

# Effect of Brainstorming Strategy on Balqa Applied University's Students' Achievement in the Course "E 101" and Its Relation to Some Variables

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## Abstract

The purpose of this study was to investigate the effect of Brain Storming Strategy in Balqa Applied University's students' achievement in the course "E 101". The study applied the quasi- experimental approach. The population of this study consists of 1300 male and female students in the first semester of the academic year 2013-2014. The sample of the study which was chosen randomly , consisted of 68 male and female students and it was divided into two groups; as experimental group (34 studied using brain storming strategy) and the control group that learns traditionally. An achievement exam was used to measure the students' achievement with reliability (0.80). The results of the study showed there were statistically significant differences between the means of the ( $\alpha \leq 0.05$ ) in the Balqa Applied University's students' achievement in the course "E101" due to the two groups at method of teaching in favor of brainstorming strategy and to the gender in favor of females. Results also revealed that there were no statistically significant differences between the means of the two groups due to the interaction between the method of teaching and gender variables. The researcher came up with some recommendations.

**Keywords:** brainstorming strategy, Balqa Applied University, achievement.

## 1. Introduction

In the era of Knowledge explosion and technology revolution, Rote learning is no longer acceptable or even successful in creating students who are capable to cope up with the great acceleration degree of knowledge. the learner nowadays needs to acquire many skills as interaction skill with people from different background sharing ideas and thinking skills that help the learners to meet their needs concerning types of knowledge that help them to adopt to life and its different changing aspects which in turn will enhance their learning and achievement. Brainstorming is one of the innovative teaching strategies that motivates learners' thinking skills and enhances their achievement as well.

Brainstorming is a combination of a relaxed, informal approach to problem-solving, thinking and lateral achievement. . Students are asked to raise and find ideas that look irrelevant for the first time. The idea behind this strategy is to use some of their ideas to have creative solutions to problems and make relation between parts of an issue or a topic that facilitates the process of learning and information retention. The success of brainstorming depends on: Deferring any judgments of the ideas put forward in the initial brainstorming stage, because criticism of an idea or evaluating it hinders the attainment of the best idea, Quantity generates quality: focusing during the session on generating as many ideas as possible regardless of quality and Building on others ideas: others ideas are common for all to come up or develop new ideas by using the ideas introduced during the session (Kittami, 2001).

## 2. Significance of the study

The study addresses significant and innovative method in teaching which is brainstorming strategy which hopefully will increase students' achievement.

## 3. Problem of the study

After reviewing educational literature, the researcher noticed lack of studies examined the effect of employing brainstorming strategy in different levels of education particularly the higher education level and in courses as English ones. Although the learner becomes the core of the learning process but our teachers are still teaching traditionally that is they treat the learner as an imitator not creative one. in the era of globalization, it has become a necessity to prepare the students in a way that enable them to face challenges of knowledge explosion and technology revolution by adopting new methods in teaching that enhance their interaction and means of communication which affect positively their achievement . the research as an academic instructor has noticed the great focus on drilling as a method of teaching which affects negatively students' academic achievement and their thinking skills so the researcher soak to conduct this study looking for innovative method of teaching that

increase students' achievement .the problem of the study is based in finding out the effect of employing brainstorming strategy in Balsa Applied University's students' achievement in Course (E101).

#### 4. Questions of the Study

- Does Al-balqa applied university students' achievement in Course (E101) differ according to method of teaching?
- Does Al-balqa applied university students' achievement in Course (E101) differ according to gender?
- Does Al-balqa applied university students' achievement in Course (E101) differ according to interaction between method of teaching and gender?

#### 5. Hypotheses of the study

- "There are no statistically significant differences among Balqa Applied University students' achievement in course (E 101) attributed to method of teaching variable.
- "There are no statistically significant differences between Balqa Applied University students' achievement in course (E 101) attributed to gender variable"
- There are no statistically significant differences between Balqa Applied University students' achievement in course "(E 101) attributed to interaction between method of teaching and gender variables?"

#### 6. Previous Studies

The study of Sadoh(2013) aimed at identifying effect of using the strategies of brainstorming and computer education in academic achievement and the development of creative thinking skills among the students of sixth grade and their attitudes towards learning the engineering unit in Maths. The sample of the study which consisted of 69 students were distributed into two experimental groups; the first consisted of 34 students who were taught by brainstorming strategy and the second one consisted of 35 students who were taught by the strategy of computer education. Results showed differences with statistical significance in ( $\alpha \geq .05$ ) among the averages of the academic achievement as well as the creative thinking skills of the two groups in favor of the experimental group which was taught by brainstorming strategy.

The study of Sweidan(2011) aimed to identify the effect of brainstorming and problem solving strategies on students' achievement on society subject . The researcher prepared a program based on brainstorming and problem solving strategies in addition to an achievement test. The study followed the experimental approach. The sample of the study which was selected randomly consisted of 189 students representing fourth grade students. Results showed statistical significant differences between the means of experimental group which was taught by brainstorming strategy and the control group in the pre and posttests in favor of experimental group in the posttest. .And there were statistical significant differences between the means of experimental group which was taught by problem solving strategy and the control group in the pre and posttests in favor of the experimental group in the posttest. Additionally, there were statistically significant differences between the means of the degrees of the male and female students of the experimental groups in favor the females who were taught by brainstorming strategy.

The study of Salamat&Kharabsh(2010) aimed to identify the efficiency of brainstorming strategy in the seventh grade students' achievement in Geography subject and attitudes' development towards it. The researcher used the experimental approach . The sample of the study which consisted of 45 seventh graders was distributed to two groups ;experimental and control. Data were collected using an achievement test and a scale for attitudes towards geography . Results revealed statistical significant differences between students' means in the achievement test in favor of the experimental group which was taught by brainstorming strategy .

And the study of Abu-Snina(2008) aimed at revealing the impact of brainstorming strategy on developing achievement and critical thinking in Geography of the Educational Sciences' students in UNORWA . The sample of the study which consisted of 131 male and female students was distributed into five sections which

two of them were selected randomly as experimental and control group. The researcher applied an achievement test consisted of 40 items. Results showed statistical significant differences at ( $\alpha=0.05$ ) between the two groups in favour of the experimental group which was taught by brainstorming strategy.

The study of Rizi, Najafipour, haghani& Dehghan(2013) aimed to identify the effect brainstorming teaching method on the educational achievement of grade-five students in the schools of Iran. The sample of the students consisted of 60 students distributed to two groups; experimental (30 S) and control (30 S). Results showed An effect of the brainstorming method, and the difference of means in both groups was significant at  $<0.001$ . The results also revealed that using brainstorming method had a positive effect on the students' educational achievement.

## 7. Methodology

### 7.1 Approach of the study:

The quasi-experimental approach was adopted to achieve the goal of this study which is to identify the effect of brain storming strategy in the students' achievement in university Course (E 101).

Procedures of the study

- Selecting the population and the sample of the study.
- Preparing the achievement test
- The application of the pretest
- Teaching using Brainstorming method
- The application of the posttest
- Data collected and analyzed statistically

### 7.2 Population of the study

The population of the study consisted of 1300 male and female students in the second semester for the year 2013-2014

### 7.3 Sample of the study

The sample of the study which consisted of sixty eight students was selected randomly and distributed into two groups; experimental taught using brainstorming strategy and control using traditional method.

Table (1): distribution of the sample according to the method of teaching

Group	N
Experimental	34
Control	34
Total	68

### 7.4 Instrument of the study (achievement test):

An achievement test was prepared by the research in university Course (101) consisted of 20 items of multiple choice.

### 7.5 Instrument's Validity &Reliability

To check the test's validity, the researcher presented the test to a set of arbitrators who are specialized in TEFL and a set of academic staff in English language whose their comments were taken into account regarding deleting or adjusting some items. Regarding the test's reliability, the test was applied on an expletory sample consisted of 20 male and female students and KR 2 was calculated and was acceptable its value was acceptable educationally (0.80).

### 7.6 Limitations of the study

The study's results are limited to Al-Balqa Applied University and its students and to the second semester for

the year 2013-2014. Additionally, they are limited to the university English course (101).

### 7.7 Procedural definitions:

- Brainstorming strategy: generating and producing creative ideas individually or through groups to solve a specific problem and these ideas should be original and new produced in a democratic atmosphere.
- Course (E 101): A course in the academic plan in Al-Balqa Applied University for all the students.
- Achievement: it is the amount of scientific knowledge which students achieve in Course (E101) measured by the degree they got in the achievement test.

### 8. Results

To answer the first question ANCOVA was used to control the differences in the performance in the pretest achievement test between experimental and control groups. And table (2) illustrates ANCOVA results of the performance in achievement test according method of strategy.

Table2. Results of ANCOVA of achievement test according to method of teaching

Source of variance	Sum of seq.	Df	Mean of sum seq	F	Sig.
Groups	614.017	1	614.017	256.957	0.000
Interaction	114.879	1	114.879	48.075	0.000
Error	155.322	65	-	-	-
Total	12962.00	67	-	-	-

And the hypothesis : “ there are no statistical significant differences at (a-0.05) between the means of Balqa Applied University students’ achievement in the Course (E101) attributed to method of teaching” was tested as adjusted means and standard deviation were calculated and the following table illustrates this.

Table (3).adjusted means and the standard deviation according the method of teaching variable

Group	Adjusted M	Std
Experimental	16.27	2.16
Control	10.21	1.87

The previous table showed differences in the in the adjusted means on the post test for both groups as the adjusted mean was (16.27) for the experimental group and (10.21) for the control one. And to examine these differences, F value was calculated.

Table (2) showed that the F value for the group variable which was (256.95) is statistically significant at (a-0.05) indicating rejection of the hypothesis : “ there are no statistically significant differences at a=0.05 between the means of Balqa Applied university’s students’ achievement attributed to method of teaching ,” which means that that there was an effect to the method of teaching in students’ achievement in favor of the experimental group which was taught by brainstorming strategy .

The research attributed this result to the efficiency of employing brainstorming strategy in improving students’ understanding of the course’s contents and the nature of the strategy itself which is based on asking many questions enhance students’ motivation towards the course. Additionally, this innovative succeeded in meeting the students’ needs and taking their individual differences into account affecting the students’ achievement positively. This result is compatible with the result of Abosnina’s study (2008) which showed that this strategy helps greatly in enhancing students’ achievement. To answer the second question of the study, the researcher used ANCOVA and the following tables illustrate this.

The previous table showed F value was (9.28) and it is statistical significant value at (a-0.05) which means that the hypothesis : “ there are no statistical significant differences at(a-0.05) between the means of using brainstorming strategy in the Balqa Applied University students’ achievement attributed to gender variable,” was

incorrect indicating an effect to gender variable in students' achievement in favor of the experimental group which was taught by brainstorming strategy as it is illustrated in the following table which showed the adjusted means and standard deviations of the groups according to gender variable.

Table (4): ANCOVA results for the post test according to the gender variable

Source of variance	Sum of seq.	Fd	Sum of M of seq.	F value	Sig.
Group	613.202	1	613.202	168.568	0.000
Gender	33.749	1	33.749	9.28	0.003
Error	236.452	65	3.683		
Total	12962.00	67			

Table 4( b) .adjusted Means &standard deviations of the groups according to gender variable

Groups	Adjusted Mean	Std
Males	12.40	3.10
Females	13.98	3.88

It is clear from previous table the adjusted means to the females were higher than the males concerning the post test as the adjusted mean for females was 13.98 and the males' was 12.40. to examine the differences between these means ,ANCOVA was calculated as shown in table 4 which showed the F value was 9.28 and it is statically significant at  $\alpha=0.05$  indicating the rejection of the null hypothesis: " There are no statistically significant differences at  $\alpha=0.05$  between Balqa Applied University students' achievement attributed to gender variable", and therefore, the alternative hypothesis is accepted which states that there are statistically significant differences at  $\alpha=0.05$  between Balqa Applied University students' achievement attributed to gender variable,". So gender variable has effect on the students' achievement in favor of the females as it is illustrated previously. This result agrees with the result of Sudan's study (2011) which revealed statistical significant differences in the achievement test between the experimental group (taught by brainstorming strategy) and the control one due to gender variable. The researcher attributed this result to the females' enthusiasm for the new and innovative things more than the males.

To answer the third question concerning the interaction between the method of teaching and the gender variables, ANCOVA was used.

Table 5.ANCOVA results of the post test according to the method of teaching and gender variables in addition to their interaction.

Source of variance	Sum of seq.	Df	Sum of means of seq.	F value	Sig.
Gender	0.173	1	0.173	2.818	0.10
Method of teaching	12.624	13	0.0971	20.042	0.0000
Gender x achievement	0.458	10	0.046	0.95	0.503
Error	2.083	34	0.048		
Total	58.657	25			

It is obvious from table 5 the F value was 0.95 and it is not statistically significant at  $\alpha=0.05$  which indicates the acceptance of the null hypothesis: "there were no statistical significant differences between the students' achievement attributed to interaction between gender and method of teaching variables". The

researcher attributed this result that employing brainstrategy is suitable for both; males and females in addition to simple and clear procedures of this innovative strategy.

### 9. Recommendations

The researcher recommended the following:

- Encouraging TEFL teachers to employ brainstorming strategy in their teaching.
- Conducting further studies with different variables
- Organizing training courses for TEFL teachers on the use of innovative methods of teaching English in particular.

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