European Journal of Open Education and E-learning Studies
ISSN: 2501-9120
ISSN-L: 2501-9120
Available on-line at: www.oapub.org/edu

doi: 10.5281/zenodo.573709 Volume 2 | Issue 1 | 2017

STRATEGIES OF WEB-BASED INSTRUCTION IN TEACHING AND LEARNING OF PHRASAL VERBS IN ENGLISH: A COMPARATIVE STUDY

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Abstract:
Web-based learning is the most effective strategy in delivering the best training to the maximum number of learners at the lowest cost. Fifteen modules in different web-based instructional strategies viz. OT, OTswSRM and OT-OC have been developed. The results of the study reveal that the performance of e-learners on Communicative English through internet is very much encouraging.

Keywords: web-based instruction, online instructional strategies, online learning of phrasal verbs, open educational resources on phrasal verbs, online English learning, 2012 OER congress Paris declaration

1. Introduction

Education involves the teaching-learning process with the paradigm shift been from teaching to learning. But, in olden days, the teacher was the kingpin who decided the various phases of the teaching. Due to two kinds of explosions viz. population explosions and knowledge explosion, there has been innumerous problem which we face in day to day practice. The emerging problems due to the said explosions have been solved via educational technology. Educational Technology is making both learning and teaching processes effective as well as efficient. It is imperative to make

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the teaching-learning process motivating, interesting and exciting by availing the new technologies viz. computer, internet, e-mail, CD-ROMs, DVDs, Interactive Video, Teleconferencing, etc., which enables large number of learners to get access to quality education and adopt self-learning to improve their learning potentials. At this juncture, E-learning assumes importance utilizing electronic technologies to access educational curriculum outside of the traditional classroom. It refers to a course, program or degree delivered completely online. It is nothing but, the network-enabling transfer of skills and knowledge. It refers to using electronic applications and processes with a view to enhance learning. E-learning applications and processes include web-based learning, computer-based learning, virtual classrooms and digital collaboration besides offering the ability to share material in all kinds of formats such as videos, slideshows, word documents and PDFs. Hence, it may be defined as 'learning facilitated and supported through the use of information and communications technology'. Web-based learning is a subset of e-learning and refers to learning using Internet mainly availing a browser (such as Chrome or Firefox or Internet Explorer). It can also be viewed as learning through the use of electronic devices.

2. Web Based Instruction

The use WWW as an instructional tool is becoming more popular as more teachers, instructors, and trainers incorporate it into their repertoire. Grouped together, any instruction that makes use of a computer is called Computer Based Training (CBT), and those strategies that employ the Web as the repository for instructional information are known as Web-Based Instruction (WBI). It can be employed in a distance education model or as an adjunct to teacher-led face to face classrooms for it meets the needs of a more diverse student group. It allows students to work at pace that is more comfortable - some students work faster than their peers while others may wish to take longer. Thus, the WBI provides the opportunity for multiple grade levels to be accommodated in the same classroom at the same time.

3. Review of Related Literature

Oliver and Omari (2001) studied the students' responses and reactions to a web-based environment supporting problem-based learning. The findings of the study reveal that a number of important factors missing in the implemented setting including an organization strategy to aid students in the problem-solving process and adequate

feedback to ensure reflection among the learners on the quality of the solutions they were developing.

GaIEzer and Lupo (2002) studied integrating internet tools into traditional CS distance education. The result of the study reveal that the use of the Web increases as students advance in their studies, although even in this case the Web is not used as much as it could be, either as a communication channel or as a study tool.

Liaw (2002) studied the user perceptions of worldwide web environments. The study reveals that the conceptual model helps the understanding of user perceptions to Web environments. In addition, training and educational programmes on computers may foster a positive feeling towards the Web.

Ng and Gunstone (2002) studied using the World Wide Web (WWW) as a research and teaching tool in promoting self-directed learning in a group of 15-year-old students. The study revealed that the students found that the WWW had a number of positive effects on their learning including motivation for independent learning. But at the same time, the unedited and unstructured nature of the WWW meant that many of the sites they visited had information that was too difficult to understand and that time was required to improve technical and critical thinking skills to search effectively.

Ployhart et al. (2003) compared the equivalence of proctored Web-based tests to paper-and-pencil tests in a selection setting. The findings of the study revealed that proctored Web-based testing has some positive benefits relative to paper-and-pencil measures and identify several implications of these findings for research and practice.

Olson and Hale (2007) studied the administrators' attitude towards Web Based instruction at five academic institutions in the University of Texas system. The findings of the study reveal that administers' perceptions were positively inclined towards Web Based instruction through these years. They believe that high quality learning can take place in Web Based courses and they are interested in increasing Web Based courses.

Clougherty and Wells (2008) studied using Wiki, a type of Website in Chemistry instruction for Problem-Based Learning (PBL) assignments. The findings of the study reveal that the students found the wiki to be an effective tool for facilitating their collaboration in work as teams and believed that it greatly contributed to the quality of Peer review as well as made the course more engaging.

Erdogan et al. (2008) studied the factors that influence academic achievement and attitude towards the It was found that Web Based Education has positive effects on the improvement of academic achievement and the Web use had positive effects mainly on motivation for learning and interest in the lessons.

Biswas (2009) studied the effective learning method for Web Based Education aiming to find out whether visual strategy or multimedia presentation in Web Based

Education is more effective. It was found that some students prefer reading documents to watching video clips while others learn better from watching video clips than reading documents on the terminal.

Sharma et al. (2011) studied whether the Web Based Tutorials and online discussion with subject experts can bring revolution in the education system. It was found that 75% of the faculties and 85% of the professional course students were of the opinion that Web Based tutorials and online discussion with subject experts is one of the innovative learning methods for the professional education.

Tsai et al. (2011) studied the effects of combined training of Web Based problem based learning and self-regulated learning on low achieving students' skill development through a quasi-experimental study. The results of the study revealed that this approach enhanced students' skills of Website planning and led to higher levels of involvement.

Yen et al. (2011) investigated the effect of motivation on students' conceptual learning outcomes in Web Based as well as classroom based learning situation. The findings of the study revealed that student's motivational factor were correlated significantly with their conceptual learning outcomes in both Web Based and classroom based science teaching.

Sawant and Shinde (2012) studied the effect of Web Based education environment in schools with special reference to Satara District of Maharashtra. It was found that in schools, preliminary education can be easily delivered through Web Based education. Teaching using animations, power point presentations, CD's or Audio Visuals have more impact on student's mind compared to traditional teaching.

Preeti Yadav (2016) attempted a study in developing and validating the Web Integrated instructional package for learning disabled (dyslexic) elementary students in English language. It was found that teaching through web integrated instructional package significantly improve the score of experimental group of learning disabled elementary school students of 3rd grade in the academic achievement of English grammar.

4. Need for the Study

Web-based learning is the most effective strategy in delivering the best training to the maximum number of learners at the lowest cost since it is flexible, fast and convenient besides delivering measurable results that bring a real return on investment. Online courses usually do not have regular face to face meetings. Hence, the student can do their academic work and study based on their schedule. Instead of being limited to

asking questions during class or office hours, they have direct access to their instructors via email or message boards (Goast, 2004).

The minimum requirement for the students to participate in an online course is access to a computer, the internet and motivation to succeed in a nontraditional classroom. In such a way, there has been a need for a study as taken up by the scholars.

5. Statement of the Problem

Communicative English through web-based instructional strategies renders self-education for self-development of those who are in need of the same. Communicative English trains the learners how to live with communicative skills in the modern world. Present educational system causes lack of communicative skills to carry out routines in day to day life for want of communication in English. It is pertinent that there is essentially a need for to developing communicative skills in English among the learning society to lead a successful life. Keeping these observations in mind, the present study entitled "Strategies Of Web-based Instruction in Teaching and Learning of Phrasal Verbs in English: A Comparative Study" has been taken up by the scholars.

6. Scope of the Study

Web-based Instructional Strategies provide a rich environment for e-learners and e-instructors. The teaching-learning in the classroom becomes significantly richer as learners have access to different types of ICT applications in education. Under these circumstances, the present study aims at investigating the impact of different web-based instructional strategies over the mastery of the learners in Communicative English. This study proves the effectiveness of web-based instructional strategies in developing communicative skills in English among the learners besides contributing for attainment of better command over communicative English. The results of the study reveal that the performance of e-learners on Communicative English through internet is very much encouraging.

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7. Objectives of the Study

Keeping the ideas as stated above in mind, the following objectives have been spelt out for the study in hand:

1. To develop web-based instructional materials for teaching of Phrasal Verbs in English among public

2. To evaluate the developed web-based instructional materials from technical and pedagogical points of view aiming to bring out their strength and weakness.
3. To study the relative effectiveness among different strategies of web-based teaching -learning process in the context of learning Phrasal Verbs in English
4. To develop pre and post tests to measure the entry behavior and mastery of the learners in learning Phrasal verbs in English respectively

8. Hypotheses of the Study

In line with the specified objectives of the study, the hypotheses are stated as given below:

1. There is significant difference between the means of pre and posttest grand total scores of the subjects of different web-based instructional strategies viz..Online Tutorial (OT), Online Tutorial Supported with Supplementary Reading Materials (OTswSRM) and Online Tutorial supplemented with Online Counseling (OTOC).
2. There is significant difference among different web-based instructional strategies viz..Online Tutorial (OT), Online Tutorial Supported with Supplementary Reading Materials (OTswSRM) and Online Tutorial supplemented with Online Counseling (OTOC) in terms of their effectiveness in realizing the instructional objectives in Phrasal Verbs in English.

9. Operational Definitions of Terms

9.1 Online Tutorial (OT)

This strategy is one of the web-based instructional environment where, once the learner learns the given concept and gives the correct answer to the question asked, he will be directed to move to the next concept. If the given answer is wrong, he will be directed to the same concept to re-read and gain a clear understanding. As the mastery over the given concepts is the target of the programme, the system does not permit the learner to move forward unless he gets the mastery over the concepts already introduced.

9.2 Online Tutorial Supported with Supplementary Reading Materials (OTSwSM)

This strategy provides the same experience as has already been illustrated to the Online Tutorial mode for the online learner. However, at the same time, when compared to the previous mode, here the learner is able to avail Summary, Frequently Asked Questions, Detailed Text, Glossary to learn new words/technical terms, List of References and

Web-site Links so that he can refer to the additional information related to the content being taught. If the learner needs to download any of Summary, Frequently Asked Questions, Detailed Text, Glossary to learn new words/technical terms, List of References and Web-site Links, he can do so without any difficulty.

9.3 Online Tutorial Supplemented with Online Counseling (OT-OC)

In this strategy, the process of learning is similar to that of the Online Tutorial mode but at the same time, here the learner is additionally given the provision of communicating with the researcher through online chat and clarifying his doubts regarding the concept in each and every frame of the module. He can make use of the option 'SEND QUERY TO ADMIN' given in the right hand side of each frame in the module. The learner is expected to write the name of the concept in the SUBJECT BOX wherein he has doubts and again he has to write his queries in the MESSAGE BOX. Once typed as illustrated, he can send the message to the admin namely the researcher. He can also view the answers sent by the Admin in the INBOX, given in the PROFILE, on the website menu after login.

9.4 Effectiveness of the Strategies

It is operationally defined as the efficacy of the LMSs how far they ensure the learners to attain mastery in realizing the instructional objectives as has already been specified for each and every module and evidenced by the scores obtained by the subjects of the various experimental groups measured by the Post Tests.

10. Tools Used in the Study

The following tools have been used in the study:

1. Fifteen instructional modules in different web-based instructional strategies viz. Online Tutorial (OT), Online Tutorial Supported with Supplementary Reading Materials (OTswSRM) and Online Tutorial supplemented with Online Counseling (OTOC) in teaching and learning of Phrasal Verbs in English have been developed.
2. To assess the entry and exit behavior of the subjects of various experimental groups, Pre and Post Tests have been developed keeping in view all the instructional objectives spelt out from different levels of cognition.
3. To validate the web-based instructional materials as to how far they comply with technical and pedagogical points of view, an Evaluation Performa has been designed with five point rating scale.

11. Brief Methodology of the Study

Pretest, Posttest Equivalent Groups Design, as an experimental design was considered to be the exact method of research in testing the formulated hypotheses of the study in hand. The experiment being conducted online, the subjects have chosen the different instructional strategies at their will without any intervention on the part of the researchers leading to the formation of different experimental groups by random assembly of the subjects into different experimental interventions. Fifteen web-based instructional materials were developed in teaching and learning of Phrasal Verbs in English availing different strategies of web-based instruction viz. OT, OTswSRM and OT-OC. The system allowed the learners who desired to develop their communicative skill in English to register them choosing their desired instructional strategy. Wider publicity via social media was given among the target population with regard to the availability of the said instructional materials as an Open Educational Resource.

A given person was allowed to choose any one of the said instructional strategies. Once chosen, the learner could not change his option. He had to go through the different modules either in linear fashion or even at random. He had to take up the pretest before he goes to the learning material followed by the posttest viz. Criterion Referenced Test (CRT) for each and every module. The same condition applied to all the instructional strategies without any distortion. Once the given subject completed all the five modules, he was directed to respond to the Feedback Form with a view to bring out the strength and weakness of the learning materials with respect to pedagogical and technical points of view. The participants' evaluation of the media based instructional materials revealed that they were prepared as per the desirable criteria. Ultimately, each strategy was attended by 30 people from different locations.

12. Analysis of Data

As already planned, the Statistical Techniques viz. Analysis of Variance and 't' test were availed with a view to test the formulated hypotheses.

12.1 Establishment of the Homogeneity among the Experimental Groups

In order to establish the homogeneity among the experimental groups with respect to the entry behavior of the subjects in Phrasal Verbs in English, an Analysis of Variance was attempted among the scores of the subjects of the experimental groups as measured by the Pre-Test taking the grand total of the scores obtained by them for all the five modules taken together. The results are given in the Table: 1.

Table 1: Analysis Of Variance among the Grand Total Scores of the Subjects of the Experimental Groups As Measured By the Pre-Tests for All the Modules Taken Together

S.No.	Sources of Variance	S.S.	DF	MS	F
1.	Between Groups	96.42	2	48.21	0.54 N.S.
2.	Within Groups	7818.87	87	89.87	
	Total	**7915.29**	**89**		

N.S.: Not Significant

From the Table 1, it is found that the "F" value is not significant. Hence, it is concluded that the experimental groups are homogeneous with respect to the entry behavior of the subjects in Phrasal Verbs in English. In order to test the spelt out hypotheses, the same were stated in the null form.

12.2 Null Hypothesis: 1

There is no significant difference between the means of pre and posttest grand total scores of the subjects of different web-based instructional strategies viz..Online Tutorial (OT), Online Tutorial Supported with Supplementary Reading Materials (OTswSRM) and Online Tutorial supplemented with Online Counseling (OTOC.

To test the null hypothesis, "t" tests were attempted between the means of the subjects of the three experimental groups on the grand total scores as measured by the Pre and Post Tests of all the five modules taken together. The mean and SD of the said scores have already been computed. The results are given in the Table 2.

Table 2: Significance of Difference between the Means of the Grand Total Scores of the Subjects of Various Experimental Groups As Measured By the Pre and Post Tests for All the Modules Taken Together

Sl.No.	Experimental Strategies	Pre-Test		Post-Test		D	σ_D	"t"
		M1	SD1	M2	SD2			
1.	OT	38.70	9.51	61.63	7.38	22.93	2.15	10.64 *
2.	OTswSRM	36.27	10.21	54.93	10.26	18.67	1.62	11.73 *
3.	OT-OC	38.10	8.66	53.43	11.16	15.33	0.86	17.73*

N1=N2=30 *: Significant at 0.01 level

From the Table 2, it is found that the "t" values are significant at 0.01 level. It is also found that the mean scores of the Post-Tests are greater than that of the Pre-Tests. Hence, the null hypothesis is rejected and the hypothesis is accepted. It is concluded that the web-based learning strategies are effective in realizing the instructional objectives in Phrasal Verbs in English.

12.3 Null Hypothesis: 2

There is no significant difference among different web-based instructional strategies viz..Online Tutorial OT),Online Tutorial Supported with Supplementary Reading Materials (OTswSRM) and Online Tutorial supplemented with Online Counseling (OT-OC) in terms of their effectiveness in realizing the instructional objectives in Phrasal Verbs in English.

In order to test the null hypothesis, an Analysis of Variance was attempted among the grand total scores of the subjects of all the three experimental groups as measured by the Post-Tests of all the modules. The results are given in the Table 3.

Table 3: Analysis Of Variance among the Grand Total Scores of The Subjects Of The Experimental Groups As Measured By The Post-Tests For All The Modules Taken Together

Sl. No.	Sources of Variance	S.S.	DF	MS	F
1.	Between Groups	1143.80	2	571.90	6.04 *
2.	Within Groups	8244.20	87	571.90	
	Total	9388.00	89		

*: Significant at 0.01 level

From the Table: 3, it is found that the "F" value is significant at 0.01 level. Hence, the null hypothesis is rejected and the hypothesis is accepted. It is concluded that there is significant difference among different web-based instructional strategies viz..Online Tutorial (OT), Online Tutorial Supported with Supplementary Reading Materials (OTswSRM) and Online Tutorial supplemented with Online Counseling (OTOC) in terms of their effectiveness in realizing the instructional objectives in Phrasal Verbs in English.

In order to find out the relative effectiveness among the different web-based learning strategies in terms of realizing the instructional objectives in Phrasal Verbs in English, "t" tests were attempted between the means of the grand total scores of the subjects of the various experimental groups as measured by the Post-Test for all the modules taken together. The mean and SD of the said scores of the subjects of the various experimental groups have already been computed. The results are given in the Table 4.

Table 4: Significance of Difference between the Means of the Grand Total Scores of the Subjects of Various Experimental Groups As Measured By the Post Test For All the Modules Taken Together

Sl.No.	Groups Compared	M1	SD1	M2	SD2	D	σ_D	"t"
1.	OT Vs OT sw SRM	61.63	7.38	54.93	10.26	6.70	2.29	2.93*
2.	OT Vs OTswSRM	61.63	7.38	53.43	11.16	8.20	2.31	3.55*
3.	OTswSRM Vs OT-OC	54.93	10.26	53.43	11.16	1.50	2.73	0.55 NS

N1=N2=30 *: Significant at 0.01 level N.S.: Not Significant

From the Table 4, it is found that the mean difference between the experimental groups viz. OT and OT sw SRM & OC-OC are significant at 0.01 level. But at the same time, there is no significant difference between the mean scores of the experimental groups viz. OT sw SRM and OT-OC. The mean value of the experimental group OT is found to be greater than that of both OT sw SRM and OT-OC. Hence, it is concluded that OT as one of the web-based learning strategies is more effective when compared to OT sw SRM and OT-OC in realizing the instructional objectives in Phrasal Verbs in English. However, OT sw SRM and OT-OC do not differ between them in their effectiveness in realizing the instructional objectives in Phrasal Verbs in English.

13. Major Findings of the Study

1. It is found that the "t" values are significant at 0.01 level between the means of the grand total scores of the subjects of the three experimental groups as measured by the Pre and Post Tests for all the modules taken together. It is also found that the mean scores of the Post-Test are greater than that of the Pre-Test. Hence, the null hypothesis rejected and the hypothesis is accepted. It is concluded that the web-based learning strategies are effective in realizing the instructional objectives in the Phrasal Verbs in English.
2. It is found that the "F" value is significant at 0.01 level among different web-based instructional strategies viz..Online Tutorial (OT), Online Tutorial Supported with Supplementary Reading Materials (OTswSRM) and Online Tutorial supplemented with Online Counseling (OTOC) on the grand total scores of the subjects of said web-based learning strategies as measured by the Post-Tests for all the modules taken together. Hence, the null hypothesis is rejected and the hypothesis is accepted. It is concluded that there is significant difference

among different web-based instructional strategies viz..Online Tutorial (OT), Online Tutorial Supported with Supplementary Reading Materials (OTswSRM) and Online Tutorial supplemented with Online Counseling (OTOC) in terms of their effectiveness in realizing the instructional objectives in Phrasal Verbs in English.

3. It is found that the mean difference between the experimental groups viz. OT and OT sw SRM & OC-OC is significant at 0.01 level on the grand total scores of the subjects of said web-based learning strategies as measured by the Post-Test for all the module taken together. But at the same time, there is no significant difference between the mean grand total scores of the experimental groups viz. OT sw SRM and OT-OC on the scores of the subjects of said web-based learning strategies as measured by the Post-Tests for all the modules taken together. The mean value of the experimental group OT is found to be greater than that of both OT sw SRM and OT-OC. Hence, it is concluded that OT as one of the web-based learning strategies is more effective one when compared to OT sw SRM and OT-OC in realizing the instructional objectives in Phrasal Verbs in English. However, OT sw SRM and OT-OC do not differ between them in their effectiveness in realizing the instructional objectives in Phrasal Verbs in English.

14. Delimitations of the Study

1. The homogeneity among the different experimental groups was established only based on the grand total scores obtained by the subjects as measured by the pre-tests of all modules taken together simply ignoring the influence of the intervening variables viz. test anxiety, fatigue, motivation, attitude towards media based education, personality and intelligence.
2. Due to the vastness of the content viz. Phrasal Verbs in English, the researchers have chosen only limited Phrasal Verbs coming under different categories of the same while developing the said instructional modules.

15. Educational Implications of the Study

The study emphasizes the development and utilization of a web- based learning system in the field of teaching and learning of English as a second language both formal and non-formal system of education. The outcome of the study encourages other researchers in their development and utilization of web-based learning system with criteria based instructional techniques. The findings of the study being objective in nature, the

generalization from the results will be credible for other such studies. The learners of both formal and non-formal streams may benefit from the web sites. Hence, it is to ensure that the LMS could offer alternative, or additional, learning strategies and environments to the learners in general.

16. Recommendations

Keeping the findings of the study and also in line with the recommendations of the 2012 OER Declaration promulgated in Paris in mind, the following recommendations are made:

1. Promotion and use of OER to widen access to education in a perspective of lifelong learning contributing to social inclusion, gender equity and special needs education besides improving both cost-efficiency and quality of teaching and learning outcomes.
2. Bridging the digital divide by developing adequate infrastructure supported with affordable broadband connectivity, widespread mobile technology and reliable electrical power supply.
3. Promoting the development of specific policies for the production and use of OER within wider strategies for advancing education.
4. Facilitating the re-use, revision, remixing and redistribution of educational materials across the world through open licensing.
5. Supporting institutions, training and motivating teachers and other personnel to produce and share high-quality, accessible educational resources, taking into account local needs and the full diversity of the learners.
6. Taking advantage of evolving technology to create opportunities for sharing materials which have been released under an open license in diverse media and ensuring sustainability through new strategic partnerships within and among the education, industry, library, media and telecommunications sectors.
7. Favouring the production and use of OER in local languages and diverse cultural contexts to ensure their relevance and accessibility.
8. Fostering research on the development, use, evaluation and re-contextualisation of OER as well as on the opportunities and challenges they present.
9. Encouraging the development of user-friendly tools to locate and retrieve OER that are specific and relevant to particular needs.
10. Encouraging the open licensing of educational materials produced with public funds.

17. Conclusion

Realizing the significance of web-based instruction in the teaching-learning process both in formal and non-formal systems of education, we have to provide high quality personalized and interactive knowledge modules over the internet/intranet for all the learners in any time anywhere mode besides creating high quality e-contents for the target population in addition to extending computer infrastructure and connectivity for the benefit of the learning community. It is also pertinent to focus on appropriate pedagogy for performing experiments through virtual laboratories, online testing and certification, online availability of teachers to guide and mentor learners, utilization for available Educational Satellite and Direct to Home (DTH) platforms, training and empowerment of teachers to effectively use the new method of teaching-learning.

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