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Effect of mind mapping on language acquisition of the middle level students.

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Abstract: Mind mapping is a visual tool that can be used to brainstorm vocabulary, learn grammar, to organize your thoughts when making a draft before your essay and for many other purposes. The use of mind-mapping techniques in language learning may assist students in developing their analytical, organizational, collaborative, and creative skills in addition to their language capabilities .The study aimed to find out the effect of mind mapping on language acquisition of the middle level students. Quasi-experimental single group pre-test post-test design was employed with a sample size of 30 middle-level students from diverse linguistic backgrounds. The participants were assessed on their language proficiency before and after the intervention, which involved the use of mind maps for vocabulary and grammar lessons over a specified period. Findings reveal that the use of mind maps in English language classrooms provide an opportunity for students to be an active learner by acquiring data, processing information, organizing details and constructing knowledge by themselves. Students found mind mapping more engaging and helpful in understanding complex language concepts.

Index Terms - Mind Mapping, English Language Acquisition

1.INTRODUCTION

Visual learning helps students to develop visual thinking, which is a learning style whereby the learner comes better to understand and retain information better by associating ideas, words and concepts with images. Visual aids include pictures, objects, and things for the learners to look and talk about. Visual aids are important because showing visuals focuses attention on meaning and helps to make the language in the class more real and alive; having something to look at keeps the learner's attention and makes the class more interesting. Visuals can be used at any stage of the lesson, to help in presenting new language or introducing a topic, as part of language practice, and when reviewing language that has been presented earlier; good visual aids can be used repeatedly and shared by different teachers.

Mind maps were first developed as a note taking technique is a technique which uncover the potential of the brain **(Brinkmann, 2003),** which information is stored, arranged and organized in order of priorities by using keywords and key concepts **(Buzan, 2009a)**. According to **Michalko (2001),** mind map is a technique which has the power of uncovering the thoughts which the brain has about a subject from different viewpoints and which the brain is operated as a whole as an alternative to linear thought. **Kokotovich (2008)** expressed mind map as a note taking technique which people put their ideas and thoughts on paper excursively.

Buzan (2005) emphasizes four important features of mind map as:

- Attention to subject is provided by a picture at the centre of the mind map.
- Main themes of the subject are formed; thanks to the branches related with the picture at the centre.
- Branches state a key picture or keyword on the connected lines.
- Branches have a structure which is related to each other.

"If we hear some information, then three days later we will remember only 10% of it. If we add a picture to it, then 65% of it will be retrievable by us" (**Rustler, 2012)**. According to **Rajpriya and Kumar** (2017), a Mind Map is a Visual Representation of hierarchical information that includes a central idea surrounded by connected branches of associated topics.

The Earliest Mind Maps are claimed to have been used by Porphyry of Tyros (Godfather of mind mapping) in 3rd century as he graphically visualized the concept categories of **Aristotle, Ramon Lull (1235-1315)** in the 13th century also used these techniques, Leonardo da Vinci at the end of the Middle Ages and more recently Collins in the late 1950s. British Psychologist, **Buzan (1974)** popularized the term mind map (Collias, 2014).

In Language Learning and Teaching Process, learner uses his eyes as well as his ears; but his eyes are basic in learning. (Rivers, 1981; Cakir, 2006) claim that "it clearly contributes to the understanding of another culture by providing vicarious contact with speakers of the language, through both audio and visual means". According to **Alomari (2019)** in mind maps the main idea is presented as a cartelized picture drawn in a central image, then the main themes of the main idea radiate from the central image as branches. 'The Swiss army knife of the brain." Joneset.al 2012 examined the role of The Effects of Mind Mapping Activities on Students' Motivation. Sezer, et.al 2022; examined the role of Supporting Pre-schoolers' Acquisition of Geometric Knowledge Through Mind Mapping. Researchers found that the use of mind maps resulted in a statistically significant difference in geometry learning for pre – schoolers' (mean age = 65.0 months).

The Research Questions that have been formulated by the investigators are-

1. How far does mind mapping stimulate interest in language learning?
2. Can Mind mapping improve vocabulary and grammar?
3. How far does mind mapping make language learning more engaging and meaningful?

1.1 OBJECTIVES OF THE STUDY-

The objectives of the study were:

1.To develop Mind Maps for language Curriculum at the Middle level.

2.To study the effect of Mind Mapping on language Acquisition of middle level students.

1.2 HYPOTHESIS

A directional hypothesis was proposed for the study as follows-

There will be significant effect of mind mapping on the language acquisition at middle level.

1.3 METHODOLOGY

Pre-Test Post-Test Non- Equivalent Quasi Experimental Research design was employed.

Table1.1 -Single Group Pre- Post Experimental Design

Group	Pre - test	Treatment	Schedule	Post - Test
Experimental Group	Pre – test of 6th grade students related to variable language acquisition.	Teaching with Mind mapping orientation.	15 periods of 35 minutes. 5-hour language Acquisition from orientation for 10 days. 35 minutes per day.	Post – test of 6th grade students related to variable language acquisition.

Phase -1 The Pre-active phase

In the pre – active phase researchers followed these steps –

- Developing the instructional material on language acquisition to orient the 6th grade students.
- Planning the Pre- test and clarify the pre- test.
- Formulation of experimental group.

Phase- 2 Experimental phase or Implementation phase

- A pre- test on language skills was administered.
- Mind mapping technique was used to teach English language skills.

- Teaching with integration of mind mapping for 15 days.

Phase – 3 The Assessment phase or follow up phase

A post – test was taken for checking the effectiveness of mind mapping followed by a questionnaire.

1.4 SAMPLE OF THE STUDY

The sample of the present study consisted of 30 students of 6th grade of school of R.S Public school. The selection of the school was done through purposive sampling method.

1.5 CONSTRUCTION OF THE TOOL OF THE STUDY

Preparation of Test items - After analyzing the content of the test and selecting necessary topic regarding the test discussions were held with subject experts for determination of test sequence of test.

First draft of the Test - To construct first draft first of the test, the investigator through the survey of literature selected related items of test on the sub- dimensions of Listening, Speaking, Reading and Writing and arranged items in a logical manner for preparing the preliminary draft. The scale consisted of 80 items.

The researcher designed the questionnaire by involving items related to the class 6th English middle level textbooks of English. The questionnaire was distributed to experts for Expert review.

Experts Opinion - The prepared draft was given to 6 experts and with the help of their precious and critical comments and on the basis of suggestions some of the items were removed and modified. Experts also gave their suggestions regarding language of the of the statements and the validity of the items was computed.

The validity of the scale was found to be 0.832. In the second draft 70 items were selected.

Pilot Study - The constructed test was administrated to 70 students at middle school. Split half reliability was calculated using Spearman Brown coefficient. The reliability coefficient of the test was found by 0.68.

Preparation of the final draft - The final draft of the test was prepared which contained 70 items. Dimension wise breakup is given in the following'

TABLE 1.2 -Description and scoring of the Tool

Preparation of test items	Listening	Speaking	Reading	Writing	Total
First draft	22	17	20	21	80
Second draft	21	17	19	18	75
Final draft	20	17	18	15	70

The Language Acquisition Tool constructed by the investigator contains 70 items in all. For every correct answer, the student was given 1 mark, and zero marks were awarded for incorrect answers. To assess the Speaking Skill of the students, an assessment matrix was prepared on the basis of expert opinion.

2.0 ANALYSIS OF DATA

Distribution of Scores

The analysis of the data was performed by various statistical measures and visual interpretation. It was found that the data for the variable language Acquisition was drawn from the population which is normally distributed. The distribution of scores obtained was organized on the basis of the norms developed for the test.

Test for normality of data

The prior assumption for parametric statistics is that data should be normal. Normality was checked in both qualitative and quantitative manner. Skewness and kurtosis were used to assess normality of distribution.

Table 2– Skewness and Kurtosis for Normality Assessment

NUMBER OF SAMPLE	MEAN	STANDARD DEVIATION	SKEWNESS	KURTOSIS
N=30	Pre-test 36.4667	Pre-test 6.6578	Pre-test -0.5845	Pre-test 0.3668
	Post-test 56.7333	Post-test 7.1964	Post-test -0.7554	Post-test 0.3298

2.1 ANALYSIS AND INTERPRETATION OF DATA

The researcher carried out objective wise analysis of data and Interpretation of results.

Objective 1. To develop Mind Maps for language Curriculum at the Middle level.

To fulfill this objective, the researchers developed 15 lesson plans based on mind mapping under the guidance of subject experts. Every lesson plan consisted of different types of mind maps for teaching English language. The different types of mind map were used like bubble map, strategy map, tree map, brainstorming mind map, flow map, brace map and others.

Objective 2. To study the effect of Mind Mapping on Language Acquisition of Middle level Students.

To measure the effect of Mind Mapping on Language Acquisition, a self- constructed questionnaire was used before teaching students specifically with mind mapping. Then after the intervention the same questionnaire was administered again to the students. The language acquisition scores gathered at both pre-test and post- test stages of the study language acquisition among middle level students was represented in the form of Mean, Standard Deviation and T-Test.

Description of pre- test scores

Quantitative Analysis of the Data obtained on Pre-test: For fulfilling the objectives, Survey was conducted by administration of self -constructed questionnaire on 30 students of class 6th of Middle level school. The researcher obtained the scores and classified them into the class- intervals. The obtained result is described in the table given below.

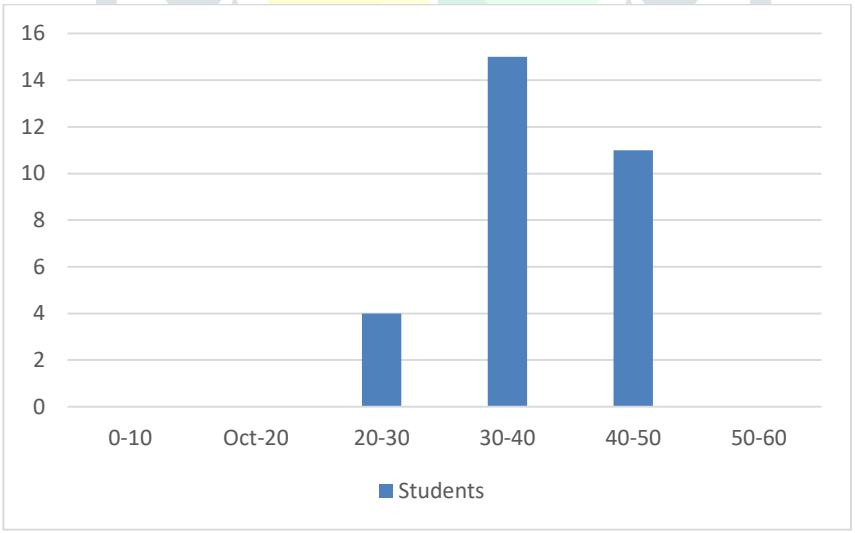

Figure 2.1– Pre- test Exhibiting the frequency Distribution of Scores of Language Acquisition

The above table and graph show the distribution of scores of pre-tests obtained by the students. The maximum numbers of scores lie in the class interval 30-40. The minimum scores were obtained in the class Interval 20-30. The distribution shows that more scores are concentrated at the higher end while fewer scores are found at lower end of the distribution. After classification of the scores, first priority of the researcher was to check the normality of the data for using the statistical techniques for analyzing and interpreting the data.

Description of post – test scores

Quantitative Analysis of the Data obtained after Post-test: For fulfilling the objectives, Survey was conducted by administration of self -constructed questionnaire on 30 students of class 6th of Middle level school. The researcher obtained the scores and classified them into the class- intervals. The obtained result is described in the table given below.

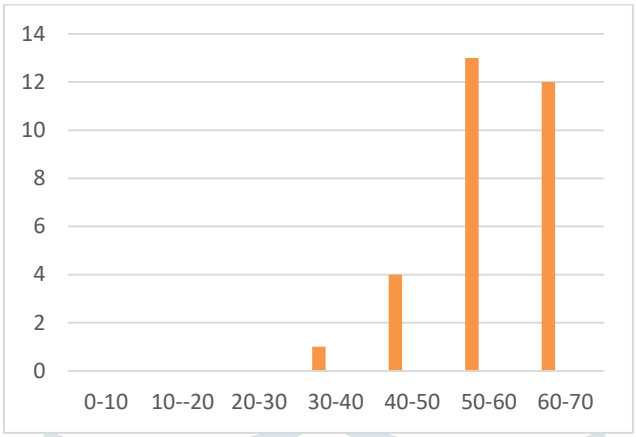

Figure 2.2- Post -test Frequency Distribution of Scores on Language Acquisition

Comparison of means of pre-test and post-test scores.

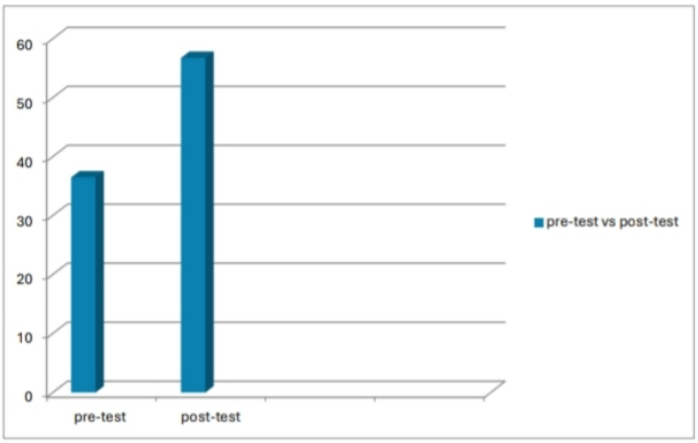

Figure 2.3 – Comparison of mean of Pre-test and Post – test scores

Figure 2.3 clearly shows mean difference of scores on language Acquisition of grade 6 students mean before the intervention and when the researcher applied their intervention in the form of lesson plans based on mind mapping method.

Table 2.1 - Mean, Standard Deviation and t- test of before and after intervention of mind Mapping.

Phase	Number of students	Mean	Standard Deviation	T- Test	Significance Level
Before Intervention	30	36.4667	6.6578	11.40	Significant at 0.01 Level
After Intervention	30	56.7333	7.1964		Significant at 0.01 Level

Testing of Hypothesis

The above table depicts that the difference between Mean scores of language Acquisition t- value is 11.40 which is more 2.39 (.01 level of significance), hence So, the alternative hypothesis that, '**there exists significant effect of Mind mapping on language Acquisition at the middle level students is Accepted'**.

3.0 FINDINGS OF THE STUDY

The main finding of the study is that Mind Mapping can be an effective tool to build language Acquisition at the middle level students. This can be seen through the scores achieved by students in the pre-test and post – test of the dependent variables, which vary to greater extent and hence the researcher concluded that use of mind mapping can be an effective method of teaching at middle level.

Some implications of the study in relation to mind mapping are as follows-

- It facilitates better understanding.
- Develops imagination skills.
- Sharpens problem solving and analytical ability.
- Rote learning is discouraged.
- Inspires the students to apply their creative ideas, knowledge and minds in solving problems as well as promoting competitive spirit among them.
- Makes learning more Interesting, Practical, Realistic and Appealing.
- It enables both the teacher and student to participate actively and effectively in Classroom.
- Teaching with educational games proved to be a better mode of teaching learning process than the traditional method.
- It can be used for almost all learners with different styles of learning.
- Found to be feasible and applicable for teaching at middle level.

4.0 CONCLUSION

Mind mapping can be an effective tool for many learners. By promoting activity engagement, memory retention, creativity and personalization. Mind map can help learners to acquire language in a way that is both effective and enjoyable.

According to Dr. Lynell Burmark, an education consultant, words are processed by our short-term memory where we can only retain about seven bits of information, and images; on the other hand, go directly into long term memory where they are indelibly etched. Mind mapping is a uniquely elegant learning strategy because it seamlessly integrates linear, convergent (left-brain) thinking with divergent, non-linear (right-brain) thinking. In evidently, it promotes-

- Increase Student Engagement.
- Increase Student Comprehension and Performance.
- Encourage Students towards Intrinsic Motivation.
- Incite Critical and Analytical Thinking.
- Stimulate Interest in Language Learning.

The Significance of the study lies in the fact that it will enable Teachers, Parents and Students to learn that-

- Visual learning proves to be a better Learning Tool and It improves your capacity to learn.
- It Simplifies the Learning Process. It helps you to interact with teachers and eases your learning experience. You can learn complex topics in a simpler form.
- It works as emotional stimulators. When visual images are linked to emotions in the human brain they are referred to as memories. That's the reason why visual content or any images create long-lasting memories.
- Moreover, it has improved accessibility and is a cost-effective method of teaching-learning.

The importance of mind mapping technique in the development of learners' intellectual abilities and attainment of teaching/learning objectives cannot be over-looked. The students taught with mind mapping technique have excellent achievement scores compared with those taught by traditional method. If mind mapping technique is introduced in the school curriculum, then it will be a bold step towards child centered education. Students will get ample opportunities to use their imaginative, creative and intellectual powers. From the teacher's point of view too, this program will prove helpful as the teacher can rely on it to make the learning interesting and permanent.

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