

Self reference effect
in online memory
tasks psychology
essay



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The self-reference effect describes the phenomenon that information pertaining to self is better remembered and recalled than any other processed data. The present study tested the hypothesis that the self-reference effect would be equally as efficient in an online, independent setting. The 38 participants (11 males and 27 females, ages 19-43 years) were students enrolled in an online research methods course. Participants identified whether target words were self-referent (" Does this word describe you?") or semantic (" Does this word contain the letter ' e'?"). After a brief distractor period, participants were prompted to recall words encountered in the previous task. Participants had one second to respond to each question. The findings confirm that data associated with self was better recalled than those based on semantic processing.

It has been established that as humans mature, we develop a sort of organizational framework, or schema, in which to process information. Incoming data are stored and retrieved differently. Some material is processed at deeper levels, some is stored for longer periods of time, and some is recalled easier than others, especially with the right " cues". The idea of depth of processing, where depth refers to the amount of semantic involvement, was first proposed by Craik and Tulving (1975). Rogers, Kuiper and Kirker (1977) expanded on this idea to include the notion that personally relevant information is stored deeper than any other material, which leads to enhanced memory of that particular information. These researchers labeled this phenomenon the " self-reference effect". They found that compared to semantic, phonemic, or structural processes, people performed much better at self-reference tasks. When asked to recall specific words, self-related

memory served as the best cue. The implications of this discovery were great, as the ability to understand and capitalize on human memory would foster many advantages. The results of their studies about the encoding of personal information served as a catalyst for further exploration regarding the self-reference effect and related topics.

Two years after the publication of the Rogers et al. (1977) study, two more researchers released the results of their work, which elaborated on that of their predecessors. Bower and Gilligan (1979) sought to learn if recollection was stronger when people linked an episode to a memory of an experienced event, rather than just a personality trait. They also conducted a second experiment to determine if a trait relating to self concept would be recalled differently than autobiographical memories. These studies not only reinforced the concept of self-referencing as an effective retrieval cue, but also found that memory was better when people could locate a similar event or incident in their own memory.

As expected, more researchers spawned more studies, and more interesting aspects of the self-reference effect were uncovered. Gutchess, Kensinger, Yoon, and Schacter (2007) tested the long-term strength of self-retrieval cues. This group wanted to know if the power of the self-reference effect was separate enough from cognition to override the inevitable deterioration that comes with ageing. Their experiments resembled those previously described, but they varied the subject pool with the inclusion of older adults. They found ageing does affect memory as a whole, including the self-reference aspect of recall. Though the self-reference effect was a better memory cue than cognition, it still appears to diminish with age.

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Other studies relating to the self-reference effect, but with differing variables have been conducted over the years. Research into ideas about the group-reference effect was conducted by Stewart, Stewart and Walden (2007). Though their hypotheses have yet to be confirmed, the studies provided valuable information.

Forsyth and Wibberly (1993) investigated self-reference in classroom settings, where they used the study as an instructional tool. The students/subjects of this experiment were briefed after the study. It was demonstrated that they learned more about the self-reference effect by participating in the study.

Throughout all of these branches of study pertaining to the initial concept of self-reference effect in memory, it has not been disputed that self-reference encoding is an extremely powerful memory tool. A meta-analysis conducted by Symons and Johnson (1997) suggested that the self-reference effect processes data in such an elaborate and organized fashion that is unrivaled by any other encoding method. The schema relating to self is so “well-developed and often-used” (Symons & Johnson 1997) that it creates a powerful, efficient framework for storing and retrieving data in memory.

A particular aspect of the self-reference effect that had yet to be studied was how it relates to college students taking online courses. The current study focused on an online psychology research methods course at the University of Nevada, Las Vegas. It was conducted to explore whether students might respond differently to similar tasks if they participate via the internet. In this experiment students were exposed to words based on semantic cues and

self-reference cues. Its design is structurally similar to that of Rogers et al. (1977). A word appears on the screen. The student has one second to respond to one of two questions: " Does this word describe you?" (self-referent encoding) or " Does this word contain an ' e'?" (semantic/structural encoding). After a brief distractor period, the subjects were asked to recall which words, out of a group of new and trigger words, they had seen earlier. The words in the experiment contain an equal mix of socially desirable and undesirable traits, in an effort to eliminate that confound.

Based on previous research beginning with Rogers et al. (1977), it is expected that self-reference cues will still be stronger than semantic cues. We expect the hits-to-misses ratio to favor the self-referent words. Because the words are displayed quickly, and the method of processing is similar to previous studies, we expect the personally relevant memory cues to be substantially stronger than words associated with structure.

Method

Participants

A total of XX participants, XX males and XX females, completed the study. The participants were undergraduate students at the University of Nevada, Las Vegas. Experiment participation was a requirement, in which students received course credit. The age range of the participants was XX to XX years, with a mean of age of XX. X years and a standard deviation of X. XX years. Participants worked independently via the Internet at various locations and times. No group or class setting was employed during this experiment.

Materials

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Using personal or public computers, participants accessed the experiment through the website, Online Psychology Laboratory (<http://opl.apa.org>). A computer program recorded demographic information, participant permission, and experiment data. The same program provided information regarding the study, and disclaimers about information disclosure.

Procedure

The study was similar in fashion to the self-referent encoding experiment conducted by Rogers, Kuiper, and Kirker (1977). Participants initially provided gender and age information. Then the procedure was explained, and permission to continue was requested. Participants were then offered two examples of the study questions. When the participants clicked the “continue” button (acknowledging they understood the instructions), twenty words were serially presented accompanied by a self-reference (“Does this word describe you?”) or semantic (“Does this word contain the letter ‘e’?”) question. The students had one second to determine if the word contained an “e” or if it was self-descriptive. After a twenty second distracter period labeled “internal timing check”, the participants were given a surprise recognition test. They were asked to recall which words, out of 40 (20 target and 20 distracter), they encountered during the first part of the study. These words, similar to the first portion, were delivered consecutively in a random order with a one-second response time. After the questionnaire, students were offered more information about the experiment along with a request that they maintain the integrity of the study by not divulging information to others and not saving results if they knew about the results before

participating. The participant’s results were then posted in a table format <https://assignbuster.com/self-reference-effect-in-online-memory-tasks-psychology-essay/>

listing hits (correctly determining whether the word was self-referent or semantic) and misses (false-alarms or incorrect identification) percentages for self-reference versus e-words. The participant was informed whether or not the answers provided were consistent with the hypothesis. The student was then offered the option to save the results, followed by a confirmation screen. The study followed a within-subjects, repeated measures design. The independent variable in the study was the level of encoding (semantic or self-reference). The dependent variable was the accuracy of identifying target words – hits vs. false alarms.

Results

Participant's performance on the word memory task was measured by calculating a discrimination index for each word type: Self-Reference and E-Words (words containing the letter). In order to calculate the discrimination index, the following equation was used:

In this equation, the hit rate refers to the number of words correctly identified as previously shown. The false alarm rate refers to the number of words that were incorrectly identified as previously shown.

The data of all participants was analyzed using a repeated measures analysis of variance (ANOVA). The within-subjects variable was word type: self-reference or e-word. The dependent variable was the discrimination index for each trial. Means for performance on the memory task by word type are reported in Table 1. There was a significant within-subject effect ($F = 73.72$, $p < .01$) in which participants had better memory for self-reference words than e-words. See Chart 1.

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Table 1.

Discrimination Indices

Word Type

Mean

Standard Deviation

Self-reference

E-Words

0.98

0.91

.024

.059

Chart 1.

Discussion

The findings of this study support the hypothesis that self-reference effect is superior to semantic encoding in an online memory task. Students remembered words linked to self significantly better than words linked semantically, or containing the letter “ e”. These results are consistent with the conjecture of Rogers et al. (1977) that self-reference in memory is stronger than other encoding devices. This study and its results resembled

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other studies pertaining to the self-reference effect in both design and outcome.

These results are meaningful in that they further support the concept behind the self-reference effect. Even in an online, independent setting, people remember and recall words more efficiently if they are processed via the schema of self. The results reinforce the strength and proficiency of the framework pertaining to self. As expected, the students in this study demonstrated that there is a significant memory tool located in the self schema.

This study's strengths lie primarily in its design. The even distribution of words containing the letter " e" and words pertaining to self, coupled with the even distribution of desirable and undesirable traits was an appropriate way to eliminate several confounds. Also, the program and layout of the questions were easy to understand and navigate. Using proven studies like those of Rogers et al. (1977) and Bower & Gilligan (1979) as a foundation was also a strong point of the study. The design was clear and uncomplicated, making the results and the concepts behind the study more powerful.

One of the limitations of the study was in the subject pool. All of the participants were enrolled in a psychology research methods course at the same university. This limits the diversity of the pool, and increases the risk of identifying an effect or correlation that might not exist. Also, because these subjects were taking a course related to psychology, the risk that they have, at some point in their academic careers, encountered the idea of the self-

reference effect is high. This may have lead to false results, because the students might have known the expected responses. Another limitation lies in the anonymity of online responses. Without supervision, there is no way to know for sure if the results were as accurate or honest as they should have been, or who actually participated in the submitted studies.

This study was an effective way to measure self-reference effect in students taking an online course. It is noteworthy that the results were consistent with previous research. Because the concept of the self-reference effect continues to be reinforced with further study, it is possible to capitalize on its implications. Knowing that the schema of self provides an efficient route and storage unit for data can lead to a myriad of benefits. Utilizing the self-reference effect could be an important training tool in many fields, but especially education. If we can learn to take advantage of this type of processing, we can better remember information and store it for later retrieval. Future studies may focus on the developmental aspects of the self-reference effect and its influence on memory capabilities of school-age children.