of interpersonal (intermental) processes in his general genetic law of cultural development (Cole & Wertsch, 2000). Vygotsky (1962) proposed the idea of a zone of proximal development (ZPD), which he defined as the discrepancy between the level of actual development and potential development. It gives theoretical validity to the principle of peer training. It is within this zone of proximal development that the adolescent who uses AAC can develop from his current level of interactive skills to a potential level of interactive skills that may ultimately influence the development of social and cognitive skills. According to Vygotsky's theory less highly developed individuals can participate in developmentally higher social processes with more capable individuals than they would be capable of, alone (Cole & Wertsch, 2000). Through this social process individuals learn to become more competent (Cole & Wertsch, 2000).

Thus an adolescent can perform a task or solve a problem with peer collaboration or under adult guidance that he/she could not accomplish alone (Riddle & Dabbagh, 1999). Learning in a reciprocal way with joint attention and shared problem solving is fundamental to both social skills training and cooperative learning models.

2.8.2 Social Skills Training Approaches

Social skills do not only consist of overt observable behaviours, but also of non-observable cognitive factors, such as interpretation of feedback from others in the environment, thinking of the next response as well as affective elements (Cartledge & Milburn, 1995). The training process must therefore help to make the adolescents aware of the thoughts and feelings they experience during peer interactions as well as developing behaviours that will facilitate positive interaction.

The social skills training model includes procedures such as social modeling, behaviour rehearsal and reinforcement (Cartledge & Milburn, 1995).

- Social modeling or learning by imitation involves the production of a social behaviour to facilitate learning through observation and imitation by another. It is the typical method that children and adolescents instinctively use to learn social skills through the imitation of the social behaviours of others including peers, parents, siblings, teachers and even behaviours to which they are exposed by the mass media. Extensive use of this method has been documented in teaching children and adolescent specific social skills and behaviours from simple greetings to conversational skills (Cartledge & Milburn, 1995).
- Behaviour rehearsal is the practicing of the modeled skill in a simulated or natural setting with reinforcement and feedback.
- Reinforcement often includes arranging relevant settings for the adolescent in order to practise the skills with different partners in various settings. Once skills are learnt additional strategies to promote generalisation and maintenance may be required.

In preparation for modeling a new skill, it has proven effective to discuss the reason and potential benefits of the goal behaviour. Providing a rationale that is meaningful to those learning the skill not only increases their motivation but also encourages the development of cognitive problem solving of social interactions (Cartledge & Milburn, 1995). In preparatory discussions it is also helpful to identify specific components that may make up the targeted social skill. This is particularly relevant if the social skill involved is complex, for example conversational skills.

Peers are used in social skills training as they have considerable influence over the social behaviours of other adolescents. It is important that the peer group understand the target social skill and how to provide support and encouragement. Appropriate social interaction and communication is likely to be reciprocated by peers, and in this way reinforces the social interaction, helping to maintain the new skills. Training a group of peers as peer models has proved highly effective in social skills training (Cartledge & Milburn, 1995). In this way appropriate interaction by the trained peers with adolescents

who use AAC should result in peer imitation by other peers, thereby increasing interactions.

Using a game format is effective in teaching social skills, as it is motivating to adolescents and allows preferred behaviours to be practiced (Cartledge & Milburn, 1995). Games have been well documented for teaching skills such as turn taking in addition to simulating real life situations (Cartledge & Milburn, 1995). Games provide an opportunity to practise social skills in a fun situation and allow adolescents to learn the consequences of behaviour. However, the application of skills learnt in games to real life situations does need to be made clear to facilitate generalisation (Cartledge & Milburn, 1995). Competitive games involving win/lose scenarios are less effective than cooperative games, which are preferred, as they promote positive social interaction (Cartledge & Milburn, 1995). Cooperative games involve cooperative learning.

2.8.3 Cooperative Learning Model

Cooperative learning is defined as adolescents working together for mutual benefit, encouraging and supporting each other. In addition the individuals assume responsibility for their own and each other's learning, employ group related social skills such as decision making and trust building, and evaluate the groups' progress (Johnson & Johnson, 1989). Cooperative activities where responsibility and work are shared and where each participant has the opportunity to progress, is the basis for successful interpersonal communication and relationships (Johnson, & Johnson, 1989). Research on cooperative learning activities has indicated positive outcomes in terms of friendships and peer relations (Cartledge & Milburn, 1995). Furthermore, there is a direct correlation between the usefulness the adolescent attributes to the target social skill and that individual's eagerness to learn and apply the skill. Group cohesiveness is essential to facilitate cooperative learning. Everyday at school, adolescents work to maintain and establish interpersonal relationships with peers and to develop their social identity and sense of belonging through interactions with their peer group (Hallinan 1980). This process of developing group cohesiveness should be deliberately facilitated both by the



behaviour and enthusiasm that is modeled by the group leaders and by specific group strategies as presented in Table 2.1 to provide a suitable environment for peer learning.

Table 2.1 Strategies to promote group cohesiveness

Strategy	Description
Circle seating arrangement	All discussion type activities should take place with everyone seated in a circular arrangement to: <ul style="list-style-type: none">▪ Differentiate the peer training group from normal class groupings,▪ Promote a sense of equality as the leader becomes more of a group member▪ Facilitate communication as everyone can hear and see the person speaking more easily▪ Enable each member to make eye contact with every other member▪ Eliminate the physical barriers between members (Cartledge & Milburn 1995).
Rounds	This technique is aimed at giving every individual the opportunity to make a comment on the specific topic being discussed. One student should be nominated to offer a suggestion, make a comment or respond to a set question. Proceeding clockwise or anti-clockwise each member then has the opportunity to offer their contribution knowing that they would be listened to attentively. The negative aspect of rounds is that anxious learners may feel stressed, as they have to make a contribution.
Brainstorming	Each member can call out his/her idea, which is recorded by a nominated scribe or the group leader. Ideas are given but no commenting takes place during brainstorming as the aim of brainstorming is to generate ideas for later discussion or comments. (Rose, 1998).

2.8.4 Underlying Principles and their Application in Peer Training Programmes

Potential underlying principles and their application in the programme are presented in table 2.2.



Table 2.2 The underlying principles and their theoretical basis

Principles	Theoretical bases
Social modeling involves the practice of teaching a behavior by presenting a model to be observed and imitated. (Cartledge & Milburn, 1995).	Most social behaviours are learned by social modeling (Cartledge & Milburn, 1995). Adolescents imitate the behaviours of significant others including parents, teachers and peers. (Cartledge & Milburn, 1995).
Behavior rehearsal is considered crucial to ensure that social skills, including communication skills, are learnt effectively (Cartledge & Milburn, 1995).	Children and adolescents should be given opportunities to practise new or adapted interactive behaviours and responses (Cartledge & Milburn, 1995). When individuals practice modeled behaviours they are more likely to remember them (Bandura, 1977).
The principle that eliciting observations and potential solutions is a far more effective way to learn new behaviours than if they were suggested by the trainer. .	The group discovery process is a exceptional method of teaching adolescents concepts (Hess, 1993).
The principle that adolescents learn and maintain behaviours far better when cognitive understanding is engendered (Bandura, 1977).	By evaluating different outcomes, individuals develop theories concerning the most appropriate responses, which then influence future actions (Bandura, 1977). Assisting adolescents to understand the essential aspects and applications of interactive behaviours allows them to conceptualise their experiences and apply learnt skills to real-life situations effectively (Cartledge & Milburn, 1995).
The principle of using games is an effective tool to increase rapport with adolescents and to improve their effort in learning social skills (Malouff & Schutte, 1998).	Using games improves the motivation of adolescents in learning interactive behaviours (Cartledge & Milburn, 1995). Games provide opportunities to practise social skills and develop positive peer interactions (Cartledge & Milburn, 1995).
The principle that problem solving is an important component in promoting supportive peer relations and a necessary means to promote social cognition.	Problem solving involves decision making in selecting potential solutions and evaluation of the potential success of the proposed solutions (Rose, 1998). Problem solving with adolescents improves interpersonal relations of adolescents and reduces labeling (Rose, 1998).
The principle that short term groups with a specific goal are suitable for developing skills and are time efficient.	Time-limited, closed-ended (thematic) groups are appropriate for training specific skills and are time proficient (Rose, 1998).

2.9 THE EVALUATION OF PEER TRAINING PROGRAMMES

The evaluation of expected outcomes and objectives is a basic requisite of peer training programmes in order to determine the effects of the training. Evaluation procedures that have been used with adolescent peer training programmes have included one or more of the following procedures:

- (i) Evaluation questionnaires (Epstein, Borduin, & Wexler, 1985).
- (ii) Specific tests administered pre and post intervention (LeCroy & Rose, 1986).
- (iii) Focus interviews of participants and /or parents (Epstein, Borduin, & Wexler, 1985).
- (iv) Direct observation (Ladd & Asher, 1985).
- (v) Behavioural and socio-metric measures (Ladd & Asher, 1985).
- (vi) Rating scales (Cartledge & Milburn, 1995).

Calculator (1988) suggests that the AAC intervention could be evaluated in terms of changes in the social roles and self concept of the person using AAC as well as the perceptions of others. Calculator (1988) contends that the effectiveness of the AAC intervention (whether instruction is directed at the person using AAC or his/her communication partners) should be evaluated in terms of functional outcomes for the person using AAC.

2.10 SUMMARY

This chapter aimed to provide a theoretical framework for the need to train the adolescent peers interacting with an adolescent who uses AAC. The crucial importance of social interaction with peers and the influence of peer attitudes during adolescence were emphasized. Findings of researchers investigating the communication of adolescent who use AAC and the training of communication partners were briefly reviewed. Vygotsky's theory of developmental learning and the models of social skills training and cooperative learning were discussed. The chapter ended with the presentation of relevant theoretical principles of a peer training programme.