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EFFECTIVENESS OF BRAIN-BASED LEARNING METHOD AND CONVENTIONAL METHOD IN THE TEACHING OF ENGLISH AT SECONDARY LEVEL IN PAKISTAN

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ABSTRACT

The purpose of this study was to determine the effect of Brain-based learning (BBL)and conventional method on the performance of secondary school students in English. The objective of the study was to measure the academic achievement of students, evaluating the effect of BBL and Conventional methods through pre-test and post-test scores. The study group consists of grade nine students from Secondary level at Govt. Girls Model High School, Mianwali. The research participants were randomly organized into two groups which were named experimental (n=32) and control (n=32). The brain-based learning approach served as instruction for the experimental group while the control group received standard teaching methods. Researchers applied a t-test analysis for statistical comparison between mean values using the non-equivalent experimental design. The obtained "3.14" t value demonstrates the superior effectiveness of BBL teaching over traditional instructional methods. Results of the study revealed that the experimental group showed better academic performance than that of control group after the experiment. Therefore, adopting the BBL method at the secondary level is recommended to improve students' marks in English.

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INTRODUCTION

Background of the Study

Pakistan recognizes English as its second official language while it holds a globally vital position. Higher education instruction uses English as its main medium while English maintains its vital position throughout all areas of communication and business and governmental operations. However, despite its significance, many students in Pakistan struggle with English language acquisition, particularly at the secondary level. The learning situation in rural areas becomes worse because traditional teaching methods prevail while the English education quality remains limited. Traditional English teaching which requires rote memorization and teacher-centered learning fails to create meaningful classroom experiences (Hattie, 2019). The Brain-Based Learning method introduces new standards through cognitive neuroscience principles in education. BBL strives to construct purposeful and student-oriented classrooms that function based on brain mechanisms of information learning and storage. BBL comes with a set of strategies that combine physical activity with emotional engagement and problem-solving activities alongside active student participation (Sousa, 2017) in order to Conventional Methods' weaknesses. Research indicates that BBL improves student designate, memory capacity

and total scholarly achievements especially within language learning (Caine & Caine, 1995; Greenfield, 2021).

The educational field of neuroscience is known as brain-based learning (BBL). Brain-based learning depends on biological learning mechanisms where understanding neuroscience works with educational practices to optimize brain learning abilities by using three main aspects: complex environment immersion and relaxed alertness and active information processing (Rodgers, 2015). BBL produces better learning abilities together with deepened understanding when contrasted with traditional chalk-and-talk methods. (Rehman, 2011). The implementation of Brain-Based Learning methods produces notable improvements in student learning activities and results specifically within the context of second-language English instruction according to Hattie (2019) and Gómez-Pilar et al. (2017). Research suggests that widespread use of the Conventional Method does not match its impact on student participation or prolonged learning retention according to Greenfield (2021). Today Brain-Based Learning serves as a prominent breakthrough learning approach which uses neuroscience principles to improve student educational outcomes. The major objective of BBL strategies consists of establishing active learning settings that support brain functionality during information processing and retention (Sousa, 2017). The effectiveness between Brain-Based Learning (BBL) and conventional teaching practices is discussed in this research for English education at the secondary level in Pakistan.

Statement of the Problem

The current educational techniques fail to help many Pakistani secondary school students achieve mastery in English language skills. The existence of BBL alongside other alternative teaching methods becomes obvious since these educational approaches develop better learning environments. A teaching plan emerged from research literature that utilized information about human brain operation to enhance brain function naturally. This method is called the Brain-Based Learning (BBL) teaching method based on BBL theory. This theory suggests that students should be provided with a safe, threat-free environment and meaningful presentation of content to prepare the learners' brains to store, process and retrieve the information smoothly. Therefore, the rationale behind conducting this research was to analyze the effectiveness of conventional methods and brain-based learning methods on students' academic achievement and to find out the effectiveness of this approach in the Pakistani context, along with the utility of applying this method in our classrooms. This study seeks to evaluate whether BBL can outperform the Conventional Method in terms of improving academic achievements and language proficiency among secondary school students in Pakistan.

Research Objectives

The primary objectives of this study was:

To determine the level of brain-based learning method and conventional method on learners at secondary level.

To examine the correlation of pre-test and post-test score of "control group" and "experiment group".

To measure the achievement of students in English language before and after the treatment.

Research Hypothesis

$H_0$2"There is no significant difference in the mean value of the responses of experimental and control group of academic achievement scores on pre-test before the treatment."

$H_0$3: "There is no significant difference in the mean value of the responses of experimental and control group of academic achievement scores on post-test after the treatment."

Significance of the Study

This study is significant because it will provide insights into the effectiveness of Brain-Based Learning compared to traditional teaching methods in the context of Pakistan. The findings could influence teaching practices and contribute to the development of more effective language teaching strategies that align with how the brain processes and retains information. The BBL teaching method may replace rote learning and verbatim reproduction of content with understanding. through concept-based teaching and learning process.

LITERATURE REVIEW

The effectiveness of various teaching methods has been a central focus of educational research, particularly in language acquisition. The two main educational methods include Brain-Based Learning (BBL) and the Conventional Method. Learning processes benefit from neural research findings under

the framework of Brain-Based Learning. The Conventional Method maintains traditional teaching methods that combine rote learning and teacher-driven instruction. The research review analyzes studies which assess the two methods with emphasis on their application in secondary-level English instruction.

Theoretical Framework

Brain-Based Learning draws its concepts from cognitive neuroscience to establish that effective teaching strategies need to match brain information processing mechanisms. The approach states that teachers should base their practices on understanding brain functions which include memory retention and problem-solving in addition to emotional engagement (Sousa, 2017). Jensen (2005) demonstrates in his writing that BBL confirms emotions stand as essential components for education. The level of emotional interest a student has in their schoolwork positively affects their ability to remember what they learn. The teaching techniques in BBL establish classrooms that promote active student-content interactions using hands-on tasks combined with group assignments and educational technology implementation. The sensory activities students engage in through these methods strengthen their brain functions because they reach different learning areas. Multiple cognitive pathways activate through the combination of visual aids combined with kinesthetic activities and real-word applications in educational settings according to Sousa (2017).

The Conventional Method implements a structured teacher-based teaching design which differs from the SDLC approach. According to traditional educational techniques students learn by listening to lectures while reading textbooks and practicing memorization. Through research by Hattie (2019) it is known that instructional approaches which focus on factual acquisition prove successful but researchers commonly point out their poor effectiveness in activating student participation in educational processes. Through this method the instructor transmits information instead of allowing students to build knowledge themselves. A number of scholars suggest that traditional teaching methods can produce both discipline and subject fundamental understanding when designed appropriately according to Greenfield (2021). Although BBL and the Conventional Method share the same teaching objective to produce effective learning results they differ completely in methodology. Through BBL students become actively involved while forming emotional relationships with the material but the Conventional Method solely delivers information which students must memorize. Studying the brain process changes and student learning effects of these approaches helps identify the most beneficial instructional method for middle school English education.

Review of Related Studies

Brain-Based Learning in Language Acquisition

Many studies explore Brain-Based Learning (BBL) effectiveness in different educational environments and particularly in language learning situations. The author Jensen (2005) demonstrates that active learning combined with peer interactions and multisensory activities functions as vital elements for deep learning in Brain-Based Learning (BBL). Jensen explains that active student involvement in varied learning activities including drama sessions and group discussions and hands-on activities leads to better brain-related information retention. The immersive style of BBL techniques works best for language learners because they need interactive learning environments to succeed. The research from Sousa (2017) shows that BBL takes advantage of human brain functions for learning through multiple senses. The implementation of auditory visual and kinesthetic approaches in language education produces major improvements in students' vocabulary strength and their reading abilities. According to Gómez-Pilar et al. (2017) students learned to improve their listening and speaking fluency when teachers applied BBL techniques in their English lessons. Students who received BBL instruction demonstrated superior vocabulary and grammar rule retention according to Baird (2020). Students demonstrated better retention because lessons at Jawzjan High School built emotional bonds during classes which allowed them to make personal connections between their life experiences and language skills. The observed results demonstrate that BBL enables superior academic results as well as improved student well-being in English language education classrooms.

The Conventional Method and Its Effectiveness

Teachers commonly douse the Conventional Method with criticism because it lacks student engagement yet this pedagogical approach succeeds in educational situations. Structured organizational

features in this method assist students who learn best with organized study environments. According to Smith (2021) the Conventional Method produces optimal results when students maintain good preparations for their lectures along with their assignments. The proper application of traditional learning methods develops essential foundational knowledge that serves as a basis for additional academic learning. There are multiple recognized disadvantages associated with this teaching method. Greenfield (2021) states that memorizing through rote learning combined with teacher-led instruction fails to develop critical thinking abilities that second language mastery requires. The Conventional Method prioritizes memorization and does not emphasize active student participation because of which students usually fail to acquire important competencies needed to solve problems and implement language skills outside the classroom.

Some research evidence shows conventional learning methods succeed under specific circumstances. The study carried out by Rahman and Noor (2020) revealed that students who attended structured conventional English courses achieved better vocabulary retention and reading skills within their disciplined learning situation. The research revealed that students demonstrated lower engagement levels and faced limited possibilities to connect with friends or use their gained knowledge for actual cases. The Conventional Method proves effective yet fails to develop higher-order thinking skills and full language mastery in all teaching environments. 2.2.3 Comparative Studies of BBL and Conventional Methods The implementation of direct research about Brain-Based Learning as compared to Conventional Methods stands as a major scholarly deficit when analyzing English language education at the secondary school level. The effectiveness distinction between these two approaches remains unclear because few studies exist which compare their direct result metrics. Hattie (2019) conducted research which demonstrated that student achievement depends heavily on student engagement plus classroom interactions. The teaching strategy of BBL promotes emotional student engagement and interactive content learning which backs up the findings of Hattie (2019). Student engagement stands lower when using traditional learning methods because they remain passive which leads to decreased success in language acquisition.

The research conducted by Choudhary and Khalid (2021) demonstrated that students achieved better English proficiency through BBL and Conventional Methods yet BBL teaching techniques led students to make enhanced progress in speaking and writing skills especially regarding fluency and vocabulary utilization. Student involvement in active learning as promoted by BBL produced superior improvements in their language skills than traditional methods focused on passive involvement.

Gaps in the Literature

Although numerous studies have explored the effectiveness of Brain-Based Learning (BBL) and Conventional Methods separately, there is a limited body of research that directly compares these two methods within the context of English language instruction at the secondary school level, particularly in Pakistan. Most of the research on BBL has been conducted in Western educational contexts, and while some studies have applied BBL principles in Pakistani classrooms, these studies have generally focused on subjects other than English.

Additionally, while the Conventional Method is widely used in Pakistan, studies on its effectiveness in language teaching are often outdated and do not consider more recent developments in educational theory and practice. Therefore, this study aims to fill these gaps by providing a comparative analysis of BBL and Conventional Methods in the teaching of English, focusing specifically on their impact on secondary school students in Pakistan.

METHODOLOGY

Research Design

This study employs a quantitative experimental research design. A pretest-posttest nonequivalent experimental design was used. The experimental design allows for a controlled comparison of the effectiveness of BBL and the Conventional Method. The accessible population was all the secondary students of Govt. Girls Model High School Mianwali. The 64 students were selected as a sample through purposive sampling technique. One of the class served as the experimental group that used brain-based learning (N=32) while the other was control group that used conventional teaching method (N=32). The researcher used a research tool that was Academic achievement test. The test was prepared after going through the relevant literature. First five chapters of the book of Engish published by Text Book Board Punjab were selected to teach to both groups the researcher visited the Govt, Girls,

Model, High, School Mianwali personally, and teach the experimental group through Brain based learning Method, lesson plans for each unit were developed and conducted the Academic test. Data were collected through academic achievement test. After collecting data, it was tabulated and analyzed with statistical techniques. Such as frequencies, mean scores, Standard deviation, t-test, and Correlation Techniques.

Results

$H_0$2"There is no significant difference in the mean value of the responses of experimental and control group of academic achievement scores on pre-test before the treatment."

Table 2

Group	N	Mean	SD	*T*	df	Sig. (2-tailed)
Experimental	32	10.13	3.481	-1.100	29	.280
Control	32	11.07	3.162			

Table 2 shows that the pre-test scores of both groups were approximately the same. The mean of control group was11.07 and the experimental group was 10.13. Similarly, the t-values of both groups indicate that the students in control and experimental groups have equal abilities on pre-test results. The t value (-1.100) was not significant at (α=0.05) level of significance. Therefore, the null hypothesis stating that

> "There is no significant difference in the mean value of the responses of experimental and control group of academic achievement scores on pre-test after the treatment"

was failed to be rejected and it was concluded that both the groups were equal in their academic performance in the subject of English before the experiment. So, we concluded that there was no difference found between the two groups of BBL.

$H_0$3: "There is no significant difference in the mean value of the responses of experimental and control group of academic achievement scores on post-test after the treatment."

Table 3

Group	N	Mean	SD	t	df	Sig. (2-tailed)
Experimental	32	20.2000	5.88042	3.94	29	.000
Control	32	14.6000	5.79893			

Table 3 shows mean academic achievement scores of experimental and control group after experiment were disclosed in table 4.43 where we got that at (a=0.05) level of significance, t-value (3.94) is significant, hence the acquired mean scholastic achievement scores of experimental and control groups reject the null hypothesis that states, "there is no significant difference in the mean value of the responses of experimental and control group of academic achievement scores on post-test after the treatment" As it was speculated and observed that experimental group shows better scholastic efficiency than control group after the treatment. So, it could be concluded that there was significant difference in the mean Academic achievement scores of both groups examine the difference of responses towards BBL.

DISCUSSION & CONCLUSION

Brain based learning is a learning approach that depends on the structure and capacity of the human mind, it is diverse than customary strategies and it stresses important learning rather than retention whereas Conventional method of teaching that is though very common in Pakistani Schools but it apparently ignores the creative ability of students, consequently it promotes rote memorization on part of the students. It does not involve students in creative thinking and participation in the recreation activities. On the contrary methods that promote brain-based learning on part of students encourage them to bring innovative ideas and participate in creative activities. This study aims to contribute valuable insights into the comparative effectiveness of Brain-Based Learning and the Conventional Method in the teaching of English at the secondary school level in Pakistan. BBL method was more effective than conventional teaching method so it could be concluded that there is significant difference in the mean scholastic achievement scores of both groups examine the difference of responses towards BBL. The students of experimental group performed significantly better than those of control group on the post-test which proved that teaching of BBL is more effective than the conventional teaching method. So, in a nutshell there was a significant relationship between the pre-test scores of experimental group and control group and post-test scores of experimental group and control group. The conclusions drawn from this study are inform educators and policymakers about the potential benefits of adopting more innovative, brain-based teaching strategies to improve English language instruction.

Recommendations

Teachers now days may introduce only to conventional teaching method and must practicing the same so they should be trained to teach students, using BBL teaching method and for this purpose, workshops and refresher courses should be arranged so that they may know and use BBL teaching method which may be more effective. Financial and academic sources should be provided to the schools so that BBL teaching method can be implemented and used in more interesting way while using tools like projector, multimedia etc.

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