

Effects of Memory Retrieval cues on Students Academic Performance in Shorthand in North-West Zone, Nigeria

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Abstract

This study was carried out on the effects of memory retrieval cues on the performance of Colleges of Education students in shorthand in North-west zone, Nigeria. The study had two specific objectives, two research questions, and two null hypotheses. The quasi-experimental research design was adopted in conducting the study. The population of the study was 1588 NCE I students of shorthand for 2016/2017 academic session from colleges of education in the North-west zone, Nigeria, from which a sample of 138 was drawn. The researcher used Fill-in-the-Blank Shorthand Evaluation Test (FSET) and Multiple-Choice shorthand evaluation test (MSET) to collect data from the respondents. Mean and the standard deviation was used to answer the research questions. Regression analysis was used to test the two null hypotheses. The findings revealed a mean coefficient of 29.45 among others that Recognition memory retrieval cue had a significant effect on the performance of shorthand students. It was also concluded that shorthand students are affected in the learning process in their memory retrieval cue if not put into use. And therefore recommends that shorthand students should imbibe the culture of constant drill practice which will go a long way in strengthening the recognition memory.

Keywords: Memory Retrieval Cues; Recognition Memory; Recall Memory

Introduction

Memory is a process that retains, retrieves and uses information that is no longer present. Learning is not complete until there is an observable change in the behavior of the learner. Therefore the only way to assess this change is from the feedback received from the learners. For a learner to provide feedback, they must be able to retrieve information from his memory. Memory retrieval cues are described as the ability to subsequently re-access events facts or objects from the past which have been previously encoded and stored in the brain. This is known as remembering in common parlance. According to Lockhart (2011) memories are not stored in human brains like books on library shelves or even as a collection of self-contained recordings or pictures or video clips, but may be better thought of as a kind of collections involving different element stored in disparate parts of the brain linked together by association and neural pathways the brain formed when encoding the information and the strength of those pathways determines how quickly the information can be recalled (Klatzky, 2008). There are two main methods of accessing encoded information from the brain, recognition and recall memory retrieval cue. The efficiency of human memory retrieval is astounding. Most of what is remembered are by direct retrieval, where items of information are linked directly to a question or cue, rather than by the kind of sequential scan of a computer. Other memories are retrieved quickly and efficiently by hierarchical inference, where a specific question is linked to a class or subset of information about which certain facts are known. There are methods of accessing memory, among which recall and recognition are the most commonly mentioned.

Recognition memory retrieval cue is defined as the association of an event or physical object with one previously experienced or encountered. It also involves a process of comparison of information with memory with the aid of a currently present physical object. Tulving (2009) describes recognition memory retrieval cue as an unconscious process. The brain has a dedicated

face-recognition area, which passes information directly through the limbic area to generate a sense of familiarity before linking up with the cortical path, where data about the objects, event or facts are processed. Recognition is the association of an event or physical object with one previously experienced or encountered and involves a process of comparison of information with memory, recognizing a known face, true/false or multiple choice questions. Recognition is a largely unconscious process and the brain has a dedicated face-recognition area, which passes information directly through the limbic areas to generate a sense of familiarity, before linking up with the cortical path, where data about the person's movements and intentions are processed.

Recall memory retrieval cue refers to remembering a fact, events or objects that are not currently physically present. It requires the direct uncovering of information from memory. Recall of items involves actively reconstructing the information and requires the activation of all the neurons involved in encoding the items (Klatzky 2008). The recall involves remembering a fact, event or object that is not currently physically present (in the sense of retrieving a representation, mental image or concept) and requires the direct uncovering of information from memory.

Literature Review

There have been many researchers (Hariri *et al.* 2003, Jameson, 2013), that have proposed models and theories in an attempt to explain what memory is and what it does. It is proposed that memory has multiple structures including sensory memory, short-term memory, long-term memory and more recently, working memory. Each of these structures provides different stages in the memory process and has different time-spans for different information. Many researchers focused on short-term memory (STM) as being responsible for immediate recall as it holds information for a short period of time. The majority of information that is stored in STM is eventually forgotten with a minority managing to access long-term memory (LTM). In order to effectively examine recall accuracy; it is important to be aware of the difference between recall and recognition. It has been suggested that twice as much information can be recognised as can be recalled (Jameson, 2013). In an attempt to differentiate between recall and recognition, the former has been described as a memory process without a focal element, but where a background or setting is evident. When a person attempts to recall something, the desired recollection appears in fragments, for example, letters of a word. Recognition, conversely, is almost the same process but in opposite order. That is, the focal element is present but the context from which this element is recognized is not apparent.

Expert ability in shorthand is essential, and the more capable the secretary is as a shorthand writer, the more his services are in demand and the better are his opportunities for the service, which means advancement. Writing is an unbelievably useful tool to record and communicate ideas; it has been the key function of stenographers (Secretaries) from time immemorial. It is less expensive, the paper it is written on can travel large distances and is lightweight, through writing a single information can reach a large number of readers, and the written word can even survive to find a generation of new readers across centuries of time. However, written languages were not developed with the emphasis on speed. With ordinary, cursive handwriting the best speed of writing is about 35 words per minutes. People, however, speak at about 150-180 words per minutes, so the secretaries who needed to record important speech were faced with a physical problem of keeping up with what was said. As a result, they developed alternative, quicker forms of writing, parallel to the usual full-blown form of writing (longhand).

Numerous instances might be cited in which superior shorthand ability has been the deciding factor in securing a really big secretarial position. Secretaries must be able to write shorthand very rapidly and transcribe it with accuracy; another important skill needed to be developed is that of reading back the shorthand accurately. However, with the glaring importance of this course for the secretarial profession, reports, observations, and interaction with shorthand students and stakeholders in colleges of education in the study area indicated that success and high achievement in shorthand have significantly declined.

The persistent low performance of shorthand students in recent times, For instance, the performance of students in shorthand in Sa`adatu Rimi College of Education, (SRCOE) Kumbotso Kano, for the 2014-2016 showed that in 2014/2015 academic session, only 20% passed at credit level and above. The situation got worse in the 2015/2016 session with only 12.8% able to pass at credit level and above has been blamed on many factors by different stakeholders and academics. Recent researches on the subject have attributed the problem to students' lack of interest and irrelevancy of the course in the 21st century. Vundi *et al.* (2013), attributed it to lack of ability to recall from memory the signs on the part of the students and lack of commitment to the teachers to teach the course. Despite all these concerns, there are few studies in the northern region of Nigeria with empirical evidence on the memory retrieval cues effect on student performance in shorthand. This study examined whether memory retrieval cues have any significant effects on academic performance of students in shorthand in colleges of education North-west Zone of Nigeria.

Objectives of the Study

The general objective of this study was to examine the effect of memory retrieval cues on the performance of students in shorthand in colleges of education North-West zone, Nigeria. The specific objectives of the study are to:

- i). establish the effect of recognition memory retrieval cue exhibited by students on their performance in shorthand in colleges of education in North-West zone, Nigeria, and
- ii). determine the effect of recall memory retrieval cue exhibited by students on their performance in shorthand in colleges of education in North-West zone, Nigeria;

Research Hypotheses

In line with the research questions, the following null hypotheses were formulated and tested at the significant level of 0.05:

- i). Recognition memory retrieval cue has no significant effect on the performance of students in shorthand in colleges of education in North-west zone, Nigeria.
- ii). Recall memory retrieval cue has no significant effect on the performance of students in shorthand in colleges of education in North-west zone, Nigeria.

Methodology

The research design adopted for this study was quasi-experimental research design. The sample population for the study was one hundred and thirty-eight (138) NCE 1 business education students` offering shorthand in nine (9) colleges of education in North-west zone, Nigeria. Purposive sampling technique was used to select Federal College of Education Zaria, because of its availability of teaching aids and trained manpower for the teaching of shorthand. Two instruments were used for data collection for this study; Fill-in-the-Blank Shorthand Evaluation Test (FSET) and Multiple-Choice shorthand evaluation test II (MSET). FSET was used to determine the recall memory retrieval cues. It consisted of 10 item and each carries 10 marks, the respondent is expected to fill the blank spaces from the recall memory. The items are short forms and phrases which have been treated in the class. A score of 40% and above is considered pass while a score of below 40% was considered fail. MSET was used to determine the recognition memory retrieval cue. It consisted of 10 items and each carries 10 marks, with options A-D which the respondent is expected to choose the option that correctly answers the questions. This was used to assess the recognition memory ability of the respondent in relation to the lesson taught in the class. A score of 41% and above was considered pass while a score of 40% and below was considered fail. The split-half method was used to establish the reliability coefficient of the instrument at 0.87 using the Cochran`s t-test. The data collected was analyzed in two stages. In the first stage, mean and standard deviation were employed in answering the research questions. In order to test the null hypotheses, the data generated from the respondents were analyzed using simple regression statistic at 0.05 level of significance.

Results

Research Question One: What is the effect of recognition memory retrieval cue exhibited by students on their performance in shorthand in colleges of education in North-west Zone, Nigeria?

Table 1: Mean and Standard Deviation of recognition memory retrieval cue and performance of students in shorthand in Colleges of Education

Variable	N	X	SD	MD
HRMRC*	63	58.25	14.97	29.45
LRMRC**	75	28.80	11.50	
Total	138			

Source: Result of Fieldwork, 2017

*HRMRC = High recognition memory retrieval cue

**LRMRC = Low recognition memory retrieval cue

The data analysis used to answer research question one is as presented in Table 1. From the Table, scores of 63 representing 58.25 mean with a mean deviation of 14.97 for respondents who exhibits high recognition memory retrieval cue. Those respondents who exhibit low recognition memory retrieval cue had a score of 75 representing 28.80 mean with a mean deviation of 11.50. Based on the analysis, the mean score of 58.25 was greater than the mean score of 28.80. The result, therefore, revealed that shorthand students' in the studied area exhibit high recognition memory retrieval cue.

Research Question Two: What is the effect of recall memory retrieval cue exhibited by students on their performance in shorthand in colleges of education in North-West zone, Nigeria?

Table 2: Mean and Standard Deviation of recall memory retrieval cue and performance of students in shorthand in Colleges of Education

Variable	N	X	SD	MD
HReMRC*	43	26.31	11.89	34.11
LReMRC**	95	60.42	15.77	
Total	138			

Source: Result of Fieldwork, 2017

*HReMRC = High recall memory retrieval cue

**LReMRC = Low recall memory retrieval cue

The descriptive Statistics of data generated on shorthand students' performance in relation to recognition memory retrieval cue exhibited is as shown in Table 2. The data analysis used to answer research question four is as presented in Table 2. From the table, scores of 95 representing 60.42 mean with a mean deviation of 15.77 for respondents who exhibits low recall memory retrieval cue. Respondents who exhibit high recall memory retrieval cue had a score of 43 representing 26.31 mean with a mean deviation of 11.89. Based on the analysis, the mean score of 60.42 was greater than the mean score of 26.31 the result, therefore, revealed that shorthand students exhibit low recall memory retrieval cue.

Test of Null Hypotheses

Results of the test of the null hypotheses are as presented in tables 3 and 4.

Hypotheses One: Recognition memory retrieval cue has no significant effect on performance of students in shorthand in colleges of education in North-West zone, Nigeria.

Table 3: Test of regression analysis on effects of recognition memory retrieval cue on students` performance shorthand for Colleges of Education

Variable	N	X	SD	R ²	Cal	Crit	Sig	Decision
HRMRC *	63	58.25	14.97	0.68	17.35	2.44	0.000	H ₀
Rejected								
LRMRC**	75	28.80	11.50					

Source: Result of Fieldwork, 2017

HRMRC = High recognition memory retrieval cue*

***LRMRC = Low recognition memory retrieval cue*

From the Table 3, the computations indicated that Recognition memory retrieval cue had a moderate coefficient of determination ($R^2 = 0.68$) and Significance ($p = 0.00$) effect on shorthand students` performance. This implies that Recognition memory retrieval cue has an effect on students` performance in shorthand and could be used to predict student performance accurately. The analysis concludes that Recognition memory retrieval cue does affect shorthand students` performance. r-cal (17.35) was greater than r-crit (2.44). Therefore, the null hypothesis was rejected.

Hypotheses Two: Recall memory retrieval cue has no significant effect on the performance of students in shorthand in colleges of education in North-West zone, Nigeria.

Table 4: Test of Regression Analysis on Effects of Recall memory retrieval cue on Shorthand Students` performance in Shorthand in Colleges of Education

Variable	N	X	SD	R ²	Cal	Crit	Sig	Decision
HReMRC*	43	26.31	11.89					
Accepted			0.02	0.02	-2.05	2.53	0.041	H ₀
LReMRC**	95	60.42	15.77					

Source: Result of Fieldwork, 2017

HReMRC = High recall memory retrieval cue*

*LReMRC** = Low recall memory retrieval cue*

From Table 4, the computations indicated that Recall memory retrieval cue had a Negative coefficient of determination ($R^2 = 0.02$) and Significance ($p = 0.041$) effect on shorthand students` performance. This implies that Recall memory retrieval cue has no effect on students` performance in shorthand and could not be used to predict student performance accurately. The analysis concludes that Recall memory retrieval cue does not affect shorthand students` performance. r-cal (-2.05) was less than r-crit (2.53). Therefore, the null hypothesis was retained.

Discussion

The findings of these studies were chronologically presented as follows; with reference to research question one and null hypothesis one, it was revealed that Shorthand students exhibit high Recognition memory retrieval cue in the studied area. This finding agreed with that of Barbara and Evenly (1979) which stated that college students` academic scores are significantly improved by the recognition strategy. This finding contradicts the result obtained by Solaimani *et al.* (2013) which revealed that there was no statistically significant difference in performance of respondents in English as a foreign language in recognition memory test (multiple-choice and true/false reading comprehension tests).

Research question two and null hypothesis two, revealed that shorthand students don't exhibit Recall memory retrieval cue in the study area. The result revealed that Recall memory retrieval cue is less exhibited by shorthand students in the studied area. This finding agreed with that of Steffens *et al.* (2007) which revealed that recall memory retrieval cue appears to be less significant in students' academic performance. Moreover, in another study by Jameson (2013) the researcher posited that recall had a negative effect on music students' performance in words recall but it has no significant effect on the recall ability. The participants in that study recalled digits better than words, across all music conditions and there was no significant difference in gender recall ability.

Conclusion

Based on the stated objectives that the research work addressed, the researcher concluded that shorthand student who wants to perform excellently cannot do without having adequate knowledge of their memory retrieval cue. As the study clearly established that shorthand students exhibit more recognition memory retrieval cues than they exhibit recall memory retrieval cue. This implies that students who do not exhibit recognition memory retrieval cue to learning of shorthand can be enhanced in the learning process which may also affect their performance in shorthand.

Recommendations

Therefore based on the findings of the study, the following recommendations were made:

1. Shorthand students should imbibe the culture of strengthening their memory through consistent practice. This will go a long way in helping them achieve more in academic.
2. Shorthand lecturers should designed evaluation test that relates more to recognition memory retrieval cue. i.e. (Multiple choices), since the result established that shorthand in the study area exhibits more of recognition memory retrieval than recall memory retrieval.
3. Shorthand students should be encouraged by shorthand lecturers to adopt the use of the recognition memory retrieval cue than the recall memory retrieval cue because the recognition memory retrieval cue enhanced their performance significantly.

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