CHAPTER 2
THEORETICAL BACKGROUND

2.1 INTRODUCTION

Conversation serves as a primary means of developing and enriching a relationship (Crow, 1983, p. 138). Conversational competence can thus be seen as a tool for the development of social relationships and social support at the workplace, which in turn play an important role in personal and work adjustment (Butterworth & Strauch, 1994, p. 118). Although the realisation that AAC facilitators need to help users to access conversation as a way of promoting social integration at the workplace has been a growing one, relatively little research into conversational structure and predictability has been done. Bedrosian et al. (2000) further make mention of the lack of theory in understanding communicative exchanges involving AAC users. Making use of existing theories from other disciplines is one starting point to alleviate this dilemma.

In this chapter, therefore, the concept of conversation, and more specifically social conversation, will be described with reference to theories and research from the field of conversational analysis. Furthermore, the use of pre-stored messages as a rate-enhancement technique in AAC will be discussed, as will be the implications of such a technique for conversation. Current text-based AAC systems will be referred to. The importance of topic prediction for the success of text-based systems will then be highlighted. The influence of context on conversational topics will be considered. State-of-the-art topic research in AAC will be discussed.

2.2 CONVERSATION AND SOCIAL TALK

Conversation is described by McLaughlin (1984) as "... two engaged in a relatively informal interaction in which the role of speaker shifted from one to the other at irregular intervals" (p. 13). Types of conversations can be further defined according to the purpose they serve. Transactional conversations are aimed at information transfer. At the workplace, interactions between supervisors and employees have been described as task-related (Butterworth & Strauch, 1994, p. 119), and would hypothetically consist of mainly transactional conversation. Interactions between co-workers have been described as non-task related and 'social' (Butterworth & Strauch,

1994, p. 119), probably aimed mainly at creating social closeness through interaction that is enjoyable, and through which participants can create the impressions they want (Todman, 2000). Social conversations at the workplace, which is the focus of this research, are hypothesised to be largely of the second type. Some characteristics of both conversation in general as well as social conversation in particular are described below, to gain a clearer understanding of this phenomenon, which is a key to employment success.

Crow (1983) defines conversation as the "*collaborative work* towards the construction of *coherent communicative text*" (p. 137, italics added). The process of conversation is thus seen as collaboration, involving two or more parties, while the product (if indeed, one can call it a product) is coherent communicative text. Collaboration and coherence might be proposed as prerequisites for conversational success. Weiner and Goodenough (1977, p. 14) elaborate on the game analogy to illustrate characteristics of conversation. They propose that conversation is a rule-governed process in which participants generate sequences of exchanges which are not only constrained by general rules but also by the previous participant's 'move'. Applying this analogy to social conversation highlights the aspect of enjoyment, a focus on process rather than product as well as a balance between creativity and rule-following which characterise both games and social conversation.

The concept of 'rule' to describe aspects of conversation has become increasingly popular within the field of conversational analysis (McLaughlin, 1984). McLaughlin (1984) contributes the status of rule as a scientific construct in conversational analysis to the failure of finding either 'casual explanations' or rigid laws governing human behaviour (p. 14). In defining rules, the general consensus amongst theorists seems that rules propose obligated, preferred or prohibited behaviour within certain contexts. Rules prescribe and therefore often predict behaviour, although less infallibly than laws. Although the existence of rules is not readily proven, conversational analysts argue that the violation, breaking of or disregard for any such rule is felt by the conversationalists, proving the existence of some conventions in conversation. To the AAC specialist, the advantage of discovering rules or regularities within conversation is the predictive power gained over the phenomenon once its rules are well understood.

Apart from rules specifying micro-aspects of conversation such as topic initiation and maintenance, turn-taking and sequentiality of speech acts, researchers have formulated rules relating to the overall success of conversation. Grice's co-operative principle (1975) is one attempt at describing the 'rule' governing overall coherence of conversation. Stated prescriptively, this principle is worded, "Make your conversational contributions such as is required, at the stage at which it occurs by the accepted purpose or direction of the talk exchange in which you are engaged" (p. 45). The four conversational maxims following from this principle are those of Quantity, Quality, Relation (relevance) and Manner. Topics, for example, have been described to reflect speakers' adherence to the conversational maxim of "relevance" (Sigman, 1983, p 175). An interesting notion proposed by Grice (1975) is that of purposeful or forced violation of maxims, be it out of constraint inherent in the interaction or the communicators or to serve as a strategy for 'artful co-operation'. Mura (1983) describes the need to 'licence' these violations (except when purposeful deception is the agenda of conversationalists), by giving cues or indicators when such violations have occurred. The important concept inherent in this view is that conversationalists are strategists, abiding by or violating rules in order to achieve their goals in interaction. Sanders (1983) goes as far to refer to tools rather than rules, and describes communicators as having the option of actively using these tools strategically in order to achieve conversational goals (p 76). These tools include both manipulation of the structure of conversation (e.g. appropriate categories of speech acts following each other, such as greeting is followed by greeting again, question is mostly followed by answer) as well as the manipulation of topic (expanding the old topic, closing topic, introducing a new topic and shifting topic). Content and structure are thus seen as tools, which the communicator implements to achieve his or her personal goals.

How, exactly, do conversational partners do this? What are the skills they need to be good players at the game of social conversation? Certain pragmatic aspects have been found necessary for successful social conversations. A sufficient rate of conversation is of prime importance. Long switching pauses are perceived as awkward and disruptive (McLaughlin, 1984, p. 113). Coherence seems to be a function of both structure and content (Sanders, 1983, p. 70). Regarding structure, appropriate speech acts need to follow each other. The coherent flow of topics (content) seems to develop by perspective shifts or shifts in topical focus (Sigman, 1983, p. 175), which demand content-specific contributions of both partners. A communicator thus needs to access the

appropriate content in order to respond meaningfully to a previous utterance. Shared control (or equal collaboration, using Crow's term) in a conversation necessitates partners to firstly navigate quickly within a topic domain, and secondly manage the turn-taking process by having an approximately appropriate response ready. (The approximately appropriate response is a notion derived from Wray and Perkins' (2000) work on formulaic language, denoting 'prefabricated' rather than newly generated expressions. According to these authors, as much as 70 % of adult language may be formulaic.)

Two aspects of conversation, namely rate and the necessity for topic-specific contributions, seem to pose a particular challenge to AAC users. Rate enhancement techniques specifically aimed at giving users access to conversation, and the influence of these techniques on other aspects of conversation will now be discussed.

2.3 RATE ENHANCEMENT

The speaking rates of natural speakers without disabilities are reportedly between 150 and 250 words per minute (Goldman-Eisler, 1986; Kraat, 1985). AAC users in turn, often select symbols, words, pictures or letters (stored in a device or available on a system) one at a time in order to compose messages. In so doing, even users with unimpaired manual abilities can hardly hope to achieve the same rate of communicating. In fact, Kraat (1985) reports rates between 2-10 words per minute for people with LNFS using AAC. Storage of longer units of text is one way to enhance rate of communication. In so doing, the user can access whole phrases, sentences or stories by a single selection. However, pre-storing such messages demands the message selector (be it the AAC user, a facilitator or an informant) to predict what message will be needed by the user in a certain context. The accuracy of this prediction is one factor contributing to the degree to which the user can successfully and meaningfully participate in the communication activity. However, message pre-storing is, in a sense, an unnatural process. Typical communicators usually efficiently self-select their messages at the moment at which the need arises, in order to achieve a variety of communication goals. As a result, the factors that need to be considered when pre-selecting messages and the implications of using such messages for communication are poorly conceptualised. AAC facilitators are often faced with this task without an understanding of the complexity of factors that contribute to determine the outcome of this process.

AAC research up to date has devoted much attention to the process of predicting and selecting appropriate *vocabulary*, the focus being on individual words (Balandin & Iacono, 1998a, 1998b, 1999; Beukelman et al, 1991; Fried-Oken & More, 1992; Stuart, Vanderhoof & Beukelman, 1993). In order to enhance the accuracy with which the selector predicts the list of single words that will be needed by the user, various sources of vocabulary for AAC devices and systems have been advocated, mostly in the form of vocabulary lists based on word frequency, obtained from various sources, such as firstly the words used by successful AAC users, secondly the past communicative performance of the individual for whom messages are to be selected, thirdly reports of informants such as teachers, peers and parents as well as fourthly the communication performance of nondisabled peers (Stuart, Beukelman & King, 1997). The rationale for using the latter as a source for vocabulary selection is the social validity this source provides. Vocabulary use is subject to the influence of age, gender, social role of the individual, personal style of communicating as well as the context of the communicative interaction. Both natural and augmented speakers have the same communication needs. The vocabulary selected for AAC devices and systems should therefore as closely as possible approximate that which age/gender-matched unimpaired speakers use in their daily life.

Predicting longer text units might be guided by the same principle of giving users access to communication appropriate to their age, gender and communicative context. However, the longer the text units, the less generative the system becomes. While storage of 26 alphabet letters gives access to an unlimited amount of messages, seven individual words might be combined and recombined to generate some statements, some commands and some questions. A seven-word pre-stored sentence might only be able to convey one single message. Correct prediction of the message becomes an issue of paramount importance. If the message is predicted accurately enough, it will still allow meaningful participation.

2.4 PREDICTABILITY OF SOCIAL CONVERSATIONS

Light (1988) classified predictability of interactions according to the four identified social purposes or functions of communication, stating that messages relating to social etiquette or needs and wants are highly predictable, while interactions intended to create social closeness are

only somewhat predictable and messages aimed at information transfer are not predictable at all (p. 76). The content of messages relating to the first two goals seems relatively predictable, due to the limited number of social etiquette messages and the specificity of needs and wants which can be determined by detailed knowledge of the individual's daily routine and contexts of functioning. Furthermore, the goal of the interaction is clear-cut and specific.

Information transfer is described by Light (1988) as highly unpredictable (p. 76). The examples mentioned are a child relating his/her school activities to a parent, discussion of a homework assignment between a student and a teacher, as well as an adult questioning his colleague about a data-processing program. When considering the structure such interactions take on, these seem to be predictable to the extent that one participant would assume the role of requestor of information, and one provider of information, i.e. a relatively predictable structure. A far as content is concerned, long-term prediction is not possible, due to the wide scope of content that is generated and presented every day. However, due to the specificity of the content, it is predictable in the short term. So a teacher might be able to predict the content of the information a child wants to share about his/her day when coming home from school, a parent might help a student programme questions about a home work assignment, and a user him/herself might pre-programme messages related to a new data-processing program. The amount of time available before the user is in need of obtaining or relating certain information, is, of course, of vital importance, and short-term predictability is of no advantage if the information needs to be obtained or shared on the spot. However, goals of such interactions are once again specific, making them relatively predictable and to an extent guessable by partners.

Messages aimed at creating social closeness, however, seem to be most problematic. Firstly, the goals are more general and tend to shift in focus more than those specified for the previous three types of interactions. When X meets a friend, Y, on the bus, the reason they start conversing might be simply to pass time, or to establish and define and redefine the relationship between them. This might include demonstrating mutual support for each other by listening to each other's problems, establishing a sense of familiarity by teasing each other, eliciting appreciation and admiration from one another, or even demonstrating their superiority above one another. The relationship between such goals and the content and structure of communication is less straightforward and clear-cut than that of the other types of interactions. In fact, communicators

themselves might not be explicitly aware of their own or the other's goals, which makes these goals very difficult to define, and thus so much more complex to predict. The goals of communicators evolve throughout the interaction and are often determined and redetermined by the communicative partner(s). So a communicator who is obviously out to demonstrate his superiority will probably elicit the partner's desire to retaliate in some way, while a communicator who has as a goal showing support would elicit thankfulness and appreciation from the partner. One might argue that goals for social conversation are more co-determined than goals for transactional discourse. This adds to the unpredictability of both content and structure of the interaction. While the communicator who sets out to obtain or share information can be clear on his/her goal and pre-select specific utterances to achieve this, the establishment of relationships is a much more liquid process, achieved through spontaneous reactions to the partner aimed at maintaining and 'flowing with' the interaction. As a result, the content of these interactions would seem much more unpredictable than those aimed at transfer of information.

In combating lack of generativity inherent in pre-storing longer text units, one might propose storing large quantities of text. The retrieval process, however, then threatens to become a challenging memory task for the user, which could necessitate the user scanning through so many options that any rate enhancement effects through pre-stored text is nullified by the time it takes to find and retrieve the correct entry.

High-technology systems making use of pre-stored messages thus need special features to surmount various challenges inherent in a message-prediction process. In analysing existing systems, the possibilities and limitations of pre-stored text in social conversation become apparent. Furthermore, one becomes aware of the type of research needed to enhance the effectiveness of such pre-stored messages in social conversation.

2.5 PRE-STORED TEXT FOR SOCIAL CONVERSATION

"Conversations have a rather predictable structure," report Beukelman and Mirenda (1998, p.15), and proceed to name greeting, small talk, an information-sharing segment, wrap-up and farewell as the 'usual' parts of conversations. Programmes such as the CHAT (Conversation Helped by Automatic Talk, Newell, 1989), Talk: About (software for Macintosh computers based on the

CHAT) and TALK (Talk Aid using preLoaded Knowledge; Todman, Alm et al., 1994; Todman, Elder, Alm & File, 1994) were designed with the purpose of giving the user access to conversation by storing longer text units, and do so primarily through predicting (intuitively) the conversational macro-structure. The CHAT programme (Newell, 1989), for example, organised conversational contributions according to the 'ritualised' parts of conversation, such as greeting, small talk, wrap-up and farewell. In the TALK programme, the 'generic' aspects of conversation (greeting, wrap-up, farewell) were expanded to include a category specifically for 'repair'. The utterances within this category are all aimed at repairing communication breakdown.

While the macro-structure of conversations seems generally accepted although not necessarily empirically researched, McTear (1985) makes mention of analysis on a more local level. The structure of various utterances following each other during various parts of the conversation is seen as a product of the conversationalists as they talk. The notion of adjacency pairs (McTear, 1985, p 32) seeks to establish which utterances usually follow each other (greeting is followed by greeting, question is followed by answer, compliment is followed by acceptance or downgrade, etc.). This notion is not sufficient in rigidly predicting conversational structure, especially the less ritualised aspects of conversation such as the topic-specific contributions. During topic-specific conversation, most speech acts can be followed by a variety of appropriate responses, and some do not even necessarily require any response. For AAC systems, this means that a variety of speech acts should be available to the AAC user to choose from as appropriate responses to various preceding utterances. Storage of a variety of options imposes a significant memory load on the user for correct retrieval.

The developers of the TALK programme realised this challenge and created a systematic storage method for on-topic contributions in order to transfer much of the memory load onto the system rather than the user. A referral system was developed whereby 'topic' contributions were categorised as either content-sensitive, or content-specific. The content-specific contributions necessarily comprised the biggest variety of utterances. The challenge now lay in organising these contributions in such a way as to help the user access them quickly - if long searches for the correct entry had to be made, pre-storing text would not be conducive to rate-enhancement after all. Based on the observation that topic movements tend to occur in small steps and through shifting back and forth between alternative perspectives (Button & Casey, 1984), the TALK

programme organised content-specific contributions according to the three referential frames employed in topic research, namely person, time and issue/orientation. All stored content relating to a particular combination of perspectives was stored on one screen. A maximum of four selections was needed to select any message (one move each to change the three frames and one move for selecting a particular item). Data on the effectiveness of this system indicates that firstly pause time is greatly reduced and conversational rates increased (between 60 and 70 words per minute), secondly AAC users were able to utter similar speech acts as normal speakers, and thirdly ratings for social competence of the AAC communicator were favourable (Todman, Elder et al., 1994; Todman, Elder & Alm, 1995, Todman, Rankin & File, 1999).

In the early research on the TALK system, it seems that pre-storage of messages was always done according to specific topics of conversation (e.g. entries on the topic of 'holidays' were used to test the system's effectiveness in conversations between an able-bodied user and unfamiliar partners (Todman, Elder et al., 1994)). When testing the system's effectiveness in supporting conversations between an AAC user and a familiar partner (Todman, et al., 1999), the entries were self-selected by the user based on shared interests as well as the need to bring the partner up to date with recent life events. The question now arises how to accurately predict conversational topics which will provide a framework for specific messages to be selected. In order to consider this, it is necessary to define the concept of topic and examine the influence of context on topic selection.

2.6 TOPIC DEFINED

Topic is an intuitive reality, though it evades formal definition or objective description. Planalp and Tracy (in McLaughlin, 1984) asked 40 subjects to segment audio or video transcripts into topics. Reliabilities between .926 and .919 were established, indicating that language users recognise topics and topic shifts without difficulty. Similarly, Brinton and Fujiki (1989) point out that conversationalists tend to remember the information (i.e. the content) contained in a conversation long after other linguistic information (such as exact sentence structure or vocabulary) has been forgotten (p. 45). Topic of discourse can thus aid memory encoding. In spite of these demonstrations of the reality of topic, a precise definition is lacking in literature. At best, one can glean several theoretical perspectives on topic and the parameters of this concept

from literature on conversational analysis. Keenan and Schieffelin (1976, pp. 335-384) were of the first authors to treat topic as a discourse notion, rather than a grammatical term related to deep sentence structure, as it had been viewed by grammarians such as Dahl (1969) and Sgall, Hajicova and Benesova (1973). Keenan and Schieffelin (1976) define discourse topic as a proposition expressing a concern which the speaker is addressing. They note, particularly, that this definition does not treat topic as a simple noun phrase in isolation, as it had been described in linguistic literature (Keenan & Schieffelin, 1976, p. 380), but that the 'centre of attention' or 'question of concern' which the speaker is addressing by an utterance does not necessarily appear overtly in the utterance. It may be drawn from previous discourse, the common knowledge shared by conversational partners or arise from the immediate physical context within which conversation takes place.

This view still implies that a single proposition representing the discourse topic should be identifiable for any fragment of discourse. In contrasting this view, Brown and Yule (1983, p. 72) demonstrate that different, equally valid 'topics' can be identified for the same piece of discourse. They introduce the term topic framework (Brown & Yule, 1983, p. 75) to denote the set of elements that can be included to represent what the speaker is 'talking about'. Apart from *objects, events* and *ideas*, they include *time, place* and *person* as potential elements within such a topic framework (Brown & Yule, 1983, p. 76 - 77). Sigman (1983, p. 180) tentatively introduces the concepts of higher-order topic and subtopic, to explain relationships that exist between topics outside of what is immediately and explicitly being talked about. Sigman (1983, p. 176) further counters the view that any fragment of discourse has an identifiable 'question of immediate concern' (Keenan & Schieffelin, 1976), stating that a topic of an utterance is dependent on the response it elicits from the previous speaker. Control of the topic is thus not in the hands of the speaker alone, but is a matter of collaboration between all conversational partners. Brown and Yule (1983, p. 73) note that the topic of conversation might not even be judged equally by all participants at a given point in time.

Sigman (1983, p. 174) suggests that communicators negotiate topics in order to produce coherence in discourse, and thus adhere to the maxim of 'relevance' (Grice, 1975). Clark and Haviland (1977) suggest that speakers try to establish a clear reference to the topic by establishing prior knowledge of their listener and then adding to this knowledge in such a way

that the speaker can attach the new knowledge logically to previous information. This phenomenon is described as the 'given-new-contract' (p.3).

Topics have also been analysed in terms of their function in conversation. Earlier researchers (Keenan & Schieffelin, 1976, Litton-Hawes, 1977) seem to assume that topics primarily serve an information transferring function. When Keenan and Schieffelin (1976) draw attention to the importance of determining the purpose of or reason behind each utterance (p. 343), they do so in order to clarify what information the speaker is attempting to convey. Sigman (1983) makes a strong case for the phatic function of topics, this being group creation and maintenance (p. 177). The reason a topic is introduced, continued or discontinued may be found in the social parameters of the interaction, and may reflect the context, the social goals and role requirements of participants more than the need for information transfer. Aragon (1978) writes in this respect:

> When two adolescent girls talk for hours every night on the telephone, they may be providing each other with no more information more important than the fact that they continue to be each other's best friend. (pp. 19-20)

Topics can thus be regarded not only as a function of relationships, but as a tool for their construction, maintenance and redefinition (Sigman, 1983, p. 183).

2.7 TOPICS IN CONTEXT

The field of sociolinguistics concerns itself with the interaction of language and social life. Fishman (1986) introduces the concept of *domain* to describe "contexts and their congruent behavioural co-occurrences" (p 441). Domains encompass major clusters of interaction that involve certain clusters of participants, and can thus be defined in terms of locale (e.g. 'the playground and street' versus 'school'), participants ('family' versus 'government officials') or even the register ('intimate' versus 'formal'). According to Fishman (1986) "domains enable us to understand that ... *topics* [italics added]... are ... related to widespread sociocultural norms and expectations." (p. 441). It is thus clear that a study of topics would be the poorer for it if it fails to situate itself within the particular socio-cultural context under investigation.

Participants within a certain domain can be described as individuals, but more relevant to the study of interaction and thus conversational topics are the role relationships existing between them. In the work domain such role relationships would typically include supervisor-employee or colleague-colleague. Superimposed on these might be other role relationships, such as friend-friend, or acquaintance-acquaintance, or even leader-follower. While the former role relationships are overt, the latter are more covert and less rigid. Analysts, without inside information or in-depth longitudinal study of interlocutors, are often limited to the knowledge of overt role relationships, and can at best make educated guesses on the covert role relationships.

Social relationships seem to determine what information within an interaction is 'taken for granted', what information is reported and what is excluded within an interaction. Participants can be seen to share certain patterns of information (and thus patterns of topics) with each other over time (Sigman, 1983, p. 188). This might lead to the phenomenon that only certain topics are routinely discussed with certain persons, so that the knowledge which the communicators share through talk becomes boundary-defined (Aragon, 1978, p. 14).

Locale pertains to the physical context within which conversation takes place. Meeting one's superior in the supermarket has a profound impact on role relationships and topic of conversation, and might, in fact, leave conversational partners uncertain about the social expectations of the particular situation. Conversations within the work context can transpire in various physical settings, for example the tea room or the work area. Conversationalists might be engaged in various activities during the conversation, such as eating or being engaged in work activities. The influence of these parameters on the topic of conversation needs to be recognised.

Gumperz and Hymes (1986) define communicative competence as "What a speaker needs to know to communicate effectively in culturally significant settings" (p. vii). Culture is thus a further factor influencing topic manipulation in conversation. Sitaram and Cogdell (1976) define culture as follows:

> A social system consisting of learned behaviours, artistic traditions, technological achievements, religious beliefs, philosophical concepts and even genetic characteristics of that people that are transmitted from generation to generation as their heritage. (p. 19)

Principles regarding which topics are acceptable, desirable or successful in interaction, how and how often these topics should be introduced and for what length of time they can be discussed are thus all subject to the culture within which the interaction takes place. When predicting topics of conversations, sensitivity to culture is of utmost importance.

Language, and more specifically, mother tongue versus second language, can have an influence on topic. Fishman (1986) notes that "certain topics are somehow handled "better" or more appropriately in one language than in another in particular multilingual settings" (p. 439). By implication, settings where only one language is spoken or understood by all communicators might inhibit bilingual speakers to reference certain topics, as they are not able to do so in their mother tongue. Conversely, Hymes (1986) makes mention of the "speech area" as the phenomenon of speaking rules (such as greeting norms, acceptable topics, what to say next in conversation etc.) that are shared across languages such as Hungarian and German (p. 55).

'Context' of a conversation is used in the present study as an umbrella term to include aspects such as participants' role-relationships, locale and culture all of which can be seen to influence discourse topic.

2.8 TOPIC RESEARCH IN AAC

As mentioned previously, research aimed at facilitating selection of words and text for AAC systems and devices focussed mainly on prediction of single words according to word-frequency lists and consisted of establishing core and fringe vocabularies for various groups of individuals. Mein and O'Conner (1960) established the core and fringe vocabularies of 80 subjects living in two institutions for persons with severe developmental disabilities. Word frequency scores for American preschool children were collected by Beukelman, Jones and Rowan (1989), Fried-Oken and More (1992) as well as Marvin, Beukelman and Bilyeu (1994). The latter study took into account the sampling contexts, differentiating between home and school. Frequency scores of words used by four American adult communication aid users were established by Beukelman, Yorkston, Problete and Naranjo (1984). Stuart et al. (1993) determined word frequency scores from the conversations of five American elderly individuals. Balandin and Iacono (1998a)

established core and fringe vocabularies from meal-break conversation recordings of 34 Australian nondisabled employees from four worksites.

The awareness that access to conversation warrants research beyond looking at single word lists (Balandin & Iacono, 1998a, p. 131) has increased amongst researchers, and has led to a number of studies on topic referencing in conversation. Stuart et al. (1993), apart from obtaining word-frequency scores, also analysed the conversational topics referenced by five elderly American women. Recordings of 3000 words of routine conversation per participant were collected. Topic categories grouped into three referential frames (time, person and content) were developed from the recordings, and the most frequently referenced topics established within each frame. This approach towards topic constituents reminds of Brown and Yule's "set of elements" within a topic framework (Brown & Yule, 1983, p. 75).

As far as content is concerned, 'household routines', 'family-life', as well as 'social networks' were most frequently referenced, the latter two topics corresponding to 'immediate family' and 'acquaintances' from the person frame. 'Self' was the topic referenced most in the person frame. The importance for older adults to reference the past became clear from the time frame. The importance of storytelling was also highlighted as a way in which older adults contribute to society by passing on their life experiences. Stuart et al. (1993) concluded that knowledge of topics referenced by elderly women could significantly guide design of AAC systems for this population, specifically by providing a flexible time reference and a means for appropriate storytelling.

Marvin, Beukelman, Brockhaus and Kast (1994) conducted a semantic analysis of preschoolers' conversational topics with various partners at home and in the preschool setting. Recordings were made of conversations of ten American nondisabled preschoolers at home and at the preschool, with an average talk time of 1,5 hours at school and 2 hours at home per participant. Topics were coded in a similar manner as that employed by Stuart et al.(1993). Corresponding to the three frames (time, person, content), the results showed that children referenced the present, themselves and familiar objects (toys and food) with highest frequency. Furthermore, the time frame had to include an additional category for fantasy, as the three frames (present, past and future) used by Stuart et al. (1993) were not sufficient to capture the children's conversations

engaged in during fantasy play scenarios. Once again, these frequently referenced topics were seen as helpful in guiding vocabulary selection for the population researched. Scripting of familiar routines was recommended as especially useful for aiding message selection in view of the frequent referencing of the present as well as highly familiar objects, persons and events. Giving preschoolers who use AAC access to fantasy play was a further recommendation to promote the children's transition from more concrete topics to topics displaced in time and place.

The third population whose topic referencing was researched (Balandin & Iacono, 1998a) comprises 34 nondisabled Australian employees between 17 and 57 years of age (mean = 34.9 years). An average of ~ 7.06 recordings of 15 minutes each were conducted per participant over a period of three weeks. Topics were once again coded according to time, person and content. Results yielded patterns of topic referencing different to both those established by Stuart et al. (1993) and Marvin, Beukelman, Brockhaus and Kast (1994). Regarding the time frame, these adults referenced the past less frequently than the elderly adults (Stuart et al., 1993) and did not reference fantasy at all, in contrast to the preschoolers (Marvin, Beukelman, Brockhaus & Kast, 1994). In the person frame, participants' reference to 'self' was comparable with that of preschoolers and older adults, whereas they referenced acquaintances and friends with a higher frequency than both these groups. Within the content frame, the five most frequently referenced topics (work, fact-finding, family life, food and judgement) took up between 38 and 48 % of the total number of topic segments identified for each day. Blandin & Iacono (1998a) concluded that it is possible to identify a limited number of topics that are highly relevant for meal-break conversations. Access to words and phrases related to these frequently referenced topics might provide the AAC user with opportunities to participate in social conversation at the workplace.

From these three studies, summarised in Table 2.1 (page 22), differences and similarities in topic use of different age groups within various settings and with various partners are evidenced. When comparing the various categories these researchers list under the three topic frames of each of the studies, two observations can be made. Firstly, certain topic categories seem to be unique to

Table 2.1: Summary of AAC research on conversational topic

Researchers, year and title	Participants	Setting	Recording procedure	Size of recorded sample	Results of topic analysis (Numbers in brackets refer to overall percentage of occurrence)		
					Top 3 time frames	*Top 3 person frame*	*Top 3 content frames*
Stuart, Vanderhoof and Beukelman (1993): ***Topic and vocabulary use patterns of elderly women***	Five retired American women Age range: 63 to 79 years Mean: 71 years Native speakers of American English	Home and friend's house, face-to-face as well as telephone conversations with family, friends, service providers, acquaintances and strangers.	Lavaliere microphones and portable, voice-activated audiotape recorders. Participants switched recorders on/off during daily activities. Recordings done over a time period ranging from 10 days to 1 month	3000 words per participant	Present (50.2) Recent past (21.4) Future (16.9)	Self (24.5) Immediate family (17.1) Acquaintances (14.8)	Household routines (12.7) Social network (10.9) Family life (9.7)
Marvin, Beukelman, Brockhaus and Kast (1994): ***"What are you talking about?": Semantic analysis of preschool children's conversational topics in home and preschool settings***	Ten nondisabled preschool children from three different preschool programmes, three females, seven males Age rage: 4 years to 5 years, 2months Mean: 4 years, 8 months) From monolingual, (American English) homes	1) Preschool setting: during routine preschool activities with peers and teachers. 2) Home setting: on the way home from preschool and at home with family members and peers.	Lavaliere microphones and portable, voice-activated audiotape recorders. Teachers/parents switched the tape on for a period of 2 - 2.5 continuous hours in the preschool and en route/at home respectively. Recordings done on one particular day.	Preschool setting: average of 1.5 hours of recording per child Home setting: Average of 2 hours of recording per child	Present (72.9) Past (11.2) Fantasy (9.8)	Self (35.6) No person (object or animal referent) (19.5) Peer (15.5)	Person's action/location (15.3) Toys (14.4) Food (12)
Balandin & Iacono (1998a): ***Topics of meal break conversations***	34 employees, 25 female and 9 male from four different work sites in the Sydney metropolitan area, Australia Age range: 17 to 57 years Mean: 34.9 years All except for one participant from English-speaking background. All fluent in English.	During meal breaks, by implication in the respective staff rooms of the work sites.	Lavaliere microphones and portable, voice-activated audiotape recorders. Participants switched their recorders on at the beginning of their meal break, and switched it off after 15 minutes recordings done over a period of 3 weeks.	15 minute recordings from four participants at each of the four work sites (15X4X4) over a period of three consecutive weeks (15 work days) yielded 3600 minutes of recording.	Present (64.2) Recent past (20) Future (13.2)	Self (26.6) None (references to inanimate objects) (21.2) Acquaintances (20.6)	Fact finding (any question) (13.2) Work (12.6) Food (7.6)

certain age groups and/or contexts. 'Fantasy', for example, was a time frame only identified in children's conversations (Marvin, Beukelman, Brockhaus & Kast, 1994). Secondly, a certain amount of subjectivity and researcher bias seems to be inherent to any definition of topic categories. Researchers differed in terms of how fine the distinctions were which they made between categories, e.g. 'past' as defined by Marvin, Beukelman, Brockhaus and Kast (1994), is divided into four categories by Stuart et al. (1993) and Balandin and Iacono (1998a). They also differed in delineating topic boundaries. 'Social relations' in Stuart et al.'s study (1993) was defined as "commentary on people's actions, often with projected ideas about them" (p 108), while Balandin and Iacono (1998a) define this category as "anything to do with getting along with people or socialising at work" (p. 142). These differences reflect Brown and Yule's (1983) notion of 'topic framework', whereby the existence of equally valid descriptions of the topic of a piece of discourse is acknowledged (p. 75). Sigman's (1983) notion of higher-order topic and subtopic (p. 180) is not fully reflected in the categories of the present studies. Categories for a specific frame were mostly ranked on the same level. Marvin, Beukelman, Brockhaus and Kast's (1994) division of the content frame into 'objects', 'events' and 'ideas' each with various categories listed under these 'main topics' (Marvin, Beukelman, Brockhaus & Kast, 1994, p. 81) is the only exception.

In view of the impact of communication partners on conversations and the notion that topics evolve as a collaborative effort between communicators, the use of lavaliere microphones might be seen as a limitation in these studies. While researchers do give some general information on communication partners of participants in the three studies, the conversation recorded at any specific time would be limited to the research participant's utterances. In analysing, researchers might not have had knowledge of the contributions of communication partners.

In spite of some limitations, these three studies represent research into topic referencing of various age groups within a variety of contexts by English-speaking individuals. In order to expand on the knowledge base of appropriate topics within specific settings that might facilitate message pre-storing for AAC devices, the current study aimed at analysing conversational topics referenced by Afrikaans-speaking individuals in South African employment contexts. By comparing such data with that of previous studies, the influence of context (role relationships, locale and culture), as well as characteristics of participants (age, marital status) on

conversational topics might be further illuminated. Topics of relevance at South African employment sites might be established to serve as guidelines for programming text-based AAC devices of users entering the work context.

2.9 SUMMARY

The issue of the AAC user's access to social conversation at the work place warrants the consideration of various issues. Discourse analysts (Grice, 1975; Clark & Haviland, 1977, Sanders, 1983; Crow, 1983) define and describe several aspects that contribute towards the success of conversations, amongst others, rate and topic-specific contributions. Both these aspects present a challenge for the AAC user. One technique proposed for rate enhancement is the use of pre-stored messages. It is difficult to predict which messages a user would need for social conversation, as social conversation is a collaborative process aimed at relationship initiation and maintenance rather than at information transfer. The principles of functioning of systems currently making use of pre-stored text for social conversation (CHAT, TalkAbout and TALK) were explored, and the need for researching topics relevant to users and/or situations was demonstrated. Relating to 'topic' as the content of conversation, the notions of topic framework and higher-order versus lower-order topic were explored, both of which exemplify the complexity of topics and the difficulty to pinpoint one single topic for a piece of discourse. The influences of role relationships, locale, culture and language on topics of conversation were illustrated by referring to sociolinguistic theory and research. AAC research on topic use was discussed, specifically research into topic use by elderly American women, American pre-schoolers and Australian employees. The current study aims to expand on this research by exploring topics referenced by South African employees in specific employment contexts. The information thus obtained could aid in gaining a better understanding of the determining factors of conversational topic in general, as well as providing guidelines for the pre-selection of messages for AAC users entering employment in South Africa.