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How the active learning method affects students' desire to learn

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ABSTRACT

Researchers found that a mean score of 12.24 was achieved when measuring the level of student enthusiasm to learn while using an active learning strategy. Students whose education follows the traditional model report an average (mean) level of motivation to learn of 11.2. The "t" test's calculations led to the following results: $t_{count} = 3.49$, and $t_{table} = 2.01$ for the price. If the number of students taught using an active learning strategy is larger than the number of students taught using a traditional learning approach, then Ho might be rejected. Therefore, this study has successfully demonstrated that the active learning technique, as opposed to the conventional learning approach, increases student learning motivation.

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1. INTRODUCTION

Children's future lives will be impacted by the lessons they acquire while they are still growing and developing (Masten & Coatsworth, 1998) (Masten & Coatsworth, 1998). The family environment is the first setting that affects a child's education. The community is a further setting that serves as a location for education outside the home, and the "school" environment, which is a formal setting that in this case is typically carried out in a particular institution and has a set curriculum, also plays a part in children's education (Neuman & Roskos, 1993) (Sylva et al., 2004).

Education is a major priority for society in nations that have evolved or have achieved political and religious stability (Clancy & Goastellec, 2007). Even at the time of the first spacecraft's launch, the majority of people in the globe were not only worried but also extremely worried about education. The role and goal of education became a topic of discussion (Aronowitz & Giroux, 2003).

Education is an intentional and organized attempt to create a learning atmosphere and process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation, and State. Education is arranged by role models, independence, willingness, and creativity (Cropley, 2001)(Taneja, 1995).

The world's youth need education. Word education develops students' capacity to become human beings who are devout and committed to God Almighty, noble, healthy, knowledgeable, capable, creative, independent, and democratic and responsible citizens (Axelrod, 2002). The government requires all youngsters to study to achieve these goals. Math, language, morality, social

science, natural science, sports and health, and other science education are offered to the community (Maosen, 1990) (Woolman, 2001)(Rothstein & Jacobsen, 2006).

In the teaching-learning setting in schools, we frequently run into a number of issues (Elmore, 1995) (Marchesani & Adams, 1992) (Becker, 2000) (Hytti & O'Gorman, 2004) (Vermunt, 2007). Despite receiving great scores in a number of areas, students often struggle to apply their acquired information, abilities, and attitudes in other contexts (Isabelli-García, 2006). Students do have some knowledge, but a lot of it is information that they learn from teachers because they are not used to looking for information or knowledge on their own (Pintrich, 2002) (Barton & Levstik, 2004) (Franke et al., 2001) (Prosser et al., 1994). As a result, the information has no practical application (Burnham & Anderson, 1998).

The fact that some teachers use traditional teaching methods has an impact on teaching and learning activities as well (Supovitz & Turner, 2000) (Kumaravadivelu, 1994) (Kennedy, 1999) (Kwakman, 2003). Such as dull teaching methods and educational activities that increase pupils' likelihood of becoming disinterested in their studies Many parents of students who have children that struggle and are disinterested in learning have also said this (Olivos, 2004). This traditional method encourages teachers to employ a lot of lectures, question-and-answer sessions, and assignments, making teaching and learning activities more teacher-centered and preventing students from actively participating in learning activities (Oermann, 2003) (Duman, 2006) (Lewis & Reinders, 2007). As a result of their increased passivity, pupils' motivation to learn may be declining. Improvements are therefore required in order for the learning objectives of mathematics to live up to expectations (Dornyei & Ottó, 1998) (Chiu et al., 2007) (Baillie & Fitzgerald, 2000). For instance, when choosing strategies, tactics, or even learning methodologies (Chamot, 2004) (Chamot, 2005) (Oxford, 2003). An effective method to use in learning is active learning. A learning process known as an active learning approach centers all learning activities on the students so that they can directly experience the teaching and learning process. This active learning strategy is intended to engage pupils and help parents of less-motivated students (Serbessa, 2006) (Carroll & Leander, 2001) (Ramsier, 2001) (Bastian et al., 1997). Thus, the author wants to determine how active learning affects student motivation.

2. RESEARCH METHOD

This study used quasi-experimental research (Eliopoulos et al., 2004) (Harris et al., 2006) (Thompson & Panacek, 2006) (Ronan & Johnston, 2003). This study spanned 1998–2005. This study used two groups, the experimental and the control, with 50 people per experiment every year from several schools that alternated. 25 students comprised the experimental and control groups. The experimental class uses the Active Learning Approach, while the control class uses standard approaches. Two-Group Randomized Subject Post-Test Only was the research design.

Table 1. Research Design

Group	Treatment	Questioner
(R)E	XE	T
(R)K	-	T

Description: X_E: Experimental group treatment, E: Experimental Group, K: Control Group, T: The same questionnaire in both groups, R: The process of selecting subjects randomly In this study, the authors took two variables, namely: Independent variable (X): Active Learning Approach. The dependent variable (Y): Students' Mathematics Learning Motivation

Collection Methods This study used a learning motivation test. This two-choice multiple-choice learning motivation test is written. Each correct answer gets 1 and each bad answer gets 0. Student tests cover unit equivalency.

Integrity Control Data was collected after testing the instrument. A good test accurately measures what you want. This study employed the Point Bisereal Correlation algorithm to examine item validity:

$$r_{pbi} = \frac{\chi_1 - \chi}{SD_T}\sqrt{\frac{p}{q}} \quad \text{.....(1)}$$

Description: r_{pbi} = point biserial correlation coefficient which is considered the item validity coefficient - χ_1 = average score of the correct answer by the test taker - χ = Total average score achieved by all test takers SD_t = Standard deviation p = Proportion of students who answered correctly to the item q = Proportion of students who answered incorrectly to the item (q = 1 - p).

To determine whether the item is valid or not, r_{count} is compared with r_{table} produc moment with $\alpha = 0.05$. if $r_{count} \leq r_{table}$, then the question is declared invalid and if $r_{count} > r_{table}$, then the question is declared valid to be retained in the instrument which is then used for data processing in actual research.

This trial is intended to obtain the validity and reliability of the instrument. Test reliability relates to the consistency of test results. Reliability measurement uses the Kuder and Richardson formula:

$$r_{11} = \left(\frac{k}{k-1}\right)\left(\frac{{S_1}^2 \sum pq}{{S_1}^2}\right) with \quad S^2 = \frac{n\sum {X_1}^2 - (\sum X_1)^2}{n(n-1)} \quad \text{.....(2)}$$

Data Analysis Techniques To analyze the data in this study using statistical tests using the t-test, after the data is declared valid, then to test the hypothesis of this study the "t-test" formula is used as follows:

$$t = \frac{\bar{\chi}_E - \bar{\chi}_K}{\sqrt{\frac{\left(\sum {X_E}^2 + \sum {X_K}^2\right)}{(N_E + N_K - 2)} \bullet \frac{(N_E + N_E)}{(N_E \bullet N_K)}}} \quad \text{.....(3)}$$

Note: t = Statistical test price, $\bar{\chi}_E$ = Average learning motivation of experimental class students, $\bar{\chi}_K$= Average student learning motivation control, N_E = Number of experimental class samples, N_K = Number of control class samples.

The test criteria for this t-test are as follows: H_o is accepted if $t_{count} < t_{table}$ H_o is rejected if $t_{count} > t_{table}$.

Statistical Hypothesis, The testing criteria for this t-test are as follows:

$H_o : \mu_1 = \mu_2$

$H_a : \mu_1 \neq \mu_2$

Description: μ_1 = The average value of learning motivation of experimental class students μ_2 = The average value of learning motivation of control class students. Testing criteria: " Accept H_o, jika,$-t_{1/2\alpha} < t_{hitung} < t_{1/2\alpha}$, in other respects H_o rejected ".

3. RESULTS AND DISCUSSIONS

Results of the research instrument pilot test.

The instrument was tested initially, yielding 16 valid and 6 invalid items. The Alfa Cronbach's formula yielded KR-20 = 0.56 for research instrument dependability. 6 questions were rejected for differentiating power, 8 were bad, 9 were sufficient, 4 were good, and 1 was very good. 17 questions were easy and 5 medium.

Experimental Class Student Learning Motivation Score, The questionnaire data yielded a value range of 5 with the highest value being 14 and the lowest value being 9 with 6 classes and 1 class length. The average score (mean) was 12.24, mode 13, and median 12.44. A frequency distribution table shows the data:

Table 2. Frequency Distribution of Experimental Class Balejar Motivation Score

Real Lower Limit	Frequency

Score Value		Real Upper Limit	Absolut	Relative (%)
9	8,5	9,5	1	4
10	9,5	10,5	2	8
11	10,5	11,5	2	8
12	11,5	12,5	8	32
13	12,5	13,5	9	36
14	13,5	14,5	3	12
	Total		25	100

Control Class Student Learning Motivation Score From the questionnaire data, the value range is 6 with the maximum value 15 and the lowest value 9 with 7 classes and class length 1. The average score (mean) is 11.2, mode 10, and median 10.33. A frequency distribution table shows the data:

Table 3. Frequency Distribution of Balejar Motivation Score of Control Class

Score Value	Real Lower Limit	Real Upper Limit	Frequency	
			Absolut	Relative (%)
9	8,5	9,5	5	20
10	9,5	10,5	9	36
11	10,5	11,5	1	4
12	11,5	12,5	2	8
13	12,5	13,5	4	16
14	13,5	14,5	2	8
15	14,5	15,5	2	8
	Total		25	100

Data analysis.

Hypothesis testing.

This hypothesis test used the "t" test to compare the average learning motivation scores of active and traditional learners. The "t" test calculated t_{count} = 3.49 and t_{table} = 2.01, hence $t_{count} > t_{table}$. Thus, the research hypothesis that active learning increases student motivation is supported.

Data interpretation.

After utilizing the "t" test at a significant level of 5%, it was found that student learning motivation is stronger or better when given an active learning method than when given a conventional learning strategy. Active learning motivates pupils. Math teachers should employ active learning methods.

4. CONCLUSION

Researchers found that a mean score of 12.24 was achieved when measuring the level of student enthusiasm to learn while using an active learning strategy. Students whose education follows the traditional model report an average (mean) level of motivation to learn of 11.2. The "t" test's calculations led to the following results: t_{count} = 3.49, and t_{table} = 2.01 for the price. If the number of students taught using an active learning strategy is larger than the number of students taught using a traditional learning approach, then H_0 might be rejected. Therefore, this study has successfully demonstrated that the active learning technique, as opposed to the conventional learning approach, increases student learning motivation..

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