The Validity of the Specific Coding Principle: the Explanations from Cognitive Psychology and Psychoanalysis

Linou Ji[1, *]

[1]Niskayuna High School, Rosendale Road, Schenectady, New York, United States

*Corresponding author: lji2349@stu.niskyschools.org

Abstract. Cognitive psychology is the study of higher mental activities, as well as the process of receiving, encoding, manipulating, retrieving, and using memories. In cognitive psychology, the study of brain memory is an important part. this study would have difficulty judging the accuracy and validity of our memories. However, This study will want to use this study to demonstrate the effectiveness of the encoding specificity principle and its positive effect on memory. In this study, This study will set up experiments to prove my conjecture and opinion on the principle of specific coding. The experiment was tested under real-world conditions, which means the data collected is real and valid. At the same time, This study will also refer to some academic literature as the basis of my research, and the theoretical knowledge in the research is based on the basis. This study will also discuss and critique theoretical knowledge and experimental examples from previous studies.

Keywords: Encoding Specificity; Memory; Age.

1. Introduction

The principle of encoding specificity refers to the storage of memory, including two types of information, material and encoding method. Therefore, the principle that the original information can be extracted most effectively by using the extraction cue matching the encoding method. It refers to the storage of memory, including two types of information, material and encoding method. Therefore, the principle that the original information can be extracted most effectively by using the extraction cue matching the encoding method. The principle states that what information is stored depends on what information is perceived and how it is encoded and processed and that the stored information determines what retrieval cues are effective to use to retrieve the stored information. That is, the extraction works best when the cue is extracted to match the situation in which the encoding is taking place. There are two kinds of cues: external cues and internal cues. External cues include the characteristics of the stimulus and the environment around the learning; Internal cues include mental state, mood, and emotion during learning. This study will give you some specific examples. The first example takes place in a classroom. If you practice reciting a text in the classroom, you will be able to recite it fluently in the same classroom the next day. This shows that the classroom is the environment, and in this environment, you are being subtly influenced, and the principle of specific coding takes place. The second example is when you visit a school, you can more easily remember a road or area by looking at some landmarks. Suppose there is a huge sculpture in front of a teaching building. When you see the sculpture, you will think of the teaching building. Both examples are similar in that external environmental factors affect internal brain memory.

Normally, the whole progress of the study extracts information from explicit memory. In three works of literature, by studying the principle of coding specificity, we can know that the choreographed information matches the extracted information. Four experiments were conducted to confirm the specificity and difference of the coding specificity principle. The consistency of the three works of literature: In all three papers, they focused on the memory part. Try to explain the influence of environment and various factors on memory with psychological theory knowledge. And they all agree that encoding is an important part of memory formation. Under certain conditions, cues and coding are highly correlated. The difference between the three works of literature: Literature one paid more attention to the experimental part and proved the existence and validity of the specific coding principle by setting three experimental groups and one control group. Such experimental results are more hierarchical and can be different in degree. Literature two mainly discusses the differences and

effects of variables, considering environmental factors. It is similar to the theory of literature two and three. Literature three is more like a cutting-edge version of literature one more, with no formal theory but a basic ideological composition. However, the conditional consideration is not as comprehensive as the literature. This research combines the theoretical knowledge and experiments of three works of literature and makes further improvements. On the theoretical side, since the detailed explanation of specific coding principles in the second paper is clear and reasonable, This study will have adopted some contents. Reference one shows that the principle of specific coding requires specific conditions, so This study will take the environment as a variable in the experimental setting to conduct observation and test. In terms of experiments, some changes were made by referring to both references one and three. For the tedious and complicated experimental Settings in Reference 1, This study will simplify the experiment. The variables that are difficult to control are set within a certain range, and the quantitative setting becomes clearer. This can make the experimental results more accurate and easier to understand. The experiment in Reference three is more like the basic version, This study will add some objective conditions and do more thinking. By referring to these three papers, This study will think that based on the original, my experimental setting is more reasonable, and the experimental target is more accurate and has a clear positioning.

2. Critique of previous studies

Influences of encoding specificity, cue overload, and prior knowledge are written by Stephen P Badham, Marie Poirier, Navina Gandhi, Anna Hadjivassiliou, and Elizabeth A Maylor. Four experiments compared pairs of codes and cues. Through the experiment, we can get the correlation between four targets and cues. One of the key performance factors is response time. Codes with higher accuracy will be more efficient than those with multiple variables. The important factor is that the cue is uniquely associated with the target. So, the experiment showed the following: (a) how discriminative-or uniquely associated with a target-each cue was and (b) the degree of overlap between the cues present during learning and those present at retrieval. There were four groups, each of which was linked with different images and words, and the effectiveness was judged by how well people remembered them. In literature 1, although there are many designs for the experiment and a large amount of text is used to describe the experiment, the complexity of the experiment makes it difficult to control the variables. As a result, the results are not clear.

The myth of the encoding-retrieval match is written by James S Nairne. Modern memory researchers rely heavily on the encoding-retrieval match, defined as the similarity between coded retrieval cues and previously encoded engrams, to explain variability in retention. The encoding-retrieval match is assumed to be causally and monotonically related to retention, although other factors (such as cue overload) presumably operate in some circumstances. Specific coding principles are affected by the environment, and there will be a degree of difference. But these extrinsic variables are hard to control. It is mentioned that this variable factor makes it difficult to judge the validity of the specific coding principle because it does not seem to necessarily result from the specific coding principle. This study will mean because some variables are likely to be present at the same time, but it's inevitable, like the temperature and light of the environment, the state of the person, etc. It's hard to make sure the environment is the same. Although this error is negligible, it will affect the accuracy of experimental data and results. In literature 2, the author had some ideas about variables but did not prove them through concrete examples and experiments. Successful in theory, but inadequate in practice.

The dual effect of context on the memory of related and unrelated themes discrimination at encoding and cue at retrieval is written by Einat Levy-Gigi and Eli Vakil. Previous prospective memory studies have revealed some important features of encoding, retrieval, and the match between encoding and retrieval that contribute to prospective memory performance. The research developed a laboratory-based paradigm that allowed us to manipulate different characteristics of encoding, retrieval, and the match between encoding and retrieval simultaneously in a single experiment. The

results of eight experiments showed that all three factors have an influence on prospective memory performance, but that the match between encoding and retrieval has a significantly larger influence than either encoding or retrieval factors. In literature three, the author did not put forward the theory and academic concept of specific coding principles. This essay is more like the basic and cutting-edge version of literature, which does not have enough academic theories. But it has thoughts on memory and ideas.

The scholars do not restrict themselves by understanding the whole symptom of casual behaviors. There are some other dangers or concerns reported as well. The pathological theory of the cause of neurosis involves two dangers: stagnation and degeneration. Imagining life as a stream flowing forward, and assuming that part of it tends to stagnate at an earlier stage (e.g., at an early trauma) is called fixation or instinctive fixation. and the part that has moved forward encounters a setback and may revert to an earlier stage of development, which is called degeneration. If the flow process encounters a strong external obstacle, it may cause a backward turn, forming a degeneration. Fixation in the path of development follows the rule that the greater the flow, the less energy there is. In the stream and easier it is for the function to be conquered by external obstacles and retreat to the place of fixation. As If a person is deprived of the possibility of Libido satisfaction, he or she will suffer from neurosis, that is, a disease caused by frustration.

In those who lose their health as a result of sudden neurosis, it is more evident that the fight of the desire impulse is visible. In those who lose their health due to sudden neurosis, there are more obvious signs of a struggle between the desire impulses, where one part of the personality is in favor of a certain desire and the other part is against it; eliminating this conflict eliminates neurosis. The elimination of this conflict eliminates the neurosis. The relationship between fixation and degeneration here is that the more traumatic the early years, the more energy is retained, and the more energy is lost in the forward flow of the river of life. The greater the loss of energy in the forward flow of the river of life, the greater the loss of energy in the forward flow of the river of life. When frustration leads to conflict, the unfulfilled Libido turns to other objects and paths, and these other objects and paths cause discomfort in a part of the personality and impose restrictions that make the new satisfaction impossible to achieve. The tendency of Libido is blocked, and the circuitous path moves forward.

3. Questions and hypotheses

According to the above three papers, This study will think the experimental part needs to be improved. Some variables make experiments difficult to predict and control, such as the environment and the words themselves. Does the specificity coding principle depend only on the environment? Or is it about words as well? In my research and experiments, This study will control for the necessary variables. This study will want to study the extent to which this environment influenced the specific coding principles, but how? And to what extent? This hypothesis is that the specificity coding principle has to do with both the environment and the text itself. But the two factors have a similar effect. This study will think the errors in the big picture are negligible, but This study will want to make sure that the variables are manageable. The similarity of variables may cause the experimental data to differ little or be difficult to distinguish. But This study will want to amplify the difference as much as possible so that This study will compare the effects of the variables.

4. Proposed Methods

This study will design a three groups involved experiment. Group 1 was experimental group 1. This study will select relevant words. This means that these words can be associated, for example, set up a list of words that are liquid, water, juice, coffee, tea, etc. This suggests that the subjects may be affected by the association. Then the subjects sat in a specific room and took the test. After memorizing the words, the subjects were presented with the words at intervals in the same room and

asked to identify the words that had come up. Group 2 was experimental group 2. The word Settings for this group were random and unlinked, but the environment was a variable. The subjects will remember the words in one room but in another. The environment Settings are different in these two places. Group 3 is the control group. This study will select random and unrelated words. which selected unrelated words. In contrast to the first group, this group of words had no associations, such as dog and toothbrush. This group of subjects was also asked to memorize and recall the words in the same room, so the environment was unchanged. Rations are people (The ideal number is forty), the text display time including the time for words appearing and the period between memory and recall, and the color of the text. The independent variables are the content of words and the environment. Dependent variables are People's accuracy and reaction time in word recognition. The detailed process is as follows: First, forty subjects are arranged to test one by one. Only each bit can be tested separately, and the test time is the same. There were 40 subjects in each experiment. The subjects entered a specific room and memorized the supplied thirty words (thirty words for each group) in the same amount of time. Then leave the room. After a period, enter the same room or another room, depending on the type of group being tested. The ideal interval is 24 hours. Re-entering the same room, or entering a different room, the subject needs to point out the memorized words, so that the number of words remembered and recall time can be collected. The last step goes to Organizing and analyzing data to conclude. The following points should be paid attention to 1. When memorizing words, the interval time for words to appear is the same, to avoid the participants only remembering those words which take a long time due to the different times of memorizing words. 2. In experimental group 2, the rooms for memory and recall are not the same, so the scene layout is required to be different, and the emphasis here is the difference in the environment. So, it doesn't make sense to have two similar rooms.

5. Expected Results

The third group was the control group, so the other two groups were based on and referenced from the third group. The experimental data are the sum of the participant's accuracy in recalling the words and their reaction times. There was a gap in the experimental data of each group, and the third group had the largest gap between the first and second groups. There was also a gap between the data from the first and second groups. Comparing these three groups of data, the first group has the highest accuracy, shortest reaction time, and fastest reaction speed, the third group is the second, and the second group is the last. This was predicted because the first group of words was related and the environment did not change, so the principle of specific encoding should be effective and help people remember words well. In the third group, the words were random, and the environment was unchanged, so people's memory could not rely on word association, but was only influenced by the environment. This can highlight the existence and influence of the specific coding principle. The second group consisted of unrelated words and the changing environment. So, people can neither rely on the relatedness of words nor can they recall them in familiar contexts. This means that the specific coding principle does not work under such conditions because it is limited by objective factors. Such experimental data can help to deduce the experimental conclusion that under certain conditions, the principle of encoding specificity exists and is effective.

6. Conclusion

For the experiment, it is argued that because of the differences in response times and accuracy between the three groups, it can be deduced that the principle of specific encoding exists and has a positive effect on people's memory, that is, it helps people remember better. For reference 1, the experimental process This study will set is simpler and the experimental data are easy to understand. In the setting of environmental and objective conditions, the variables are not out of control. Although the number of experimental groups is not as large as that set-in Poirier's study, the quality of each

group of experiments is guaranteed. The experiment also demonstrated the effectiveness of the principle of coding specificity. The problem here, however, is that the procedural differences are not specifically distinguished because there are no more environments and scenes to compare. For Nairne, the theoretical knowledge of the experiment is based on his study, which is also well proved by practice. For Hannon, this experiment made up for the deficiency of the experiment in their works and added more details. For example, the control of time includes the time to remember the word, the time between rooms, and the reaction time to recall the word. Experiments do not rely solely on accuracy to judge, which makes the experimental conclusions clearer.

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