

ACTIVE AND PASSIVE LISTENING:  
MEMORY FOR NATURAL CONVERSATION

Presented by

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### ABSTRACT

Although memory for sentences in natural conversation has been explored (Keenan et al., 1977), there has been no study of memory as related to active and passive participation in natural conversation. A natural conversation involving two active participating members; one a subject, and the other a confederate, combined with a passive overhearer subject was used to test recall memory for the two conditions. Results show that recall memory is significantly better for active participants than is that for passive participants. Differences are discussed in terms of context, attentional requirements, and rule set theory.

## LITERATURE REVIEW

### INTRODUCTION

Anderson and Bower (1973) and Kintsch (1974) contend that encoding linguistic material involves two types of information: 1) Syntactic - knowledge of the structure, grammar, and lexical aspects of the linguistic expression; and 2) Semantic - Knowledge of objects and their referential relations. However, Neisser (1976) considers an additional type of information also important. The informational impact provided by the context in which the encoding occurs. Neisser states that the study of information processing... has not yet committed itself to any conception of human nature that could apply beyond the confines of the laboratory" (1976, p. 6). He specifies that there is a deficiency in knowledge of memory in natural context, particularly, recall memory. Because of this limitation, there is a need for systematic investigation of how context affects the processing of communication in ordinary social interactions. Woodall and Folger (1981) found that visual contextual cues, such as non-verbal gestures which co-occurred with speech (e.g., speech primacy and motor primacy gestures) functioned as retrieval cues for the accessing of linguistic target information. This finding suggests that a face to face conversation may provide a rich stimulus situation in which to process linguistic information. The overt behavioral cues which co-occur with the linguistic portion of the interaction may facilitate the comprehension and subsequent recall of the linguistic material employed during the interaction.

## CONTEXT AND RECALL

Previous literature shows that context plays an important role in recall. Hyde and Jenkins (1973) found that subjects performed significantly better on a word list recall task when they used semantic processing in comparison to those subjects who did not process the words in terms of their orienting context (i.e., their meaning). Semantic processing consisted of rating the words in regard to their pleasantness or frequency of use. Non-semantic processing required the subjects to identify the part of speech or the number of letters of/in each word.

Barclay, et al. (1974) demonstrated how recall for both words and sentences improves when subjects are given contextually relevant cues for the material to be recalled. For example, "something with a nice sound" is an effective cue for the sentence, "The man tuned the piano." However, "something heavy" would not be effective or assist in the recall of the sentence. The cue "something with a nice sound" is effective because it is associated with the semantic context "man tuning" in which the target word is couched. Whereas, the cue "something heavy" has a minimal association (if any) to the smenatic context of the target

Bransford et al. (1972) expand this theme by arguing the position:

sentences are forms of information which people use to construct semantic descriptions of situations, ... the constructed descriptions contain more information than the sentences themselves" (as in Palermo, 1978, p. 163).

This view is closely related to the view that context and meaning are inseparable. The contextual elements present during

description place varying demands on the degree of elaboration necessary for semantic clarity. In this fashion utterances rely heavily on the context in which they were generated, the context generated by the utterance, and the prior knowledge of both possessed by the listener.

Considering the issue of context and recall in a broader sense, Bransford and Johnson (1972) investigated subjects' relevant contextual knowledge and its impact on linguistic meaning. In this study, subjects were exposed to a nonmetaphoric passage. Prerequisite knowledge of the passage was manipulated by providing subjects with a pictorial context for the passage. The most significant difference in recall occurred between the groups receiving appropriate contextual information and the groups which received no contextual information. The finding most important to this paper is that contextual information aided comprehension significantly more when presented during the actual process of acquisition. This illustrates that the context of an interaction provides vital assistance in the comprehension and storage of information.

Finally, Keenan et al. (1977) investigated memory for sentences and its relationship to the "amount of interactional content they (the sentences) convey or elicit in interpretation" (p. 550). Interactional content as used here refers to information such as a speaker's attitude toward the listener, intentions, or beliefs. In other words, interactional content determines how personally meaningful the communicative content of a sentence

may be. Keenan et al. found memory of statements containing high interactional content (i.e., degree of personal reference) exceeded memory of statements low in interactional content. They explain this difference in four ways: 1) high interactional statements contain more information for the listener; 2) the high interactional statements are associated more closely with the interaction. This tie provides additional information to the interactants. The statement is more easily contextualized, and the informational content of the statement and the contextual information merge to create a larger quantity of information; 3) "High interactional content statements are remembered better because they can be easily assimilated into rich cognitive organization developed by the listener through previous interaction with the speaker" (Keenan et al. 1977, p. 559); 4) High interactive statements arouse an affective or emotional response in the listener.

Context provides a means for orienting, structuring, or interpreting information. The more interpersonally communicative this information is the more important the context becomes.

In summary, Hyde and Jenkins (1973) found that semantic processing provides a structure for processing and recall of words. Barclay et al. (1974) reported that sentences are associated with contextual elements to form additional information not directly asserted by the sentence. According to Bransford and Johnson (1972) context can often serve to organize what appears to be unassociated sentences into a coherent paragraph. Keenan, et al. (1977) suggest that knowledge of the interactants can

add additional information to the communicative content of the message. As the sentence increases in personal relevance, there is the possibility of an increase in the ability to recall the content.

All of the reviewed studies illustrate the importance of context to the comprehension and recall of linguistic information. In addition, one may notice that as the contextual information provided approaches the point at which the subject can more fully utilize both the contextual information in conjunction with his relevant prior knowledge, his ability to process that material also increases. Therefore, it is reasonable to assume, given a situation in which these two aspects are optimized, the subject would demonstrate a more efficient level of processing. One such situation is natural conversation.

#### ATTENTIONAL REQUIREMENTS AND RECALL

A second area of concern is the relative cognitive activity necessary for various cognitive processes. Hasher and Zacks (1979) view encoding operations as a continuum of varying attentional requirements. At one end of the continuum operations are unintentional, thus consuming a minimal amount of the energy available for attentional surveillance. These operations do not interfere with other on-going cognitive functions and they do not show developmental trends or improve with practice. Cognitive operations that conform to these guidelines are called "automatic." At the other end of the continuum, operations are intentional and

require a considerable amount of one's attentional capacity. These operations benefit from practice and can interfere with other cognitive operations. They are called "effortful."

Hasher and Zacks also assume that "attentional capacity varies both within and among individuals" (p. 356). This variation can be caused by emotional states and age (Hasher and Zacks stress extremes in both cases).

From a communication perspective these two assumptions are important in examining conversations. Two questions seem relevant: "How much of a conversational interaction is effortful?" and "How much is automatic?"

According to Hasher and Zacks's definitional framework, the use of language is an effortful process. However, certain aspects may be automatic (e.g., time sequencing) and others may become automatic due to continual use (e.g., phatic communication and automatic speech). The majority of social communication (i.e., conversation) may be viewed as effortful and require increased attentional capacity.

Kahneman (1973) supports this contention by suggesting "attentional demands increase as the operation moves closer to the response end of the system" (as in Hasher and Zacks, 1977, p. 363). Also, attentional capacity is not permanently fixed. It can vary with situational demands and individual conditions (Hunt, 1978).

Extending this framework to a communication perspective, attentional capacity may be related to the degree of involvement an individual has with the context in which the linguistics-

tic material is generated. The following section will focus on this consideration.

#### COMMUNICATION AND PROCESSING

According to Cushman and Pearce (1977) a theory of human communication following the rules perspective takes the form of a practical syllogism. For example, A wants C; in order to get C he must do B; therefore, A performs B. In this manner the power of rules perspective lies in its normative force, "A pressure that may be exerted on an actor by a culture, an organization, a group, or by the actor's own set of values" (Cushman and Pearce, 1977, p. 345).

In furthering this examination of the rules-based approach the focus is centered on the heterogeneous approach. This perspective's primary aim is to use "rules to explain, predict and control the external, constraining reality actors confront" (Donohue, et al. 1980, p. 6).

A central task of communication is the concern for effective exchange of messages. This concern centers on the ability of an interactant to generate and discern patterns of interaction which constitute acceptable behavior within the situational constraints in which the interaction occurs. When two individuals interact, it is unlikely that their perceptions of acceptable behavior for the encounter will be identical. Therefore, interactant A is operating from one communicative set (rules and expectations for the interaction based on prior experience) and interactant B is operating from a different communicative rule-set. For effective communication to occur, they must negotiate a third, mutually acceptable rule-set. (See Appendix A)

The communication behavior referred to as "an interactant's ability to generate and discern patterns of interaction which constitute acceptable behavior" has come to be known in the field of communication as communicative competence

Negotiation of a mutually acceptable rule-set is an effortful act. This operation places a greater demand on an interactant's attentional mechanism. The interactants are required to attend to as many of the contextual aspects as possible in order to adequately fulfill the communicative demands of the situation (negotiation of rule-set "C"). "Communication is most successful if the speaker's message is sensitive to the hearer's requirements" (Harris et al. 1980, p. 597).

Communicative interactants must focus a larger quantity of their attentional capacity on the interaction and contextual elements which contribute to the definition of that interaction. This increase in attention may be accompanied by an increase in the ability to recall the content of the interaction.

A passive observer of the communicative interaction is not required to actively negotiate a joint rule-set, and it may not be necessary for that individual to focus as much attention on the interaction. The observer does not construct the conversation; he just monitors it. This decrease in attentional demands may result in a decrease in the individual's ability to recall the content of the communicative interaction.

#### OBJECTIVES

The general objectives of this investigation is two-fold. First, the present study examines how actively participating

in the construction of a conversation affects a subject's ability to recall the conversational content of the communicative interaction.

Of the studies reviewed, Keenan et al. (1977) offers the most insight to this question. Their study was concerned with "real people's" memory for sentences generated in a real situation. Their findings lend support to the proposal that communicative participation has an enhancing affect on recall of interactional content.

However, the Keenan et al. study did not investigate how active vs passive participation in the interaction affected an individual's memory for verbatim sentences generated during the interaction. Also, in the study, all subjects were viewed in a composite analysis. In an attempt to apply Keenan's findings in a broader frame, the present study will focus its attention on participation and its affects on recall. The conceptual framework offered justifies the positing of the following hypothesis:

H<sub>1</sub>: Active participants in a communicative interaction will display a greater ability to accurately recall the propositional content of the interaction than passive participants (overhearers) of the same interaction.

## METHODS

### SUBJECTS

Twenty-four male subjects from Introductory Psychology classes at the University of Oklahoma volunteered for experimental credit. All were native Americans who spoke English as their first language. In addition, all had normal hearing.

## APPARATUS

The experiment was conducted in a small lab room. A General Electric tape recorder, model 3-5105B, was used to tape record the conversations. Low noise cassette tapes were used in conjunction with the tape recorder. A wrist watch was used for timing periods.

## PROCEDURE

A triadic design was utilized in this experiment. Members of the triad included two active participants, one subject (AP) and the other a confederate (C). The third member, also a subject, was a passive overhearer (O). Placement in condition was determined by the seat chosen by each subject. AP sat directly across from C. O was seated approximately five feet behind the participants and facing them. The experimenter told the triad that the basis of the experiment <sup>was</sup> an interest in how people communicated with each other. The instructions to the active participants were to carry on a natural conversation while a third subject observed. These two active participants were also informed that the winner of a coin flip would pick a topic of interest to him and begin a conversation. The toss was bogus; C was always selected to initiate the conversation. C would always choose as his topic the campus and related subject matter. In doing this manipulation variability due to possible cross subject interest differences was reduced.

Instructions to the overhearer were not to participate in the conversation, but rather to pay close attention to the conversation and be able to make critical comments regarding it. The entire triad was instructed that the session would be tape

recorded for later examination.

Following the instructions C and AP held a natural conversation for two minutes. After the conversation ended, a one minute period was used to inform the group that their task was to reproduce, as if they were the tape recorder, all things that C had said. This was done so that AP and O's responses would be due to their participation condition and not their particular knowledge of the topic. They were also allowed to write down all interactions, but instructed to note those statements that C had said. The subjects were allowed ample time to write their responses. After they had finished, the experimenter added a prompt encouraging them to check their responses to make sure they had written or noted only those utterances C had said. The group was then fully debriefed. This debriefing period included (a) informing the subjects as to the real purpose of the experiment, (b) telling the subjects uncued recall is difficult and their performance did not indicate intelligence level, and (c) information that the response sheets and tape recordings would never be associated with their names, thus insuring anonymity.

Kintsch (1974) has proposed a procedure to create a text base from utterances such as those generated by C. Kintsch's text base is comprised of propositions. Each proposition consists of a predicate and one or more arguments. A modified model of Kintsch's procedure was used to organize and transcribe responses made by AP and O. These responses were then compared to the actual statements that the confederate had made.

## RESULTS

A matched pairs t-test between the recorded responses of AP and O for each group showed that in natural conversation recall of active participants is significantly better than that of passive overhearers  $t(9) = 5.45, p < .001$ . Table 1 presents a group by group breakdown of correctly recalled responses made by the active and passive participants to the total number of statements made by the confederate.

TABLE 1

NUMBER OF CORRECT RESPONSES RECALLED BY SUBJECTS

Group No.'s	1	2	3	4	5	6	7	8	9	10
Total No. of utterances made by Confederate (C)	40	46	40	23	26	23	30	31	23	20
Total No. recalled by Active Participant (AP)	12	10	10	9	13	9	14	15	11	8
Total No. recalled by Passive Participant (O)	11	6	7	6	9	8	11	12	6	8

Data from four (4) triads had to be discarded. subjects within these groups failed to respond according to the instructions given. This rendered their recalls non-useable because they could not be coded.

## DISCUSSION

As was hypothesized, active participants recall far exceeded that of passive overhearers. Several explanations for this finding are possible: 1) The context imposed by the natural conversation in the active participation condition allowed subjects to fully structure and interpret the information. The passive overhearers did not impose the context and therefore did not have this advantage; 2) The act of interpersonal communication that includes meaningful natural conversation is considered effortful processing. Effortful processing has shown to aid recall of sentences by the active participants. The passive overhearers had no need to process effortfully, but rather were limited to more simple levels of processing, possibly automatic; 3) The interpersonal rule-set that was negotiated by the active participants allowed them to control and interpret the conversation. This rule-set was unique to the dyad and therefore not as personally meaningful to the overhearer.

A trend shown in the data is related to the concepts discussed above. There was a distinct tendency for the overhearer to misassign statements made by the active participant to the confederate. This may suggest O has a specific memory strategy for self and another that includes others. This would seem to further support the importance of participation condition. Experimentation related to this assumption is needed.

One piece of data seems to contradict the stated hypothesis. In Group 10 of Table 1 the responses of AP and O were equal. Close examination of the tape and transcript of this group reveals that the active participant of this group was highly egocentric

in nature. He appeared to display a greater concern for generating a monologue rather than sharing the interaction. This may have interfered with the normal memory process advantage that active participation would provide.

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APPENDIX A

