

Performance in Algebra of Students Exposed to Showdown Strategy

Margieles A. Custodio

Arlene C. Dolotallas, Ph.D

College of Education and Social Sciences
Mindanao State University at Naawan
Naawan, Misamis Oriental
Philippines

Abstract

Showdown strategy is a cooperative learning activity where students answer questions and when the showdown captain calls "Showdown", teammates will display their own answers. Teammates will either celebrate or tutor the team while doing the activity. This study tried to answer the following objectives: 1) Find out the significant difference on the pretest scores in Algebra of the students when grouped to Showdown strategy and Lecture method; 2.) Find out the significant difference on the posttest scores in Algebra of the students when exposed to Showdown strategy and Lecture method and 3.) Find out the significant difference on the pretest and posttest scores in Algebra of the students when exposed to Showdown strategy and Lecture method. The study utilized the true experimental research design, the randomized pretest-posttest control group design. Result revealed a significant difference on the pretest and posttest scores in Algebra of the students when exposed to Showdown strategy and Lecture method. This study concluded that Showdown strategy can improve the performance in Algebra of the students.

Keywords: Showdown strategy, performance, experimental group, control group, lecture method

1. Introduction

Algebra is viewed as the gatekeeper for future Mathematics courses. It is often the first Mathematics that requires extensive abstract thinking, a challenging new skill for many students. Algebra moves students beyond an emphasis on arithmetic operations to focus on the use of symbols to represent numbers and express mathematical relationships (Katz, 2007). As the language of higher Mathematics, algebra is a gateway to future study and mathematically significant ideas, but it is often a wall that blocks the paths of many (ICMI, 2001). Many people think of Mathematics as something that causes stress and is unpleasant (Stuart, 2000). Students sometimes find that Mathematics is boring and believe that it will be no use to them after they graduate from high school. Another concern is that students have difficulty expressing their thoughts in front of their Mathematics class. This phenomenon may occur because many traditional classrooms foster a competitive atmosphere among students (Johnson and Johnson, 1989). In light with these studies, Mathematics teachers need to be reformed. With education rapidly changing, teachers faced an increased accountability of students learning and are encouraged to use research-based strategies (such as Kagan cooperative learning structures) to meet the needs of the students (Nguyen, 2012). Cooperative learning encourages students to be actively engaged in Mathematical learning and to communicate with one another about Mathematics (Leiken and Zaslavsky, 1999). This is one of the most commonly used forms of active pedagogy. Kagan (1994) had developed roughly 200 classroom cooperative learning "structures", which may be thought of as steps to classroom activities. These cooperative learning structures aid the development of teaching learning process. Showdown as a learning strategy is a cooperative learning activity where students answer questions and when the showdown captain calls "Showdown", teammates will display their own answers. Teammates will either celebrate or tutor, and then celebrate (Kagan, 2009).

II. Methodology

There were fifty-two (52) grade 7 students of Manticao National High School, Manticao, Misamis Oriental, Philippines involved in the study.

The study utilized the true experimental research design, the randomized pretest-posttest control group design. Two (2) groups are involved in the study; the twenty-six (26) students were exposed to showdown strategy and the twenty-six (26) students to lecture method respectively. The performance of students is measured through pretest and posttest. The pretest and posttest questionnaires were composed of thirty (30) items multiple choices.

III. Results and Discussion

Table 1 shows the t-test result showing the difference on the pretest scores of the two groups. The data show no significant difference on the pretest scores in Algebra of the students when grouped to Showdown strategy and Lecture method since their mean difference is 0.19 with t-value of 0.22 and p-value of 0.8229 which is more than the p-value of 0.05 and that leads to the non-rejection of the null hypothesis. This means that the students in both groups had similar academic knowledge in Algebra before the experiment commence. The result of this study is consistent with the findings of a previous research done by Tran (2014) that shows no statistically difference in psychology pretest scores between the experimental and control group. This indicates that the two groups are comparable to each other in terms of performances.

Table 1. T-test result showing the difference on the pretest scores of the two groups

Variable	Mean score	Mean difference	t-value	p-value	Remarks
Pretest					
Showdown strategy	8.92				
		0.19	0.22	0.8229	Not Significant
Lecture method	8.73				

$p < 0.05^*$

Table 2 displays the t-test result showing the difference on the posttest scores of the two groups. It reveals a significant difference on the posttest scores in Algebra of the students when exposed to Showdown strategy and Lecture method since their mean difference is 2.81 with t-value is 2.46 and p-value of 0.0174 which is less than the p-value of 0.05 and that leads to the rejection of the null hypothesis. Result indicates that Showdown strategy produced higher improvement than those exposed to Lecture method. In quantitative study done by Zakaria, et al., (2010) indicates that the cooperative learning approach resulted in higher achievement than the traditional teaching approaches.

Table 2. T-test result showing the difference on the posttest scores of the two groups

Variable	Mean score	Mean difference	t-value	p-value	Remarks
Posttest					
Showdown strategy	16.12				
		2.81	2.46	0.0174*	Significant
Lecture method	13.31				

$p < 0.05^*$

Table 3 presents the paired t-test result showing the difference on the pretest and posttest scores of the two groups. The data signify a significant difference on the pretest and posttest scores in Algebra of the students when exposed to Showdown strategy and Lecture method since their t-values are -5.31 and -2.85 and the p-values of 0.00000006 and 0.000003 respectively, and that leads to the rejection of the null hypothesis. This shows that there was an improvement in the scores of the students after introducing the topics using the strategy. Although learners in both groups enhanced their performance after being exposed to either one of the methods but the calculated p-values revealed that Showdown as a learning strategy provides greater improvements on the learning of the students in Mathematics. The results were consistent with those of earlier studies comparing got her cooperative e learning methods against lecture independent styles of instruction (Slavin, 1991; Johnson & Johnson, 2000). Researchers reported that students worked significantly harder for and learned more from the cooperative learning components than from the traditional lecture and text-based components of courses studied (Carlsmith & Cooper, 2002).

Table 3. Paired t-test result showing the difference on the pretest and post test scores of the two groups

Group	Mean Score	Mean difference	t-value	p-value	Remarks
Showdown strategy					
Pretest	8.92				
		-7.2	-5.31	0.00000006*	Significant
Posttest	16.12				
Lecture Method					
Pretest	8.73				
		- 4.58	-2.85	0.000003*	Significant
Posttest	13.31				

$p < 0.05^*$

IV. Conclusion

Based on the findings of the study, it was concluded that the experimental and control groups were comparable before the start of the experiment. T-test result showed a significant difference on the posttest scores of the students when exposed to Showdown strategy and lecture method. Paired t-test result revealed a significant difference on the pretest and posttest scores of the students when exposed to Showdown strategy and lecture method. This study concluded that Showdown strategy can improve the performance in Algebra of the students

V. Recommendations

Based on the findings and conclusion of the study, the researchers would like to recommend that Showdown strategy can improve the performance in Algebra of the students. Showdown as a learning strategy will enhance performance of the students when it is used appropriately. Similar study should be conducted using Showdown strategy in other schools to different grade levels and in other disciplines too.

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