SOCIAL CONVERSATION AT THE WORK PLACE

by

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ABSTRACT

In order to promote integration at the workplace, augmentative and alternative communication (AAC) systems should support users to engage in social conversation. Systems such as TALK and CHAT, especially designed for the purpose of social conversation, make use of pre-stored text as a rate enhancement technique. Research into relevant conversational topics within contexts such as the workplace can make the use of pre-stored text for conversation more effective.

For the present study, a total of 3 hours, 47 minutes of social conversation of 12 nondisabled participants across two employment contexts were recorded on 11 specific days. The samples were analysed for topics referenced under the three referential frames time, person and content. Results indicate that 'present', 'self' and 'food' were the most frequently referenced categories under each of the three frames. Further analysis of the content frame indicated the presence of topics, which were frequently referenced and referenced consistently across the 11 samples, while other topics were found to be referenced with a high frequency only in some samples. Comparisons are made between these findings and previous research into meal-break topics at the workplace. Overlap in especially the more frequently referenced topics suggests the presence of topics, which are generally appropriate to workplaces characterised by the Western culture. These topics seem to be influenced by participants adhering to basic conversational rules and principles, but also by the context of conversations. Knowledge of both generally appropriate topics, as well as conversational rules can aid AAC specialists in pre-storing text conducive to social conversation at the workplace. However, ecological inventories of specific work contexts are always necessary in order to optimise access to relevant topics.

KEY WORDS

Augmentative and alternative communication (AAC), conversational analysis, employment, integration, little or no functional speech (LNFS), pre-stored text, rate of conversation, social conversation, topic, workplace,

OPSOMMING

Ten einde integrasie by die werksplek te bevorder, behoort aanvullende en alternatiewe kommunikasie (AAK) sisteme die gebruiker in staat te stel om aan sosiale gespreksvoering deel te neem. Sisteme soos TALK en CHAT wat spesifiek vir die doel van sosiale gespreksvoering ontwerp is, gebruik vooraf gestoorde teks as 'n tempoversnellingstegniek vir gesprekke. Navorsing rakende relevante gesprekstemas binne kontekste soos die werksplek, kan die gebruik van vooraf gestoorde teks effektiewer maak.

Vir die huidige studie is 'n totaal van 3 ure, 47 minute van sosiale gesprekke deur 12 nie-gestremde deelnemers opgeneem. Die opnames is op 11 spesifieke dae by twee werksopsette gemaak, waarna dit volgens drie verwysingsraamwerke nl. tyd, persoon en inhoud geanaliseer is. Resultate dui daarop, dat 'hede', 'self' en 'voedsel' telkens die drie kategorieë onder elk van die drie raamwerke is waarna die meeste verwys word. Verdere analise van die inhousverwysingsraamwerk dui daarop, dat daar temas bestaan waarna dikwels en konstant oor die 11 dae verwys is, terwyl ander temas net op sommige dae met 'n hoë frekwensie voorgekom het. Vergelykings tussen hierdie bevindinge en vorige navorsing oor die gesprekstemas tydens etenstye by die werksplek is gemaak. Oorvleueling in veral die temas waarna dikwels verwys is, dui daarop dat daar sekere temas is wat oor die algemeen geskik is vir gebruik binne werksplekke wat deur die Westerse kultuur gekenmerk word. Die feit dat deelnemers basiese gespreksreëls en beginsels aanhang blyk 'n invloed op die temas te hê. Die konteks waarbinne gesprekke plaasgevind het, het egter ook dikwels die tema beïnvloed. Kennis oor algemeen toepaslike temas sowel as kennis oor basiese gespreksreëls kan AAK spesialiste in staat stel om teks vooraf te stoor wat sosiale gespreksvoering in die werksplek sal bevorder. Ekologiese inventarisse van spesifieke werkskontekste sal egter steeds nodig bly om toegang tot relevante temas te optimaliseer.

SLEUTELWOORDE

Aanvullende en alternatiewe kommunikasie (AAK), gespreksanalise, indiensneming, integrasie, min of geen funksionele spraak (MGFS), onderwerp, sosiale gespreksvoering, tempo van gesprek, vooraf gestoorde teks, werksplek

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(Deut 1: 30-31)

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INTRODUCTION AND RATIONALE

1.1 PROBLEM STATEMENT

In the modern world, being employed means much more than an income. The beneficial effects of employment for social integration and emotional well-being, besides financial independence, have been demonstrated repeatedly (Jacobs, Larsen & Smith, 1979; Jiranek & Kirby, 1990; Mirenda, 1996). The rights of persons with disabilities to be included in all aspects of life, including the work setting, are being increasingly recognised. The South African Employment Equity Act, passed in October 1998, aims at creating equal employment opportunities to hereto disadvantaged groups, including people with disabilities. Employers are obligated to develop employment policies to achieve this aim.

Yet employment issues for people with little or no functional speech (LNFS) have been described as "the monster in the closet" (Williams, 1994). American statistics in this regard show that an estimated mere 35 % of speech-impaired adults between 21 and 64 years of age hold full-time or part-time employment (LaPlante, 1993). South African statistics show an overall employment rate of 12 % for people with disabilities (Schneider et al.), indicating an underrepresentation of people with disabilities on the workforce.

Effective and efficient communication is certainly an important skill for gaining and keeping employment - starting with the compilation of a curriculum vitae and the initial job interview (Creech, 1994; Light, Stolz & McNaughton, 1993). People with LNFS are thus at a particular disadvantage when seeking employment. This population has to rely on augmentative or alternative communication (AAC) to supplement or replace verbal communication. AAC, especially if it involves aided methods of communicating, tends to be slow, demands more effort from both partners in terms of maintaining attention, and is prone to communication breakdown (Von Tetzchner et al. 1996, p. 32). These characteristics of AAC will obviously influence the quantity and quality of interactions which an AAC user has in the work setting.

AAC specialists seem to have little experience of AAC users in employment, and little knowledge of the communication demands faced by AAC users at the workplace. Consequently, there is a lack of intervention aimed specifically at communication in employment situations (Light et al., 1993, p. 45). If indeed AAC intervention aims at functional outcomes and improvement of life quality, employment issues should become a high priority (Willard, 1995, p. 19).

Potential employment sites for people with physical and multiple disabilities do not only pose task-related challenges to the individual, but also opportunities and demands in terms of social interaction. Developing social relationships and social supports at the work place leads to increased emotional well-being and better work adjustment (Parent, Kregel, Metzler & Twardzik, 1992, p. 28). Specifically, job satisfaction, work performance, job retention, and successful stress handling at the workplace have been found to be related to employees' participation in social relationships at the workplace.

Workers with disabilities often struggle to engage in successful social interactions - leading to loneliness and isolation at the work place. In fact, social problems have been suggested to be a more frequent factor for job termination than task-related problems for individuals with disabilities (Butterworth & Strauch, 1994, p. 118). Any communication impairment immediately has a negative impact on the person's perceived social competence. AAC users might therefore find the social demands in an employment context more challenging than the task-related demands. In order to promote the individual's integration and adaptation at the workplace, AAC systems and strategies need to support not only work-related communication, but also communication functions which afford the user social access to the workplace. As a first step, social interactive opportunities and demands of potential employment contexts thus need to be researched (Creech, 1994, p. 128).

Ethnographic methodologies and naturalistic observation (including environmental inventories and communication samples) are of prime importance in researching the dynamics of communication occurring in real-life contexts for various groups of individuals (Beukelman, McGinnis & Morrow., 1991, p 180). Balandin and Iacono (1998a) further note that word frequency counts alone do not give the whole picture -

in determining *how* this vocabulary is used to support the communication needs and interests of different groups, researchers are encouraged to enter the fields of discourse and topic analysis (p. 131).

Data on the topics referenced during social interaction of nondisabled speakers in the work context is an important source of information to guide vocabulary selection for AAC users. Knowledge of and access to relevant topics of conversation will assist augmented communicators to socially interact with nondisabled colleagues and co-workers. Furthermore, nondisabled peers are likely to rate the augmented speaker's communicative competence more highly. Ultimately, relevant vocabulary for AAC users will contribute to the development and maintenance of appropriate and satisfying relationships at the work place.

1.2 TERMINOLOGY

The following terms warrant clarification as they are frequently referred to in this study:

1.2.1 Augmentative and Alternative Communication

The American Speech-Language-Hearing Association defines Augmentative and Alternative Communication (AAC) as "an area of clinical practice that attempts to compensate (either temporarily or permanently) for the impairment and disability patterns of individuals with severe expressive communication disorders" (1989, p. 107). Lloyd, Fuller and Arvidson (1997) further state that AAC is "the supplementation or replacement of natural speech and/or writing using aided and/or unaided symbols" (p. 524).

1.2.2 Little or no functional speech

Individuals with a verbal repertoire of 15 words or less (Burd, Hammes, Bornhoeft & Fisher, 1988, p. 373).

1.2.3 AAC system

"An integrated network of aided and unaided means to represent (symbols), select and transmit; and the strategies, techniques and devices that an individual uses to communicate. A system involves the integrated use of many components for communication" (Lloyd et al., 1997, p. 522).

1.2.4 AAC user

A person with little or no functional speech who is at present using or is a candidate for an AAC system (Lloyd et al., 1997, p. 522).

1.2.5 Aided

Communication symbols, strategies or techniques that make use of something apart from the communicator's body to represent, select or transmit messages (Lloyd et al., 1997, p. 522).

1.2.6 Conversation

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" (p13). Crow (1983) defines conversation as the "collaborative work towards the construction of coherent communicative text" (p. 137).

1.2.7 Social conversation

Conversation that is aimed mainly at creating social closeness through interaction that is enjoyable, and through which participants can create the impressions they want (Todman, 2000).

1.2.8 Rate of communication

Refers to the speed of output measures in words per minute (Foulds, 1980, p. 169).

1.2.9 Pre-stored messages

Refers to words and phrases that are pre-selected and displayed on a communication board or stored in a technological communication device.

1.2.10 Text-based communication systems

Communication systems that allow users to access a large number of pre-stored messages, such as the TALK system (Bedrosian, Hoag, McCoy, Pennington & Wright, 2000).

1.2.11 TALK communication system

The TALK (talk aid using preloaded knowledge) was originally designed by Todman, Alm and Elder (1994). Its purpose was to give the user access to conversation by storing longer text units, by predicting (intuitively) the conversational macro-structure. Conversational contributions are organised according to the 'ritualised' parts of conversation, such as greeting, small talk, wrap-up and farewell. A category is included specifically for 'repair'. Contributions relating to content of conversation include content-sensitive contributions (which can be used across various topics) as well as content-specific contributions, which are organised in such a way as to facilitate quick retrieval by the user.

1.2.12 Topic of conversation

"What conversation is about" (Crow, 1983, p. 137), i.e. the content of conversation.

1.2.13 Referential frames

For the purpose of this study, these denote aspects of topic pertaining to

1) Time, i.e. what point in time is referenced in conversation
2) Person, denoting the whom the utterance is about, and
3) Content, relating to the objects, events or ideas that are being discussed.

1.3 ABBREVIATIONS

AAC	-	Augmentative and alternative communication
LNFS	-	Little or no functional speech

1.4 OUTLINE OF CHAPTERS

Chapter 1 gives the introduction to the study as well as a list of terminology, the abbreviations used and an overview of the chapters.

Chapter2 gives an overview of the theoretical issues relevant to this study. The concept of social conversation is described. The use of pre-stored messages as a rate-enhancement technique in AAC is discussed, as well as the implications of such a technique for conversation. The concept of topic and its bearing on social conversation using AAC systems is defined and discussed. The current research study is positioned within the framework of previous topic research in AAC.

In *Chapter 3,* the methodology of the study is provided; specifically the aims, the research design, the selection of work contexts and participants as well as the equipment and material used. The data collection procedures as well as the analysis procedures are described.

The results of the topic analysis procedure are discussed in *Chapter 4*, in terms of the three referential frames *time, person* and *content*. As far as possible, comparisons are made with previous topic research.

Chapter 5 provides a summary of the study, discusses its limitations as well as implications for clinical practice and further research.

1.5 SUMMARY

The underrepresentation of people with disabilities in the workforce is highlighted in this chapter. The challenges for AAC users regarding the communicative demands of the workplace are discussed. Social access to the workplace - which is shown to be a determining factor in successful employment - might be negatively influenced by the use of AAC. Research on conversational topics of nondisabled employees is proposed as one method by which social interactive opportunities and demands at the workplace can be better understood, which might lead to more specific and guided message selection for AAC systems. Terminology used in this study is defined, an overview of the chapters is given.

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.

CHAPTER 3
METHODOLOGY

3.1 INTRODUCTION

The current chapter describes the research methodology of the study. The aims, sub-aims and the research design, as well as employment contexts, participants and material for data collection are described. The data collection procedure is discussed in terms of ethical issues, the pilot study and the main study. Lastly, a description is given of the data analysis procedure.

3.2 AIMS

3.2.1 Main Aim

The main aim of this study is to analyse the topics occurring in social conversation amongst employees in the workplace.

3.2.2 Sub-aims

In order to achieve this main aim, the following sub-aims were identified:

1. Identifying two work settings where people with LNFS could potentially be employed
2. Obtaining "on-site" recordings of social conversations amongst employees at these work contexts
3. Transcribing these conversations verbatim
4. Analysing each segment of conversation according to the referential frames of *time, person* and *content*, and thus determining which topics were referenced during social conversations - in general and on specific weekdays, within and across specific work settings, and establishing the relative frequency with which these topics were referenced

3.3 RESEARCH DESIGN

Interpretative social science aims at analysis of socially meaningful action through various methods, such as participant observation, field research or analysis of transcripts of conversations in order to describe and improve understanding of social phenomena as they occur in natural settings (Neuman, 1997, p. 62-63). The use of a small group study design enables a researcher to obtain in-depth information on a limited number of cases (Neuman, 1997, p. 331). As the goal of this study was a detailed description of topic referencing occurring in social conversation at the workplace, a small group field study design was adopted. Conversations occurring amongst employees in two employment contexts were recorded. Recordings were made on nine days over a two-week period in the first employment context (A), while recordings were made on two separate days over a period of three months (81 days apart) in the second employment context (B). (Refer to 3.7.3. for a more detailed description of the data collection procedures.) The data collected consisted of recorded conversational samples totalling 227 min 58 s. This data was analysed in detail to establish patterns and correlations with regard to the topics referenced.

Both qualitative and quantitative methods of data analysis were used. Descriptions of the topics referenced and the communication functions used were supplemented by descriptive statistics. Frequencies with which topic categories were referenced, were established.

3.4 SELECTION OF EMPLOYMENT CONTEXTS

Participants for the study were selected from a work context that was identified as a possible employment context for people with LNFS. The population of people with LNFS includes people with acquired physical and/or sensory impairments, developmental disabilities, and cognitive impairment (Lloyd et al., 1997). In accordance with the South African Employment Equity Act (1998), all employers are obliged to develop policies to ensure fair employment opportunities for hereto disadvantaged groups, including people with disabilities. As cradles for critical thinking and consequent change in society attitudes and policies, universities should arguably act as pioneers not only in the advancement of new theoretical concepts, but also in their practical implementation. It was therefore decided to target employment contexts on a university campus. The help of the university's human resource department was sought in identifying employment

contexts where AAC users were most likely to be employed. Human resource managers were thus provided with the following definition: "AAC users are those persons relying on the use of special strategies, techniques and devices to augment and/or to serve as an alternative to natural speech and/or writing. AAC can take the form of low technology such as paper-based communication boards, or high-technology communication systems, such as computerised communication devices. These AAC users are able to communicate, yet communication tends to be slower, less spontaneous and more prone to communication breakdown than communication by speech."

Here following is a description of each of the employment contexts selected:

TABLE 3.1: Description of the two employment contexts selected

	Department	Number of employees	Physical lay-out
Context A	Bindery	Permanent: 6	Work area: One large room where employees work in relative proximity most of the time Tea room: One large dining room table with 8 chairs around it in the middle of the room, with cupboards, microwave and fridge standing against the walls.
Context B	Printing works	Permanent: 9	Work area: Three employees work in two adjoining offices. The others work in three adjoining rooms. Tea room: Two low coffee tables in the middle of the room. One sofa and four comfortable chairs around the tables. Microwave and fridge in the corner of the tearoom.

3.5 PARTICIPANTS

3.5.1 Selection criteria and recruitment

The only prerequisite for selection was that participants be employed at either employment context. All employees from each context were approached, briefed on the purpose and procedure of the study and asked whether they would give consent to take part in the study. The purpose and procedure was then given to them in writing and they were asked to sign a written consent form (Appendix A). Two employees from Context B did not give consent to participate in the study. The recordings at that specific context were to be made during tea and lunch breaks in the

tearoom. These specific two employees reported that they did not go into the tearoom, and that recordings made there would thus not affect them.

3.5.2 Descriptive criteria

Participants were asked to fill in a short questionnaire (Appendix B) on relevant descriptive details that were seen as important for contextualising the data. The descriptive criteria of the participants are summarised in Table 3.2.

Age was specified, as communication patterns vary with age (Boden & Bielby, 1986; King, Spoeneman, Stuart & Beukelman, 1995; Ulatowska, Cannito, Hayashi & Fleming, 1985). Furthermore, Beukelman and Mirenda (1998) draw attention to differences between 'male' and 'female talk', amongst others in terms of topic referencing. Gender of the participants was thus specified. Highest educational level attained was described, as the degree and type of exposure to educational institutions might play an important role in topic referencing of the individual. Similarly, marital status of an individual as a description of his/her nuclear family relationships (Lane & Molyneaux, 1992) might have an influence on the individual's topic choice in conversation. Marital status of the participants was described as single, married, widowed or divorced.

Fishman (1986) described the influence of home language and competence in the language of conversation on topic choices, noting that the language spoken might promote/inhibit the discussion of certain topics (p. 439). Linguistic competence in a second language spoken during a conversation would furthermore influence the contributions of the second-language speaker. Second-language speakers were thus identified and required to indicate the number of years they had been speaking the language of conversation. All conversations that were recorded were in Afrikaans. In Context A, one participant's home language was not Afrikaans, while two participants in Context B were not native Afrikaans speakers. All three participants had been speaking Afrikaans for longer than 5 years; the latter two even for longer than 10 years, suggesting rather proficient use of the language.

The individual's post within the employment setting partly determines his/her social role towards other employees, be it as a superior, peer or subordinate. In Context A, two males held positions slightly senior to the other employees (refer to Table 3.2). In Context B, the manager was clearly senior to all the others, while the chief printer was slightly senior to the administrative officers and the setting machine operator.

According to participants' different home languages, cultural differences would be expected. However, by sharing a work setting they would be expected to have adjusted to a commonly shared 'work culture'. As most participants were Afrikaans-speaking, the 'culture' at the work place would be expected to have characteristics of the Western culture.

TABLE 3.2: Descriptive criteria of participants

Context	Participant	Age	Gender	Highest level of Education	Marital status	Home language	Years of speaking Afrikaans	Post held
A. Bindery	1	40	M	Std 8	Divorced	Afrikaans	n/a	Binder assistant
	2	46	F	Std 7	Married	Afrikaans	n/a	Binder assistant
	3	50	M	Std 6	Married	Afrikaans	n/a	Assistant binder
	4	51	F	Std 6	Married	Afrikaans	n/a	Binder assistant
	5	40	M	Std 8	Married	Afrikaans	n/a	Assistant binder
	6	42	M	Std 9	Married	Northern Sotho	>5	Binder assistant
B. Printing works	7	63	F	Std 6	Married	Afrikaans	n/a	Chief printer
	8	38	F	Senior Certificate	Married	Italian	>10	Administrative officer
	9	43	M	ND printing management	Married	English	>10	Manager: Printing works
	10	55	F	Senior Certificate	Married	Afrikaans	n/a	Administrative officer
	11	55	F	Senior Certificate	Divorced	Afrikaans	n/a	Administrative officer
	12	50	M	Diploma: Setting machine operating	Married	Afrikaans	n/a	Setting machine operator

3.6 EQUIPMENT AND MATERIALS

Background information of each participant was obtained by means of a questionnaire filled in by participants themselves. The spoken conversations were recorded by means of one portable

Sanyo Compact Cassette Recorder M111OC and one portable Panasonic® RQ-L10 Mini Cassette Recorder, both of which were fitted with Audio Pre-Amp low-noise external microphones. In view of the impact of communication partners on conversations and the notion that topics evolve as a collaborative effort between communicators (Crow, 1983), it was decided not to use lavaliere microphones in order to capture the whole conversation with the contributions of all participants. In so doing, the analysis might be richer and references of participants might be easier to understand.

3.7 DATA COLLECTION PROCEDURES

3.7.1 Ethical issues

Approval of the research project was sought from the head of Human Resources from the specific university prior to conducting the project. Approval was furthermore sought from the personnel managers of the various departments concerned. The study was also approved by the ethical committee of the university.

Prior to their inclusion in the study, potential participants were informed, in understandable language, about the aim of the research project. They were assured of their free choice to participate or to decline from participation, as well as to withdraw from the study. They were assured of confidentiality of all information. Persons willing to participate were required to sign a consent form containing the above information. All research data permitting personal identification of participants is kept confidential. On request, participants will be given free access to the completed research report.

3.7.2 Pilot study

A pilot study was conducted in order to test the proposed methodology of the study. A brief description of this study follows:

TABLE 3.3: Pilot study

Aims	Procedure	Results	Recommendation
1. Testing the integrity of the recording equipment and establishing whether recordings of group conversations could easily be transcribed	The Pilot study was conducted in the first employment Context, 3 months prior to the main study. Participants were the same as those participating in the main study. The researcher placed the Sanyo Compact Cassette recorder M1110C in the middle of the table at the beginning of the day. One of the employees switched the recorder on at the beginning of the lunch break, and switched it off at the end of the lunch break. The researcher, who was not present during the lunch break, collected the equipment at the end of the day and transcribed the recording accord into the predetermined transcription rules.	The recording integrity was found to be adequate as long as participants were relatively near to the cassette player (about 1m radius). As soon as participants moved out of this radius (as happened after the initial 10 minutes of the lunch break), the recording became difficult to transcribe. Multiple small group conversations occurring around the table after the first 10 minutes of the recording also made transcription difficult.	The recording equipment needed to be adjusted in order to make provision for: 1 Recording over a distance of more than a metre 2. Recording more than one conversation occurring in the same room. The researcher therefore decided to 1. Use external microphones with a wide range within which sound could be picked up 2. Use two recorders that could be placed strategically rather than remaining in the middle of the table, to reduce the likelihood of two conversations both equal distance from the recorder to be picked up by the microphone.
2. Establishing whether the recording equipment and its positioning negatively influenced spontaneity of social conversation	Employees were informally asked to comment on the effect that the recording equipment had on their conversation	Employees noted that the recording equipment being visible in the middle of the table did inhibit their conversation. They indicated that they would prefer the equipment to be out of sight, and for them not to know when it was switched on, in order for their conversation to be natural and spontaneous.	The researcher decided to make use of an informant. This person agreed to strategically place recording equipment and to switch it on and off - unknown to other employees when social conversation occurred. As the employees did not take lunch in the tearoom every day, the researcher and informant decided to make recordings within the workroom during work time as well.
3. Establishing whether transcribed conversation could be analysed according to the three referential topic frames used in the studies of Stuart (et al., 1993) and Balandin and Iacono (1998a).	The transcribed sample (10 minutes) was analysed according to the procedure outlined in3.8.3.	Topic analysis by the three referential topic frames was found to be possible for the transcribed conversational sample.	None

3.7.3 Main study

Prior to the recording, participants were informed that the purpose of the study was to analyse the topics and communication functions used during meal break conversations. Participants were told that recordings would be made during the course of the next few months. They were assured that confidentiality would be maintained. Participants at both employment contexts requested for them not to know the exact dates of the recordings, and for recording equipment to be placed out of their sight, as they felt that doing otherwise would inhibit the conversations. Consequently, one employee in each context agreed to act as an assistant. This assistant switched the recording equipment on and off - unknown to fellow employees - at times appropriate according to his/her judgement, in order to capture the social conversations of fellow employees. Recordings were made on nine days (nine consecutive working days) over a two-week period in the first employment context (A), while recordings were made on two separate days over a period of three months (81 days apart) in the second employment context (B). In the latter context recordings were only made in the tearoom, where employees occasionally spent their tea or lunch break. Building alterations were made to this tearoom in the time after the first recording, resulting in a period of three months during which the tearoom was not utilised. After the alterations had been made, the tearoom was considerably smaller, and seemed even less popular with employees as a venue for meal breaks. The assistant was therefore only able to make one more recording on the occasion of an employee birthday. The day, setting and amount of time per recording are described in Table 3.4.

TABLE 3.4: Day, setting and amount of recording time per daily recording

Context	Day	Recording time	Description of setting
A	1. Monday	11min 30sec	Recordings were made in the tearoom before starting work and during lunch/tea breaks. Employees were eating at times, and were once busy choosing clothes that one employee was selling, and which had been laid out on the table of the tearoom. Recordings were also made in the big open-plan work area while employees were engaged in manual work.
	2. Tuesday	20min 50 sec	
	3. Wednesday	20min 45sec	
	4. Thursday	19min 30sec	
	5. Friday	10min 50sec	
	6. Monday	29 min10sec	
	7. Tuesday	17min 00sec	
	8. Wednesday	20min 10sec	
	9. Thursday	4min 00sec	
B	1. Wednesday	36min 30sec	Recordings were made in the tearoom during lunch breaks. Employees were eating. The second recording was made during a birthday celebration for the manager.
	2. Monday	37min 43sec	

3.8 ANALYSIS OF DATA

3.8.1 Length of recordings

As the microphone fitting disabled the voice activation feature of the cassette recorders, conversations were recorded with interspersed silences. McLaughlin (1984) reports that interactive silences are not perceived as disruptive provided that they are filled with some activity (p. 113). Such pauses in interaction are thus more likely to occur in the presence of another activity. Some recordings made at Context A were done in the work area, while participants were engaged in work activities. Silences thus sometimes occurred as participants presumably were busy with work activities. In all recordings, silences sometimes occurred as participants left or entered the room. In order to calculate the amount of conversation time, the entire recording was timed. Silences of longer than 30 seconds were subtracted from the total recording time.

3.8.2 Transcription

All the recorded conversation samples were transcribed by the researcher using the Microsoft Word 2000 word-processing program. The samples were typed verbatim according to a set of predetermined transcription rules, based on transcription conventions described in the literature (Hopper, Koch & Mandelbaum, 1986; Noffsinger, 1991). The rules were similar to those outlined by Stuart et al. (1993) and Balandin and Iacono (1998a) (see Appendix C). One audio recording from each context was randomly chosen and transcribed or partly transcribed by a communication pathologist with experience in transcription from audiotapes. The total time of the audiotape sections transcribed by her added up to 22 min, which equalled 10 % of the total sample. Word-by-word agreement of the transcriptions by the first and the second transcriber was calculated according to the following formula (McReynolds & Kearns, 1983):

$$\frac{\text{total number of agreements}}{\text{total number of agreements and disagreements}} \times 100 = \text{percentage of agreement}$$

A word-by-word agreement of 91.5 % was obtained.

3.8.3 Topic analysis

Brown and Yule (1983) note that equally valid descriptions of the topic of a piece of discourse are possible (p. 75). Topic analysis as a process of defining topics and topic boundaries is thus a subjective process. Realising this, the procedure followed in the current study involved a consensus approach for defining topics and categorising parts of conversation according to the three referential topic frames *time, person* and *content.* Almost more important than the name or boundaries of the topic was the consistency with which its definition was applied to the text. The reliability with which definitions were applied for classification thus needed to be carefully monitored.

The topic analysis was based on procedures outlined in the literature (Hopper et al. 1986; Stuart et al., 1993), and entailed the following processes:

3.8.3.1 Development of a list of categories for the three topic frames

This process entailed two steps: firstly, the development of an initial set of topic categories by the researcher and a trained assistant, and secondly, the development of the final set of categories by the researcher. The second step was a process which ran concurrent with the segmenting of transcripts into communication segments (3.8.3.2) and the categorisation process (3.8.3.3). As a first step, the researcher and a trained research assistant (communication pathologist) jointly reviewed the first two transcribed conversations and developed an initial set of topic categories according to three referential frames: time, person and content. Stuart et al.'s (1993) list as well as the topics outlined in Balandin and Iacono (1998a) were used as guidelines. At the time when the topic list was compiled, the researcher did not have access to the complete list of topics and their definitions as used for Balandin and Iacono's study (1998a). In the article on the study (Balandin & Iacono, 1998a), only the 19 topics which occurred most frequently are named, which were used as guidelines for the compilation of the list used in the present study. Definitions proposed for the present study differed from list by Stuart et al. (1993) and the topics defined by Balandin and Iacono (1998a) in the following respects:

1) Topic categories for the present study were defined in such a way as to denote merely the content of conversation, *not* communication functions. It was thus decided not to define a category such as 'fact finding', which was defined for Balandin and Iacono's study (1998a) and

encompassed any question apart from rhetorical ones. Similarly the categories 'judgements' (Balandin & Iacono, 1998a) and 'personal philosophy' (Stuart et al., 1993) were not defined for the present study. Questions, judgements and personal philosophies were usually 'about something' in particular. That 'something' was taken as the topic of the utterance for the purpose of this study.

2) In order to neither categorise based on assumptions nor lose the diversity of the data, some of the existing time and person frame categories from Balandin and Iacono (1998a) and Stuart et al. (1993) were combined or subdivided. Specifically, the categories 'year past' and 'decade past' identified in Balandin and Iacono's study (1998a, p. 136), were combined as 'intermediate past[1]' in the present study, a category which consequently spanned a wide time range. This adaptation was necessary as it was often not clear when the events referenced took place. Furthermore, the category 'close friends' identified by Balandin and Iacono (1998a) was subdivided into 'colleagues' and 'friends' for the present study. While there appeared to be good relationships between peers within the work context, the researcher hesitated to assume them to be 'close friends'. Similarly, no categories seemed to be proposed for references to the general 'one' or 'you', (e.g. 'You pay a fortune for it these days.') or for references to clients. These categories were included for the present study.

3) A single level of categories was found to be insufficient to describe the possible topics and the interlinked topics of the content frame. In Stuart et al. (1993), for example, a category was defined for 'food' and one for 'shopping/buying/selling'. In the present data, however, one utterance could be found to refer to 'buying food.' Stuart et al. (1993) give no specific guidelines as to which content frame should override the other, other than 'take the predominant theme' (Stuart et al., 1993, p. 107). In order to attempt solving such dilemmas, main and subcategories were defined for the content frame. The category 'shopping/buying/selling' defined by Stuart et al. (1993) thus appeared as a subcategory of various other main categories (e.g. 'food' - 'food buying', 'equipment' - 'equipment buying'). The advantage of this approach was a more detailed analysis of topics as well as the possibility it offered of re-grouping topics relatively easily in order to facilitate comparison with the other studies.

[1] For a definition of categories refer to Appendix E

Categories not occurring in Stuart et al.'s categories or in those outlined in Balandin and Iacono (1998a) were discussed and a category name and definition was agreed upon.

The second step, namely the compilation of the complete list, was achieved concurrent to the division of conversation samples into communication segments and the actual categorisation of all segments into the three referential frames: time, person and content. It was achieved independently by the researcher, using the initial list of topic categories as a guideline. Once again, new topic categories were added to the list when necessary. Whenever a new topic was added to the list, all previously coded transcripts were reviewed for possible occurrence of the new topic category to ensure consistency. A list of general coding rules was developed during this process (see Appendix D). Definitions for each topic category were also developed at the same time, and are presented in Appendix E.

3.8.3.2 Division of conversation samples into communication segments

The researcher divided all conversation samples into communication segments, identified by intonation contour, pause, change in topic or change in speaker (Appendix F). The segments occurring within a particular day's recording were numbered consecutively.

3.8.3.3 Categorising communication segments according to the three topic frames

Each communication segment was categorised according to the three referential frames of *time, person* and *content*. Categories were code-numbered, and three number codes (one for each topic frame) were assigned to each communication segment.

3.8.3.4 Segments not coded

Communication segments were not coded under the three referential frames but given a separate single code number if they could be classified as:

- etiquette
- request for clarification
- call for attention
- not understandable to the researcher because of lack of context
- not intelligible

(See Appendix D for detailed definitions.)

3.8.3.5 Reliability according to the consensus approach

After all transcripts had been independently coded by the researcher, they were reviewed by the researcher and the research assistant. The coding of each communication segment was discussed and consensus was reached regarding the final coding of the segment. If a coding was changed, the previously discussed samples were once again reviewed to ensure consistent coding. This consensus approach was followed until all topic segments had been assigned a final coding.

3.8.3.6 Statistical procedures

The codes for each communication segment from a specific recording were entered into a Microsoft Excel spreadsheet. A new spreadsheet was created for each day's recording. Using the COUNTIF and SUM functions, the frequency of occurrence of each topic category as well as the total number of communication segments was determined per daily recording. This data were summarised on a new spreadsheet, and the frequency of occurrence of each topic category across all samples as well as the total number of communication segments was determined by the SUM function.

3.9 SUMMARY

The research methodology of the study was described in this chapter. The aims, sub-aims and the research design, as well as employment contexts, participants and material for data collection were described. Ethical issues relating to the data collection procedure were explored. The pilot study was discussed, with focus on the recommendations for the main study. A description of the data collection and analysis procedures was given.

CHAPTER 4
RESULTS AND DISCUSSION

4.1 INTRODUCTION

The results of the study are discussed in this chapter, in terms of the length of the recorded samples and the coding of communication segments. The results of the topic analysis are discussed under each of the three referential frames (time, person and content). The frequency with which the topic categories under each of these frames are referenced is discussed. As the content frame contained many categories (43 different categories), the range of categories referenced in each of the two work contexts as well as the pattern with which they were referenced across the 11 samples are also discussed. Differences and similarities in topic referencing between the two work contexts are highlighted under each of the frames. Comparisons are also made to previous studies on topic referencing, specifically Balandin and Iacono's study (1998a) and, to a lesser extent, the studies by Marvin, Beukelman, Brockhaus and Kast (1994) and Stuart et al. (1993).

4.2 CONVERSATION SAMPLES

4.2.1 Recording time

The recording time for each sample differed. As the recorders were not voice-activated, the silences between conversations were also recorded. In order to eliminate these from the samples, a random cut-off time of 30 seconds was chosen - silences of more than 30 seconds were timed and subtracted from the total recording time. The resulting times as well as the number of communication segments for the samples are contained in Table 4.1.

Of the samples, ten were longer than 10 minutes, while sample A9 consisted of a very short recording of only 4 minutes. The average recording time was 20 minutes, 43 seconds, with a standard deviation of 10 minutes, 26 seconds.

Table 4.1 Recording time and number of communication segments of the samples

Daily samples	*A1*	*A2*	*A3*	*A4*	*A5*	*A6*	*A7*	*A8*	*A9*	*B1*	*B2*
Time (in minutes and seconds)	11,30	20,50	20,45	19,30	10,50	29,10	17,00	20,10	4,00	36,30	37,43
No. of communication segments	126	240	230	206	184	213	119	338	43	321	297
Total time of recordings per context	Total: Context A: 153, 45									Total: Context B: 74, 13	
Total number of communication segments per context	Total: Context A: 1700									Total: Context B: 618	

Total recording time	227.58 = 3 hours, 47 minutes, 58 seconds
Average recording time per sample	20.43
Standard deviation	10.26
Total number of communication segments	2318
Average number of communication segments per sample	210.7
Standard deviation	90.3

4.2.2 Segments coded

A total of 2318 communication segments were coded. Due to the shorter recording time, sample A9 had significantly fewer segments than the other samples. The average number of communication segments was ~210.7 per sample, with a standard deviation of 90,28 segments. The topic analysis of the 2318 segments according to the frames *time, person* and *content* yielded a total of 61 different topic categories. Some categories were subdivided to yield a total of 119 classification possibilities. Each of the categories (and sub-categories) is described in Appendix E.

4.2.3 Segments not coded

An additional 472 segments were not coded (see Appendix D for definitions of the 5 categories of segments not coded). Table 4.2 gives a breakdown of the segments that were not coded.

TABLE 4.2: Segments not coded

Description	*Number of segments*
Unintelligible	335
Lack of context	50
Etiquette	54
Request for clarification	23
Calling	10

4.3 TOPIC FRAME REFERENCING

4.3.1 Time frame

The time frame contained five categories. The category 'intermediate past' combined the categories 'year past' and 'decade past' identified in Balandin and Iacono's study (1998a, p.136), and consequently spanned a wide time range. This adaptation was necessary as it was often not clear when exactly the events referenced took place. The other four time frames were defined identically to those of Balandin and Iacono (1998a). A summary of the participants' referencing of the different time frames for each day's sample as well as for the composite sample is provided in Table 4.3 as a percentage of the total communication segments per sample.

Table 4.3: Participants' referencing of the time frame categories, expressed as a percentage of the total communication segments per sample

Time frame	*A1*	*A2*	*A3*	*A4*	*A5*	*A6*	*A7*	*A8*	*A9*	*B1*	*B2*	*Totals across all samples*
1. Distant past	4.8	0	0	0	0	0	1.7	2.4	0	0	0	0.7
2. Intermediate past	23.8	16.3	14.3	30.6	25.5	48.3	25.2	16.3	20.9	66.1	22.8	29.7
3. Recent past	15.1	8.3	17	17.4	7.6	0	16.8	14.8	2.3	0.9	19.1	11.2
4. Present	46.8	67.5	54.8	47.1	57.1	40.4	49.6	60.3	53.5	31.5	55.4	51.7
5. Future	9.5	7.9	13.9	4.9	9.8	11.3	6.7	6.2	23.3	1.5	2.7	7.2
Total	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

The present followed by intermediate past (happenings more than one week, but less than 10 years ago) were the most frequently referenced time frames in the composite sample. These two time frames ranked top two in 10 of the recordings. The present was referenced most frequently in 10 of the 11 samples, and in these samples, took up more than 40 % of the communication segments. In sample B1 the intermediate past was referenced significantly more frequently than the present. This variation might be accounted for by the fact that participants did not reference the work process or jobs during this day (a content frame category that was usually referenced in the present tense), but spent the most part of the conversation discussing suicides of a media figure, colleague and a family member that had occurred in the intermediate past. In sample A9, the present was referenced most, followed by the future, which was referenced slightly more often than the intermediate past. Participants discussed the

future of the South African cricket team after the match fixing scandal during this sample, which accounted for many references to the future. Following the present and the intermediate past, the overall order of the remaining time frames (from more to less frequently referenced) was: recent past, future, distant past. The distant past was referenced least in all samples, and was not referenced at all in 9 of the 11 recordings. In Figure 4.1, participants' use of time frame categories is given for each context, expressed as a percentage of the total number of communication segments obtained for each context. Similar tendencies were observed in both contexts, except that references to the intermediate past ranked slightly higher than references to the present in Context B. This order was reversed in Context A. The discussion of past suicides could have been the influence.

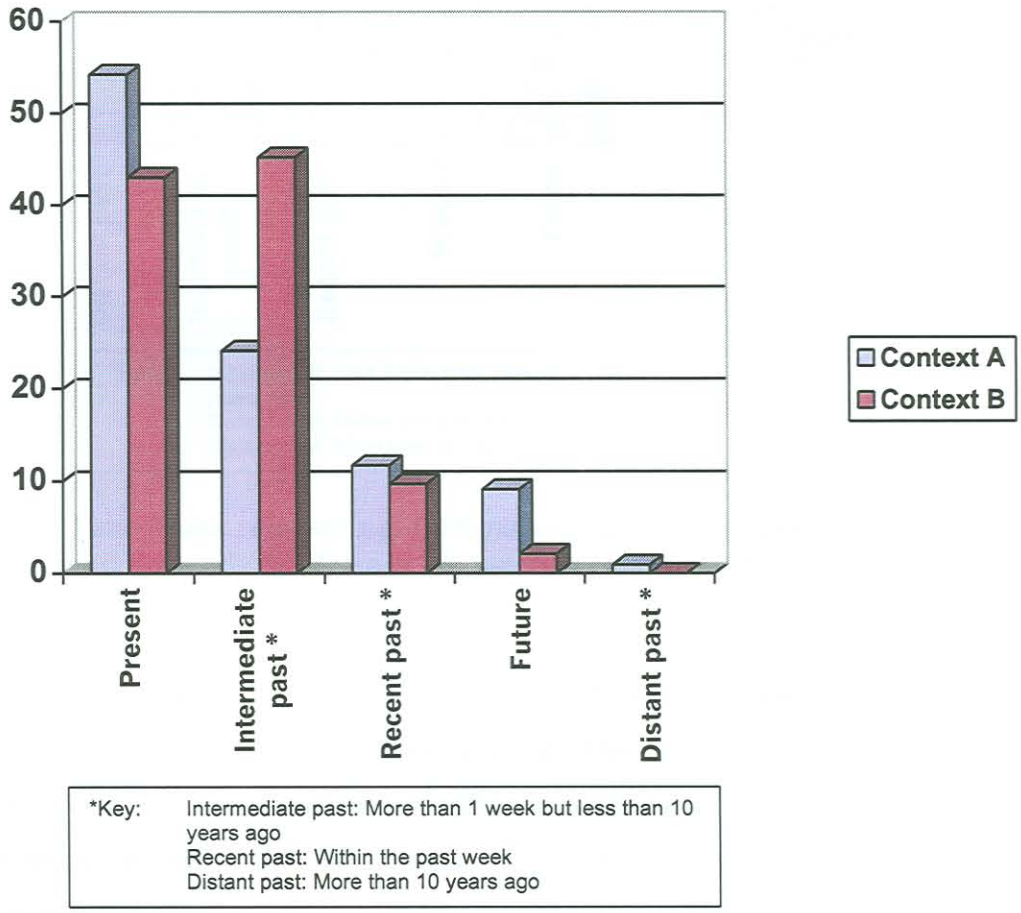


Figure 4.1: Percentage of references to time frame categories for Contexts A and B

Figure 4.2 gives a comparison between the overall time frame referencing found in the present study and the time frame referencing found in Australian meal-break

conversations (Balandin & Iacono, 1998a) as well as conversations of elderly American women (Stuart et al., 1993). For the purpose of the comparison, the two frames 'year past' and 'decade past' identified in the two latter studies were grouped together as 'intermediate past.'

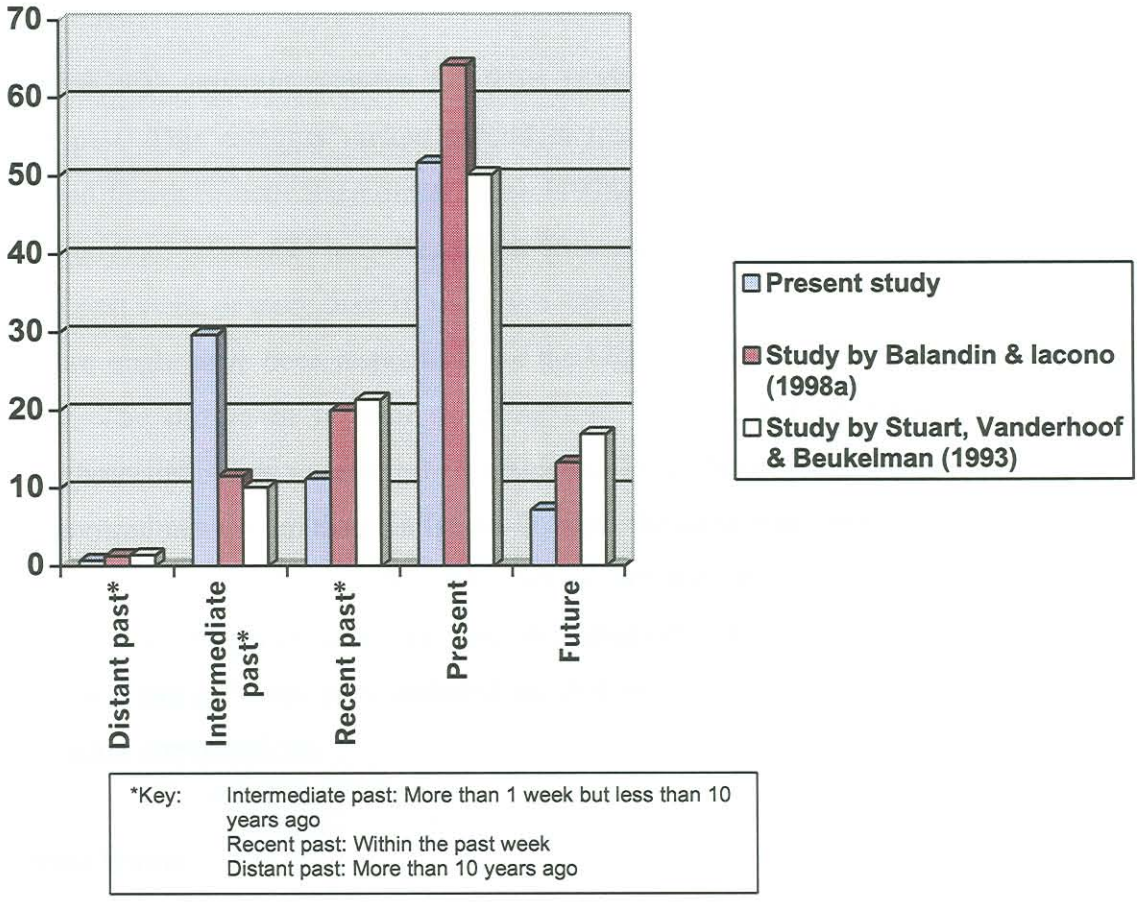


Figure 4.2 Time frame referencing: Comparison between the present study and the study by Balandin & Iacono (1998a) and Stuart, Vanderhoof & Beukelman (1993)

Most frequent reference to the present and least reference to the distant past was a phenomenon observed in all three studies, and can thus be identified as a general trend in social conversations, regardless of age or context of the participants. It seems that participants reference current events or states frequently. One possible explanation is that current matters might be of greater interest to the communication partner than past events which were not shared by participants. McLaughlin (1984) makes mention of a 'shared knowledge base' (p. 47) between speaker and listener upon which new knowledge and meaning is constructed. References to the present events or objects would in all likelihood be shared by participants. Reference to past

events not shared by communication partners necessitate the speaker to give more background information to create the shared knowledge base. References to the future, in turn, would be limited to plans and speculations - many other communication functions, such as observations about the environment, procedural discourse or story-telling rarely occur in the future tense.

Some variation was apparent between the three studies in the referencing of the intermediate past. This category ranked second in frequency in the present study, while it ranked fourth in both Balandin & Iacon (1998a) and Stuart et al. (1993). In the present study, all references to events where the exact time was not stipulated to be within the past week or more than 10 years ago were scored as 'intermediate past'. This procedure might have been responsible for the high frequency of occurrence of this category. The difference in total sampling time and number of participants between the three studies also needs to be considered. In all three studies, the recent past was referenced more often than the future. Overall, the pattern of 'present - past - future' was observed in all three studies. The same order was observed in preschool children's conversations (Marvin, Beukelman, Brockhaus & Kast, 1994), except that the time frame 'fantasy' was also included in that study, a frame that was not identified in adult conversations.

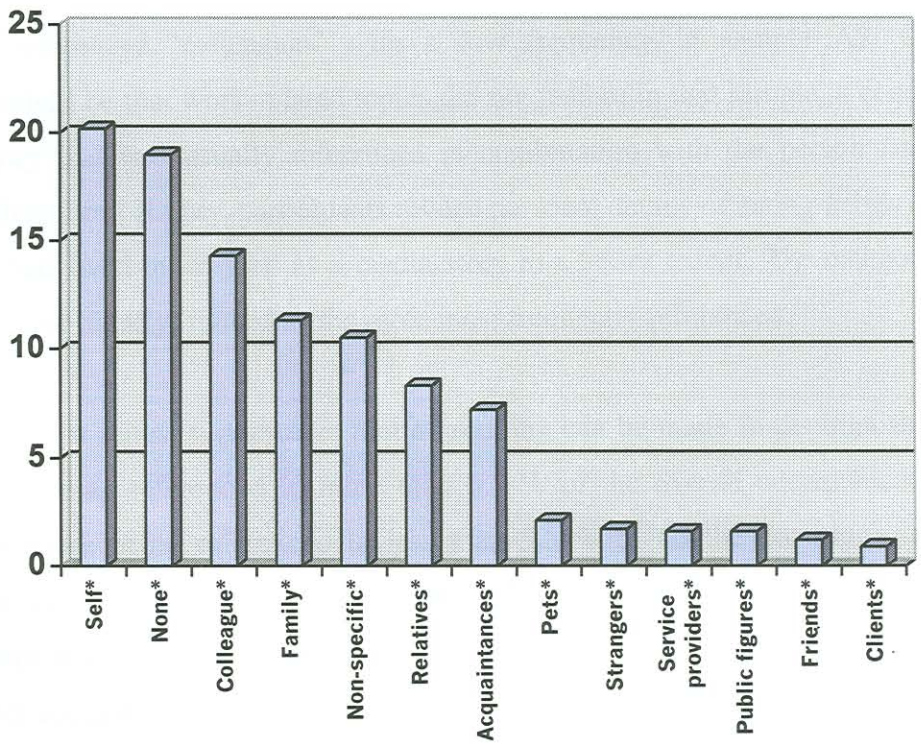
4.3.2 Person frame

This frame contained 13 categories. Table 4.4 provides a summary of the references made to the categories in the person frame. Figure 4.3 presents the data of the right-hand column of Table 4.4 graphically. Overall, participants referenced themselves most frequently in conversations. 'Self' was ranked the most frequently referenced person frame category in 3 of the 11 samples, joint first in one sample, second in one sample, joint second in two and third in one sample. The percentages established for this category in each of the individual samples ranged from 2.3 % to 24.2 %. In samples A9 and B1, 'self' did not rank first, second or third. In sample A9, conversation revolved around the cricket scandal. Consequently, the category public figures ranked highest. In sample B1, the suicide of a former colleague was discussed in great detail, resulting in many references to the category 'colleague'.

Table 4.4: Participants' referencing of the person frame categories, expressed as a percentage of the total communication segments per sample

Person frame	*A1*	*A2*	*A3*	*A4*	*A5*	*A6*	*A7*	*A8*	*A9*	*B1*	*B2*	*Totals across all samples*
1. None	23.8	28.3	14.3	18.9	19.6	12.7	20.2	20.7	14	15.3	19.8	19.0
2. Non-specific	8.8	10.8	10.0	8.7	7.6	6.1	11.8	8.3	23.3	15.0	13.1	10.5
3. Self	23	24.8	21.7	18.4	19.6	27.7	20.2	21.6	2.3	8.7	21.2	20.2
4. Family	19	17.5	15.2	8.7	2.2	10.3	30.3	12.4	0	6.2	6.7	11.3
5. Relatives	0	4.6	0	20.9	4.3	21.1	3.4	4.1	27.9	9.7	8.4	8.3
6. Colleague	14.3	2.5	21.7	12.1	26.6	10.8	0.8	16.9	2.3	17.8	14.8	14.3
7. Acquaintances	7.1	11.6	8.3	1.9	9.2	8.0	5	9.5	0	5.0	6.4	7.2
8. Friends	0.8	0	0	0	2.2	0	0	3.8	0	1.9	1.3	1.2
9. Service provider	1.6	0.4	4.8	1	0.5	1.9	0	2.4	0	1.2	1.0	1.6
10. Public figures	1.6	0	0	0.5	0.5	0	6.7	0	30.2	3.4	0	1.6
11. Clients	0	0	0.9	0.5	6.5	0.5	0	0	0	0	2.0	0.9
12. Strangers	0	0	3	0	1.1	0.9	1.7	0.3	0	5.9	2.3	1.7
13. Pets	0	0	0	8.3	0	0	0	0	0	10.0	0	2.1
	100	99.9*	99.9*	99.9*	99.9*	100	100.1*	100	100	100.1*	100	100.1*

* Percentages did not always add up to 100 % exactly due to rounding up/down of the percentages of the individual frames



* See Appendix E for definitions of the categories

Figure 4.3: Percentage of references to person frame categories across contexts

References to the category 'none' ranked second overall. It was ranked highest in two samples, second in four and joint second in two. It was ranked third in one sample. Once again, this category did not rank among the top three in two samples. In sample A3, participants referenced 'family' frequently, as they spoke about the beauty therapy treatment of a spouse, family computer habits and going for a walk with the family. In sample A9, conversation revolved around the cricket scandal, which led to public figures being most frequently referenced. During discussion of the cricket, many generalisations and opinion statements were made, resulting in the category 'non-specific' being referenced frequently. Some conversation in this sample was also concerned with the child-rearing philosophies of relatives. Relatives were thus also referenced frequently. The percentages established for this category in each of the individual samples ranged from 12.7 % to 28.3 %.

Participants referenced the person frame category 'colleagues' with the third highest overall frequency. This category ranked first in two samples, joint first in one and third in two. Ranking in the other six categories was more variable, although the topic was ranked amongst the top seven for five of the remaining six categories. Participants referenced 'colleagues' with a low frequency in sample A7. One explanation might be that work-related topics did not feature in that sample, a content frame category that was usually referenced in combination with the person frame category 'colleagues'. Rather, participants related personal details of eating habits and houses they had lived in, as well as a media story to a lesser extent. The categories 'self', 'none' and 'family' ranked as the three most frequently referenced.

From Figure 4.3 it seems furthermore that a grouping can be made in distinguishing the categories being referenced in more than 5.5 % of the overall communication samples and those being referenced in less than 5.5 % of all the communication samples. Group 1 (referenced in more than 5.5 % of the total communication segments) would contain the categories self, none, colleagues, family, non-specific, relatives and acquaintances, while group 2 (referenced in less than 5.5 % of the segments) consists of the categories pets, strangers, service providers, public figures, friends and pets. This grouping (disregarding the percentage values but considering merely the hierarchies) holds true for four of the 11 samples, and with the exception of one category respectively, also for each of the other seven samples. There seems to

be relative consistency regarding the main trends in person frame category referencing across all samples.

When comparing the frequencies with which person frame categories were referenced across the two contexts, the groupings discussed above hold true for both contexts (see Table 4.5). The range in frequency for the categories belonging to Group 2 is 1 to 5.2 % for Context B, and 0.8 to 1.7 % for Context A. A bigger range for Context B might be ascribed to less segments being coded for this context, which would make the likelihood of statistical variation bigger. From Table 4.5 it is furthermore clear that the Group 1 categories for Contexts A and B do not differ more than two hierarchical positions, whereas Group 2 categories display more variation. Overall tendencies regarding frequency of referencing were thus similar across contexts for the seven most frequently referenced person frame categories.

Table 4.5: Hierarchies of person frame category referencing (in descending order) for Contexts A and B and the total across all samples

	Context A	*Context B*	*Total*
Group 1: Referenced in more than 5 % of the communication samples	Self	None	Self
	None	Colleagues	None
	Colleagues	Self	Colleagues
	Family	Non-specific	Family
	Non-Specific	Relatives	Non-specific
	Relatives	Family	Relatives
	Acquaintances	Acquaintances	Acquaintances
Group 2: referenced in less than 5.5 % of the communication samples	Service providers	Pets	Pets
	Public figures	Strangers	Strangers
	Friends	Public figures	Service providers
	Pets	Friends	Public figures
	Clients	Service providers	Friends
	Strangers	Clients	Clients

In order to compare results of the current study with those obtained by Balandin and Iacono (1998a), it was necessary to regroup the following categories of the present study: 'Colleagues' and 'friends' were combined under the heading 'close friends', while, 'acquaintances', 'non-specific' and 'clients' were grouped under the heading 'acquaintances'. Figure 4.4 summarises the comparison.

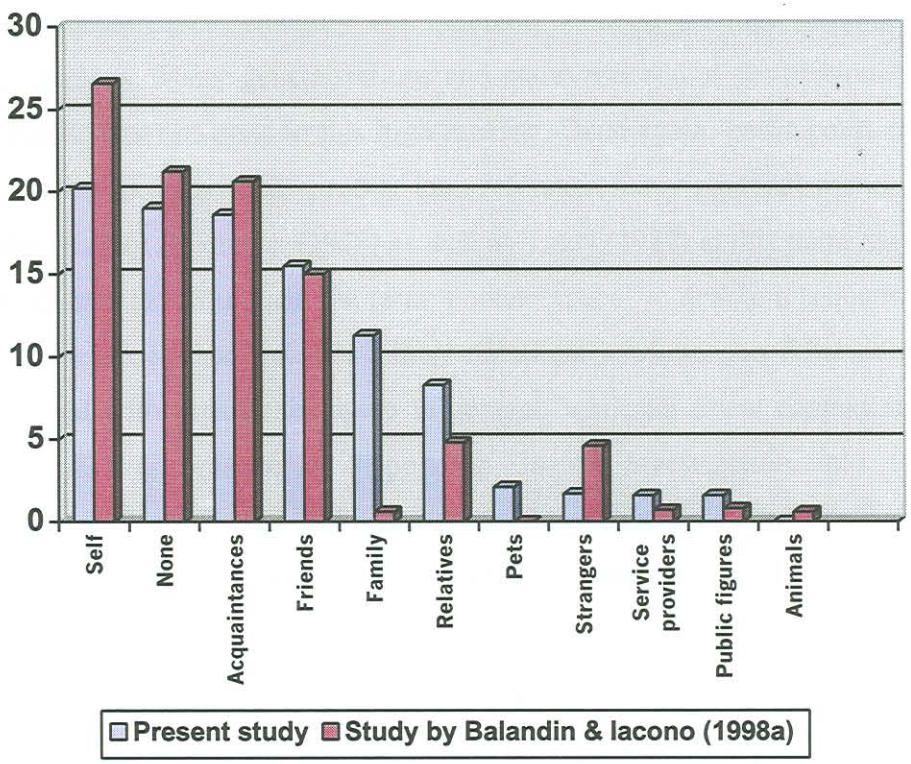


Figure 4.4: Person frame referencing: Comparison between the present study and the study by Balandin & Iacono (1998a)

From the figure it seems that tendencies regarding person frame category referencing were very similar, especially regarding the more frequently referenced categories. In both studies, 'self' was the most frequently referenced person frame category. This tendency was also observed in conversations of elderly American women (Stuart et al., 1993), and preschoolers' conversations (Marvin, Beukelman, Brockhaus & Kast, 1994). Sharing one's own experiences and opinions is an important part of establishing and maintaining familiarity within social relationships. Todman et al. (1999) reports topics to be selected based on, firstly, shared interests and, secondly, the desire to bring communication partners up to date with recent life events. The second aim would entail references to 'self', which are reflected in the current data.

Reference to inanimate things ('none') ranked second in both studies. As in Balandin and Iacono's study (1998a), many content frame categories such as 'food', 'clothes', 'business' and 'household equipment' referred to inanimate things. One reason for frequent reference to inanimate things might be the tendency of employees to

converse about more general issues rather than personal matters. Similarly, the high ranking of the 'acquaintance' category was indeed a result of the high reference to 'non-specific' persons. Many generalisations and some procedural descriptions (i.e. *you* do this, *you* do that) resulted in this high ranking. Once again, participants often seemed to converse more generally, rather than reference many personal matters. A reference to the work of Reichman (1978) as well as Tracy (1982) at this point may be of interest. Reichman (1978) coined the term 'context space' to denote a sequence of conversational utterances that, taken together, constitute a whole. An *Issue* context space is concerned with a particular issue in general, while an *Event* context space relates to a particular episode or happening. In an investigation into topic continuation, Tracy (1982) found that *Issue*-oriented continuations were rated more appropriate than *Event*-oriented continuations. Thus the conversational partner was rated as more appropriate when he/she responded to a previous utterance by referring to an *Issue* rather than a specific *Event*.. The reason for the preference of an *Issue* contribution rather than an *Event* contribution might be the attempt to support the conversational partner, and to give opportunities for collaboration (Crow, 1983). In discussing *Issues,* partners may have more equal opportunities for contributions, while the relating of an *Event* would tend to be more of a monologue, with a narrator and a listener who do not share in the conversation to the same extent. *Issues* might enable the communicator to adhere more closely to Grice's (1975) maxim of relation or being relevant, in the sense that they are responding to the central issue directly, rather than the issue being 'disguised' in a personal event. A high reference to non-specific persons in the present study can be seen as an attempt by conversational partners to respond generally to the issue that was discussed, in an attempt to be relevant and to create equal opportunities for contribution by all conversational partners.

Frequent reference to the 'close friends' category is a result of the high frequency with which 'colleagues' were referenced. Employees at a work place seem to talk about persons who are familiar to communication partners (i.e. other colleagues and mutual friends) more than referencing family and relatives. Clark and Haviland's (1977) notion of the given-new-contract suggests that speakers need to establish a shared knowledge base with the listener prior to adding new knowledge to this foundation (p. 4). Reference to familiar persons makes this task of the speaker easier, as the familiar person is a shared knowledge base between speaker and listener.

One significant difference between the two studies is a more frequent reference to family in the present study. One reason might be the fact that 10 of the 12 participants in the present study were married and had their own families, while 16 of the 34 participants in Balandin and Iacono's study (1998a) were single. The influence of the speaker's background on conversational topic might thus be illustrated.

4.3.3 Content frame

As the content frame contained many categories (43 different categories), The results obtained for this frame are discussed under separate headings, regarding the frequency, range and pattern with which these topic categories were referenced. The results of the comparison between the current data and the data obtained by Balandin and Iacono (1998a) are also discussed under a separate heading.

4.3.3.1 Frequency of content frame referencing

The content frame comprised of 43 categories, some of which were subdivided to yield a total of 101 classification possibilities (Appendix E). In order to get an overview of the content frame category referencing, the samples were analysed according to the 43 main categories first. Figure 4.5 provides an overview of the content frame categories referenced across all the samples, expressed as a percentage of the total communication segments. The graph shows that, although the content frame contained the most categories, some of these were infrequently referenced (e.g. only one reference was made to 'toys' in the composite sample). A relatively limited number of topics seemed to take up the bulk part of the conversation. In fact, only six content frame categories (~ 14 %) were referenced with a frequency of 5 % or higher, whereas 20 categories (~ 47 %) were referenced with a frequency of less than 1 %. The terms 'core' and 'fringe' which are applied to vocabulary (Beukelman & Mirenda, 1998, p.33 - 35) might thus also be applied to topics, with less frequent topics being regarded as 'fringe', while those topics referenced frequently might be regarded as 'core' topics. These findings are similar to those of Balandin and Iacono (1998a, p.137).

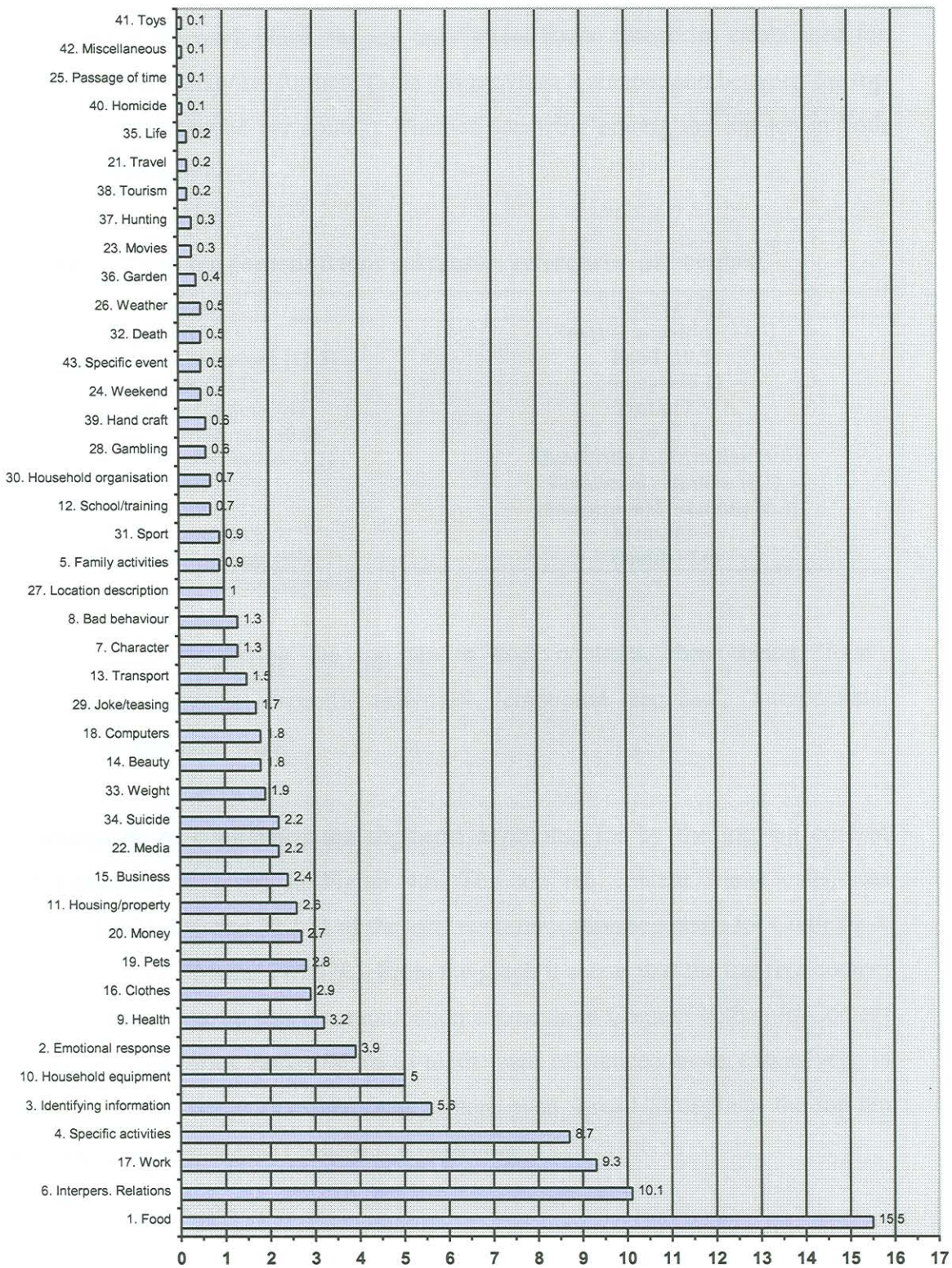


Figure 4.5: Percentage distribution of content frame categories across all samples
(for definitions of the categories refer to Appendix E)

In order to obtain information about the topics most likely to occur in social conversation at the work place, the top ten content frame categories established for each context were analysed further. Table 4.6 provides a comparison between the top ten categories referenced per context. Themes occurring among the top ten in both contexts are given in bold.

Table 4.6: Top ten content frame categories referenced per context

Context A	*Context B*
Food (17.4)	**Specific activities** (12.4)
Interpersonal relations (11.5)	**Food** (10.3)
Work (10.1)	Suicide (8.1)
Specific activities (7.4)	**Work** (7.3)
Household equipment (6.8)	Pets (7.3)
Identifying information (5.2)	**Identifying information** (6.6)
Clothes (3.9)	**Emotional response** (6.5)
Health (3.1)	**Interpersonal relations** (6.3)
Business (3.0)	Media (3.7)
Emotional response (3.0)	**Health** (2.6)

* For definitions of the categories refer to Appendix E

Seven themes were among the top ten in both contexts, these being 'food', 'identifying information', 'specific activities', 'emotional response', 'interpersonal relations', 'health' and 'work'.

The percentage of communication segments accounted for by the top ten content frame categories is given in Figure 4.6. The top ten content frame categories accounted for 71.4 % and 71.1 % of the total communication segments for Contexts A and B respectively (Mean: 71.25 %). From the graph it seems that the top five content frame categories took up less communication segments in Context B than in Context A, while the categories ranked sixth to tenth were referenced more extensively in Context B. It thus seems that there was a more even spread throughout the top ten content frame categories for Context B's recording.

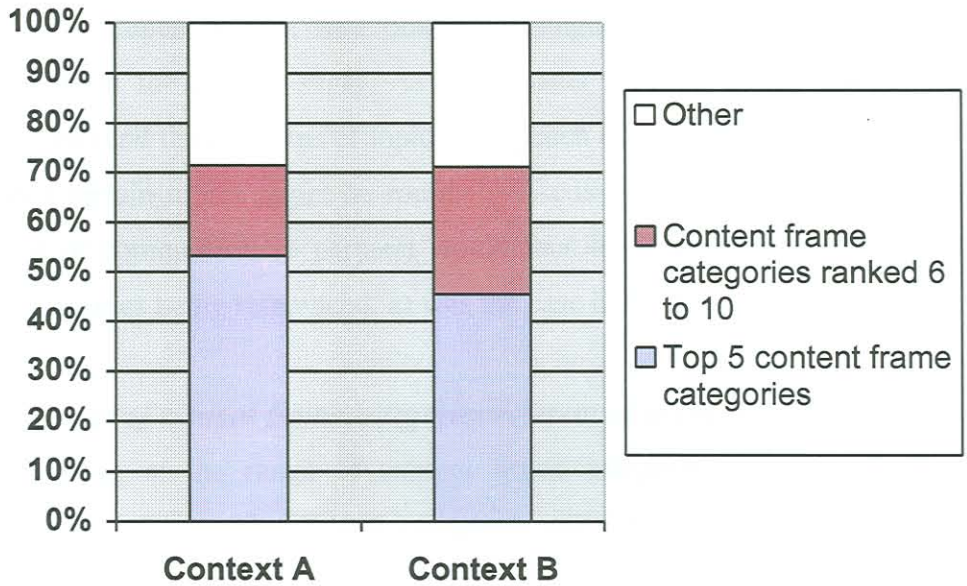


Figure 4.6: Percentage of communication segments accounted for by the top 10 content frame categories established for each context

A similar analysis was done by Balandin and Iacono (1998a), where the top ten content frame categories for each composite weekday sample were established. However, there are important differences in the sampling procedure which need to be taken into account when comparing the findings by Balandin and Iacono (1998a) and those of the present study. A summary of these differences is given in Appendix G.

In the Australian study, the top 10 content frame categories established for each composite weekday file accounted for 58 to 61 % (mean: 60 %) of the communication segments within that file, compared to the 71.1 to 71.4 % established for each context's recording in this study. Each of the composite weekday samples analysed in the Australian study comprised of 720 minutes of recording, and there was a greater variation of participants and contexts contained within one sample. One might therefore expect a wider range of topics per sample, resulting in a lower percentage of communication segments being taken up by the top ten categories.

Differences in the employment sites sampled for the two studies might also have had an influence. At the sites sampled in the present study, six and nine permanent staff members were employed at the time the recordings were done. The sites sampled in the Australian study had 140, 560, 42 and 36 employees respectively. Participants in

the latter study thus had a potentially wider selection of communication partners during their lunch breaks, and possibly changed partners more often than the participants of the present study. As participants seem to share certain patterns of information (and thus patterns of topics) with each other over time (Sigman, 1983:, p. 88), only certain topics might be routinely discussed with certain persons. A wider selection of communicative partners would thus lead to a wider variety of content frame categories being referenced, as was the case in the Australian study.

4.3.3.2 Range of content frame categories referenced in the samples

When looking at the range of content frame categories referenced within each context's recordings, 37 different categories occurred in the composite sample of context A, while 36 different categories occurred in the composite sample of Context B (see Table 4.8). This finding is rather surprising, as the recording time for Context B was less than half that of Context A (71 minutes, 13 seconds versus 153 minutes, 45 seconds respectively), and one might expect less topics to be mentioned in the sample of Context B. It seems that participants in Context A referenced a relatively smaller number of categories across time than participants at Context B. Participants in Context A thus seemed to reference a content frame category more extensively in general.

The comparison between the variety of topics referenced at each of the contexts is, however, limited by the difference in sampling procedures between contexts A and B. Whereas only two recordings were made at Context B, nine were made at contexT A. As certain themes occurred repeatedly over consecutive days, the increased number of days on which the recordings were done would have led to a proportional decrease in the number of 'different' categories as repetitive themes were not counted as different themes. However, the relation between the number of different content frame categories referenced each day and the total number of communication segments identified for each sample was explored. Appendix G provides the results and a detailed discussion thereof. Suffice it here to say that results did confirm that fewer topics were referenced during conversations in Context A, and these topics took up more communication segments on average than in Context B.

Factors contributing to this phenomenon are a matter of speculation. Conversations in Context A might have been more intense. Indeed, some participants in Context A seemed to know each other very well and would engage in very personal conversation. Perhaps the working area (one large room with employees working in relative proximity most of the time) was more conducive to frequent conversations and thus led to closer relationships The period of time participants had been working together would also be an influence.

The highest level of education for participants in Context A was Grade 10, equivalent to 3 years of secondary education. No employee had completed High School. All except for one participant in Context B had completed High School, and two had had tertiary training and completed a diploma. In general, employees at the second context thus had higher qualifications. One might speculate that the greater variety of topics introduced over time at this context might be reflective of a broader range of interests, stimulated by increased exposure to educational programmes.

A third possible explanation might be the fact that the second recording in Context B was done after a long weekend, and employees spent a considerable amount of time relating their weekend activities, introducing such topics as gambling and hunting, which were referenced only on that particular day. A greater variety of topics might be a result of the need to bring the communication partner up to date with recent life events (Todman, et al., 1999).

The range of content frame categories referenced per composite weekday file in the Australian study is given as 53 and 55. The range of content frame categories referenced per context in the present study was 37 for Context A and 36 for Context B. Once again comparisons are complicated by different sampling procedures. The potentially wider variety of communication partners for participants in the Australian study might again have contributed to a wider range of topics being referenced.

4.3.3.3 Patterns of content frame referencing

Table 4.7 gives an indication of the patterns of content frame category referencing across the 11 samples.

Table 4.7 Number of samples and number of content frame categories occurring in these

Amount of categories (percentage of total given in brackets)	3 (7)	2 (4.7)	1 (2.3)	4 (9.3)	2 (4.7)	6 (14)	5 (11.7)	2 (4.7)	4 (9.3)	3 (7)	11 (25.6)	*Total* 43 (100)
Number of samples within which the category appeared	11	10	9	8	7	6	5	4	3	2	1	

Only three categories ('identifying information', 'specific activities' and 'interpersonal relations') were referenced in all 11 samples. Two were referenced in 10 samples (food and work) and one in nine samples (emotional response). These six topic categories all ranked amongst the top ten for the overall sample. Eleven categories (25.6 %) were referenced on only one day. The pattern of referencing the overall top ten content frame categories is given in Table 4.8.

Table 4.8: Number of samples in which the top 10 content frame categories were referenced

Category	*Overall frequency expressed as a percentage of the total number of communication segments*	*Number of samples within which the category occurs*
1. Food	15.5	10
2. Interpersonal relations	10.1	11
3. Work	9.3	10
4. Specific activities	8.7	11
5. Identifying information	5.6	11
6. Household equipment	5.0	5
7. Emotional response	3.9	9
8. Health	3.2	8
9. Clothing	2.9	5
10. Pets	2.8	2

From this table it is clear that the five most frequently referenced topics are also the five which were spread most widely across the 11 samples (three occurred in all 11 samples, while the other two occurred in 10). More variation occurred within the categories ranked sixth to tenth in overall frequency. While two had a relatively wide spread (referenced in eight and nine samples respectively), the other three occurred in less than half the samples. One topic occurred in a mere two samples. It thus seems that there were topics which were referenced only in a limited number of samples, but within these samples they were referenced frequently.

A similar pattern is seen when analysing the top ten categories for each of the 11 samples (described in Table 4.9).

Table 4.9: Top 10 content frame categories for each of the 11 samples

AA1	*AA2*	*AA3*	*AA4*	*AA5*	*AA6*	*AA7*	*AA8*	*AA9*	*BB1*	*BB2*	*Total*
Food (41.3)	Food (39.2)	Computers (18.3)	Household equipment (22.3)	Work (30.4 %)	Interpersonal relations (39.4)	Food (38.7)	Food (27.8)	Sport (32.6)	Suicide (15.6)	Food (18.8)	Food (15.5)
Health (19.8)	Household equipment (28.8)	Business (15.2)	Work (16.0)	Joke (12.5)	Work (18.8)	Housing and property (32.7)	Clothing (15.1)	Interpersonal relations (18.6)	Specific activities (15.3)	Work (12.8)	Interpersonal relations (10.1)
Specific activity (9.5)	Weight (15)	Beauty (13.5)	Interpersonal relations (10.7)	Interpersonal relations (11.4)	Specific activities (9.4)	Specific activities (8.4)	Money (10.7)	Media (18.6)	Pets (14.0)	Specific activities (9.4)	Work (9.3)
Interpersonal relations (7.9)	Specific activities (6.3)	Work (13.5)	Pets (9.7)	Identifying information (7.1)	Emotional response (7.0)	Identifying information (4.2)	Interpersonal relations (9.2)	Identifying information (9.3)	Emotional response (8.7)	Interpersonal relations (6.7)	Specific activities (8.7)
School/training (4.8)	Interpersonal relations (2.5)	Specific activities (7.0)	Specific activities (7.8)	Handcraft (6.5)	Identifying information (4.2)	Family activities (3.4)	Specific activities (7.4)	Specific activities (7.0)	Media (7.2)	Identifying information (6.4)	Identifying information (5.6)
Emotional response (3.2)	Emotional response (2.1)	Identifying information (6.5)	Identifying information (7.3)	Media (6.0)	Money (3.8)	Work (1.7)	Health (5.9)	Work (4.7)	Identifying information (6.7)	Health (6.0)	Household equipment (5.0)
Identifying information (2.4)	Identifying information (2.1)	Transport (5.2)	Household organisation (4.9)	Business (5.4)	Bad behaviour/ smoking (3.3)	Media (2.5)	Identifying information (5.6)	Household organisation (4.7)	Interpersonal relations (5.9)	Gambling (5.0)	Emotional response (3.9)
Week-end activity (2.4)	Health (1.7)	Interpersonal relations (4.8)	Emotional response (3.4)	Specific activities (4.3)	Food (2.3)	Weight (2.5)	Emotional response (2.7)	Character (2.3)	Housing/ property (3.4)	Money (4.7)	Health (3.2)
Passage of time (2.4)	School/training (0.8)	Clothing (4.3)	Bad habits/ smoking (3.4)	Emotional response (2.7)	Character (2.3)	Interpersonal relations (1.7)	Location description (2.7)	Bad behaviour/ smoking (2.3)	Transport (3.1)	Emotional response (4.0)	Clothing (2.9)
Clothing (1.6)	Family activities (0.8)	Family activities (3.0)	School/ training (2.4)	Travel (2.7)	Media (1.9)	Health (1.7)	Bad behaviour/ smoking (2.4)	_____	Food (2.5)	Beauty (3.4)	Pets (2.8)
Family activities (1.6)					Housing and property (1.9)		Transport (2.4)				
Total percentage for ten most frequent topics	95.2	9.2	91.3	87.9	89.1	89.1	92.2	97.5	89.3	100	82.6	77.2

Only two content frame categories, namely 'social relations' and 'specific activities' occurred within the top ten in all 11 samples. The category 'identifying information' occurred in 10 of the 11 samples amongst the top ten, but less often in the other sample. Nine categories occurred in only one sample among the top ten. Of these nine, five occurred in only one sample overall ('computers', 'travel', 'passage of time', 'suicide' and 'gambling'). When referring back to Table 4.9, it is interesting to note that two of these categories which were only referenced once, namely 'computers' and 'suicide' only occurred in one sample, but in the sample in which they occurred, they were referenced more frequently than any other category.

From this data it seems that some content frame categories, such as 'food', 'interpersonal relations', 'work', 'specific activities' and 'identifying information', had a wide spread across samples as well as a high overall frequency. Such topics were referenced with relative consistency in social conversations across both contexts. They occurred regularly and often took up a large part of the conversational sample. These topics seem to be relatively predictable, and thus an essential inclusion on pre-programmable AAC devices. The topics with a high overall frequency but limited spread (such as 'pets', 'suicide' and 'computers' in the present study) are the ones that would be problematic for an AAC user who needs to pre-store messages. Across a much more extensive sample of recordings these topics would be expected to have a relatively lower frequency. Yet such topics might arise in conversation, and then take up a large part of the communication segments. These topics seem to be more dependent on specific events that occurred and which are shared among communicators. The topic 'suicide', for example, arose because of a media story about suicide. The topic 'computers' was referenced as one participant explained internet access to another. The topic 'pets' occurred on two days, and consisted of participants telling stories about their personal pets. Such a topic would probably be more relevant to pet owners than others. Participants' background and specific activities they engage in can thus determine certain topics of conversation.

4.3.3.4 Content frame categories: Comparison to Balandin and Iacono's study (1998a)

The categories for the present study were developed without reference to the complete list of categories established for the Australian study (Balandin & Iacono, 1998a). Merely the names of the 19 content frame categories which occurred amongst the top ten within any of the composite weekday samples were available as a guideline. However, a high level of overlap for the content frame categories could be established in retrospect, as the researcher gained access to the complete list of content frame categories with definitions used in the study by Balandin and Iacono (1998a). This list is taken from Balandin (1995). The complete list of content frame categories and sub-categories used for this study, together with a corresponding category from Balandin (1995) is given in Appendix F. It seems that only six categories did not have a similar equivalent category or similar categories in the Australian study, these being 'computers', 'passage of time', 'suicide', 'hunting', 'tourism' and 'homicide'. Around 14 % of the content frame categories established were thus unique to this study. This finding seems to indicate a high commonality of topics in meal break conversations, in spite of many differences between the two sampling contexts and the participants, such as culture, home language, country and work contexts.

From their five composite weekday samples, Balandin and Iacono (1998a) identified a total of 19 topics which occurred at least once within the top ten categories of any weekday file. To explore the overlap between the most frequently referenced content frame categories of both studies, the top 14 categories identified for the present study were taken as a point of reference, and equivalent categories were sought out among the 19 categories which occurred among the top ten in any weekday file of Balandin and Iacono's study (1998a). Table 4.10 gives a summary of the findings.

Table 4.10: Content frame categories: Comparison between the current study and Balandin & Iacono's study (1998a)

Top 15 categories content frame categories of the current study (presented in hierarchical order)	*Equivalent category identified among the 19 categories occurring within the 10 most frequently referenced topics per composite weekday file (Balandin & Iacono, 1998a)**
1. Food	Food, ranked 3rd
2. Interpersonal relations	Social relations, ranked 11th, Communications, ranked 10th
3. Work	Work, ranked 2nd
4. Specific activities	Family life, ranked 5th, partially overlapping
5. Identifying information	*----no equivalent category among the 19 topics----*
6. Household equipment	Equipment, ranked 11th
7. Emotional response	*----no equivalent category among the 19 topics----*
8. Health	Health, ranked 10th
9. Clothes	Clothing, ranked 8th
10. Pets	*----no equivalent category among the 19 topics----*
11. Money	Finances, ranked 7th
12. Housing/property	House, ranked 10th, partially overlapping
13. Business	Work, ranked 2nd, partially overlapping
14. Media	Media, ranked 11th

* Shading indicates overlap between the categories of the two studies, with darker shading denoting good overlap, while lighter shading indicates partial overlap.
**The ranking given for the categories in the Australian study refer to the ranking of that category within the composite sample of the top ten categories identified for each weekday sample, and not the overall ranking within the whole content frame. The ranking of the categories for the current study refer to the overall ranking across all the samples, as given in Figure 4.5.

From these two tables, commonly occurring categories can be identified. The categories which overlap well (shaded darkly in the table) will be discussed briefly.

The content frame 'food' ranked highest in the present study, and third in the Australian study (Balandin & Iacono, 1998a). Regardless of work context, references to eating and drinking seem to be common during social conversation. The fact that social conversations were always (Balandin & Iacono, 1998a) or often (present study) sampled during meal breaks while employees were eating and drinking, would have had an influence. However, in conversations of elderly American women, 'Food' was found to be the content frame referenced with the fourth highest frequency (Stuart et al., 1993), and it was the third most frequently referenced content frame for preschool children (Marvin, Beukelman, Brockhaus & Kast, 1994). Food can thus be seen as a universal topic. It is relevant to people regardless of age, culture or context. Such a topic would be most conducive to the process of conversation as the collaborative work towards the construction of coherent communicative text (Crow, 1983, p. 137) during which the role of speaker and hearer are frequently exchanged (McLaughlin, 1984, p. 13). Participants are able to contribute and elicit contributions from others within the framework of such a familiar and 'generic' topic.

Similarly, the content frame category 'relations' (termed 'social relations' in the Australian study and 'interpersonal relations' in the current study) was referenced in all samples in both studies. Even elderly American women (Stuart et al., 1993) referenced this topic with a high frequency. In spite of slightly different definitions of this category in all three studies, the wide spread of this category across all samples of both work context studies, as well as the relatively high ranking indicate that this topic, similar to the topic 'food', is a 'generic' one, relevant across contexts and ages.

'Work' ranked second in the Australian study, and third in the current investigation. The high ranking of this content frame in the work setting as opposed to a low ranking of this topic in elderly women's conversations (Stuart et al., 1993) seems to confirm the conclusions drawn by Balandin and Iacono (1998a) that the context of conversation is important in predicting the likely content of adult conversations. Conversing about work processes and activities as well as work equipment also provides a shared knowledge base for all participants, making equal participation easier.

Beukelman and Mirenda (1998) note the importance of specific vocabulary as a way of asserting group membership. Use of certain topics in conversation might serve a similar function. The topic 'work' might allow participants to confirm their roles as employees and their 'team membership' as fellow employees.

The categories 'household equipment' (current study) and 'equipment' (Australian study) were ranked relatively high in the respective studies. Although definitions for these categories differed slightly (see Appendix G), it is clear that participants in both contexts referenced equipment frequently. 'Household equipment' occurred in four samples of the current study, and was almost exclusively referenced in Context A (only one communication segment sampled at Context B related to household equipment). Its high frequency can be attributed to the fact that participants referenced this topic extensively on two occasions, when it was introduced by a participant experiencing problems with her taps, her stove and her washing machine. Similarly, references to the topic 'clothing' (ranked ninth and eighth in the present and the Australian studies respectively) seemed to be mediated by the involvement of

specific participants in activities related to clothing (dressmaking in the Australian study, and selling clothes to help a friend's home business).

Balandin & Iacono (1998a) alert to the importance of taking an individual's current circumstances into consideration when predicting relevant topics. The importance of considering communicative partners in predicting topics of conversation (Lloyd et al., 1997, p. 207) is also illustrated by this finding. Preceding conversational topics should furthermore be taken into account when programming devices, illustrated by the pattern of referencing the same event and issue on two separate occasions ('household equipment' in the present study). In this case previous discourse could have served to predict a topic which was again referenced extensively two days later.

Health-related issues were referenced in both studies and ranked eighth in the current study and tenth in the Australian study. As in the Australian study, references to health conditions of others were more detailed than references to own health conditions.

'Money' ranked 11th in the present study, included references to handling of personal money finances, investments, interest rates and taxes, as well as money transactions, borrowing, lending and money safety. References to these issues were made by both male and female participants, although females seemed to reference personal money matters more often, while males seemed to reference general financial issues, such as the current interest rates, more extensively. The category 'finances' in the Australian study was defined almost identically, and was ranked seventh. Discussion of money matters thus seems to be a common topic at the workplace in Western society.

References to 'Media' were ranked 14th in the current study, and 11th in the Australian study. Shared knowledge of media events once again provides a good common knowledge base upon which meaning can be jointly built by participants.

From the above discussion it seems that, in spite of differences in home language, employment context and culture, overlap of the content of workplace conversations was relatively high. Such overlap can be partly attributed to participants generally adhering to certain conversational principles, or rules, proposing obligated, preferred

or prohibited behaviour within conversation. Selecting topics familiar to all partners allows participants to build meaning upon a firm shared knowledge base, and ensure contributions to be relevant (Maxim of relation, Grice, 1975). Topics such as 'food', 'work' and 'health' seem to be examples of such 'generally appropriate' topics. However, one should take into consideration that participants in all studies included (Balandin & Iacono, 1998a; Marvin, Beukelman, Brockhaus & Kast, 1994; Stuart et al., 1993; as well as the current study) were recorded within contexts where Western cultural norms predominated. This might result in similar topics being viewed as acceptable for the participants.

4.4 SUMMARY

The discussion of the results of the study was presented in this chapter. The length of the recorded samples and the number of communication segments which were coded or not coded was given. The results of the topic analysis were discussed under each of the three referential frames (time, person and content), and comparisons were made between the two work contexts as well as between the results of the present and previous topic research.

Throughout the discussion, hypotheses were made regarding the influence of context, culture and general conversational rules, such as the given-new contract (Haviland & Clark, 1977, p. 4) or Grice's (1975) maxim of relation on the selection and frequency of referencing certain topic categories.

CHAPTER 5
SUMMARY AND CONCLUSION

5.1 INTRODUCTION

This chapter summarises and integrates the findings of the study. The study is critically evaluated. Implications for clinical practice in AAC are discussed, as are recommendations for further research.

5.2 SUMMARY

Current legislature obligates employers to develop strategies for the employment of people with disabilities. This process, however, is riddled with many challenges. Social integration into the workplace is an important factor in job retention (Butterworth & Strauch, 1994, p. 118), yet poses a particular challenge to persons with LNFS. Social conversation is one tool by which social relationships are initiated, maintained and intensified. Giving people with LNFS access to social conversation should thus be a focus for AAC interventionists.

Text-based systems such as CHAT and TALK have been proposed for conversation, as these systems are designed to meet the requirements of speaking rate through the use of pre-stored messages. In order for these systems to be effective, it is necessary to pre-programme messages relating to certain topics which can be used in conversation. The person programming the device thus needs to be able to predict which topics are appropriate or likely to be referenced by communicators within a particular context.

Topic of conversation is subject to the influence of various factors, such as goals of communicators, role relationships of communicators, locale, culture and language used. When selecting or predicting topics, these influences need to be taken into account.

The current study aimed to expand on previous topic research by analysing the topics referenced by South African adults in particular employment contexts. Conversations were recorded in two work contexts. Transcribed samples were segmented into

communication segments. Each segment was coded under the three referential frames of time, person and content. Frequencies and patterns with which each of the categories per frame was referenced were established, per context and overall. As far as possible, findings were compared to those of Balandin and Iacono (1998a) as well as - to a lesser degree - to those of Stuart et al. (1993) and Marvin, Beukelman, Brockhaus and Kast (1994).

Most frequent reference to 'present' (followed by 'intermediate past'), 'self' (followed by 'none') and the content frame categories 'food', 'interpersonal relations' and 'work' were the overall findings of this study. Reflected in these findings are several general principles of topic selection, these being:

1) The adherence to the *given-new-contract,* whereby communicators establish a common knowledge base, upon which new information can be built (Haviland & Clark, 1977, p. 4). Frequent reference to the present, as well as to topics related to the 'here and now' such as 'work' and 'food' may result from this need to refer to a common knowledge base.

2) The view that conversation involves *collaboration* (Crow, 1983, p. 137). Topics most likely to be successful in interaction are thus those which will enable equal participation from all communicators. Topics such as 'food', 'work' or 'interpersonal relations' are examples of topics that are appropriate to people from various ages and backgrounds, and might be called 'universal' topics.

3) Adherence to the maxim of *relevance* (Grice, 1975). Closely linked to the concept of collaboration, this maxim requires speakers to remain relevant in their conversational contributions. Topics that are familiar to all participants, such as 'food' and 'work', appear to facilitate this task for communicators.

4) A selection of topics based on the wish to bring familiar partners up to date with current or recent life events (Todman et al., 1999, p. 304). The frequent reference to 'self' could be a reflection of this desire. The same tendency was found amongst American pre-schoolers (Marvin, Beukelman, Brockhaus & Kast, 1994), elderly American women (Stuart et al., 1993) and employees at Australian jobsites (Balandin & Iacono, 1998a). The amount of personal information a communicator shares would probably be related to the role relationship between him and his listeners. Frequent reference to 'self' within

the current employment contexts would suggest fairly close relationships. Although beyond the scope of the present analysis, there seemed to be differences between the likelihood of referencing personal information depending on the participants present. Furthermore, there seemed to be a tendency (also not formally analysed) of female participants to reference themselves more often than male participants, probably due to a general tendency of females to reference people and relationships more often than men (Stuart, 1991, pp. 43 - 44).

5) A tendency to reference an *Issue* rather than an *Event* (Reichman, 1978; Tracey, 1982) This point seems in direct contrast with the previous point made. However, the category 'none' was the second most frequently referenced person frame category. Referencing inanimate things or 'issues' appears to be a strategy to converse more generally, and to elicit participants' opinions, thereby involving them in the conversation. References to specific events might not be as conducive to participation by all communicators.

Apart from these general principles which seemed to govern especially the most frequently referenced topics, there were also topics which seemed to emanate from the physical or social context. The involvement of specific participants in certain activities such as selling clothes, a personal business or home improvements appeared to have a direct influence on topic selection. In addition, such topics were seen to reoccur on consecutive days in some cases. Taking the activities of participants and previously referenced topics into consideration when predicting topic selection is thus crucial.

In comparing the topic referencing analysed in the current study with data obtained from employees at Australian employment sites (Balandin & Iacono, 1998a), a fair amount of overlap in topics was observed. This could imply that, firstly, there are topics that seem to be generally referenced in employment settings, or, secondly, that cultural similarities are indicated between the respective employment contexts. South Africa and Australia do share certain traits, such as both being 'immigrant countries' infiltrated by the European society. The weather and the national sports are similar. Western cultural norms, which, for example, permit a topic such as 'gambling' to be

referenced (which might not have been found permissible in certain Eastern cultures) are shared amongst both societies.

5.3 CRITICAL EVALUATION OF THE STUDY

The present study sampled conversations at only two work contexts, and a total of only 3 hours, 47 minutes of recording were obtained. This sample is relatively limited for making generalisations about topics of workplace conversations.

The use of omni-directional microphones placed at various points in the room rather than body-worn lavaliere microphones resulted in recording the contributions of all participants. While this enabled a more complete 'picture' of conversations, it sometimes complicated transcriptions as participants moved closer and nearer to the microphone, and overlapping talk occurred. Fitting all participants with lavaliere microphones might be a consideration for future research of this nature, although the co-ordination of all the resulting recordings might be difficult.

The topic analysis of this study was solely based on audio-recordings. Non-verbal aspects of communication and visual contextual cues were thus not available to help in the interpretation of meaning. As a result, some utterances related to the immediate context remained 'not codeable'.

A greater degree of participant involvement on various levels might have contributed to the validity and reliability of the study. Participants could have been more involved in the following ways:

1) Supplying more background information that could aid interpretation of the recorded utterances as well as the overall interpretation of the topic analysis results. Such data might include:
   - ❖ Exact family set-ups and names of household members of each employee to clarify references made in conversation
   - ❖ Ratings of the degree of intimacy that a participant perceives to share with each of the potential communication partners

2) Aiding in the definition of topic categories by supplying the researcher with their own interpretations of which topics were 'talked about' after a day's recordings. Sigman (1983) bemoans the fact that researchers do not employ native informants to decide either relevance or topic transitions, but instead rely on their own categories to make such judgements (p. 181). Having participants interpret and name their own topics might give contextual validations to topic categories defined by researchers.

While factors potentially influencing topic selection (e.g. home language, gender, constellation of participants in a particular conversation) were mentioned, the analysis did not reflect what influence these factors did in fact have. Such information could further contribute to establish guidelines for topic prediction.

5.4 IMPLICATIONS FOR CLINICAL PRACTICE IN AAC

In order to make the use of pre-stored text relevant to social interactions at the workplace, appropriate discourse topics for such conversations need to be identified. In the present study, topics frequently referenced in South African employment contexts were established. The results of the study suggest the presence of topics that are generally appropriate for workplace conversations. A list of such topics might be a useful tool for interventionists to consult when suggesting vocabulary and text for an AAC user who enters the work setting. The inclusion of such topics in AAC devices and systems would enable users to access relevant text more quickly than when having to compose such text word-by-word or letter-by-letter. An AAC user might thus have phrases and sentences ready on such topics as 'work' or 'food'.

However, the influence of the background of communication partners, personal life events and previously discussed topics on topic selection in workplace conversations was also demonstrated. Although a list of topics considered 'generally appropriate' for workplace conversations might be helpful, it cannot replace ecological inventories and contextual information of particular work settings on which topic prediction can be based. Interventionists should particularly consider:

1) Interests that are shared among employees

2) Particular activities of importance to communication partners, such as hobbies or other business activities
3) Family backgrounds of participants - this will determine whether the topic 'family' would be referenced frequently
4) The level of 'intimacy' shared amongst employees. Within close relationships references to personal matters appear more common, while more distant relationships might result in more 'general' topics with a focus on issues rather than specific events.

5.5 RECOMMENDATIONS FOR FURTHER RESEARCH

From the present data, suggestions can be made as to a list of ecologically relevant topics for conversations at particular types of employment sites. The most practically relevant next step would be to validate this list by pre-storing messages based on the identified topics on text-based systems such as TALK, and evaluating the effect of access to such phrases on the user's competence and appropriateness in social conversation.

Programmes such as TALK, however, also make use of generic speech acts and content-sensitive comments to enhance conversational performance. In order to employ such a programme, research needs to be done regarding the particular speech acts occurring in social conversation at the work place, and in particular, what generic utterances or content-sensitive comments are commonly used.

Researching the influence of certain factors on topic selection during workplace conversations could further aid in establishing guidelines for pre-storing text. Future studies might thus control for the influence of, for example, home language, gender and constellation of participants in a particular conversation.

Although the degree of overlap between the topics referenced at Australian work contexts and those found to be referenced in the South African employment contexts is encouraging, both contexts seem to share aspects of the Western culture. Topic inventories obtained from work contexts across different cultures are needed to

establish whether there are indeed 'universally appropriate' topics for workplace conversations.

5.6 SUMMARY

The results of the study were summarised and integrated in this chapter. A critical evaluation of the study was given. The implications of findings for clinical practice in AAC were discussed, and recommendations were made for further research.

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APPENDIX A

Letter for debriefing subjects and consent form

Appendix A-1 Afrikaans version

Centre for Augmentative and Alternative Communication
Sentrum vir Aanvullende en Alternatiewe Kommunikasie
&
INTERFACE

1995: Education Africa Presidential Award for Special Needs
1998: Rolex Award for Enterprise: Associate Laureate

Fax/Faks: (012) 420 – 4389
Tel: (012) 420 – 2001

Centre for Augmentative and Alternative Communica
Sentrum vir Aanvullende en Alternatiewe Kommunik
University of Pretoria
PRETORIA, 0002
SOUTH AFRICA

Heil die leser

Ek, Kerstin Tönisng, is tans besig met 'n Magister navorsingsprojek in Aanvullende en Alternatiewe Kommunikasie (AAK). 'n Deel van my studie behels die analise van die gespreksinhoud en woordeskatgebruik van volwassenes in verskeie werksomstandighede.

Ek sou baie bly wees as u u toestemming sou gee om deel te wees van hierdie studie. Dit sal die opneem van gesprekke tydens u middagete/teepouse beteken. 'n Mikrofoon en bandopnemer sal in die tafel/lokaal (moontlik buite visie) gesit word. Aan die begin van u middagete/teepouse sal die bandopnemer aangeskakel word om u gesprekke op te neem. Na die middagete/teepouse sal dit weer afgesit word. Die navorser sal nie teenwoordig wees tydens die opnames nie. Die opnames sal geanaliseer word in terme van die gespreksinhoud (m.a.w. oor watter temas gesels word). Die opnames sal vir oor drie opeenvolgende maande gedoen word.

Die doel van die datainsameling is om 'n realistiese en verteenwoordigende beeld van gesprekke van werknemers tydens middagetes te verkry. U word dus versoek om die bandopnemer te ignoreer en te gesels asof dit nie daar is nie.

Die inligting wat verkry word sal absoluut vertroulik hanteer word. U anonimiteit is gewaarborg.

As u u toestemming gee om deel te wees van die studie, sal u gevra word om die aangehegte vraelys in te vul.

Ek hoop u sal goedgunstelik oorweeging aan my versoek gee.

Die uwe

Kerstin Tönsing

Toestemmingsvorm

Hiermee gee ek, _____, my toestemmimg om as proefpersoon op te tree in bg. studie.

_____ _____

Handtekening *Datum*

Appendix A-2 English version

Centre for Augmentative and Alternative Communication
Sentrum vir Aanvullende en Alternatiewe Kommunikasie
&
INTERFACE

1995: Education Africa Presidential Award for Special Needs
1998: Rolex Award for Enterprise: Associate Laureate

University of Pretoria

Fax/Faks: (012) 420 – 4389
Tel: (012) 420 – 2001

Centre for Augmentative and Alternative Communication
Sentrum vir Aanvullende en Alternatiewe Kommunikasie
University of Pretoria
PRETORIA, 0002
SOUTH AFRICA

To whom it may concern

I, Kerstin Tönsing, am currently doing my Master's degree in Alternative and Augmentative Communication (AAC). As a part of my study I aim to analyse the conversational topics and vocabulary use patterns of adults in various employment contexts.

I would be much obliged if you should consent to form part of this study. This would entail the recording of conversations during your lunch time/tea time. A microphone and tape recorder will be placed in the room. At the beginning of your lunch time/tea time the recorder will be switched on to record your conversations. After the lunch time/tea time the recorder will be switched off. The researcher will not be present during the recordings. The recordings will be analysed according to the conversational content (i.e. the themes of the conversation). The recordings will be done over three consecutive months.

The goal of the research is to obtain a realistic and representative sample of the conversations which employees are engaged in during lunch. You are thus requested to ignore the tape recorder and to converse as if it is not there.

The information obtained will be kept strictly confidential. Your anonymity is guaranteed.

Should you consent to take part in the study, you will be requested to fill in the attached questionnaire.

I hope that you will consider my request favourably.

Kind regards

Kerstin Tönsing

Consent form

I, _____, hereby consent to form part of the aforementioned study.

_____ _____

Signature *Date*

APPENDIX B

Personal information questionnaire

Appendix B-1 Afrikaans version

Vraelys: Persoonlike inligting

Vul asb. hierdie vraelys in. Die inligting is streng vertroulik.

1) Geslag:

M	V

2) Geboortedatum: dd/mm/jj:

3) Huweliksstatus:

Ledig	
Getroud	
Geskei	
Weduwee/wewenaar	

4) Hoogste kwalifikasie behaal:

5
5) Posisie wat u in die werk beklee:

6) Moedertaal:

7) Dui asb. aan of u Engels en/of Afrikaans magtig is..

	Ja	Nee
Engels		
Afrikaans		

8) Indien u 'ja' geantwoord het vir een van die bg. twee tale, dui asb. aan hoe lank u die taal al praat.

	Minder as 1 jaar	1-2 jaar	2-5 jaar	5-10 jaar	meer as 10 jaar
Engels					
Afrikaans					

Appendix B-2 English version

Questionnaire: Personal Information

Please complete this questionnaire. The information will remain strictly confidential.

1) Gender:

M	F

2) Date of birth: dd/mm/yy:

3) Marital status:

Single	
Married	
Divorced	
Widowed	

4) Highest qualification obtained:

_____

_____

5) Position held at work:

_____

6) Home language:

_____

7) Please indicate whether you can speak English and/or Afrikaans.

	Yes	No
English		
Afrikaans		

8) If you answered yes for any of the above two languages, please indicate how long you have been speaking this language.

	less than 1 year	1 - 2 years	3 - 5 years	6-10 years	more than 10 years
English					
Afrikaans					

APPENDIX C

Transcription rules

1. Repetitions of words will be included.
2. Fillers and vocalisations will be typed in a consistent form (*mm, æm, hm, ææ*). Prolongations of these are indicated by additional letters.
3. Numbers will be typed as words (*agt, vier, eenhondert*)
4. Contractions will be typed as such, e.g. (*van'ie* in stead of *van die; het'ie* in stead of *het nie*). The proper form will only be spelled out if it is spoken as such.
5. Words and utterances in a language other than Afrikaans will be typed in the orthography of that language, e.g. "*Moenie **worry** nie.*" "***No ways***".
6. Swear words will be fully transcribed.
7. Unintelligible words are transcribed by (xxx). If the meaning of the utterance is clear in spite of some unintelligible words, the utterance is included in the analysis, e.g. (translated) "*But I have an automatic one (washing machine), with the tap at the bottom of (xxx).*" If the meaning of the utterance is unclear, the whole utterance is classified as unintelligible.
8. Transcription reliability will be checked on a randomly chosen 10% of the recorded samples.

APPENDIX D

General coding rules

1. If a communication segment could be scored as more than one topic category, the predominant topic was chosen. The topic prevailing in the adjacent communication segments was most often considered the predominant topic.

2. Reported speech: The time frame is scored as past (i.e. the time at which the person spoke in the past), while the content of the original utterance was considered when scoring the person/object/animal frame and the content frame, for example: *"Toe sê ek vir hom (pa) die ander dag hy moet haar(ma) nie forseer om te eet nie."/"Then I told him (father) the other day he mustn't force her (mother) to eat."*

Coding: ***Time:*** Intermediate past
Person: Family
Content: Food consumption

3. References to 'we/us' were not coded as 'self', but rather as the larger group that was referred to, e.g. 'family' or 'colleagues'.

4. Evaluative statements (e.g. *"Dis gevaarlik."/"That's dangerous.")* were coded as follows:

Time: Present
Person: None
Content: Coded as the topic about which the evaluation was made, as was apparent from the context/preceding utterance.

5. Communication segments were not coded under the three referential frames, but given a single separate coding under the following conditions:

Topic category	*Definition*	*Example*
Unintelligible	The utterance contained unintelligible words that made it not codeable.	*"Ja, (naam), ons mag nie nog xxxx nie."/Yes, (name), we may not xxxxx."*
Lack of context	The utterance was not understandable to the researcher due to lack of context. The researcher's lack of visual information (e.g. pointing to objects/people in the environment), and lack of background knowledge shared by the subjects, as well as unintelligible preceding utterances made some utterances not codeable.	*"Dis in die kussing."/"It's in the cushion."* ('It' was not specified.)
Etiquette	The utterance was related to etiquette occurring outside the body of a topic, such as people greeting on entering/leaving the room.	*"Môre, hoe gaan dit?"/ "Morning, how are you?" "Dankie, ek sal dit waardeer."/"Thanks, I will appreciate it."*
Request for clarification	The utterance was a request for clarification due to the preceding utterance not being heard or understood correctly	*"Wat sê jy?"/"What did you say?"*
Calling	The utterance served to gain attention or call another person	*"(name)! (name)!"*

APPENDIX E

Definitions of topic categories

The topic categories and definitions are based on those outlined in Stuart et al. (1993) and Balandin and Iacono (1998). (Only the ten most frequently referenced topics from Balandin and Iacono were available to the researcher at the time). The numbers indicate the code used in the topic coding process. The examples are taken from the transcripts.

Appendix E-1: Time frame

Topic category	*Definition*	*Example*
1. Distant past	References to occurrences more than 10 years ago. In this study references to the distant past were always references to the speaker's childhood.	*"Nee sowaar, ek het hog sulke naartjies gesien laas toe was ek op skool./ "No, really, I saw such naartjies last when I was at school.""*
2. Intermediate past	References to past occurrences that took place more than one week but less than 10 years ago. This category thus unifies the two categories *'year past'* and *'decade past'* identified by Stuart et al. (1993) and, in so doing, becomes very broad. However, there was often no indication as to whether events referenced took place within the last year or longer ago, making such specific classification impossible.	*"Ek weet nie wanneer dit gewees was nie; seker so vier jaar terug wanneer ek haar laas gesien het."/"I don't know when it was; probably about four years ago when I last saw her."*
3. Recent past	References to occurrences that took place within the previous minutes to previous week.	*"Hy vra gisteraand nou hoeveel van dié naartjies wil jy nou hê werk toe van die huis af..."/"He asked yesterday evening now how many of these naartjies do you want (to take) to work from home..."*
4, Present	References to current events or states, as well as generalisations.	*"Maar mens moet eintlik honde - ææmmm - jy kry hierdie hondeskole dat jy hulle kan leer."/"But one should actually (dogs) - ææmmm - you get these dog schools so that you can train them."*
	Anything that commenced in the past but is continuing at present is also classified as 'present'.	*"Van daai dag af eet hy nie viennas nie."/"Since that day he doesn't eat viennas."*
5. Future	References to anything that will or might happen in the future.	*"Sy sal 'n nuwe glas moet kry."/"She will have to get a new glass."*

Appendix E-2: Person frame

Topic category	*Definition*	*Example*
1. None	References to inanimate objects, events and conditions. If ownership of objects and things was referenced, the owner was coded for the person frame.	*"Daai naartjies is stroopsoet."/"These naartjies are as sweet as sugar."*
2. Non-specific	References to the general public/the non-specific pronoun 'one' or 'you'.	*"Maar mens moet eintlik honde - ææmmm - jy kry hierdie hondeskole dat jy hulle kan leer."/"But one should actually (dogs) - ææmmm - you get these dog schools so that you can train them."*
	References to general groups of people.	*"Vandag se kinders"/"Today's children"* - denoting ALL children in general.
	References to any group of people that was not clearly delineated as a specific group connected with a specific place, action or event were coded as non-specific.	*"Hulle gaan jou dadelik amper tweehonderd Rand vra."/"They will immediately ask you almost two hundred Rand* (where *"they"* were not further specified as being linked to a specific shop).
3. Self	References to the speaker.	*"Toe ek die boksie sien toe vat ek dit nou maar."/"When I saw the box I took it."*
4. Family	References to the people living in the household. Grown children and grandchildren living elsewhere were classified as 'relatives'.	*"My meisiekind het hom (die stoof) te warm laat word."/"My daughter let it (the stove) get too hot."*
	References to 'us' or 'myself and family member(s)' were also classified as 'family'.	*"Ons het gister die fliek gekyk"/"We watched the movie yesterday."*
5. Relatives	References to individuals with whom the speaker is related, but who are not living in the same household.	*"Toe bly my ma in 'n huis."/"Then my mom stayed in a house."*
6. Colleagues	References to fellow employees as well as people working in other departments. Direct references to the listener were also classified as 'colleagues'.	*"Gebruik jy van daai wit garing?"/"Do you use that white yarn?"*
7. Acquaintances	References to people with whom the speaker is familiar through personal contact but no close relationship or kinship is made explicit.	*"Die hoof het hulle (skool se rugbyspan) afgegee."/"The headmaster gave them (school rugby team) time off."*
	References to household members of colleagues were also classified as acquaintances, as the conversations indicated that subjects were quite familiar with each other's household members (parents and children). References to friends/fellow students of the speaker's children were also classified as 'acquaintances'.	*"Toe (dogter se naam) se vriendin was - æææ - ek dink die naweek - nee, die vorige naweek was sy daar."/"When (daughter's name)'s friend was - æææ - I think the weekend - no, the previous weekend she was there".*
8. Friends	Individuals who are clearly referenced as friends, or with whom the speaker clearly shares a close relationship.	*"My - my vriendin wat by ABSA bank werk, nê, (naam), sy kry 'n deposito vir veertien persent."/"My - my friend who works at ABSA bank, hey, (name), she gets a deposit for fourteen percent."*
9. Service providers	References to individuals who render a service to the speaker or specific people connected to the speaker, such as vendors, doctors, beauticians and dress makers.	*"Daai vrou wat my klere vir my kleiner maak of some insit vir die broeke..."/"That woman who makes my clothes smaller for me or puts in hems for the trousers..."*
10. Public figures	Someone well-known to most individuals in the local, regional or national society.	*"So Hansie(Cronjé) het voor die hof vandag gepraat?"/"So Hansie (Cronjé) spoke in court today?"*

Appendix E-2: Person frame (cont.)

Topic category	*Definition*	*Example*
11. Clients	References to individuals or departments for whom tasks are completed.	*"(Naam) het my aangestel om hierdie werk te doen."/"(Name) employed me to do this work."*
12. Strangers	References to individuals who are not known to the speaker in any way.	*"In (kleuterskool naam) het iemand vir die kleintjies sulke vormpies gegee om huis toe te vat."/"In (nursery school name) someone gave the little ones these forms to take home."*
13. Pets	References to pets.	*"Hy's 'n mooi hond, dis 'n - jy weet, hy's opreg."/"He's a beautiful dog, it's a - you know, he's pure-bred."*

Appendix E-3: Content frame

Main category	*Sub-category*	*Definition*	*Example*
1. Food	*1.1 Food buying*	References made to the process of purchasing and /or obtaining food. One communication segment containing both references made to purchase and cost were coded as 'cost'.	*"...hierdie tjips wat jy by Kentucky koop."/"...these chips that you buy at Kentucky's."*
	1.2 Food description	References to the type, name or physical characteristics (taste, consistency) of food.	*"Ken jy hierdie 'Bokkie' viennas?"/"Do you know these (brand name) viennas?"*
	1.3 Food consumption	References made to the process of eating, or offering food to another person.	*"My kinders eet hom saam met eiers en bacon."/"My children eat it with eggs and bacon."*
	1.4 Food preparation	References made to the process of cooking and/or preparing food.	*"Dan maak ek nou vir ons worsbroodjies by die huis. Dan sal ek nou uie en tamatie en green pepper goete maak, saam. En nou voordat ek hulle in die broodjie sit dan haal ek die worsie uit die blikkie en dan sit ek hom by daai uie en tamaties."/"Then I make hot dogs for us at home. Then I will make onions and tomatoes and green pepper stuff, together. And now before I put them into the breadroll, then I take the sausage out of the tin and then I put it with the onions and tomatoes."*
	1.5 Food preservation	Any reference made to food going off or to the process of preserving food.	*"Hoe kan hy (brood) sleg word as hy agter in die yskas sit?"/"How can it (bread) go off if it is in the back of the fridge?"*
	1.6 Food cost	References to the price of food.	*"Ja maar die groot pakkies is maar four ninety nine."/"Yes but the big packets are just four ninety nine."*
2. Emotional response		References to a person's feelings about a matter.	*"Ek was kwaad toe."/"Then I was angry."*
3. Personal identifying information		Background information about a person, such as place of residence, age, occupation, place where the person works, descriptive information such as looks and habits (not character traits, these were coded as 'character'). References are to more permanent states, not to once-off actions such as moving house.	*"Ja, maar hy's nog jonk. (Naam) is nie eers so oud. Hy's jonger as ons."/ "Yes, but he's still young. (Name) is not even that old. He's younger than us."*
4. Specific activity		Any activity engaged in by an individual or a group of people. Communication segments were only coded as 'specific activity' if an activity was referenced that did not fit any other category.	*"Sy kom van die skool af, né, nou kom sy huis toe gestap."/"She comes from school, now she comes walking home."*
5. Family activity		References to activities engaged in by two or more family members as a group. Actions which one family member did to another (e.g. fetching a child from school) were coded as 'specific activity'.	*'Toe sê ek kom kom kom kom stap met my om'ie blok."/"Then I said come come come come walk with me around the block."*

Appendix E-3: Content frame (cont.)

	Topic category	*Definition*	*Example*
6. Interpersonal relations	*6.1. Social relations*	References to relationships with people and actions that are relationship-oriented. Examples of such actions are social visits, helping people out, making social conversation or having a fight.	*"Ek sê vir hom, sy't geen reg om so met my te praat nie. "/"I told him, she has no right to speak to me like that."*
	6.2 Family relations	References to relationships with members of the household, including conversation that is purely social (to put the person at ease or cheer them up), spouse relationships, parent-child relationships and fights.	*"Oukei (naam) en (naam) het nou nie die beste huwelik gehad wat dit kan gee nie..."/"OK, (name) and (name) did not have the best marriage which one can have..."*
7. Person character		References to the character of a person.	*"Sy was vol grappe."/"She was full of jokes."*
8. Bad behaviour	*81. Smoking*	References to smoking, and the habit of smoking.	*"Hy rook nie met die doel om te rook nie."/ "He doesn't smoke with the aim of smoking."*
	8.2 General	Any actions by a person that are related in a judgemental manner, with the exception of smoking, which was coded separately under 'smoking'. This category included alcohol consumption, wasting material, stealing food and improper flirting. Swearing at a person and fights were coded as 'social relations'.	*Hulle moenie kan steel en weghol nie."/"They must not be able to steal and run away."*
9. Health	*9.1 Health equipment*	References to equipment that is used to promote health. Sports and fitness equipment was not included in this category.	*"Maar dan wil ek vir my een van hierdie inhalasiemasjiene kry."/"But then I want to get myself one of these inhalation machines."*
	9.2 Heath treatment	References to treatment of health problems, including surgery and use of medication.	*"Want kyk, as (naam) suurstof kan kry dan moet julle vir haar suurstof kry."/"Because see, if (name) can get oxygen, then you must get oxygen for her."*
	9.3 Health condition	References to a person's state of health and references to illnesses.	*"Maar kanker is maar altyd terminaal."/"But cancer is always terminal."*
10. Household equipment	*10.1 Household equipment breakages*	References to the breakage of household equipment such as washing machines, taps and stoves.	*"En (naam) sê vir my, Ma, ek dink die wasmasjien se motor het gaan staan."/ "And (name) says to me, Mom, I think the motor of the washing machine has stopped."*
	10.2 Household equipment description	References to characteristics and types of household equipment.	*"Daai stoof van my, nê, hy bevat geen fuses nie."/"That stove of mine, hey, it has no fuses."*
	10.3 Household equipment buying	References to the purchase of household equipment and parts of household equipment.	*"Ek kan regtig nie nou nog staan en 'n wasmasjien koop nie."/"I really can't go and buy a washing machine now."*
	10.4 Household equipment cost	References to the price of household equipment or spare parts of household equipment.	*"...want weet, daai knoppetjies is honderd-en-sestig Rand."/ "'cause you know, those buttons are one hundred and sixty Rand."*
	10.5 House and household equipment repair and improvement	References to the repair of household equipment and the improvements in and around the house.	*"Want die tumble dryer....Die ou is besig om te kyk of hy vir ons sommer 'n motor kan modify om daar in te gaan."/"Because the tumble dryer...The guy is busy looking if he can just modify a motor for us to go in there."*

Appendix E-3 Content frame (cont.)

Main category	*Sub-category*	*Definition*	*Example*
11. Housing and property	*11.1 Property description*	Descriptions of someone's house, apartment, farm or yard.	*"Daai huis het elf vertrekke gehad maar hy was nog steeds te groot."/"That house had eleven rooms but it was still too big."*
	11.2 Property buying	References to the purchase of a house, apartment or piece of land.	*"Hulle het blykbaar alreeds vier aankoop - offers gekry vir die huis."/"They have apparently already had four offers for the house."*
	11.3 Property cost	References to the price of a house, apartment or piece of land.	*"Dinges se huis... Hy's in'ie mark vir negehonderd-en-twintigduisend."/"Thingy's house... It's in the market for nine hundred and twenty thousand."*
	11.4 Moving	References to changing dwelling place, e.g. moving to another town, or moving in with relatives.	*"Sy't van Durban af Kaap toe getrek."/"She moved from Durban to the Cape."*
12. Household	*12.1 Household activities*	References to domestic activities, with the exception of preparing food, which was coded as 'food preparation'.	*"Dit gaan vir my beter help want dan laai ek in 'ie aand my wasmasjien vol en môre oggend kan ek net die goed uithaal en ophang."/"That will help me better because then I just load my washing machine in the evening and tomorrow morning I can just take the stuff out and hang it up."*
	12.2 Household management	References to the organisation of the household and coping with household duties.	*"Hulle sê 'n vrou moet ook maar haar storie ken as sy die huishouding op sy hande wil opvat."/"They say a woman will have to know her story if she wants to take over the household from his hands."*
13. Transport	*13.1 Accidents*	References to accidents on the road and road safety.	*"Jis jy weet, as jy 'n draai vang met daai kar se band, oo, hy rol!"/"Gee you know, if you catch a turn with that car's tyre, oh, it rolls!"*
	13.2 Car breakages	References to car breakdown and breakages of car parts.	*"Toe voel ek man my tires is besig om so te maak, maar ek het gedink dis die pad. Ek het nie gedink dis die wiele."/"Then I felt my tyres are busy going like this, but I thought it's the road. I didn't think it's the wheels."*
	13.3 Car repair and maintenance	References to repairing a car or washing a car.	*"Vat haar (xxx) toe om haar tires oor te doen."/ "Take her to (xxx) to redo her tires."*
	***13.4** Speeding*	References to speeding, speed traps, getting caught by speed traps and payment of speed fines.	*"Hulle scheme mos nou - mense wat nie hulle boete wil betaal nie, het hulle nou op kameras - bietjie ander kameras hier ontvang. Daar's geen gepleit of betaal of wat ok al nie; vat jou, sit jou in 'ie tronk."/ "They are scheming now - people who don't want to pay their fines, they have on cameras - they receive on slightly different cameras. There's no begging or paying or whatever, take you,, put you in jail."*

Appendix E-3 Content frame (cont.)

Main category	*Sub-category*	*Definition*	*Example*
	13.5 Public transport costs	References to the costs of public transport.	*"Busgeld enkel en dis taxigeld kom by. Want dit is jou transport."/"Bus money single and it's taxi money is added. Because that's your transport."*
	13.6 General	References to transport not fitting any other transport category.	*"Dan het hulle jou nie gevra hoe kom jy hierdie werk toe nie."/"Then they didn't ask you how do you come to this work."*
	13.7 Car buying	References to buying a car.	*"Ja, (naam) van oorkant die straat het nou vir hom 'n Golf gekry."/"Yes, (name) from across the street got himself a Golf."*
	13.8 Car descriprion	Statements about the type or make of a vehicle as well as descriptions of a vehicle or aspects of a vehicle.	*"Haar Landrover staan toe daar buite."/ "Her Landrover then stood there outside."*
	13.9 Transport: Driving	References to the activity of driving a vehicle.	*"..selfs as jy met 'n kar net ry."/"...even if you just drive with a car."*
14. Beauty	*14.1 Beauty treatment*	References to the treatments at the beautician and to surgical procedures for reducing fat.	*"Sy sê dit vat vyftien tot dertig minute vir jou oë." "She says it takes fifteen to thirty minutes for your eyes."*
	41 Beauty: Make-up	References to make-up.	*"Maar omdat sy nie so baie lipstiffies het nie."/"But because she doesn't have that many lip sticks."*
	14.3 Beauty treatment cost	References to the costs of procedures described under 'beauty: treatment'.	*"Nou hoeveel gaan (naam) nou betaal vir haar oë?"/ "Now how much will (name) pay for her eyes?"*
15. Business	*15.1 Business: Buying*	References to purchasing goods for or from private small scale business activities.	*"Jy bemark - jy kan deur middel van my koop."/"You can buy through me."*
	15.2 Business goods	References to specific goods sold by small or home businesses.	*"Hulle wys ook vir jou die album van die skooljare."/ "They also show you the album of the school years."*
	15.3 Business: Market	References to the market or the pool of clients of various businesses.	*"Al die besigheids klim ok nou af."/"All the businesses scale down now too."*
	15.4 Business: Costs	References to the costs of business goods.	*"Ek het ok by - Saterdag by - ææ - Game gaan kyk hoeveel kos die (xxx). Twintig Rand vir vyftien, man. Duur!"/"I also went to look on Saturday at Game how much the (xxx) cost. Twenty Rand for fifteen, man. Expensive!"*
	15.5 Business description	References to the type of business. If the type of goods manufactured/sold by the business were mentioned as an initial description of the business, this reference was also coded as 'Business description'.	*"Ek en (naam) was nou al klaar met my ææ - bietjie daar by hulle in Primrose gaan kyk wat hulle die trein se sitplekke maak."/"Me and (name) were already there with my ææ - there in Primrose where they make the train seats."*
	15.6 Business: Profit	References to profits made within a business endeavour.	*"Dan kan ek komissie maak."/"Then I can make commission."*
	15.7 Business activities	References to various activities performed for business purposes. This did not include any work-related activities.	*"Sy maak die hele hele skool se sweetpakke, dan maak sy die rompe vir die somer wat hulle dra." "She makes the whole whole school's sweat suits, then she makes the skirts for the summer, which they wear."*

Appendix E-3 Content frame (cont.)

Main category	*Sub-category*	*Definition*	*Example*
16. Clothes	*16.1 Clothes description*	References to characteristics of clothes: Size, type, quality etc.	*"Maar toe's die broek 'n' large'."/"But then the pants were a 'large'."*
	16.2 Clothes: Cost	References to the price of clothes.	*"Maar is goedkoop, die sweetpakke."/"But are cheap, these sweat suits."*
	16.3 Clothes: Wearing	References to wearing clothes.	*"Dan loop sy nou net met haar spensertjie."/ "Then she walks only with her vest."*
	16.4 Clothes: Buying	References to purchasing clothes.	*"Ek koop vir (naam) by die skool hulle sporthemde."/ "I buy the sport shirt for (name) at school."*
17. Work	*17.1 Work process and jobs*	References to work activities and specific jobs to be completed for clients.	*"Maar kyk, (naam), as ek en jy hie'so sit en pons, dis nie ons wat agter raak nie."/ "But see, (name), if me and you sit here and punch, it isn't us that get behind."*
	17.2 Work equipment/ material description	References to the characteristics/types of equipment and material used for completing work activities.	*"Hierdie is eintlik 'n sterker garing as daai een." / "This is actually a stronger yarn than that one."*
	17.3 Work equipment: Cost	References to the cost of work equipment.	*"Daai tolletjies garing....wat hulle vir 'n derde van die prys verkoop." /"These reels of yarn...which they sell for a third of the price."*
	17.4 General	Utterances that are work-related but do not fit into any of the other categories.	*"(Naam) het die lunch laat begin."/ "(Name) started the lunch (break) late."*
	17.5 Work place renovations	References to building alterations and renovations at the work place.	*"Nee, hier het veranderings en verbeterings plaasgevind."/ "No, changes and improvements have taken place here."*
	17.6 Work: Leave	References to leave from work.	*"Ja, maar weet jy wat, mense sê, ek het nog in my siklus soveel dae siekverlof, ek moet dit nog opgebruik, want my siklus verval oor twee maande."/"Yes, but you know what, people say, I still have so many days of sick leave in my cycle, I must still use it up because my cycle expires in two months' time."*
	17.7 Work equipment: Buying	References to the purchase of equipment/material used at work.	*"Ek het vir my 'n tolletjie van daai garing gekoop."/"I bought myself a reel of that yarn."*
18. Computers	*18.1 Internet site*	References to sites on the internet.	*"Toe gaan ek uit toe gaan ek op 'Sarie'."/ "Then I went out then I went to 'Sarie'." (Women's magazine)*
	18.2 Internet access	References to passwords and the equipment set-ups for accessing the internet.	*"Maar nog steeds, jy moet met jou password inkom." /"But still, you must get in with your password."*
	18.3 Computer games	References to computer games.	*"Dan speel hy ok op 'ie rekenaar."/ "Then he also plays on the computer."*
	18.4 Computer equipment	References to computer equipment and accessories.	*"So jou rekenaar is gekoppel aan jou telefoon, binne in jou huis."/ "So your computer is connected to your telephone, inside your house."*

Appendix E-3 Content frame (cont.)

Main category	*Sub-category*	*Definition*	*Example*
19.Pets	*19.1 Pet activities*	References to activities engaged in by pets, excluding bad behaviour and attacks by pets.	*"Ag hy (hond) dra dan selfs sulke braaivleisstompe hout binne in sy kassie."/ "Oh, he (dog) even carries such barbeque logs of wood inside his box."*
	19.2 Pet description	References to characteristics or breed of pets, e.g. build, looks, colour, character traits.	*"Maar dis 'n mooi hond; dit is - jy we hy's opreg."/ "But it's a beautiful dog it's - you know, he's pure bred."*
	19.3Pet relations	References to relationships between different pets and between pets and people.	*"My pa dink nog ja nee hy en die hon sal oor die weg kom."/ "My dad still thought he and the dog would get along."*
	19.4 Pet attacks	References to pets attacking each other or people.	*"Daai hond gryp hom aan deur die venster."/ "That dog attacked him through the window."*
	19.5 Pet owning	References to ownership of pets.	*"Nou ææ (naam) is die eerste Maltesi wat my pa gehad het."/ "Now (name) the first Maltese which my Dad had."*
	19.6 Pet: Bad behaviour	Any actions of pets that are referenced in a judgemental manner or that clearly caused damage or irritation of the owners, e.g. ruining plants. Attacks by pets were coded under 'Pet attacks'.	*"Hy't daai broodboom afgevreet, en d die oggend, dit lyk of daar 'n orkaan woed; dis net takke waar daai hond lê."/"He chewed down that cycad, an ææ that morning, it looked like a hurricane rages there; it's just branch where that dog's lying."*
20. Money	*20.1 Finances*	References to personal financial matters, such as financial status as well as financial strategies such as investments and loans.	*"Ek is regtig op 'ie broodlyn hierdie maand."/"I'm really on the bread line this month.* *"My pa het 'n belegging."/"My dad h an investment."*
	20.2 General	References to general money matters, such as the general interest rates, procedures for investments, hire purchase etc.	*"Wat is die normale rentekoers vir huurkoop van 'n kar?"/ "What is the normal interest rate for hire purchase a car?"*
	20.3 Money: transactions	References to payments made for services or to obtaining change.	*"(Naam), jy't ook nie 'n vyftig Rand nie."/ "(Name), you also don't have a fifty Rand."*
	20.4 Money borrwing/ lending	References to borrowing money from/lending money to people.	*"Nee, ek het vir (naam) gesê, (naam), bring vir my die geld terug, toe sê sy nee, toe sê ek ma' jy leen dit dan by my."/"No, I told (name), (name), you bring that money back to me, then she said, no, then I said but you are borrowing it from me."*
	20.5 Money safety	References to safety matters concerning money.	*"Jy kannie - jy kannie waag om geld te haal voor haar nie."/ "You can't - y can't dare to take out money in front o her."*
	20.6 Money: Tax	References to tax matters.	*"Nou moet hy ses jaar se belasting - moet hy nou gaan opspoor."/ "Now h must track down six years' taxes."*

Appendix E-3 Content frame (cont.)

Main category	*Sub-category*	*Definition*	*Example*
21. Travel	*21.1 Travel general*	References to issues around travelling (with the exception of travel costs), such as travel agents and bookings.	*"Kan ek weer gaan uitvind by die travel agent, hier op kampus."/"Can I find out again at the travel agent, here on campus."*
	21.2 Travel costs	References to the cost of travelling.	*"Hoeveel kos die plane Kaap toe?"/"How much does the plane to the Cape cost?"*
22. Media	*22.1 Media event*	Reference to a public event which was explicitly or by implication read about/heard/seen in the media.	*"Want ek hoor vanoggend op 'ie nuus die airport gaan 'n nuwe naam kry."/ "Because I heard this morning on the news the airport will get a new name."*
	22.2 Media: Television, radio, paper	References to the process of reading/listening to/ watching any of these media. This category was only scored? if references did not include information about a specific media event.	*"Jy't die koerant gelees."/"You read the papers."*
	22.3 Media buying	References to buying the papers.	*"Ek koop 'ie nou meer gereeld die koerant nie."/"I don't buy the papers regulary now anymore."*
23. Movies		References to movies and the activity of going to the movies.	*"'Centre Stage', my moeder, dis skitterend."/"'Centre Stage', oh my, it's brilliant."*
24. Week-end activities		References to activities engaged in over the weekend, unless these activities were coded as more specific activities (movies, hunting, gambling).	*"Maar ek en (naam) was Sun City toe vir die naweek."/ "But me and (name) went to Sun City for the weekend."*
25. Passage of time		References to the way time passes and the 'daily drag.'	*"Die Maandag is nou weer om."/ "The Monday is now past once again."*
26. Weather		References to the weather.	*"Dis nou - dié tyd is die weer ideaal."/"It's now - this time the weather is ideal."*
27. Location description		Descriptions of the location of places (e.g. 'next to..., near...') or road descriptions.	*"Nee, in Messina, dan gaan jy op die Tjipeze pad." /"No, in Messina, then you go on the Tjipeze road."*
28. Hand craft		References to hand craft activities such as crocheting or wood carving.	*"Sy was nog besig om vir haar man 'n kombers te hekel, jong, maar sy't behoorlik daai dag gespook om dit klaar te kry."/"She was still busy crocheting a blanket for her hussband, but dear me, she really gave everything that day to finish that thing."*
29. Joke/tease		Relating a joke or utterances that are not meant seriously, but as a joke. Teasing a colleague was also scored as 'joke' as were utterances made while playfully scuffling.	*"Wat soek jy by die werk."/"What are you doing at work?" "Jy's verskriklik."/"You are terrible." "Wat vat jy aan my! Gaan staan daar man!"/"What are you touching me! Go and stand there, man!"*

Appendix E-3 Content frame (cont.)

Main category	*Sub-category*	*Definition*	*Example*
30. School/training		Any reference to educational careers, training courses or 'informal' learning of skills, References to school activities such as school tours/sport events were also coded under this category	*"Maar ek het dit geleer toe ek in 'ie print ingekom het."/"But I learnt that when I came into the print." "Of sy gaan Universiteit toe."/ "Or she's going to University."*
31. Sport		Any refernces to sport activities, except for school sport events.	*"So ek glo nie krieket sal regtig weer dieselfde waarde hê as wat hy voorheen gehad het vir die Suid-Afrikaners nie."/"So I don't think cricket will have the same value as before for the South Africans."*
32. Death		Any reference to death or dying	*"Maar ses is op slag dood."/"But six died on the spot."*
33. Weight		References to an individual's weight or build	*"So (naam) sal nooit regtig oorgewig wees nie."/ "So (name) won't really ever be overweight."*
34. Suicide		References to suicide, including the methods and actions	*"Ek weet nie - dis so seer om jouself te skiet! Hoe kry hulle dit reg?"/ "I don't know - it's so sore to shoot yourself! How do they get it right?"*
35. Life		Comments about life in general, a person's view on his/her own life or a person's plan for his/her life	*"Ek meen, jou lewe is tog nie elke dag maanskyn en rose nie."/"I mean, your life isn't moonshine and roses every day."*
36. Garden		References to gardening and plants growing in the garden.	*"Hulle't so 'n boom in 'ie yard."/"They have a tree like that in the yard."*
37. Hunting		References to the activity of hunting	*"En hulle sê as jy jou eerste bok skiet dan's dit gratis."/ "And they say if you shoot your first buck then it's for free."*
38. Tourism		References to the tourism business as well as the presence of tourists at holiday places.	*"Maar ek sal jou sê, daar's soveel toeriste, busse en busse en busse."/"But let me tell you, there are so many tourists, buses and buses and buses."*
39. Gambelimg		References to any form of gambling, e.g. the lottery or at casino's	*"Ek speel tweehonderd Rand op daai vyftig sent masjiene sonder om iets te kry."/ "I play two hundred Rand on those fifty cent machines without getting anything."*
40. Homicide		References to killing	*"En dan skiet hy nou sy hele gesin dood."/ "And then he shoots his whole family."*
41. Toys		Descriptions of toys	*"Die kaskar is gemaak van die helfte van 'n krat, man."/ "The go-cart is made from the one half of a crate, man."*
42 Miscellaneous		Items that could not be reliably categorised, even though sufficient contextual information was available to understand the utterances.	*"Ek weet wat is Najamaabs."/ "I know what 'Nahjmaabs' means." "Dis vir haar gemakliker so; dis haar omgewing, dis haar kamer, dis haar maatjies wat sy ken."/"It's more comfortable for her like that; it's her environment, it's her room, those are her friends whom she knows."*
43. Specific event		References to happenings where the persons referenced are not the agents, i.e. they do not perform the activity	*"Oo, skoonma wat gister verjaar het."/"Oh, mother-in-law who had her birthday yesterday."*

APPENDIX F

Communication segments

1. A change in one of the three referential frames indicated a new communication segment.
2. A change in speaker without a change in one of the three referential frames denoted a new communication segment provided that this speaker added new information to the prevailing topic.
3. The answers 'yes/no/I don't know' as well as statements of agreement/disagreement did not constitute separate communication segments but were grouped together with the preceding utterance(s).
4. Elliptical answers/comments other than 'yes/no/I don't know' constituted a communication segment and were coded as if they were complete sentences, as long as referential frames were clear from the context. For example:

Speaker 1:"Dis hoekom ek sal nooit my kind my stoof laat gebruik nie."
(translated) "That's why I will never let my child use my stove."

Coding: ***Time:*** Present
Person: Self
Content: Family relations

Speaker 2: "Nee, jy kannie."
(translated) "No, you can't"

Coding: ***Time:*** Present
Person: Non-specific
Content: Family relations

5. An interruption by a speaker with a vocalisation (e.g. *mm, umm., ææ*), a repetition of the previous speaker's words or an incomplete statement was ignored in the coding procedure, i.e. this did not in itself signify a new communication segment.
6. 'Generic' utterances preceding or following another utterance were not coded as separate communication segments. Examples of such 'generic' utterances are *"Kan jy glo dat..."/"Can you believe that..., "Ek is nie seker of...."/"I'm not sure whether...", "Weet jy dat..."/"Do you know that..."*

APPENDIX G

Differences in the sampling procedures between the study by Balandin & Iacono (1998a) and the present study

Feature	*Study by Balandin & Iacono (1998a)*	*Present study*
Participants	34 participants from 4 work contexts	11 participants from 2 work contexts
Recording	4 participants from each context were recorded with lavaliere microphones for each day of the week for 3 consecutive weeks. These four participants did not necessarily converse with each other, but might have been engaged in conversation with different groups. More than one group of conversational partners could potentially be 'tapped' within the particular work context on a given day.	One recording with an omni-directional microphone was made per day. Recordings were done on 9 days for Context A and on 2 days in Context B. Only one group of conversational partners was recorded at a particular time.
Recording time	5 weekday samples were established, each of which consisted of 4 participants times 4 work contexts each of whom recorded 15 minutes of conversation for that particular weekday for three consecutive weeks, resulting in a composite weekday sample of 720 minutes.	Recordings were made on 9 consecutive days in context A, resulting in a total recording time of 153 minutes, 45 sec. Recordings were made on two days in Context B, resulting in 75min, 13 sec of recording time.
Unit of analysis for establishing top ten content frame references	5 composite weekday samples	2 recordings: Context A combined and Context B combined