



The Effect of Application of Crossword Puzzle Learning Strategy on Student Learning Outcomes

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Article Info

Article history:

Received 02 July 2021

Received in revised form 21

July 2021

Accepted 13 August 2021

Keywords:

Learning Outcome

Teaching Method

Student

Abstract

The function of the crossword puzzle itself is to develop brain nerves that have a refreshing effect on memory, allowing the brain's work function to return to its optimal state because the brain has become accustomed to continuously learning in a relaxed manner. The design of this study is a pre-experimental research design of the type One-Group Pretest-Posttest Design, which is used in pre-experimental research. Because the outcomes of the therapy may be compared to the circumstances before to treatment, the results of the treatment can be known with more accuracy in this research (treatment). The percentages of student learning objectives that were acquired are: low at 6.67%, moderate at 16.67%, high at 40%, and very high at 16.67%. Based on the data gathered, it can be stated that, on the whole, adopting the Crossword Puzzle learning method has a notable effect on students' learning outcomes, as 36.67% of students achieved this level, and 46.67% of students attained this level.

Introduction

A teacher's professional competence, that is, the ability to digest information and to create an engaging and enjoyable learning experience, is essential for ensuring that students are passionate about their classes and the learning process as a result of their participation. In an ideal learning environment, students are encouraged to observe the truth of their surroundings and are provided with experiences that make a lasting impression on their brains throughout the learning process. Students are encouraged to go immediately to the surrounding region in order to notice facts and engage in the most efficient use of natural resources possible (Lemov, 2021).

It is possible that poor learning results obtained by pupils are not entirely due to the capacity of the students, but are partly due to the inability of instructors to be effective in their classrooms. Because one of the teacher's responsibilities is that of a teacher who places a strong emphasis on the job of preparing and executing instruction. Teachers are needed to have a certain set of expertise and technical teaching abilities in this situation, in addition to understanding the information or contents that will be presented to students (Ottenbreit-Leftwich et al., 2010).

The function of the crossword puzzle itself is to develop brain nerves that have a refreshing effect on memory, allowing the brain's work function to return to its optimal state because the brain has become accustomed to continuously learning in a relaxed manner. This is accomplished through the completion of the puzzle. pupils' ability to retain information so that they do not quickly forget the stuff that has been given to them

During the learning process, there are three major components that interact with one another and affect one another's performance. Learning circumstances, learning techniques, and

learning outcomes are the three components that make up a learning environment (Huang et al., 2014; Kintu & Zhu, 2016). When it comes to the three components, the instructor must be able to integrate and develop them in order for learning activities to provide the best possible outcomes. As a result, with the supply of the talents and skills held by the instructor, it is anticipated that the teacher would be able to make learning more engaging and enjoyable, thus achieving the best possible learning results.

There are three Bloom-identified domains that students may participate in: cognitive domains, emotional domains, and psychomotor domains (Kumar et al., 2010). Cognitive domains, affective domains, and psychomotor domains. Students may gain knowledge in these three areas via participation in teaching and learning activities (Kasilingam & Chinnavan, 2014). The cognitive, emotional, and psychomotor domains were assessed in this research since they were shown to be linked to the students' capacity to grasp the subject matter under consideration.

Following the findings of initial observations, teachers continue to use traditional learning models such as lectures, in which teachers take notes on the blackboard and students copy what the teacher writes, in which teachers rarely give feedback with students, in which learning is monotonous, causing students to be passive, and in which teachers rarely give feedback. Following the findings of initial observations, Because of the use of learning material and the infrequent use of games in learning, the role of learning is increasingly held by the instructor, causing pupils to get bored, resulting in a reduction in student learning success.

If such circumstances continue to exist, the objective of education will be much farther away from being accomplished than it now is. Developing more engaging learning methods is essential in order to overcome this difficulty (Croft et al., 2010). The crossword puzzle technique is one of the learning methods that has been identified as being appropriate for addressing the issues listed above (Franco & DeLuca, 2019). In this kind of game, this technique is incorporated, and it is often used in magazine or newspaper interludes, which are typically done not just to occupy free time, but also to load the brain with information. Crossword puzzles, which were initially intended to be used to pass the time, may now be used to practice questions with students in the hopes of capturing their attention and developing their interest in the subject matter.

Crossword puzzles are made up of squares that cross between rows of squares that are arranged in descending and horizontal order (Wootton & Horne, 2012). The responses to the fields must be same, as well as matching the number of boxes that are accessible. This filling is based on statements or issues that have been provided regarding the lesson in question. Crossword puzzles are included in this type of game and are widely used in interludes in magazines or newspapers, which are typically done to fill spare time but also to sharpen the brain. Crossword puzzles are a type of game that is included in this type of game and is widely used in interludes in magazines or newspapers, which are usually done to fill spare time but also to sharpen the brain.

Originally, the crossword puzzle was simply intended to be used to pass the time. When students have free time, it may be utilized to practice questions with them in the hopes of drawing their attention and encouraging their desire in learning more. Crossword puzzles, which need active student involvement from the start of the learning sessions. Students are encouraged to take part not just intellectually but also physically in the activity (Morton et al., 2010). Furthermore, the Crossword Puzzle is a learning method that may be used to review the contents that have been given to the student. This review is beneficial in that it makes it simpler

for pupils to recall the information that has been presented. Consequently, pupils are able to meet their learning goals in terms of cognitive, emotional, and psychomotor components

Methods

Within the context of controlled circumstances, this study involves conducting an experiment to determine the impact of various therapies on other individuals. The design of this study is a pre-experimental research design of the type One-Group Pretest-Posttest Design, which is used in pre-experimental research. Because the outcomes of the therapy may be compared to the circumstances before to treatment, the results of the treatment can be known with more accuracy in this research (treatment). The saturation sampling method is used in this research. The learning outcomes assessments and student activity observation sheets that were utilized in this research were the instruments that were used. It was decided to utilize the pre-test and post-test data collecting techniques in this research.

Descriptive and inferential statistical analysis will be performed to evaluate the data collected from the study findings in order to make conclusions about them. The data gathered in the form of pretest and posttest scores were then compared to each other to determine the outcome. The two values are compared by posing the question of whether there is a difference in results between the pretest results and the post test results. In order to test for differences between two values, it is necessary to apply an analysis method known as t-test (t-test) in order to compare the averages of the two data points. So, the experimental data analysis processes begin with the experimental model One Group Pretest Posttest Design, which is followed by the experimental data analysis steps

Results and Discussion

Description of Pretest Results before applying the Crossword Puzzle learning strategy

Table 1. Calculations to find the mean value of the pretest

X	F	F.X
30	2	60
40	5	200
50	4	200
60	2	120
65	9	585
75	3	225
80	4	320
90	1	90
Total	30	1800

From the results of the above calculations, the average value of student learning outcomes in the application of the Crossword Puzzle learning strategy is 60.

Table 2. Pretest level of learning outcomes

Interval	Frequency	Percentage (%)	Learning Outcome
0–30	2	6,67	Very low
31 – 40	5	16,67	Low
41– 60	6	20	Currently
65– 75	12	40	Tall
85– 100	5	16,67	Very high
Total	30	100	

Based on the data presented in the preceding table, it can be concluded that student learning outcomes at the pretest stage using the test instrument are classified as very low, with a percentage of 6.67 percent, low, with a percentage of 16.67 percent, moderate, with a percentage of 20 percent, high, with a percentage of 40 percent, and very high, with a percentage of 16.67 percent. Taking a look at the outcomes of the current percentages. It is possible to say that the level of learning outcomes was poor prior to the implementation of the crossword puzzle learning method.

Table 3. Description of Complete Learning Outcomes

Score	Category	Frequency	%
$0 \leq x < 70$	Did not Pass	22	70
$70 \leq x \leq 100$	Passed	8	30
Total		30	100

Consider this scenario: If the table labelled Table 3 is related to the researchers' indicators of student learning outcomes, as established in the researcher's study findings. 30 pupils reached or above the completeness standard value of 70, thus it can be stated that student learning outcomes have not satisfied the mastery learning outcomes criterion.

Description of Learning Outcomes after the implementation of the Crossword Puzzle learning strategy

Table 4. Calculations to find the post-test mean score

X	F	F.X
60	1	60
65	4	260
75	4	300
80	10	800
85	1	85
90	7	630
100	3	300
Total	30	2435

The aforementioned computation yielded the average learning outcome score of 81.17 from an ideal score of 100.

Table 5. Level of learning outcomes Post-test

Interval	Frequency	Percentage (%)	Learning Outcome Category
0–30	-	0,00	Very Low
31–60	1	3,34	Low
65– 70	4	13,34	Moderate
75–80	14	46,67	High
85 – 100	11	36,67	Very High
Total	30	100	

Based on the data presented in the table above, it can be concluded that test results in the post-test stage show that student learning outcomes are categorized as "very high", which are 36.67% of the total, "high" with 46.67% of the total, "medium" with 13.34% of the total, "low" with 3.34% of the total, and "very low" with 0.00% of the total. It may be stated that the degree of student outcomes after using the Crossword Puzzle learning method is equal to or slightly above that of the general population.

Table 6. Description of Complete Learning Outcomes

Score	Category	Frequency	%
$0 \leq x < 70$	Did not pass	5	20
$70 \leq x \leq 100$	Passed	25	80
Total		30	100

Total will be (a) with researcher-set criteria for the indicators of student learning outcomes completion criteria, and (b) The number of students who complete the indicators of student learning outcomes will be (is) in accordance with the criteria established by researchers (70). To draw this conclusion, it may be argued that 80% of the students who finish the program have achieved mastery.

The Effect of Implementing Crossword Puzzle Learning Strategies on Students

Following the study hypothesis, which states that "the implementation of the Crossword Puzzle learning method has an impact on learning outcomes," the approach utilized to test the hypothesis is inferential statistical techniques, specifically the t-test, which is a kind of statistical technique.

After getting $t_{\text{Count}} = 8.20$ and $t_{\text{Table}} = 2.045$, it is possible to achieve $t_{\text{Count}} > t_{\text{Table}}$ or $8.20 > 2.045$ by reversing the procedure. Consequently, it may be inferred that H_0 is rejected whereas H_a is approved. This indicates that the application of the Crossword Puzzle learning method to the learning outcomes has an impact on the learning outcomes (Abdulmajed et al., 2015).

A pre-test revealed that the average value of student learning outcomes was 60, with categories such as very low, which represented 6.67 percent of the total, low (16.67 percent), moderate (20 percent), high (40%), and very high (16.67 percent) representing 16.67 percent. Based on the findings of the existing percentages, it can be concluded that the level of student learning outcomes was poor prior to the implementation of the Crossword Puzzle learning method (Shawahna & Jaber, 2020).

The average value of the post-test results was 81.17, indicating that the learning outcomes were improved after the deployment of the Crossword Puzzle learning strategy as compared to before the implementation of the Crossword Puzzle learning strategy. Additionally, the proportion of student learning outcomes improved, with the highest being 36.67 percent, the highest being 46.67 percent, the medium being 13.34 percent, the lowest being 3.34 percent, and the lowest being 0.00 percent.

When inferential statistical analysis is performed using the t-test procedure, it can be observed that the values of $t_{\text{Count}} = 8.20$ and $t_{\text{Table}} = 2.045$ resulted in $t_{\text{Count}} = 8.20$ and 2.045 respectively, which means that the value of $8.20 > 2.045$ or $8.20 > 2.045$ was achieved. As a result, it may be inferred that H_0 is rejected and H_a is accepted, indicating that the implementation of the Crossword Puzzle learning method has an impact on student learning outcomes.

Conclusion

On the basis of the collected data, it can be concluded that, as a rule, the Crossword Puzzle learning method produces poor student learning results. The percentages of student learning objectives that were acquired are: low at 6.67%, moderate at 16.67%, high at 40%, and very high at 16.67%. Based on the data gathered, it can be stated that, on the whole, adopting the Crossword Puzzle learning method has a notable effect on students' learning outcomes, as 36.67% of students achieved this level, and 46.67% of students attained this level.

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