

Enhancement of Students' Vocabulary Learning Through a Blended Learning Approach

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ABSTRACT

This study investigates the effects of the blended learning approach to teaching English vocabulary to ESL learners. This approach can be defined as a combination of a face-to-face classroom component with online instruction (Osguthorpe & Graham, 2003). The students' academic performance by comparing the blended learning environment and traditional learning environment is analyzed. The study has been carried out at Financial University under the Government of the Russian Federation in 2014-2015 academic year. Twenty-two third-year students majoring in International Finance were trained in the training program "Learning English through blended approach". A pre-test and an post-test were the main instruments used for the purpose of data collection. The performance-based pre-test was conducted before the training period and post-test was conducted after the training period to assess the participants. The very same set of students were made to do a post-test to assess their performance based on the blended learning approach. The results of *t* test for correlated data and Sandler's *A*-test suggest that the blended learning produced a positive effect on the ESL learners' results.

KEYWORDS

Blended learning, online learning, face-to-face learning, academic achievement

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Introduction

The major objectives of modern educational system

The Education Development programme for 2013-2020 aims to ensure that the quality of education meets people's changing requirements and the development objectives of the Russian society and economy, as well as to boost the

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effectiveness of the youth policy in order to facilitate innovative and socially oriented national development. (State programme, 2013). The model of a university graduate is understood as a conceptual description of learning goals, learning content and the principles of organizing the educational process in undergraduate programs. One of the major objectives of modern educational system is developing personal intellectual abilities, critical thinking skills essential for university studies across disciplines and independent learning strategies. Skills of self-study, willingness and ability to adapt to ever-changing social and economic situations are very important for modern graduates (Vasbieva & Klimova, 2015).

The benefits of using blended learning for enhancing students' learning experiences

Blended learning offers approaches to solving one of the main tasks of modern traditional education: the implementation and development of each student's potential abilities. Based on the concept of blended learning, it can be assumed that the introduction of this form of training to teaching practice can improve the efficiency of the educational process in a changing paradigm of modern education. This assumption is based on an analysis of Russian and foreign researchers' works on blended learning (Bersin, 2004; Mokhova, 2005; Kapustin, 2007; Picciano & Dziuban, 2007; Sharma & Barrett, 2007; Nazarenko & Sizykh, 2009; Matukhin et al., 2014; Veledinskaya & Dorofeeva, 2014).

With the advancement in communication and network technologies, the teaching environment has extended and learning solutions have emerged in order to provide meaningful learning experiences for learners in academic settings. Creating virtual classrooms through online and blended learning related to students' cognitive needs, interests and abilities is one of the innovative methods used to deliver meaningful learning experiences. The use of blended instruction is growing rapidly because instructors believe diverse delivery methods may significantly enhance learning outcomes as well as increase student's satisfaction from the learning experience. (Lim & Morris, 2009). A combination of a face-to-face classroom activity with the online instruction, referred to as blended learning, has become the alternative that is popular with language educators. So far several studies have shown that blended learning is highly appreciated and positively rated by the students (Fandey, 2012; Popolzina, 2014).

Learning vocabulary is crucial in mastering a foreign language as it is a backbone of any language. Acquiring an extensive vocabulary presents much importance even for those who show mastery of grammar as they might experience the failure to communicate. Many foreign language learners are familiar with the feeling of being unable to remember and use the right word in a conversation because of the lack of the range and appropriacy of their vocabulary. Thus, vocabulary is essential for language learners to master as it helps form sentences and express themselves in meaningful ways. It has been proved to be powerfully related to L2 acquisition with many studies as well.

Review of literature

The acquisition of vocabulary can only be achieved with the teaching strategies that appeal to various learning styles. Recent studies have proved many benefits of different technology-based instructional materials for effective verbal and

written communication (Tsaturova et al., 2007; Zhdanko, 2011; Dolinskiyj, 2012; Veledinskaya & Dorofeeva, 2014; Grishaeva, 2015). Therefore, today many higher education and training institutions are using blended learning as a supplementary tool for expanding students' vocabulary knowledge. Blended learning technology in teaching foreign language presents much interest to language teachers throughout the world. Unlike pure e-learning which refers to instruction delivered via electronic media, blended learning creates a personalized mix of face-to-face and digital learning experiences for each student.

Most research into blended learning approach and its importance in enhancing vocabulary knowledge reported a large number of positive effects. M. Lu (2008) examined the efficiency of SMS vocabulary lessons of limited lexical information on the small screens of mobile phones and compared two groups of high school students in Taiwan who were provided with two sets of English words either on paper or through SMS messages within two weeks. Students learned more vocabulary during the post-test after reading the regular and brief SMS lessons than they did after reading the relatively more detailed print material. The research findings based on questionnaires suggest that students prefer mobile phone for learning vocabulary.

Similarly, H. Zhang, W. Song & J. Burston (2011) made a comparative study on the efficiency of vocabulary learning via mobile phones and compared two groups of students at a Chinese university. Based on the research findings, they confirmed that "students can learn vocabulary more effectively short-term via mobile phones than with paper material".

Y. Ono and M. Ishihara (2012) investigated a new pedagogical model of blended learning on the basis of the platform, which introduced their class model providing the traditional Japanese classroom with Wi-Fi connected Mobile tools (iPod Touch, 2nd generation) and Learning Management Systems (LMS). The results of this study proved the effects of the proposed blended learning on learner's vocabulary acquisition, and suggested that the use of mobile tools in the classroom stimulated their consciousness about language learning strategies and enhanced learners' learning motivation.

A.I. Zumor et al. (2013) explored King Khalid University English as Foreign Language (EFL) students' views concerning advantages and disadvantages of face-to-face language instruction and online language learning via the Blackboard learning management system in a new pedagogical approach called Blended Learning. The 160 participants (male students) completed a 33-item questionnaire. Findings showed the advantages of blended learning in extending students' English vocabulary.

There are very few empirical studies in the literature which found blended learning instruction had no impact on students' academic achievements. A. Alshwiah (2010) studied the effects of a proposed blended learning strategy in teaching English vocabulary at Arabian Gulf University (AGU) on pre-medical students' achievement. Findings revealed that there were no significant statistical differences between the experimental and the control groups with regard to students' achievement in English Language.

The research on the effects of blended learning strategies in teaching vocabulary might uncover individual differences in vocabulary learning among students and encourage teachers to prepare and use instructional materials as

per their students' preferences. Present study, therefore, aims to identify the impact of this strategy on students' academic achievement. With respect to this aim, the present study raises the following research questions:

1. Is there any significant difference between pre-test scores of the learners before the training period and post-test scores of the learners who were exposed to blended learning instruction (after the training period) as regards their vocabulary knowledge?

2. What are the pedagogical suggestions on using blended learning strategy in teaching vocabulary in English?

Methodology

Research participants

To investigate the impact of blended learning approach to EFL teaching on students' achievement, 22 students who study International Finance in English at Financial University under the Government of the Russian Federation in Moscow participated in the study. They were third-year students. The subjects had already had two years of formal face-to-face delivery instruction in EFL at the rate of about four hours per week at university. For the pre-test and post-test, students need testing on what they are learning in the classroom in order to ensure student growth is measured accurately.

Instruments

The main instruments that were used to collect quantitative data are a pre-test and a post-test. Vocabulary section of the mid-term test was utilized as the post-test. The participants' assessments were based on their performance in the pre-test before the training period. After they had undergone 2-month training, they were given the post-test. The same set of questions was used both in the pre-test and the post-test to increase the validity of the tests. The results of the pre-test and post-test were compared to find out, if at all the training in the blended format has produced a positive effect on the ESL learners' results.

Procedure of the study

The purpose of the pre-test was to assess the students' existing vocabulary knowledge obtained during a two-year face-to-face classroom activity and to make sure that the participants were all at the same level of language proficiency. The sample comprised a total of 22 undergraduate students studying the target vocabulary items through blended learning strategies. Blended learning instruction template was designed by the researchers to enable students to use the language in and outside the classroom.

Digital visual learning tools aimed at encouraging students to practice new target vocabulary items in their own time. In-class sessions, on the other hand, the teacher focused on communicative activities through pair and group work, creating a collaborative atmosphere.

This is a diagnostic/experimental study as well as hypothesis testing in nature, to identify the relationship between the marks in the pre-test and exit test which are the two variables under consideration in order to predict or estimate the extent to which the training undergone by the participants was effective. The study design constructed here is based on the study of questions.

Hypothesis: Null hypothesis is assumed that the two experiments will give same results. Value α has been fixed at 5% level of significance.

Null Hypothesis $H_0: \mu: \text{experiment A} = \text{experiment B}$.

Alternative Hypothesis $H_a \mu: \text{experiment A} \neq \text{experiment B}$.

Data collection: The present study is based on primary data.

Analysis of Data: Data has been analysed with the Sandler A test and T statistics non parametric tests.

Interpreting and Reporting: Finally, the researchers have to prepare the report of what has been done by them in the form of conclusion.

Problems Encountered by Researchers and scope for further research:

The t test for correlated data and A test developed by Joseph Sandler have been used by the researcher as correlated samples are employed and hypothesized mean difference is taken as Zero, i.e. $H_0: \mu_D = 0$

$$t = \frac{\sum D}{\sqrt{\frac{n\sum D^2 - (\sum D)^2}{n-1}}}$$

$$A = \frac{\text{The Sum of Squares of the difference}}{\text{The Squares of the sum of the difference}} = \frac{\sum D^2}{(\sum D)^2}$$

We have the computed values of t and A , which then have been compared with its corresponding table values for drawing inference concerning acceptance or rejection of null hypothesis. As if the calculated value of t or A is equal or less than the table value, t or A statistics is considered significant where upon researcher can reject H_0 and accept H_a . But if the calculated values of t or A is more than its table value, then t or A statistics is taken as insignificant and accordingly researcher can accept H_0 .

Results and Discussion

The purpose of this research paper was to implement an analysis that would cover the relationship between the marks in the pre-test and post-test which are the two variables considered in order to predict or evaluate the extent to which the training undergone by the participants was effective. The t test for correlated data and Sandler's A-test were done to find out, if at all, the training produced a positive effect on the ESL learners' results.

The null hypothesis (H_0) in this case is that there is no difference between the scores in the pre-test and post-test. The data are set out in Table 1.

Using the *t* test for correlated data

The difference of the two sets of data can be estimated using the *t* test for correlated means.

t is given by the formula:

$$t = \frac{\sum D}{\sqrt{\frac{n\sum D^2 - (\sum D)^2}{n-1}}}$$

Substituting our data from Table 2

$$t = \frac{755}{\sqrt{\frac{22(34997) - (755)^2}{21}}} = \frac{755}{\sqrt{\frac{769934 - 570025}{21}}} = \frac{755}{\sqrt{9519,48}} = 7,74 \quad 5\% (t=2.08)$$

Degrees of freedom is given by the formula:

$$df = n-1 = 22-1 = 21$$

The obtained value of $t=7.74$ exceeds the critical value at 5% level ($t=2.08$). The researcher should therefore reject the null hypothesis (H_0) and conclude that the training had a positive effect on ESL learners.

Table 1. Pre-Test and Post-Test Results

Students	Results (scores)	
	Pre-test	Post-test
A	20	45
B	34	90
C	75	95
D	81	99
E	17	65
F	19	98
G	45	70
H	11	52
I	5	73
J	22	60
K	95	98
L	99	100
M	95	100
N	70	95
O	61	70
P	11	64
Q	41	85
R	30	79
S	25	80
T	64	90
U	46	85
V	12	50

Table 2. Results of the Pre-Test and Post-Test: Computation

Students	Results (scores)		<i>D</i>	<i>D</i> ²
	Pre-test	Post-test		
A	20	45	25	625
B	34	90	56	3136
C	75	95	20	400
D	81	99	18	324
E	17	65	48	2304
F	19	98	79	6241
G	45	70	25	625
H	11	52	41	1681
I	5	73	68	4624
J	22	60	38	1444
K	95	98	3	9
L	99	100	1	1
M	95	100	5	25
N	70	95	25	625
O	61	70	9	81
P	11	54	43	1849
Q	41	85	44	1936
R	30	79	49	2401
S	25	80	55	3025
T	64	90	26	676
U	46	85	39	1521
V	12	50	38	1444

$$\sum D = 755 \quad \sum D^2 = 34997$$

$n=22$

Note. *D*=the difference between each student's two scores; *n*= the number of students.

Using Sandler's A Statistic

A simple alternative to t for correlated data was suggested by Sandler (1955). Sandler's A is given by the formula:

$$A = \frac{\text{The Sum of Squares of the difference}}{\text{The Squares of the sum of the difference}} = \frac{\sum D^2}{(\sum D)^2}$$

Substituting our data from Table 2 above:

$$A = \frac{\sum D^2}{(\sum D)^2} = \frac{34997}{755^2} = \frac{34997}{570025} = 0.061$$

Since H_0 in the given problem is one-sided, one tailed test has been applied. Our obtained value of $A=0.061$ is less than the critical value at the 1% level ($A=0.196$) and at the 0.5% level ($A=0.165$). As such A -statistic is significant and accordingly H_0 should be rejected. This has resulted in the inference that there is a positive relationship of statistical significance between the two variables (the marks scored by the students in the pre-test and post-test respectively) as proposed by the alternative hypothesis. As a result, it is concluded that the findings of the present study well demonstrated the efficiency of the training. Our conclusion is precisely the same as we would arrive at using the t test for correlated data.

Conclusion

In conclusion, the results of this study are in line with many of the previous studies which have discovered lots of benefits of blended learning over face-to-face instruction. The students achieved great learning outcomes by the end of the 2-month training program in the blended format. Findings indicate that the proposed blended learning strategy improved the students' vocabulary achievement. By and large the students were satisfied with the proposed blended learning strategy in teaching vocabulary and prefer it to the traditional classroom based learning, as it allows them to work independently at their own pace.

Blended online vocabulary instruction could be effective to help EFL learners improve their vocabulary knowledge if digital tools are selected in accordance with students' needs and interests. Blended learning, when well implemented, has the potential to support vocabulary learning process since it increases the amount of learning compared to that in-class learning.

The blended learning approach is likely to emerge as the predominant instructional model in the future.

The major limitation of this study is that the research findings are based on the practice in a single institution, although they do cover a range of disciplines. A suggested future research area is to adopt the research methodology developed in this project to conduct research in several universities to obtain a broader picture of the use of blended learning in the sector. Another proposed research area is to conduct an extensive study on the use of blended learning in particular subject disciplines.

Disclosure statement

No potential conflict of interest was reported by the authors.

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