



The Effect Of Using 5e Strategy On Developing University Students' Achievement In Transformational Grammar

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Abstract:

This study purposes at investigating the influence of using 5E tactic on developing university students' achievement in Transformational Grammar. The researchers adopt the experimental approach based on the quasi-experimental design. Using a pre-post test to choose experimental and control groups. The researchers create their own research instruments based on existing literature. Presenting research tools to a panel of specialists validated their reliability. Using the (Kuder, Richardson, and 20) formula, a dependability factor of (0.72) was calculated.

There are a total of 102 people in the sample, split evenly between two groups. The first represented the control group, who were instructed in the conventional manner, and the second, the experimental group, who were instructed in the 5E method.

T-test was performed to examine the outcomes after the intervention. The results demonstrate that the experimental group differed significantly from the control group statistically speaking. In addition, there are no discernible distinctions between individuals based on sexual orientation or gender.

1-Introduction:

The achievement of educational aims is predicated mostly on the quality of the teaching and learning process (Nisa &etal., 2022:1). Accordingly, learning process requires dynamic, fun, learning strategies and pattrens to stimulate students' learning creativity(Yuniars & etal ,2020:2).

Grammar is the scheme of norms governing conservative relationship and arrangements of words in each sentence (Al-Rafi & mizhir,2012:103). Rutheford (1987) cited in (Zain ,2007:39) views "it is a necessary component of any language teaching programme". As such, it is crucial in the classroom, as confirmed by Chomsky's description of language as "a generative system not a close system; a construct, which accounts for understanding and producing an infinite number of grammatical sentences." As a result, grammar should reflect the learners' intuitive understanding of the language as it is used by the speakers himself.

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As a result of this, students must discern between distinct types of sentences known as deep structure and surface structure. Both of their cases are related by transformational grammar.

One of the student-centered strategies is the 5E cycle learning technique. It is founded on the idea that each new piece of information should be reorganized and developed in light of previously acquired knowledge in the individual's mind (Tuna& Kacar,2013: 73). As a result, it is a constructivist method that introduces a new notion. It also encourages students to be integrated into a topic via a series of processes.

2- Importance of the Research:

The present study is predictable to be of great significance to teachers of English , learners and researchers .

As for English teachers: - this research may provide information about the effect of this strategy in learning English as a foreign language. For learners: - the findings of this research offer interesting and various learning experiences. In addition, the contribution of the new strategy helps them in raising their achievement. For other teachers: - the findings this research may be one of the meaningful and useful references which can guide to conduct another research.

3- Problem of the research: -

Recent trend in language teaching call for focusing on the learner and giving him an active role in teaching learning process. Hence, the English language teachers should go to use new learning strategies and work for developing in proportion to their intellectual, mental and educational needs. So, It is necessary for them to use new learning new learning strategy instead of memorization.

The students face difficulties in learning Transformational Grammar , among which, the inability to join their hypothetical data they gained and the skills they must perform. As such the researcher's attention was drawn to investigate the influence of utilizing (5E) strategy on developing university pupil's achievement in transformational grammar

4- Aims of the research: -

This study aims at

- 1- Examining the 5E learning cycle strategy.
- 2- Investigating the effect of using 5E strategy on developing university students' achievement in transformational grammar.
- 3- Applying the above strategy on students' performance.

5- The hypotheses: -

The researchers hypothesize the following: -

1. There are also no discernible discrepancies in performance between the experimental and control groups.
2. When comparing by sex variable or gender, the mean scores of the experimental and control groups do not differ substantially.

6-Limits of the Research: -

The present research is limited to fourth stage students at the Department of English / Collage of basic education/ University of Mosul, during the first semester of academic year 2022-2023.

- 2- Two strategies of teaching, namely the 5E strategy and the traditional strategy of teaching transformational grammar curriculum (text book).

7-Defintions of basic terms:

7.1- (5E) learning cycle:

- Bybee (1997:2) defines 5E cycle learning strategy as “a strategy that allows students redefine, recognize, elaborate and change their initial concepts through self-reflection and interaction with their classmates or peers and their environment.”
- According to Anil and Batodi (2015:212), there are five phases based on constructive theory of learning. This strategy's steps are as follows: engagement exploration, explanation, elaboration, and assessment.

In the current research ,5E learning cycle is a strategy used by the teacher in his explanation for specific subjects that helps the students’ constructive new ideas on top of their old ideas.

7.2-Achievements: -

Travers (1970:470) states that “it is the result of what an individual has learned from some educational experience”.

- Dasi & algarabel (2001) define it as some thing that a person has done or finish successfully.
- On the other hand ,Webster (1973:1) defines “it as the quality and quantity of students work”.
- In the current study, accomplishment is defined as the students' results on the achievement exam offered by the researchers who deal with particular areas in transformational grammar.

8- Theoretical background: -

5E learning cycle developed in the mid 1980’s by Roger Bybee, who was one of leading names in biological science, and his team. It was developed specifically for science programs and it is used in the biological science curriculum. (Fyakub , 2019:23). This strategy is based on constructivist theory which puts the individual the center of learning process. The main structure of this is theory is establishing a connection between the current information and prior knowledge in order to support and facilitate the learning process , however, the learners acquire the necessary skills to apply what they have learnt (Guzel,2017:2).

8.1- Steps of 5E learning cycle: -

The 5E strategy includes five steps sequentially. They are as follows: -

- 1- **Engagement:** - As a motivating step, the instructor strives to examine pupils' past knowledge and highlight any misunderstandings. While the student could come up with an introductory question or ask himself or herself, "What do I already know about this subject or topic?"
- 2- **Exploration:** - This step's major aims are to connect past information to current subject material and to uncover new knowledge without direct teaching. It is referred to as a one-of-a-kind stage since students have hands-on experience prior to any formal explanation of vocabulary, concepts, and ideas by instructors. Furthermore, students are encouraged to use process skills such as observation, communication, and hypothesizing with their classmates.
- 3- **Explanation:** - This stage is intended to check pupils' newly learned information and clear up any misunderstandings. Before the instructor can offer any explanations, the pupils must

be given the chance to express their own reasons and opinions. The primary idea behind this phase is to allow the instructor time to act as a facilitator and ask his pupils to find and share their exploratory learning experience. However, the teacher ensures appropriate use of information and correct misconceptions. At the end of this step, the student should be able to explain clearly the important concepts to his teacher and his peers.

- 4- **Elaborations:** - The aim of this step is to solidify students' understanding, it allows the students to use their new knowledge. Such as work sheets, model preparations, questions and problem situation. The teacher here guide the students to carry out additional activities.
- 5- **Evaluation:** - This stage is very important for both the students and teacher because It assesses how much learning and comprehension has occurred. Hence, the students' new knowledge of concepts learned during the previous four stages. (Duran & Duran, 2004:51-53)(Omotayo, & Adeleke, 2017:10)

8.2-Advantages of 5E learning cycle: -

Saada, 2018:626) and (Okafor, 2019:70-80) mention the following advantages:

- 1- Since it is based on constructivist concepts, it aids in the facilitation of inquiry activities.
- 2- It can be used with students of all ages.
- 3- It develops practical skills.
- 4- It enhances the mastery of subject matter.
- 5- It develops the scientific thinking of the empirical tasks.

8.3. Disadvantages of 5E learning cycle: -

There are many disadvantages of 5 E learning cycle. They are as follows: -

- 1- It can not be used with large classes.
- 2- It needs many tools, and learning sources to help the students to achieve some activities in the exploration and elaboration stages.
- 3- The teacher can't use it if he has a large amount of information.

(Saada, 2018:624)

9-littrature review: -

9.1. Al-Kasab's study (2017): -

The purpose of this study is to determine the efficacy of utilizing a cycle learning method in the development of innovative thinking abilities and accomplishment in social and national studies curriculum among third grade secondary students in Al-Qunfudah. The sample included (63) subjects. The researcher prepared two tools for the research. The first one was achievement test that included (25) items, while the second one was creative thinking test which included (25) items. The results showed that there was statistically significant difference in mean scores between the experimental and control groups. It also can confirm its effectiveness in increasing creative thinking of the students (Al-Kasab, 2017:273-291).

9.2. Bunkure's study (2019): -

The purpose of the current study is to demonstrate the effectiveness of the 5E learning technique in improving academic success in physics among students in Rano Education Zone, Rano State, Nigeria. The study used a pre-post test quasi experimental research design. The study's sample included 61 boys and

females picked at random from secondary schools in Rano, Kano state. The participants were separated into two groups. The experimental group received instruction utilizing the 5E cycle learning technique, whereas the control group received instruction using the standard way. The findings revealed statistical differences in favor of the first group. Based on the results, the researcher advised that physics teachers encourage their students to apply the 5E learning technique while teaching the topic (**Bunkure,2019:296-300**).

9.3-Naguib's study(2019): -

The goal of this investigation was to see how the 5E instructional model affected secondary pupil's grammar acquisition. (10) potential instructors used the model or technique to teach English grammar in five secondary stage courses. The researcher created a qualitative evaluation question. The findings of the data gathering treatment show that the 5E instructional model may be utilized to improve English learning in English as a foreign language classroom (**Naguib,2019:2**).

9.4-Al-Maghreez's study (2022): -

The researcher attempted to investigate the impact of the 5E learning cycle technique on the success of eighth grade English students in public schools. The sample consisted of (90) subjects (45) males and (45) females. The researcher chose two schools for implementing his study namely During the first semester of the academic year 2017-2018, Um Habibah for females and Al-Wadialseer for boys schools. The experimental design was called two groups quivalent post test. The experimental group was taught using the 5E technique, whereas the control group was taught with the standard manner. The findings revealed a statistically significant difference in mean scores between the experimental and control groups in favor of the experimental group who studied utilizing the 5E technique. Furthermore, there were a statistically significant distinction among both groups which favored females (**Al-Maghreez,2022:131-139**).

A number of studies have employed the 5E method. These studies were carried out to investigate the influence of the 5E method on various school courses and factors such as social science, English language, and physics. According to (Al-Kasab, Bunkure, Naguib and Al-Maghrhreez) most of the researchers have focused on the students' achievement, their creative thinking. The method has shown to be beneficial in a variety of industries. It is still being used in English instruction to entice researchers to investigate its usefulness in teaching English as a foreign language. In addition, recent researchers support the idea that the strategy increases the students' achievement.

10-Research Procedures –

The researchers adopted pre-post test and equivalent groups. Accordingly, the experimental group has been exposed to experimental independent variable namely (5E cycle learning). The control group, on the other hand, got no therapy and was taught using a typical technique or method for assessing its influence on student success.

Figure (1) below presents the experimental design of this research

Group	Test	Independent variables	Dependent variables	Test
Experimental	Pre-test	5E cycle learning strategy.	Achievement	Post test
control		traditional strategy		

The sample: -

The research population is made up of (273) students. They are classified into five categories. According to Datta (2018:1), a sample is a group of individuals drawn from a larger group and utilized in tests to offer information about the larger population. As a result, the researchers selected (104) male and female students from five groups in the English department. The topics are picked at random. The experimental group is designated as (A). The sample size is (49) people, with 28 men and 21 females. The control group is represented by Group (D), which consists of 55 participants, forty of whom are men and fifteen of whom are girls. To prevent their impact on the research outcomes, (4) repeaters from both groups are excluded from the study.

10- Equivalence of the groups: -

The researchers make equivalence between two groups in three variables. They are as follows :

10.1-students'age: -

The age of students is counted in months until (1-10-2022). The researchers use t-test of independent samples. The findings reveal that there is no statistically significant difference between the two groups based on age, with the computed T-value (1.735) being smaller than the tabulated T-value (1.98) at the (0.05) level of significance and (102) degrees of freedom, as shown in table (1).

Table (1): T-Test of students Age

Group	Number	Mean	S.D.	T-Value Calculated	T-Value Tabulated
Experimental	49	279.1224	22,5828	1.735	1.98
Control	55	271.9091	19,8207		

10.2- Students' Achievement in English grammar in the preceding course: -

The T-test of independent samples revealed that there is not a significant distinction between the two groups with regard to this variable. Table (3) shows that the estimated T-value (1.260) was smaller than the tabulated T-value (1.98) at (0.05) level of significance and (102) degrees of freedom.

Table (2) T-test results of students' achievement

Group	Number	Mean	S,D.	T-Value Calculated	T-Value Tabulated
Experimental	49	22.4898	9.0947	1.260	1.98
Control	55	24.6545	8.4244		

10.3. Gender: -

Gender is only one of the factors that affect on achievement in various subjects' fields (vassiliou,2009:11). There is no statistically significant difference between two groups in this measure. As indicated in table (3), the estimated T-value is (1.674), which is smaller than the tabulated T-value (1.98) at (0.05) level of significance and (102) degree of freedom.

Table (3) T-test results of gender

Group	Number	Mean	S.D.	T-value calculated	T-Value Tabulated
Experimental	49	1.4286	0.500	1.674	1.98
Control	55	1.2727	0.4494		

10.4 - Lesson plan: -

The lesson plan for each subject was prepared, in terms of two strategies of teaching. The plans are presented to a group of experts specialize in methodology Some instructions are taken into consideration by the researchers.

10.5 - Validity: - Validity refers to whether a test measure what it aims to measure (Galcz,2020:1). Face validity is achieved by exposing the test to a panel of specialists in the field of educational psychology and methodology. The experts agreed on this test. On the other hand ,comments, suggestions, and some items were modified.

10.6 - Reliability: -

The consistency of a research study or measuring test is referred to as its reliability (meleod, 2013:1). To determine the test's dependability. The researchers test it on a pilot sample of (20) students. The researchers use (Kuder Richardson 20), and the dependability is (0.71), which is satisfactory. As a result, the exam has been authorized in its final form.

10.7- The Statistical Means: -

The following statistical means are used: -

- 1- Kuder Richardson 20 to calculate the reliability of achievement test.
- 2- Two dependent T-test samples were utilized to examine the variations between the prior to and after test for the experimental group to determine the level of student accomplishment progress (Ferguson, 1976:167).

11- Results and Discussions: -

The researchers utilize the T-test to evaluate the first hypothesis of the study, and it reveals statistically significant differences between the pre-test and post-test for the two groups. T-value calculated (3.392) was greater than T-value tabulated (1.98) at (0.05) level of significance and (102) degree of freedom. Thus, the first hypothesis is rejected as shown in table (4) below.

Table (4) Results T-test for the two groups in pre and post tests

Variables	Group	Number	Mean	S. D	T-value calculated	T-value tabulated
Achievement	Experiment	49	12.5102	8.0961	3.392	1.98

	control	55	6.9636	0.85201		
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The results of table (4) show that the 5E learning cycle gives chance for students and to demonstrate the conceptual understanding the student is provided with new experience that deepen and boarden their understanding to apply the grammatical rules in a correct way.

The consistency is clear between the findings of our research ad previous studies that emphasis on using 5E learning cycle to facilitate their learning.

To test the second null hypothesis , the researchers compute the mean scores and standard deviation. Scores and standard deviation of pre-post tests for the males and females for experimental group and applied T-test for dependent groups are shown in table (5).

T-table (5): Results T-test for the two groups in pre and post tests according to gender

Variables	Group	Number	Mean	S. D	T-value calculated	T-value tabulated
Achievement	Experiment	49	9.5147	9.4798	0.0378	1.98
	control	55	10,222	0.82708		

The estimated T-value (0.0378) is obvious from table (5). It is less than the calculated T-value of (1.93) at the (0.05) level of significance for the (102) degrees of freedom. This signifies that the difference between the pre-test and post-test is not statistically significant. As a result, the second hypothesis is not rejected. This result may be due to the learners' motivation . This strategy provides the learners with an opportunity to use the practical thinking whereas, it drives the learning from the parts to whole .In addition to that ,it emphasis the loss of balance as a principle for applying this strategy which is considered as a basic motive for acquiring about the practical information .Therefore, this method can help students move from understanding concrete experiences to the application of principles .

12- conclusions: -

The following conclusions have been arrived at: -

- 1-5E learning cycle provide opportunities to deeply and meaningfully recall what the students already know.
- 2- The students acquire the necessary skill to apply what they have learnt on the basis of their teachers' explanation.
- 3- 5E influences pupils' knowledge. Peer contact, discussion, and the utilization of existing knowledge, for example, are critical in assisting students in understanding fundamental ideas.

13- Recommendations: -

According to the results of the current research, the researchers the recommend the use of 5E learning cycle strategies to be used by teachers of English in their lessons and to conduct a similar study.

14- suggestions: -

- 1- Conducting a similar study at other levels

- 1- Carrying out similar study dealing with the effect of using 5E learning cycle on the students' attitude to teach English as foreign language.

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