

## Comparing the Effects of Convergent and Divergent Teaching Methods on Using Articles by Iranian EFL Learners

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### **Abstract**

Teaching as a complicated process is influenced by many different factors, of which one of the most fundamentals is the approach adopted to present and teach materials. Convergent and divergent teaching methods are two examples of these approaches that were examined in this research. This study attempted to compare the effects of convergent and divergent teaching methods on learning articles. To that end, three groups of 15 members from 80 students in Elmi Junior High School participated in this study. These students were selected through convenient-sampling and homogenized by KET (Key English Test). They were randomly divided into three groups of control, convergent and divergent. They took part in a pre-test and a post-test on articles during April and May 2014. The data of the study were analyzed through ANCOVA using SPSS. The findings indicated positive effects of both convergent and divergent teaching methods on learning articles; however, contrary to what had been hypothesized at the outset of the study, the convergent approach proved more effective than the divergent one in improving the participants' knowledge of articles.

**Keywords:** Convergent teaching method, Divergent teaching method, Articles

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### **I. INTRODUCTION**

One type of thinking based on Socrates' view over 2500 years ago is critical thinking. According to Paul (2008), critical thinking is the awakening of the intellect to the study of itself. It is the ability to think clearly and rationally.

Critical thinking is not a matter of accumulating information. A good critical thinker must not necessarily have a good memory or knows a lot of facts. A critical thinker is able to deduce consequences from what he knows, and he knows how to make use of information to solve problems, and how to seek relevant sources of information to inform him (Chan & Lau, 2011). Alsagoff (2012) believed that critical thinking consists of a mental process of analyzing or evaluating information to offer evidence and reasoning, and to form judgments about the facts.

This world is the era of technology and using information. We should try to adapt ourselves to changes as quickly as we can. We need to increase our skills in flexible intelligences and try to analyze information due to these new activities. These activities propose several sources of knowledge in solving problems. Good critical thinking develops such thinking skills (Adam, 2002).

It is the view of Schafersman (1991) that all education must involve not only what to think, but also how to think. Education philosophers assert that critical thinking is the fundamental goal of learning and essential to education (Ennis, 1996; Paul, 1997).

In a second language context, ways in which critical thinking might be interpreted and taught have become highly debated concerns for L2 learning scholars and practitioners in recent years (Thompson, 2008). Convergent and divergent teaching methods are from these ways of education.

Convergent thinking is a term proposed by Guilford in 1967 as the opposite of divergent thinking. Convergent thinking is the process of finding a single best solution to a problem that we are trying to solve (Williams, 2003). Many tests that are used in schools, such as multiple-choice tests, spelling tests, math quizzes, and standardized tests, are measures of convergent thinking.

Divergent thinking is the process to create several unique solutions intending to solve a problem. The process of divergent thinking is spontaneous and free-flowing, unlike convergent thinking, which is systematic and logical. When using convergent thinking, we use logical steps in order to choose the single best solution. By using divergent thinking, instead of only choosing among appointed options, we search for new options. Convergent thinking stands firmly on logic and less on creativity, while divergent thinking is mostly based on creativity. We use divergent thinking mostly in open-ended problems that creativity is a fundamental part (Williams, 2003).

We can use these divergent and convergent teaching methods in teaching grammar. Grammar is one of the most important concepts in human's communications. It is how people ensure that they are understood properly, and it is also the most effective way to express any thoughts and concepts that they want to share. By promoting thinking, convergent and divergent teaching methods can help students to come up with better ways of learning the grammar rules.

#### *A. Statement of the Problem*

These days, learning English as a second language begins early in life. Across the early years children achieve enhancing control over their thoughts and alertness. These developing abilities allow them to meet and conquer new growing challenges, from coping with others to learning new academic skills. Despite their growing abilities, it is sometimes difficult for children to regulate their thoughts in ways that allow them to succeed at new tasks. During these times, teachers' new methods can help children learn to regulate their own thoughts (Zeller, 2009).

Young children are natural language acquirers; they are self-motivated to pick up language without conscious learning, unlike adults. They have the ability to imitate the rules for themselves and the role of a good teacher is to increase this kind of acquisition (Dunn, 2014).

One characteristic of an effective teacher is that they do not teach. Students learn best when they are in control of their learning. Students practice heavily on learning and a teacher's saying or doing can't change that. Real learning requires doing, not listening, or observing only (Johnson, 2013).

Articles in English are very important, as we use them all the time. A common question from students and teachers of English as a second language is "When should I use the articles a, an, and the?" The truth is that the answer is extremely complex; it constantly gives children a headache (Gunn, 2007).

Differences in marking definiteness among various languages have been considered one of the most confusing areas for speakers of different languages (Mizuno, 1985). Afzali (2012), as a teacher teaching EFL to Persian speakers has frequently noticed that the students face problems when it comes to marking a definite or indefinite noun in English.

Definiteness in written Persian is generally recognized by the absence of indefinite markers and indefiniteness in written Persian is marked either by the numeral one (which is 'yek' before the noun phrase; i.e. pre-positioned) or by using the suffix 'i' after that (i.e. post-positioned).

Articles in English are presented by adding *a*, *an* or *the* at the beginning of the word or nothing before the words. But in Persian it is different as it was said and is not similar to English. So, for foreign language speakers, and for Iranians, it seems difficult to learn articles due to the difference mentioned (Afzali, 2012).

Convergent teaching methods can be useful for teaching grammar especially articles by conveying lessons from teachers to students that emphasize a single answer and the logic *one*.

Divergent teaching methods can also be useful as it concentrates on several solutions for the problem and evokes the creativity of students themselves to learn grammar.

### *B. Significance of the Study*

The best teachers are those who equip their students to think for themselves. Birjandi and Bagherkazemi (2010) believe that teachers' critical thinking is highly intertwined with teachers' pedagogical success. As teachers' success is, in some ways, related to students' engagement, teachers' critical thinking which is interconnected with educational achievement may affect students' engagement subsequently.

Teaching articles to foreign language learners especially children needs specific methods, too. Teachers transfer knowledge and ideas to students, and prepare them for further education. In this study, the researchers investigate two methods in this field for beginners to learn grammar and also compare these two methods with each other.

Since many years ago, teaching grammar has been through rote learning and memorization. This method couldn't help students to encounter new problems in grammar and solve them and even remember the rules completely. They are not interested in learning grammar. But convergent and divergent methods have a basic origin in mind and help students to cope with new situations via creativity and critical thinking.

It seems that we might be able to use convergent and divergent methods of teaching as kinds of thinking frameworks.

### *C. Research Questions*

- Q1. Does a convergent method have a positive effect on learning articles by EFL beginner learners?
- Q2. Does a divergent teaching method have a positive effect on learning articles by EFL beginner learners?
- Q3. Does a divergent teaching method affect learning articles any differently than convergent teaching method by EFL beginner learners?

### *D. Research Hypotheses*

- H1: Convergent teaching methods have a positive effect on learning articles by EFL beginner learners.
- H2: Divergent teaching methods have a positive effect on learning articles by EFL beginner learners.
- H3: A divergent teaching method is more effective than a convergent teaching method in learning articles by EFL beginner learners.

## **II. LITERATURE REVIEW**

### *A. Theoretical Background*

Human learning and the mechanisms it involves has attracted the attention of scholars for many centuries and different accounts have been put forward to capture different aspects of such learning. However, the recent history of learning started by behaviorists who believed that learning is defined by the outward expression of new behaviors. They focused solely on observable behaviors. They believed in a biological basis for learning. Nevertheless, this was criticized for failing to account for processes taking place in the mind that cannot be observed. This led to cognitivism. "Mental processes such as thinking, memory, knowing, and problem-solving need to be explored" (Tresa, 2004).

Cognitivism is a theoretical framework for understanding the mind proposed in the 1950s. Cognitivism is the psychology of learning which emphasizes human cognition or intelligence. The underlying concepts of cognitivism involve how we think and gain knowledge. "Cognitivism involves examining learning, memory, problem solving skills, and intelligence. Cognitive theorists may want to understand how problem solving changes, how

cultural differences affect the way we view our own academic achievements and language development. They emphasize on active role of mind” (Geekz, 2014).

After proposing cognitivism, thinking and creativity spread based on it. So the concepts such as creativity thinking and critical thinking were represented more than before. After many years, students tended to use their intelligence and creativity in education rather than rote learning. Divergent and convergent thinking skills are both important aspects of creativity and critical thinking (Aristizabal, 2012).

### *B. Empirical Studies*

Strot (1985) studied on attractiveness of students with convergent and divergent learning styles to teachers with convergent and divergent learning styles. He mentioned that convergers have been described as favored over divergers by teachers. Although Guilford and Jackson (1961) found both convergent and divergent students to be equal in scholastic performance.

Jo Ann (2003) studied the relation between creativity and convergent and divergent methods of teaching spelling. He found that 1. There is no significant difference in achievement between the high creative and low creative children; 2. There is no significant difference in achievement between children taught by a convergent method and children taught by a divergent method; and 3. There is no significant interaction between teaching methods and creativity.

Akbari Chermahini (2011) mentioned that divergent-thinking tasks require participants to generate as many target-related responses as possible, and the target constrains the selection of possible responses rather weakly. In contrast to divergent thinking, convergent thinking requires focusing onto one possible response per item and thus calls for a strongly constrained search process.

Haji Pour Nezhad (2013) verified that convergent thinking emphasizes recognizing the familiar outcome, reapplying techniques, and accumulating information. Divergent thinking, however, causes the learner to generate and evaluate many creative ideas and draw unexpected connections (Duff, 1986).

Duff (1986) brought the importance of goal orientation to the attention of L2 researchers in her study of the effects of convergent and divergent tasks.

Koe (1967) studied the effects of convergent and divergent teaching methods on students' performance on two mathematical problem-solving tasks. The purpose was to investigate the interaction between the convergent and divergent teaching methods and the thinking style (either convergent or divergent) of the learner. Convergent thinkers scored significantly higher than did divergent thinkers on both dependent measures.

Katamadze (2012) studied using creativity to practice articles with geographical names. She believed that article is one of the most problematic issues in teaching English. Students find it difficult to use the article correctly and often make mistakes. She tried to help

students to learn articles creatively. She concluded that creative thinking is efficient in learning articles.

Flowers (2010) studied the effect of creativity on learning articles. He believed that with any field, technology education and its close relatives have numerous strengths and weaknesses. One of these weaknesses that has too long been overlooked is learning articles. We might think of technology education as empowering students, divergently fostering their own creativity.

### III. METHODOLOGY

#### A. Participants

The participants of this study were 80 students of grade three in Elmi Junior High School (equivalent to grade eight in American system) in Hamedan, Iran, that were conveniently selected. They had studied English at school for 2 years and some of them joined English classes in institutes along with their course at school. All of the students were female.

The students were homogenized with KET exam and 45 students whose scores fell between one standard deviation above or below the mean were selected. They were randomly divided into two experimental groups and one control group. Each group consisted of 15 students.

#### B. Data Collection Instruments

To collect the data for the study, the following instruments were used:

**KET (Key English Test):** KET is a standardized test of English proficiency for elementary level students designed by Cambridge University ESOL. This test was used to homogenize the students. KET has three parts: The reliability estimate for this test was calculated using a statistic called *Cronbach's Alpha*. The reliability calculated for reading and writing skills was 0.90. Reliability is an essential characteristic of a test. This reliability shows the consistency of the test results, the fact that students get the same scores if they took the test on two different occasions. One could count on the scores resulting from a particular administration to be an accurate index of students' achievement.

**Pre- and post-tests:** This test included 25 multiple choice items questions designed based on available grammar books and was used for pre-test and post-test. Students were supposed to choose an alternative from 4 choices. The reliability was calculated to be ( $r=0.758$ ) by Cronbach's Alpha. The alpha coefficient for the 25 items is .758, suggesting that the items have relatively high internal consistency.

### C. Design of the Study

The study reported is a Quasi-experimental one with a pre-test and post-test design investigating the effect of convergent and divergent teaching methods on learning articles. There are two experimental groups and one control group. This can be schematically shown as it follows where G1 to G3 represent groups 1 to 3, T1 represents the pretest and T2 represents the posttest and X1 and X2 stand for the treatments, namely, the methods of teaching:

|         |    |    |
|---------|----|----|
| G1 → T1 | X1 | T2 |
| G2 → T1 | X2 | T2 |
| G3 → T1 | _  | T2 |

### D. Data Collection Procedure

The process of data collection of this study started in April 2014, and lasted for two months and ended in May, 2014. This research started after obtaining the required permissions from a junior high school in Hamedan.

For the control group there were only a pre-test at the beginning and a post-test after two months, and there wasn't any treatment for them.

For the convergent group after a pre-test at the beginning, then there were 8 sessions of articles teaching. The convergent group was taught points of grammar by putting articles in proper places and helping the students to refer to their background knowledge according to Lipoff (2013). Some grammar rules of using articles were divided into 5 groups and the researchers tried to gradually teach and practice these rules with the students over 8 sessions. The students were encouraged to memorize the rules and the researchers tried to review the rules every session and ask students about what they had learnt so far. Then after 8 sessions they received a post-test.

The divergent group also received a pre-test, and then they started learning articles for 8 sessions.

According to Lipoff (2013) divergent learning occurs through play. This makes students think deeply and try to be creative; therefore, the researchers divided the group into two sub-groups and tried to make a competition after teaching the points. For each question the students suggested several solutions and tried to solve the problem through collaboration by saying their opinion. Fill-in-the blanks activity in groups was from other activities that students highly welcomed. Making parts of the sentences one by one and at last having a complete phrase and using proper article for words were from other plays. Matching the parts of sentences attracted them too. Each session was accompanied with new points of articles and new games that students liked a lot. Then students received the post-test after 8 sessions.

### E. Data Analysis

Examining the effects of convergent and divergent teaching methods as independent variables on learning articles as dependent variable by using pre-test and post-test was measured through ANCOVA statistical procedure and T-Test was used for comparing these effects. The data was analyzed by the Statistical Package for Social Sciences (SPSS) (SPSS Inc. (2009). PASW Statistics 18 for Windows. Chicago: SPSS Inc)

## IV. RESULTS

### A. Statistical Description of Research Findings

In order to get an overview of the mean score of participants in the control group and the two experimental groups (convergent and divergent) and dispersion of these scores, descriptive indicators (mean, standard deviation, minimum and maximum of scores) are presented below.

**Table 1: Description of Article Scores of Three Groups of Convergent, Divergent and Control (Pre-Test and Post-Test)**

|              |                | <b>Report</b>   |                  |
|--------------|----------------|-----------------|------------------|
| <b>GROUP</b> |                | <b>pre-test</b> | <b>post-test</b> |
| control      | N              | 15              | 15               |
|              | Minimum        | 8.00            | 8.00             |
|              | Maximum        | 19.00           | 19.00            |
|              | Mean           | 12.8000         | 12.1333          |
|              | Median         | 12.0000         | 11.0000          |
|              | Std. Deviation | 3.66840         | 3.39888          |
| convergent   | N              | 15              | 15               |
|              | Minimum        | 7.00            | 10.00            |
|              | Maximum        | 16.00           | 19.00            |
|              | Mean           | 10.6667         | 14.8000          |
|              | Median         | 11.0000         | 15.0000          |
|              | Std. Deviation | 2.69037         | 2.45531          |
| divergent    | N              | 15              | 15               |
|              | Minimum        | 5.00            | 7.00             |
|              | Maximum        | 13.00           | 18.00            |
|              | Mean           | 9.0667          | 12.8667          |
|              | Median         | 9.0000          | 13.0000          |
|              | Std. Deviation | 2.68506         | 2.72204          |
| Total        | N              | 45              | 45               |
|              | Minimum        | 5.00            | 7.00             |
|              | Maximum        | 19.00           | 19.00            |
|              | Mean           | 10.8444         | 13.2667          |
|              | Median         | 11.0000         | 14.0000          |
|              | Std. Deviation | 3.35719         | 3.04063          |

As it is seen in Table 1, the minimum and maximum scores of the control group in the pre-test are respectively 8 and 19 and in the post-test are 8 and 19. The mean scores of the

control group is 12.80 with a SD of 3.66 and the mean score of the post-test is 12.13 with a SD of 3.39.

The maximum and minimum scores of the convergent teaching method are 7 and 16 in the pre-test and 10 and 19 in the post-test, respectively. The mean score of students trained by the convergent teaching method is 10.66 with a SD of 2.69 in the pre-test and a mean score of 14.80 with a SD of 2.45 in the post-test.

The maximum and minimum scores of the divergent teaching method are 5 and 13 in the pre-test and 7 and 18 in the post-test, respectively. The mean score of students trained by the divergent teaching method is 9.06 with a SD of 2.68 in the pre-test and a mean score of 12.86 with a SD of 2.72 in the post-test.

### B. Inferential Statistics

**Hypothesis1:** The convergent teaching method has a positive effect on the learning of articles.

*Evaluating the homogeneity of the slope of regression lines:* The level of significance obtained is 0.835 which is bigger than 0.05; therefore, the variances are the same for both groups. As it is shown in Table 1, in the row for Group\* Pretest, the P-value is equal to 0.380 which was higher than 0.05, so interaction between the independent variable and covariate is not significant and the assumption of the homogeneity of the slope of regression lines is also held [ $F(1,26) = 0.799$ ,  $p = 0.380$ ,  $p > 0.05$ ].

**Table 2: Homogeneity of Regression for the Convergent Group**

#### Tests of Between-Subjects Effects

Dependent Variable: post-test

| Source          | Type III Sum of Squares | df | Mean Square | F      | Sig. | Partial Eta Squared |
|-----------------|-------------------------|----|-------------|--------|------|---------------------|
| Corrected Model | 196.495 <sup>a</sup>    | 3  | 65.498      | 16.538 | .000 | .656                |
| Intercept       | 58.589                  | 1  | 58.589      | 14.793 | .001 | .363                |
| GROUP           | 20.806                  | 1  | 20.806      | 5.253  | .030 | .168                |
| PRETEST         | 115.576                 | 1  | 115.576     | 29.183 | .000 | .529                |
| GROUP * PRETEST | 3.164                   | 1  | 3.164       | .799   | .380 | .030                |
| Error           | 102.972                 | 26 | 3.960       |        |      |                     |
| Total           | 5740.000                | 30 |             |        |      |                     |
| Corrected Total | 299.467                 | 29 |             |        |      |                     |

a. R Squared = .656 (Adjusted R Squared = .616)

*Analysis of covariance:* In order to investigate the research hypothesis and eliminate the effect of the pre-test on students' performance, an analysis of covariance (ANCOVA) was run, the results of which are shown in Table 3.

**Table 3: Analysis of Covariance (ANCOVA)****Tests of Between-Subjects Effects**

Dependent Variable: post-test

| Source          | Type III Sum of Squares | df | Mean Square | F      | Sig. | Partial Eta Squared |
|-----------------|-------------------------|----|-------------|--------|------|---------------------|
| Corrected Model | 193.331 <sup>a</sup>    | 2  | 96.665      | 24.591 | .000 | .646                |
| Intercept       | 55.462                  | 1  | 55.462      | 14.109 | .001 | .343                |
| GROUP           | 115.533                 | 1  | 115.533     | 29.390 | .000 | .521                |
| PRETEST         | 139.998                 | 1  | 139.998     | 35.614 | .000 | .569                |
| Error           | 106.136                 | 27 | 3.931       |        |      |                     |
| Total           | 5740.000                | 30 |             |        |      |                     |
| Corrected Total | 299.467                 | 29 |             |        |      |                     |

a. R Squared = .646 (Adjusted R Squared = .619)

As it is shown in Table 3, the row for the pre-test shows that the pre-test is significantly related to the post-test ( $P$ -value  $< 0.05$ ) with the magnitude of 0.569. It is the indicator of the effect of convergent teaching method on the dependent variable. After adjusting for pretest scores, there is a significant effect of the group ( $F = 29.390$ ,  $p < 0.05$ , partial  $\eta^2 = 0.521$ ). As  $P$ -value was less than 0.05, the difference between the two groups is significant and the effect of convergent teaching method on learning articles was verified.

**Hypothesis 2:** The divergent teaching method has a positive effect on the learning of articles.

*Evaluating the homogeneity of the slope of regression lines:* The level of significance obtained is 0.535 which is bigger than 0.05; therefore, the variances are the same for both groups. As it is shown in Table 4, in the row for Group\*Pretest, the  $P$ -value is equal to 0.487 which was higher than 0.05, so interaction between the independent variable and covariate was not significant and the assumption of the homogeneity of the slope of regression lines is held [ $F(1,26) = 0.498$ ,  $p = 0.487$ ,  $p > 0.05$ ].

**Table 4: Homogeneity of Regression for Divergent Group****Tests of Between-Subjects Effects**

Dependent Variable: post-test

| Source          | Type III Sum of Squares | df | Mean Square | F      | Sig. | Partial Eta Squared |
|-----------------|-------------------------|----|-------------|--------|------|---------------------|
| Corrected Model | 150.892 <sup>a</sup>    | 3  | 50.297      | 11.026 | .000 | .560                |
| Intercept       | 52.948                  | 1  | 52.948      | 11.607 | .002 | .309                |
| GROUP           | 15.456                  | 1  | 15.456      | 3.388  | .077 | .115                |
| PRETEST         | 121.137                 | 1  | 121.137     | 26.554 | .000 | .505                |
| GROUP * PRETEST | 2.271                   | 1  | 2.271       | .498   | .487 | .019                |
| Error           | 118.608                 | 26 | 4.562       |        |      |                     |
| Total           | 4957.000                | 30 |             |        |      |                     |
| Corrected Total | 269.500                 | 29 |             |        |      |                     |

a. R Squared = .560 (Adjusted R Squared = .509)

*Linear relationship:* Analysis of covariance: In order to investigate the research hypothesis and eliminate the effect of the pre-test on students' performance, an analysis of covariance (ANCOVA) was run, the results of which are reflected in Table 5.

**Table 5: Analysis of Covariance (ANCOVA)**

**Tests of Between-Subjects Effects**

Dependent Variable: post-test

| Source          | Type III Sum of Squares | df | Mean Square | F      | Sig. | Partial Eta Squared |
|-----------------|-------------------------|----|-------------|--------|------|---------------------|
| Corrected Model | 148.620 <sup>a</sup>    | 2  | 74.310      | 16.598 | .000 | .551                |
| Intercept       | 50.984                  | 1  | 50.984      | 11.388 | .002 | .297                |
| GROUP           | 62.662                  | 1  | 62.662      | 13.996 | .001 | .341                |
| PRETEST         | 144.587                 | 1  | 144.587     | 32.295 | .000 | .545                |
| Error           | 120.880                 | 27 | 4.477       |        |      |                     |
| Total           | 4957.000                | 30 |             |        |      |                     |
| Corrected Total | 269.500                 | 29 |             |        |      |                     |

a. R Squared = .551 (Adjusted R Squared = .518)

As it is shown in Table 5, the row for the pre-test shows that the pre-test is significantly related to the post-test ( $P$ -value  $< 0.05$ ) with the magnitude of 0.545. It is the indicator of the effect of the convergent teaching method on the dependent variable. After adjusting for pretest scores, there is a significant effect of the group ( $F = 13.996$ ,  $p < 0.05$ , partial  $\eta^2 = 0.341$ ). As  $P$ -value was less than 0.05, the difference between two groups was significant and the effect of convergent teaching method on learning articles was verified.

**Hypothesis 3:** The divergent teaching method is more effective than the convergent teaching method in learning articles.

**Table 6: Comparing the Mean for Convergent and Divergent Groups**

**Group Statistics**

|           | GROUP      | N  | Mean    | Std. Deviation | Std. Error Mean |
|-----------|------------|----|---------|----------------|-----------------|
| pre-test  | convergent | 15 | 10.6667 | 2.69037        | .69465          |
|           | divergent  | 15 | 9.0667  | 2.68506        | .69328          |
| post-test | convergent | 15 | 14.8000 | 2.45531        | .63396          |
|           | divergent  | 15 | 12.8667 | 2.72204        | .70283          |

**Table 7: Comparing the Effects of Divergent and Convergent Method on Learning Article by Using the T-test for Independent Groups**

|           |                             | Independent Samples Test                |      |                              |        |                 |                 |                       |         |   |  |
|-----------|-----------------------------|---|------|------------------------------|--------|-----------------|-----------------|-----------------------|---------|---|--|
|           |                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |        |                 |                 |                       |         | 95% Confidence Interval of the Difference |  |
|           |                             | F                                       | Sig. | t                            | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower   | Upper                                     |  |
| pre-test  | Equal variances assumed     | .237                                    | .630 | 1.630                        | 28     | .114            | 1.6000          | .98141                | -.41034 | 3.61034                                   |  |
|           | Equal variances not assumed |   |      | 1.630                        | 28.000 | .114            | 1.6000          | .98141                | -.41034 | 3.61034                                   |  |
| post-test | Equal variances assumed     | .019                                    | .891 | 2.043                        | 28     | .051            | 1.9333          | .94651                | -.00550 | 3.87216                                   |  |
|           | Equal variances not assumed |   |      | 2.043                        | 27.707 | .051            | 1.9333          | .94651                | -.00642 | 3.87309                                   |  |

According to the information given in Table 6 mean of scores of article in pretest for students taught by convergent is (10.66) and for divergent it is (9.06). To compare the significance of this difference, an independent samples T-Test was run, the results of which didn't not prove significant at  $p \leq 0.05$  ( $t=1.63$ ). Furthermore the comparisons of the means of the two experimental groups in the post test are not significantly different at  $p \leq 0.05$  which can imply that the *third hypothesis* was rejected [  $t(28)=1.630$ ,  $p=0.630$ ,  $p > 0.05$  ].

## V. CONCLUSION

### A. Discussion and Interpretation of the Findings

This research showed that there is a significant difference between the performance of students taught by divergent and convergent teaching methods and learning articles and that the convergent teaching is more effective.

Guilford and Jackson (1961) believed that there is no difference between these two methods. Gagne (1965) set out an eight-level hierarchy of learning types by putting more emphasis on convergent learning. Koe (1967) believed that problem-solving in his research could be best done by convergent and divergent teaching and convergent teaching was superior to divergent teaching on routine problems.

The findings of the present study are not in line with Ann (2003) who studied the relation of creativity and convergent and divergent methods for teaching spelling. He found that there is no significant difference in achievement between the high creative and low creative children and there is no significant interaction between teaching method and creativity.

The findings of the study, however, are in line with Strot (1985) who believed that pupils taught by convergent teaching method were more successful. One reason for this has been suggested by AkbariChermahini (2011) who claimed that divergent-thinking tasks require participants to generate as many target-related responses as possible, and the target constrains the selection of possible responses rather weakly. In contrast to divergent thinking, convergent thinking requires focusing onto one possible response per item and thus calls for a

strongly constrained search process. By divergent method we arrive at the best, most logical answer in the least time possible.

Haji Pour Nezhad (2013) also verified that convergent thinking emphasizes recognizing the familiar outcome, reapplying techniques, and accumulating information. Divergent thinking, however, causes the learner to generate and evaluate many creative ideas and draw unexpected connections. This finding is in line with Haji Pour Nezhad (2013) as according to Sandles (2003) that creativity is not relevant to convergent thinking because we do not have to be creative to know the answer to this problem; all you have to do is to come up with the stated, factual answer.

The result of this study is also in line with Koe (1967) who studied the effects of convergent and divergent teaching methods on students' performance on two mathematical problem-solving tasks. The purpose was to investigate the interaction between the convergent and divergent teaching methods and the thinking style (either convergent or divergent) of the learner implying that convergent thinkers scored significantly higher than did divergent thinkers on both dependent measures. This finding was proved by this study too.

### *B. Conclusion*

The results of the statistical analysis of the data obtained showed that convergent teaching method has a positive effect on learning articles by EFL learners. According to the same analysis, divergent teaching method has a positive effect on learning articles for EFL learners, too.

But as for the third hypothesis the divergent teaching method proved more effective than convergent method in teaching articles. However, findings showed that convergent teaching method based on the data gained and other findings is more effective than divergent teaching method especially in the present educational system. Since students learn better by examples and referring to their prior knowledge for deciding on a single solution rather than brainstorming and try to find different solutions for a problem.

### *C. Suggestions for Further Studies*

The studies about effect of convergent and divergent teaching methods on grammatical points learning are infrequent in literature on EFL teaching and learning. More studies are required to consider these issues. Comparing divergent and convergent teaching methods especially on teaching of grammar points is valuable to be investigated. This research just studied females and it is recommended to carry out studies involving both genders.

## REFERENCES

- Adam, A. (2002). Cybers talking and Internet pornography: Gender and the gaze, *Ethics and Information Technology*, 4(2), 133–142
- Afzali, A. (2012). A contrastive analysis on the application of definite and indefinite articles in the story texts in Persian and English languages. *Language*. 16(3). 34-48
- Akbari Chermahini, S. (2011). Creative mood swings: divergent and convergent thinking affect mood in opposite ways. *Psychological Research*. 76(5). 634-640.
- Alsagoff, Z. (2012). Thinking critically about teaching critical thinking. *Crosswords of Learning*, 13(3), 23-25
- Ann, J. (2003). Convergent and Divergent Methods of Teaching Spelling in Relation to Creativity. *Creativity*, 8(6).
- Aristizabal, G. (2012). Cognitive projects. *Corporate Translations*. 6(4).
- Birjandi, P. & Bagherkazemi, M. (2010). The relationship between Iranian EFL teachers' critical thinking ability and their professional success. *English Language Teaching*. 3(2).
- Chan, J., & Lau, J. (2011). *An Introduction to Critical Thinking and Creativity*. China.
- Koe, C. D. (1967). An investigation of the effect of convergent/divergent teaching methods on the mathematical problem-solving *EDST student theses and dissertations*. Davis: University of California.
- Dunn, O. (2014). How young children learn English as another language. *Learn English kids*, British council.
- Duff, M. (1986). Investigating tasks in language learning. *Language Learning*. 23(3),45-56.
- Ennis, R. H. (1996). A taxonomy of critical thinking dispositions and abilities. *Teaching thinking skills: Theory and practice*,12(3),pp. 9-26.New York
- Flowers, J. (2010).The problem in technology education. *Journal of Technology Education*, 21(2), 122-123.
- Gagne, R. (1965). *Learning theory*. University of Michigan.
- Geekz,T. (2014). Cognitivism activities, *Scribd*. 12(3), 23-25.
- Guilford, J.P. (1967). *The Nature of Human Intelligence*. McGraw-Hill Education.
- Guilford, J.P. (2001). Education and creativity, *Creativity research journal*,13(3).
- Guilford, J.P. & Jackson, J. (1961). Thinking. *The Journal of American Science*. 16(4).
- Gunn, CH. (2007). Teaching definite and indefinite articles, *Lanternfish ESL*, 16(4), 78-80.
- Haji Pour Nezhad, G. (2013). *The impact of task type and divergent thinking on reading proficiency*. Tehran: University of Social Welfare and Rehabilitation Sciences.
- Johnson, B. (2013). Great teachers don't teach, *Edutopia*, 13(2), U.S.

- Katamadze, N. (2006). Using creativity to practice articles with geographical names. *Creativity*, Batumi Shota Rustaveli State University: Goergia
- Koe, C. D. (1967). An investigation of the effect of convergent/divergent teaching methods on the mathematical problem-solving *EDST student theses and dissertations*. Davis: University of California.
- Lipoff, S. (2013). *Divergent teaching vs. convergent teaching in preschool*. Retrieved on 25 February 2014 from: [http://www.ehow.com/about\\_6196875\\_divergent-vs\\_-convergent-teaching-preschool.htm](http://www.ehow.com/about_6196875_divergent-vs_-convergent-teaching-preschool.htm)
- Mizuno, H. (1985). A psycholinguistic approach to the article system in English. *Jacet Bulletin*. 16(2), 1-29
- Paul, R. (2008). *Scientific Thinking*. The Foundation for Critical Thinking: England.
- Sandless, A. (2003). Cognitive thinking: creativity, brainstorming and convergent and divergent thinking. *Cognitive Perspective in Psychology*. 34(2), 45.
- Paul, R. (1997). A Brief History of the idea of critical thinking. *California Teacher Preparation for Instruction in Critical Thinking*. 24(3). 67.
- Schafersman, S. D. (1991). An introduction to critical thinking. Retrieved from: <http://facultycenter.ischool.syr.edu/files/2012/02/Critical-Thinking.pdf>
- Strott, E. (1985). Attractiveness of students with convergent and divergent learning styles to teachers with convergent and divergent learning styles. *Scholarly repository*. 11(3). University of Miami.
- Tresa, B. (2004). Cognitivism, Retrieved August 7, 2014 from: <http://www.slideshare.net/mandysmama/teresab-cognitivism-12286111>
- Thompson, A. (2008). *Critical Reasoning: A Practical Introduction*. London.
- Williams, Y. (2003). Convergent thinking: definition, examples & quiz, *Education Portal*, 13(3).
- Zeller, R. (2009). Development. *PMC*. 1(4).