The Economic Journal of Takasaki City University of Economics vol.48 No.2 2005 pp.109～113

〈Study Note〉

Effects of Semantic Knowledge and Schema-Familiarity on Discourse Retrieval

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It is not a new idea in the field of linguistics that semantic knowledge plays an important role in discourse retrieval. Researchers have found that when a text is well understood, recall of the particular text will be facilitated considerably (Carroll, 1986). Certainly the understanding of a word or a string of words increases our ability to remember the word or words at a later time.

Another important aspect is the context in which the words appear. Even if a listener does not understand all of the words of a text, if the words that the listener does understand appear in a clear and familiar context, the process of remembering the content of the text should be enhanced. It has been found that people use their overall knowledge of topics and events to make inferences which, in turn, help them understand utterances and texts (Greene, 1986).

This paper seeks to determine which is more powerful: the influence of discourse retrieval, or the impact of knowledge of a topic on discourse retrieval. The study was motivated by my hypothesis that native Japanese speakers would have better recall of English words representing concepts specific to the Japanese culture than would native English speakers. Though I am not aware of any previous studies which involve this particular type of contrast and comparison, there have been numerous studies on cultural, collective memory. Maurice Halbwachs argued that individuals are able to garner and recall memories through their membership of a social group, and mentions, in particular, religious and class affiliations (Halbwachs, 1925, cited in Connerton, 1989). It seems then, that group membership is a strong motivational factor in determining what an individual chooses to store in his or her memory. Based on this assumption, I designed an experiment which would test both Japanese and American subjects on their recall of connected discourse which pertained exclusively to the culture of Japan. The oral discourse was in English, and I predicted that, even though the Japanese subjects were listening to a second language, their recall of words from the discourse, and especially culture-specific words, would be better than the recall of American subjects.

Method

Subjects

Six university students voluntarily participated in the experiment. The volunteers were not remunerated for their participation. All of the subjects were between 20 to 28 years of age. They all resided in San Diego, California, and attended San Diego State University. The subjects were chosen so that an equal number of males and females participated in the study, and the subjects were divided into two groups. One group consisted of subjects who were native to the United States. The other group consisted of transfer students from Japan, all of whom had lived in the United States for approximately 3 years.

Materials

A passage of exactly 194 words was used. I wrote the passage myself, and its contents were based on my own recollections of my many visits to a variety of shrines in Japan. A small cassette recorder was also used in this experiment. Notebook paper, pencils, and pens were provided for the subjects.

Procedure and Design

The following instructions were read orally to the subjects: This experment is to study how well people remember a text. The title of the text that you will hear is "Going To A Shrine." The text will be read on the audio-cassette player. After you hear the text, count backwards from 30 to 0. Then, write down as much as you can remember, using, if you can, the same words as those in the text.

The following text, approximately 1 minute and 35 seconds long, was then played on the audio-cassette player.

At last I saw the ***gate, tall, red wooden gate.*** It looked so bright and beautiful ***against the sky,*** and when I walked through it, I immediately felt I had entered a world of ***peaceful*** tranquility.

I came upon a stone basin, which held a ***shallow pool*** of clear ***water. Bamboo poles*** surrounded the water, and there were also cups made of ***bamboo.*** I took the ***long handle of the cup*** and dipped the cup into the water. I ***washed my mouth*** with the cool ***water,*** and also ***poured some water over my hands*** to make them clean.

I walked close to a beautiful wooden building and stood in front. There were so many dark green trees around me. I lit a ***stick of incense*** with a match. I put it in a deep pile of ash, so

that the ***stick of incense stood up straight.*** There were ***so many*** sticks of ***incense burning there,*** they made a great ***cloud of smoke*** which smelled sweet.

I watched the smoke rising up from the ash. ***With one hand,*** I ***pulled the smoke toward my body.*** Again and again, I ***pulled the smoke toward me.***

Several days before the experiment was conducted, I went through the text several times, underlining the words and/or phrases which I felt were culture-specific. I later showed the text to a Japanese student (who was not a subject in the experiment) to verify that the words and phrases that I had chosen did have the cultural significance that I imagined them to. The underlined words are shown in the text, in italics.

The experiment was conducted in a quiet room, with only the subjects and myself, the experimenter, present. The six subjects were divided evenly into two groups. One group who was made up of native English speakers (NES) consisted of two males and one female. The other group was comprised of two females and one male, and all three of the subjects in this group were native Japanese speakers (NJS).

Results

The analysis of the data showed that NJS subjects did, in fact, remember more culture-specific words than the NES subjects did. The NJS remembered an average of 16.00 of these type of words, while the NES group remembered an average of 12.33. On the other hand, the data exposed that the NES group recalled more of the general, non-culture-specific words, an average of 26.00, compared with the NJS group, who remembered an average of 21.00.

Table 1
Mean Number of Culture-Specific Words Recalled (CSWR) and General Words Recalled (GWS)

	NJS	NES
CSWR	16.00	12.33
GWR	21.00	26.00

Discussion

While the results of the experiment support part of the original hypothesis with the fact that the NJS subjects did remember more culture-specific words than the NES subjects, they also show that the hypothesis was faulty in that the NES subjects remembered more of the general words than the NJS subjects did. First, I wish to discuss the part of the hypothesis which is supported by the

hypothesis.

The data collected from the NJS group showed striking evidence that the subjects were relying on their shrine schema to guide them in their discourse retrieval. In fact, all three of the subjects in the NJS group used the word shrine in their recount of the discourse, while only one member from the NES group did this. Greene refers to Minsky's notion of "frames" which is actually a notation for representing schemas. Frames are comprised of slots, to be filled in with values relevant to a given situation (Minsky, 1975, cited in Greene, 1987). The data gathered from one NJS, in particular, Subject F, shows a dramatic example of the use of frames. The latter part of the discourse used in the experiment mentions the word "incense" more than once. Subject F included the following sentence in his written recount of the discourse: "Then she saw a bunch of 'senko' (she said "ins...I didn't get this word)." In the margin next to the word "senko," the subject noted that this was a Japanese word. It appears that the subject was so prepared to fill the slot in the frame, it was no longer important that the word he used was phonetically not the same as the one he heard, semantically it was the same.

The culture-specific words which the NJS subjects remembered, and which the NES subjects did not, are words that relate to a Japanese shrine on a conceptual level. They are words that, for the NES group, would not have such strong significance in the given context as the Japanese translation of those words would have for the NJS group. Words such as "peaceful," which only one NES subject recalled, as opposed to all three NJS subjects, have connotations which are essentially a part of the Japanese shrine. The word "sky" was not recalled by any member of the NES group, while it was unanimously recalled by the NJS group. In the discourse, it appears in the context, "At last I saw the gate, a tall, red wooden gate. It looked so bright and beautiful against the sky." The reason that the word "sky" is culture-specific in this context is that, while in America a gate refers to a short fence, in Japan its translation refers to the tall wooden entry of a shrine. And perhaps the word tall is an understatement; the "gate" to the shrine in Japan is often so tall that it can be seen from a considerable distance. The results of the experiment do show that while the NES group had better recall for familiar lexical items, the NJS group had stronger recall for words representing (in the given context) familiar concepts.

Now I should briefly discuss the part of the hypothesis which was not, in fact, supported by the results. Originally I believed that the NJS group would remember more words overall than the NES group. I now see why I was mistaken in thinking this. While the NJS group was able to recall very significant content words, the NES group was able to recall certain content words in addition to many function words. The NES subjects possess in their lexicon probably all of the words used in the discourse, while the NJS subjects possess perhaps half (more or less) of those words in their

second-language lexicon.

Future research of this topic should definitely include special attention to inferential capability, which involves the capability to draw more information from an input than is actually given (Johnson, Bransford, & Solomon, 1973; Tulving, 1983). After the conclusion of the experiment when I was analyzing the data, I discovered some interesting implications in the inferences made by the subjects. The NES subjects understandably made inferences which were not at all appropriate to the context of "going to a shrine," at least not a Japanese shrine. An example of this is an inference made from the following sentences of the original text. "I took the long handle of the cup and dipped the cup into the water. I washed my mouth with the cool water, and also poured some water over my hands to make them clean." Subject A, from the NES group, inferred that the narrator had splashed water onto her face, an activity which might be considered a bit frenetic at a Japanese shrine. Each inference that was made by an NJS subject, on the other hand, was perfectly appropriate to the shrine context. One particular NJS subject, subject D, inferred from the same segment of discourse that the water was "cold and pure." It is interesting that, even in making inferences, the NJS subjects were operating on a conceptual level as evidenced by the use of the word "pure." What is most fascinating, though, is that the NJS subjects were receiving the input of a non-native language and making such inferences.

Given the vast scope of semantic knowledge and schema, and the influence which these two factors have on the act of remembering, it is likely that related research could continue for years to come. Consequently, we can only gain a better understanding of human memory.

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