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The Impact of *Blended Learning* on Teaching English for Vocational Purposes

ABSTRACT. The one-group experiment attempted to investigate the impact of *blended learning* on teaching English for Vocational Purposes (EVP). To maximize its internal and external validity, methodology of triangulation was employed. The results obtained indicate considerable progress and statistically significant differences between the pre-treatment and post-treatment scores in the overall acquisition of technical terminology and in the area of vocational vocabulary learned productively.

KEYWORDS: *Blended learning* formula, English for Specific/Vocational Purposes, vocabulary acquisition, productive vocabulary knowledge, receptive vocabulary knowledge.

1. INTRODUCTION

The article presents research findings related to teaching English for Specific Purposes (ESP). The significance of fluency in English as a Foreign Language (EFL) and the need to develop linguistic competences for both general and specific purposes seem to arise out of the growing importance of English as the contemporary *lingua franca*, the expansion of the common European space, our increasing mobility and the rising amount of business and social human contact. The issue concerns individuals as well as institutions acting in various areas. The constantly changing reality requires appropriate foreign language teaching that can adapt to concrete occupational/vocational needs of the target groups.

2. RESEARCH BACKGROUND

The objective of the study presented here was to explore the impact of *blended learning* on teaching English for Specific Purposes (ESP), and more specifically on a selected aspect of English for Vocational Purposes (EVP). ESP has become an important and distinctive part of Teaching English as a Foreign Language (TEFL) since the 1960s. Much of its early life was dominated by the teaching of English for Academic Purposes (EAP) and research conducted in the area. English for Occupational/Vocational Purposes (EO/VP) played a significant though a smaller role in it (Dudley-Evans, St John 2009). To the best of my knowledge, no study focused on the influence of *blended learning* on teaching EVP.

3. KEY RESEARCH CATEGORIES

The teaching formula referred to as ***blended learning*** combines traditional face-to-face classroom interaction with computer-mediated activities and belongs to the most frequently employed options in the process of foreign language teaching. As opposed to pure *e-learning*, it is an outcome of mixing two different learning environments with a view to optimizing the conditions for learning and making it more efficient. Consistently with the definition of *blended learning* offered in the publications of the Sloan Consortium, an American organization devoted to integrating on-line education into the mainstream of tertiary education, the virtual component can come within the 30–79% range of the course (Maciaszczyk 2011).

As an approach to learning and teaching, *blended learning* has several advantages. One of them is the possibility of customized instruction based on the student needs, which can only come into effect after conducting detailed needs analysis and defining characteristic features of the learners. *Blended learning* is also a very convenient teaching formula, especially in the context of widely understood learner autonomy, and as such provides continuous – with neither space nor time restrictions – access to learning materials, aids conscious learning and promotes learner autonomy. Owing to a wide gamut of learning materials accessible on-line, it seems extremely useful for the purpose of teaching English for Vocational Purposes (EVP).

Depending on the classification, **English for Vocational Purposes (EVP)** is – next to EAP – one of two main strands of English for Specific Purposes (ESP) (Hutchinson, Waters 2006; Jordan 2006) or one of the two sub-sections of EOP (Dudley-Evans, St John 2009). Being an variant of English for General Purposes (EGP), EVP is a specifically human product created for the purpose of vocational communication within a given subject area (Grucza 2010).

It is deeply embedded in the social and cultural context of a given society and language. Accordingly, the specificity of teaching it stems from the fact that the acquisition of vocational language skills is feasible only after basic language skills have been internalized (Grucza 2010).

As a strand of ESP, EVP is concerned with the language of training for specific trades and occupations (Dudley-Evans, St John 2009), as exemplified by an English course designed for trainee doctors which is meant to prepare them for doctor–patient interaction in casualty consultations. Such a language training programme usually bases its material on a number of speech acts or functions (Jordan 2006; Basturkmen 2006). Also, depending on the appropriate study situations and activities, it may take into consideration the selected skill areas (Jordan 2006).

Another crucial aspect of the training programme is the focus on the vocabulary that is to be taught. Being related to semantic values and area-specific context, technical terminology is one of the factors distinguishing EVP from EGP (Kubica 2010). This aspect of EVP raises two important questions. One of them relates to the definition of the term "technical vocabulary", whereas the other one – to the disputable issue of teaching it. Concerning the first question, T.M. Chung and P. Nation (2004) contend that technical vocabulary is part of a system of subject knowledge of a particular area, and as such can be identified by referring to specialists who have a good knowledge of the subject area. Accordingly, it can be defined as general English words that have a specific meaning in certain disciplines (Dudley-Evans, St John 2009).

When it comes to the second issue, it must be observed that though the significance of teaching vocabulary in ESP and EVP is widely accepted nowadays (Swales 1983), the issue is frequently a subject of debate. T. Hutchinson and A. Waters (2006), for example, are convinced that technical vocabulary is not the responsibility of a foreign language teacher, and that priority should be given to teaching semi-technical vocabulary, i.e. general vocabulary which has a higher frequency of occurrence in various disciplines (Dudley-Evans, St John 2009). However, as contended by T. Dudley-Evans and M. Jo St John (2009: 81), the issue is "more complicated than the simple notion that 'the ESP teacher should not touch it'". They are of an opinion that in some cases learners starting a new academic course or professional training programme will definitely need help with technical vocabulary that is completely new for them. The best way to prepare them for such a situation consists in creating a glossary of technical terms coupled with straightforward definitions.

The teaching of vocabulary in EVP generally follows principles similar to those in EGP. Since it is important to encourage learners favouring different vocabulary learning strategies to employ those that work best for them and

facilitate cognitive processing, T. Dudley-Evans and M. Jo St John (2009) recommend aiding the retrieval of vocabulary items through the use of situational and semantic sets, metaphors, as well as the use of collocation and corpora, and learning language chunks.

4. RESEARCH HYPOTHESES

The study set out to investigate the impact of *blended learning* on teaching EVP. The selected aspect of EVP was defined as elementary music terminology, the mastery of which is meant to prepare trainee musicians for the conductor-orchestra interaction, as well as rehearsal communication between the ensemble members. Following detailed needs analysis, it has been concluded that technical terminology thus defined includes basic elements of musical notation such as rhythmic note and rest symbols, metrical units, pauses, ornaments, note relationships, articulation marks, etc.

The study was designed to collect data in the overall acquisition of EVP vocabulary, as well as in the areas of receptive and productive knowledge of technical terminology. SPSS Statistics 17.0 was employed to conduct the preliminary processing of the collected data and their statistical analyses.

Since the data collected in the respondent group at the pre-test phase did not prove to be normally distributed, the Wilcoxon signed-rank test was employed to compare the pre-test and post-test scores coming from the same participants. In keeping with its assumptions, two hypotheses were formulated. The null hypothesis for the study (H_0) states that the median difference between the post-test and pre-test equals zero. The alternative hypothesis (H_1) assumes that the median difference between the post-test and pre-test is different from zero.

The alpha level (α) was established at 0.01, which is typical of language studies and suggests that only 1 per cent of the results obtained are due to chance. Based on the test statistics, the received p value is to be compared with the assumed level of significance α. If $p \leq \alpha$, H_0 is rejected and H_1 is accepted, whereas if $p > \alpha$, there is no reason to reject H_0.

5. METHOD

5.1. Subjects

The study was conducted with a group of 46 intermediate adult learners, studying EFL at the Fryderyk Chopin University of Music, in Warsaw. The selection of the student group followed a non-probabilistic sampling strate-

gy referred to as convenience sampling (Dörnyei 2011). Besides the relative ease of accessibility, i.e. students in the researcher's own institution, the subjects also possessed certain key characteristics related to the purpose of investigation: on the basis of a written placement test, all of them qualified for the B1+ and B2 level of proficiency in EGP, and studied music at the tertiary level.

The respondents came from 3 first-year and 1 second-year student groups. Their level of proficiency in EVP was measured on a test with a maximum score of 50 points. Its results show that at the pre-treatment phase the group tended to be quite heterogeneous as regards their mastery of elementary music terminology in English, with the range amounting to 37 and standard deviation at 10.19112. The calculated central tendencies defining the typical behavior of the group at the pre-test phase (the mean of 24.0870, and the median – 22.5) imply that the average pre-test scores can be ranked below 50%. Also, the skewness coefficient amounting to 0.060 signifies that the bulk scores obtained by the learners on the pre-test lie to the left of the mean, i.e. few students received good scores at this stage of the experiment.

5.2. Instrumentation

The study resorted to methodological triangulation to reduce the inherent weaknesses of individual methods and maximize both the internal and external validity of the research conducted. To investigate the impact of *blended learning* on teaching EVP, it employed a one-group pre-test post-test design (Dörnyei 2011), which is also referred to as a pre-experiment (Cohen, Manion 1985), or one-group experiment (Wilczyńska, Michońska-Stadnik 2010). The experiment thus designed appears to have weak internal validity since it is almost impossible to state with any confidence that the dependent variable (i.e. post-test scores) is the outcome of independent variable (i.e. the *blended learning* teaching formula applied). The improvements in post-test scores might as well be accounted for by other factors (e.g. the learners' participation in another training programme, maturation effect, practice effect, or the Hawthorne effect), which have not been controlled.

To improve the internal and external validity of the research conducted and strengthen its design, quantitative data were coupled with qualitative data (Cohen, Manion 1985; Nunan 1994; Wilczyńska, Michońska-Stadnik 2010). Thus the subjects were provided with carefully prepared pre-/post-treatment test (Nunan 1994). The maximum score on the pre-/post-test was 50 points. It had its receptive and productive part and included tasks which

involved a quiz, vocabulary cloze, matching terms with their definitions, supplying the selected symbols of musical notation with their English equivalents, as well as providing British English equivalents of the selected terms used in American English. In addition, the respondents were requested to complete a six-question survey, in which they voiced their opinions on the teaching procedure and assignments presented in the classroom and on the e-learning platform. In it, they were also expected to assess the usefulness of the *blended learning* teaching formula for the acquisition of technical terminology in English.

The *blended learning* teaching formula applied in the experiment, was a three-phase procedure, and lasted two months. The purpose of phase one, which lasted three one-and-a-half-hour classes and included a traditional component, was to define the objectives of the course, administer the pre-test, present technical terminology in class and strengthen its memory trace by means of selected consolidation exercises. Phase two, which lasted one month and was based on a virtual component, consisted in the students doing a series of interactive exercises embedded on an open-source e-learning software platform *MOODLE* (*Modular Object-Oriented Dynamic Learning Environment*). The learning assignments included Internet-based quizzes as well as exercises created for the purpose of the experiment with the help of the free lesson construction software *Hot Potatoes* Version 6. Also, links were provided to various YouTube video files (e.g. *How to Read Music, Time Signature, Creating the Circle of Fifths, Using the Circle of Fifths for Major Keys)*, each of which was followed by an interactive comprehension quiz. Phase three lasted one one-and-a-half hour class and consisted of a traditional component. Its purpose was to administer the post-test to the student group and ask them to evaluate the *blended learning* formula applied.

5.3. Procedures

Attempting to investigate the impact of *blended learning* on teaching the selected aspect of EVP, the experiment followed the procedure presented below:

[1] The pre-test to collect data on the subjects' pre-treatment knowledge of technical terminology.
[2] The presentation of technical terminology in class strengthened by selected consolidation exercises.
[3] The subjects' performance of a series of interactive exercises embedded on the *MOODLE* platform.

[4] The post-test to collect data on the post-treatment knowledge of technical terminology.
[5] The post-test survey to collect qualitative data pertaining to the subjects' assessment of the teaching procedure and it usefulness for the mastery of technical terminology.
[6] Employing the Wilcoxon signed-rank test to compare the pre-test and post-test scores of the subjects participating in the experiment.
[7] Analyzing the subjects' opinions on the teaching procedure employed.

6. RESULTS

The results of the experiment investigating the impact of *blended learning* on the overall acquisition of technical terminology indicate considerable progress made by the students. Following the application of the *blended learning* teaching formula, the group tended to be far more homogenous than at the pre-treatment phase. Its range amounted to 19 and standard deviation was at 4.70871. The calculated central tendencies describing its typical behavior at the post-test phase (the mean of 41.6957 and the median – 42) imply that the average post-test scores can be ranked above 83%. Also, the skewness coefficient amounting to –0.333 signifies that the bulk scores obtained by the learners at the post-treatment stage lie to the right of the mean, i.e. the majority did the post-test well.

Since the Wilcoxon signed-rank test value of $p = 0.000$ and is lower than the assumed alpha level (α) established at 0.01, the null hypothesis is rejected and the alternative hypothesis – accepted, i.e. the median difference between the post-test and pre-test is different from zero. The acceptance of the alternative hypothesis implies a statistically significant difference between the pre-treatment and post-treatment scores obtained by the students. Table 1 presents the results of the study in the overall acquisition of technical terminology.

Table 1. Ranks Table: Overall Acquisition of Technical Terminology

		N	Mean Rank/ Sum of Ranks
Treatment_Score_Post (1–50) – Treatment_Score_Pre (1–50)	**Negative Ranks**	3[a]	3.17/ 9.50
	Positive Ranks	42[b]	24.42/ 1025.5
	Ties	1[c]	
	Total	46	

[a] Treatment_Score_Post < Treatment_Score_Pre
[b] Treatment_Score_Post > Treatment_Score_Pre
[c] Treatment_Score_Post = Treatment_Score_Pre

Since the sum of positive ranks exceed the sum of negative ranks, it can be stated that the application of the *blended learning* teaching formula accounts for considerable progress in the mastery of elementary music terminology: forty two learners improved their scores after employing the teaching procedure, one student made no progress, whereas three students obtained lower scores on the post-test than on the pre-test. The conclusion is all the more justifiable in view of the subjects' assessment of the usefulness of the teaching procedure employed. With 46 learners (100% of the group) being confronted with the *blended learning* formula for the first time, 41 of them are convinced that devoid of space and time restrictions access to exercises on musical terminology is conducive to learning, and 40 – posit a higher proportion of MOODLE-based consolidation exercises related to technical vocabulary in the future.

The results of the experiment also show considerable progress made by the students in the area of productive vocabulary knowledge. Preceding the application of the teaching procedure, the group tended to be quite homogenous in its achievements (with the range of 16, standard deviation of 4.19224, the mean at 5.2609 and the median of 4.0000). The post-treatment results (with the range of 13, standard deviation of 3.34606, the mean at 24.7826 and the median of 25.000) suggest a considerable improvement in the productive knowledge of technical terminology. Comparing the skewness coefficient at the pre-test phase at 0.891 with its value at the post-test stage amounting to –0.691, it can be noticed that the former positive skew implies relatively few high values, whereas the latter negative skew – relatively few low values and consequently the successful performance of the post-test by the majority of the students in the group.

Owing to the fact that the Wilcoxon signed-rank test value of $p = 0.000$, i.e. is lower than the assumed alpha level (α), it can be concluded that the *blended learning* teaching formula had a statistically significant impact on the productive knowledge of vocational terminology. Table 2 presents the

Table 2. Ranks Table: Productive EVP Vocabulary Knowledge

		N	Mean Rank/ Sum of Ranks
Treatment_Score_Post (1–50) – Treatment_Score_Pre (1–50)	**Negative Ranks**	0[a]	.00/ .00
	Positive Ranks	46[b]	23.5/ 1081.5
	Ties	0[c]	
	Total	46	

[a] Treatment_Score_Post < Treatment_Score_Pre
[b] Treatment_Score_Post > Treatment_Score_Pre
[c] Treatment_Score_Post = Treatment_Score_Pre

results of the study in the area of productive vocabulary knowledge. Since the ranks table displays only positive ranks, it can be concluded that all the learners in the group improved their post-treatment scores. The comparison of the pre-test mean value of 5.2609 with the post-test mean at 24.7826 implies considerable progress ranging from 17% to 82%.

The results obtained in the area of receptive EVP vocabulary knowledge are completely different. On the one hand, it can be stated that after the didactic intervention, the group tended to be more homogenous than at the pre-treatment phase. On the other, it must be added that the majority of the subjects performed well at both stages of the study though not all of them improved their post-treatment scores. However, since the Wilcoxon signed-rank test value of $p = 0.041$, i.e. is higher than the assumed alpha level (α), there is no reason to accept the alternative hypothesis and state that the difference between the pre-treatment and post-treatment results is statistically significant.

7. CONCLUSIONS

The results of the experiment presented here are to be viewed as suggestive rather than definite for several reasons. One of the most important ones is the limitations of the study. In spite of the use of the non-parametric test to compensate for the lack of normal distribution in data as well as multiple methods to offset apparent drawbacks of pre-experiment design, it seems that the learner group taking part in the experiment was too small to allow drawing any definite conclusions regarding the issue. And more importantly, the reliance on the strategy of convenience sampling to select the learner group makes general relevance of the findings of the study less significant than might be expected.

The results obtained for the group are statistically relevant in the overall acquisition of EVP vocabulary and in the productive knowledge of technical terminology. As shown above, the progress in the area of receptive knowledge of vocational vocabulary is not comparable with the aforementioned terminology learned productively. In view of the findings of various studies concerned with vocabulary acquisition (Michońska-Stadnik 2009) the results might appear quite surprising. All the more so that receptive vocabulary is considered to be more extensive. However, looking at the results of this study in the area, it is apparent that since at the pre-treatment phase the learner group was quite well advanced in this aspect of vocabulary knowledge, much less impressive progress could be noticed in the area as the result of applying the *blended learning* teaching formula.

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