ENGLISH FOR SPECIFIC PURPOSES E-LEARNING EXPERIMENTAL RESEARCH

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Highlights

- *English for specific purposes e-learning experimental research*

Abstract

The paper deals with English for Specific Purposes (ESP) e-learning experimental research conducted in the lessons of Business English in winter term of academic year 2012/13 at the Czech University of Life Sciences (CULS) in Prague. Online study support for Business English is a 14 module course in the Moodle Learning Management System (LMS) which is used for study purposes on the B1 level of the Common European Framework of References for Languages. The research sample is represented by 107 students enrolled into the optional subject of Business English. These students enrolled into the lessons individually on the basis of their specialist schedules and it was not possible to influence how many of them would be enrolled into the subject of Business English and into what days of Business English lessons. The students were divided randomly into the experimental and control groups. At the beginning of the course the students wrote the pre-test and at the end the post-test. The students of the experimental group were statistically significantly better in listening comprehension, they had exactly the same results in translation and writing as the control group, and very slightly worse results in vocabulary and reading comprehension than the control group, but not statistically significant. Nevertheless, the total results in post-tests were equal, there were not any statistically significant differences. We also analysed students´ questionnaires in which students expressed their opinions on e-learning effectiveness. The findings in the questionnaires proved that the students had positive attitude to e-learning.

Introduction

The paper deals with English for Specific Purposes (ESP) e-learning experimental research conducted in the lessons of Business English in winter term of academic year 2012/13 at CULS. Students were provided with the online study material developed within the grant of the Higher Institution Development Fund of the Czech Republic 2011, no. F5-1836. Online study support for Business English is a 14 module course in the Moodle Learning Management System (LMS) which is the software with an open code and is used for study purposes on the B1 level of the Common European Framework of References for Languages (Kučírková, Vogeltanzová and Jarkovská, 2011). The experiment is based on the treatment (e-learning method) and the measurement (pre-tests and post-tests) and the comparison of results of the experimental group taught through e-learning and the control group taught through the face-to-face instruction. Finally, students´ questionnaires on the effectiveness of e-learning method were analysed and evaluated.

Literature review

In this literature review, we have concentrated on the topics connected with our research, such as ESP e-learning (online learning), lifelong learning, e-learning within the learning management system, autonomy, interaction and e-learning course effectiveness. Our findings in the field of ESP e-learning are based on bachelor works, diploma works and dissertations, on conference proceedings such as ERIE (Efficiency and Responsibility in Education) in Scopus database, and on handbooks of the research in second language teaching and learning.

The topic similar to our research is described in the research paper called Developing ESP e-learning course: How an e-learning course was created for medical university students by Donesch-Jezo and Misztal (2012). It deals with the development of an e-learning course for therapeutic Professional. The content, stages of development and types of interactive exercises are discussed there. The computer-based tasks that are encompassed in the course engage learners in interactive language acquisition. Teacher's role is to supervise the learning process and assess learners' progress.

Another paper by Pouyioutas et al (2007) presents the initial stages of a Leonardo Da Vinci project that is aimed at developing the English Language for Information Technology Specialists. E-Learning module is designed for IT professionals, students and English language tutors in order to bridge the current gap in the English for Specific Purposes (ESP) and IT-related materials, to facilitate the work of teachers, encourage life-long learning and self-study. The paper is based on the analysis of the results of a survey focused on the identification of the requirements, special needs of users of the proposed module. The survey was conducted through a questionnaire given to IT students and through interviews with IT specialists. Based on the analysis of the results, suggestions for the module design are offered.

The following by Byrne (2007) contribution deals with the use of Learning Management Systems (LMS), called Claroline at

the Catholic University of Louvain in Belgium. In the article, the author compares two uses of the Claroline LMS available at Louvain-la-Neuve within the framework of an ESP writing course. The first experiment was conducted from October 2003 to May 2005, and the second one was conducted as from October 2005. Students in Political Science had to make a similar number of written contributions in iCampus, which is the version of the Claroline platform available at UCL. Teacher's feedback (only correction) was limited in the first experiment. During the second experiment, there was the possibility of a teacher annotation (not only correction) of learners´ data. The idea was borrowed from Wible et al. (2001), who describe an error annotation system fully integrated into the LMS. The author combined the existing platform with an off-the-shelf annotating tool. In the contribution, the author highlights the advantages and shortcomings of the combined approach, both in terms of proficiency gains and student satisfaction.

The researcher Keller (2007) conducted research on the use of commercial self-study software packages that are available on the Czech software market for upper-intermediate learners of English for his diploma thesis. He tried to find out whether a self-study software can be a viable alternative to class-based education. Keller evaluated the packages in the context of adult learners, whose study of English is a must in the globalised world, and also computer-assisted language learning that was made possible through fast technological development. He conducted the qualitative research with ten students who were endeavouring to reach level B2 as defined in the Common European Framework of Reference for Languages. Respondents were given pre-study questionnaires before the installation of the software and post-study questionnaires after studies. In pre-study questionnaires, the researcher examined the experience with self-study, basic computer skills, motivation for learning English. In post-study questionnaires, he examined their satisfaction with commercial software and their opinions on this type of study. He found out that none had any experience with the language learning software and that they were mostly motivated to learn English for their job, only one person had a real interest in English. The half of participants invested the time required, and most of them missed the presence of a human teacher. They felt out a loss at one point or another, they would prefer dialogue based on interactions, they did not want to learn the method of the programme and showed no inclination to continue with their studies. The author set criteria for software evaluation and came to the conclusion that none of four language learning software packages were qualified for a general recommendation.

The topic of e-learning can be also found in the diploma thesis by Albrecht (2006), in which he examined the situation of e-learning at the Faculty of Arts at Masaryk University in Brno. In the theoretical part, he outlined the concept of e-learning and introduced some of e-learning definitions. We agree with his view that there is a huge dynamism in this field and that it is difficult to encompass and state all opinions and definitions. Then he concentrates on advantages and disadvantages of e-learning in more detailed way and stresses that an important fact is what contribution e-learning has for the sphere of education, and that it is important to build on its strengths and eliminate weaknesses. In the theoretical part, he points out the functions of students and teachers (tutors) in the environment of online teaching, technological background of online courses and procedures when creating study supports as well. At the end of the theoretical part, he outlines problems of evaluation of e-learning courses. It was a good contribution to the whole framework of the e-learning concept. In the empirical part, he

analyses e-learning at Masaryk University, particularly three courses in the learning management system Moodle. One of them concerns the English language (not specified if general or ESP) in Interpreting, but this e-course is the combination of e-learning and full-time studies. He finds out that there are no 100% e-learning courses at the university. The objective of this analysis was the identification of distinctive elements of these courses and revealing possible mistakes. The outcome of the analysis is a recommendation and advice for creators of e-courses. This part with advice was inspiring for us when creating our e-learning course.

Another diploma work that examines e-learning concerns the teacher in e-learning (Vančová, 2007). The author first of all analyses the role of a teacher in general, and then that of the teacher of foreign languages, which is based on the study of relevant specialist literature. The author comes to the conclusion that in contemporary teaching, the liberal role of a teacher over the authoritative one prevails. Then she concentrates on the role of a teacher in e-learning. She states various definitions of e-learning, advantages and disadvantages of e-learning for various types of students and various types of courses and determines the role of a teacher in e-learning (tutor) which in many ways corresponds to the classical role of a teacher in the classroom but which requires skills specific for educational process through e-learning. In the next part, the author compares three different types of study material – classical textbook, self-study textbook and on-line course. The author analyses and evaluates textbooks and the on-line material from the point of view of the aim, structure and content, presents the main differences and similarities, and determines the role of a teacher in each study material. The detailed analysis is completed with a table with the survey of skills and language means that can be developed within the studies from mentioned teaching materials. Then the author explores the pedagogical research conducted by means of questionnaires distributed to teachers, in which she examined the views of teachers on their role in the teaching process, and to students who expressed their views on the lessons run by teachers and those supported by means of computers. The author was not successful in addressing more students who studied through e-learning, and that is why she had to address the students of English who did not have to have the experience with e-learning. This fact probably also influenced the result of her research when most students think that the lessons run by a teacher are the most proper way of studying and that the future of e-learning is only complementary.

The diploma thesis on e-learning and its practical use at primary schools in the Czech Republic and EU countries by Hronová (2011) concerns the e-learning awareness of pupils at primary schools and their parents. In the theoretical part, the author concentrates on the notion of e-learning, history, advantages and disadvantages, on learning management systems (LMS), in particular on Moodle, on e-course, Internet, web pages and forms of teaching in e-learning. In empirical part, she first describes research examination by means of questionnaires, analyses data, interprets results from questionnaires and comes to the conclusion that confirms the hypotheses. In next two parts, she describes the attitude of the EU and the CR to e-learning and documents of state information policy. Finally, she tries to suggest the system of e-learning usage at primary schools for pupils and parents.

The main objective of the experimental research was to find out if there existed statistically significant differences between the results of students studying Business English through e-learning

(online learning) and those who are taught through the face-to-face instruction. Furthermore, we wanted to find out opinions of students on the e-learning method effectiveness in general and in single skills.

Materials and Methods

The population is represented by all students of the CULS within the bachelor studies for whom the English language is compulsory within these studies. The research sample is represented by those students who enrolled into the optional subject of Business English.

Online study support for Business English is in the form of a 12-module course in the learning management system (LMS) Moodle with the following topics, see Kučírková, Vogeltanzová and Jarkovská (2011):

- Business and its basic terms
- Business letter: layout, content, style
- Business Organizations
- Company profile
- Macroeconomics, microeconomics
- Enquiries, replies, orders
- Personnel management
- Curriculum vitae, letter of application, job contract
- Marketing
- Email
- Accounting and finance
- Invoicing, quotation, payment

Single thematic units are of the following structure with respect to the principles of e-learning teaching:

a) Lead-in

b) Key words and definitions

c) Specialist material – reading/audio-visual

d) Various activities

e) Resources

We worked with natural groups that existed prior to the research. Students enrolled into the lessons individually on the basis of their specialist schedules and it was not possible to influence how many of them would be enrolled into the subject of Business English and into what days of Business English lessons. 107 students enrolled into the lessons at the beginning of the term. In the pre-research there was one experimental and one control group. In the study proper there were two experimental groups and two control groups. They were considered as one experimental group and one control group for the purposes of the research because in order to gather enough subjects for the experimental research, it is possible to pool the results of more classes (Seliger and Shohamy 1990:149, Pelikán, 2007: 54). At the beginning of the course the students wrote the pre-test and at the end the post-test. We observed 49 students in the experimental group and 45 students in the control group. The students were divided into these groups randomly.

Methodology of Processing

The treatment, i.e. the e-learning course in the Moodle learning management system, is a controlled and intentional exposure of groups to a language teaching method, specially constructed for the experiment (Seliger and Shohamy, 1990: 136 - 137). The treatment is the independent variable in the research, the measurement, i.e. the test results, is the dependent variable. The measurement refers to how the effects of the treatment will be evaluated or observed (Seliger and Shohamy, 1990: 137). It is represented by language tests in our research, i. e. pre-tests and post-tests.

In both tests (pre-test, post-test) we tested vocabulary, comprehension of reading, comprehension of listening, writing and translation. Each of the tests was evaluated through Moodle in percentage, only writing was evaluated by a teacher herself and the points were recounted into percentage. We adapted existing standardized tests as pre-tests. Post-tests, comprising specialist terminology, were developed by a teacher on the basis of her experience and in the form of standardized tests. The listening post-test was adapted from the existing standardized test. All tests were consulted with two other teachers of Business English and verified in a pilot study. Both groups wrote pre-tests at the beginning of the lessons in winter term of the academic year 2012/2013 in order to find out the level of input skills of single students, and post-tests after completing the course of Business English at the end of the winter term, in which we tried to find out the level of skills with the focus on business and economic terminology. Results of pre-tests and post-tests were processed into tables and assessed by means of statistical methods with the help of a colleague from the Department of Statistics at Faculty of Economics and Management at CULS.

To test the statistical hypotheses, non-parametrical tests were chosen owing to the character of input data, particularly, Mann-Whitney and Wilcoxon pair tests. In case of dependent samples (pre-tests and post-tests with the same group), Wilcoxon pair test was used. On the contrary, Mann-Whitney test is primarily determined to test independent samples - pre-tests and post-tests with different groups (Sharpe, De Veaux and Velleman, 2010). Tests were carried out on the significance level $\alpha = 0.05$. Statistical programme Statistica 10 was used for the calculation.

We compared the results in the pre-test and post-test separately within the control group and separately within the experimental group so that we could find out whether there are statistically important differences in single skills and whether the students improved or worsened within their groups. Then we compared and analysed the results in pre-tests and post-tests of single skills between the control and the experimental group in order to find out if the e-learning method could be efficient and whether there are statistically significant differences in the results of both groups. We also analysed students´ questionnaires in which students expressed their opinions on e-learning effectiveness.

Results

Comparison of the results within single groups

Control Group

The results of the pre-test and the post-test within the control group are presented as follows:

Listening pre-test and post-test: p-value is 0.000002 – lower than the significance level of 0.05. Students improved a lot in the post-test, from the statistical point of view, there are statistically significant differences between the pre-test and the post-test in listening.

Vocabulary pre-test and post-test: p-value is 0.000339 – lower than the level of significance. There is statistically significant difference between the pre-test and the post-test. Students improved quite a lot in the knowledge of specialist vocabulary.

Reading pre-test and post-test: p-value is 0.000049. Students showed great improvement in reading comprehension. There is

a statistically significant difference between the pre-test and the post-test.

Translation pre-test and post-test: p-value is 0.016384 – lower than the level of significance. There is statistically significant difference in the pre-test and the post-test. Students improved a little.

Writing pre-test and post-test: p-value is lower than 0.05 – 0.019239 there are statistically significant differences in writing. Students improved but not very much.

As far as **total results** are concerned, students improved a lot. P-value is 0. 000000, thus the difference between the pre-test and the post-test is statistically significant.

Experimental Group

The results of the pre-test and the post-test within the experimental group are presented as follows:

Listening pre-test and post-test: p-value is 0,000000 – lower than the level of significance. There exists statistically significant difference between the pre-test and the post-test. In listening comprehension, students improved very much.

Vocabulary pre-test and post-test: p-value is 0.019960 - lower than the significance level. There is a statistically significant difference between the pre-test and the post-test. Students improved in the knowledge of vocabulary a little.

Reading pre-test and post-test: p-value is 0.000015, so the difference between the pre-test and the post-test is statistically significant. Students improved in reading comprehension a lot.

Translation pre-test and post-test: p-value is 0.025111 – lower than the level of significance. There is statistically significant difference between the pre-test and the post-test in translation. Students improved a little.

Writing pre-test and post-test: p-value is 0.031994 –lower than the level of significance, it means that there is statistically significant difference between the pre-test and the post-test and students improved in writing a little.

Total results in the pre-test and the post-test: p-value is 0.000000, so there is statistically significant difference between total results in the pre-test and the post-test. In general, students improved very significantly.

Skills	Experimental group		Control group	
	p-value	Improvement	*p*-value	Improvement
Reading	0.000015	A lot	0.000049	Great
Listening	0.000000	A lot	0.000002	A lot
Writing	0.031994	A little	0.019239	A little
Translation	0.025111	A little	0.016384	A little
Vocabulary	0.019960	A little	0.000339	Quite a lot
Total results	0.000000	A lot	0.000000	A lot

Table 1: Results of testing differences between the pre-test and the post-test for the experimental group and the control group

As Table 1 shows, all *p*-values in tests are lower than the chosen level of significance 0.05 and therefore differences between observed skills of Business English at the beginning and at the end of the term are statistically significant both in the experimental group and in the control group.

Comparison of the results between the control and the experimental group

For the evaluation, non-parametrical analogy of a two-sample t-test was used. In pre-tests there were not any statistically significant differences in single skills. They have nearly equal results. Also in total there were not any statistically significant differences.

Listening pre-tests: From the comparison of the results in listening pre-tests it follows that there is not any statistically significant difference between the groups – p-value is 0.086470, even though students of the experimental group were a little better.

Vocabulary pre-tests: As far as the vocabulary pre-test is concerned experimental group is a little better than the control group. P-value is 0.446861, so there is not any statistically significant difference between both groups in their results.

Reading pre-tests: From the statistical point of view, there is not any statistically significant difference between groups: p-value 0.221575 is higher than the level of significance. The results of the groups are equal.

Translation pre-tests: In translation, the results are nearly equal. P-value is 0.882666, so there is not a statistically significant difference in pre-test results of the two groups.

Writing pre-tests: In writing results, p-value is 0.879680, so there is not any statistically significant difference between both groups. The results in writing of the groups are equal.

Listening post-tests: P-value is 0.043689, thus lower than the significance level. There are statistically significant differences in listening comprehension between groups. The experimental group is better than the control group.

Vocabulary post-tests: The results of both groups are nearly equal. From the statistical analysis it is shown that there is not a statistically significant difference between groups, p-value is 0.338342.

Reading post-tests: P-value is 0.131053, thus there is not a statistically significant difference between both groups. The results of both groups are nearly equal. Reading through e-learning method can be nearly as efficient as reading through face-to-face method.

Translation post-tests: P-value is higher than the significance level – 0.791082, so there are not any statistically significant differences between groups. Results in both groups are equal.

Writing post-tests: There are not any statistically significant differences in the results of groups. P-value is 0.906610, it means higher than the significance level. The results of both groups are equal.

In the **total results of the pre-test** p-value was 0.716381, so at the beginning of the academic year there were not any statistically significant differences between the groups. Experimental group was a little better but not statistically significantly.

In the **post-test total results**, p-value was 0.823319 – higher than the significance level. There were not any statistically important differences between both groups in the results of post-test at the end of winter term. The total results of both groups in post-tests are equal. E-learning method seems to be of the same efficiency as the face-to-face method. (Kučírková, Kučera, Vostrá Vydrová, 2013)

Skills	Pre-test		Post-test	
	p-value	Comparison EG and CG	*p*-value	Comparison EG and CG
Reading	0.221575	EG a little better than CG	0.131053	EG very slightly worse than CG
Listening	0.086470	EG a little better than CG	0.043689	EG better than CG
Writing	0.879680	EG equal CG	0.906610	EG equal CG
Translation	0.882666	EG equal CG	0.791082	EG equal CG
Vocabulary	0.446861	EG a little better than CG	0.338342	EG very slightly worse than CG
Total results	0.716381	EG a little better than CG	0.823319	EG equal CG

Table 2: Results of testing differences between the experimental group (EG) and the control group (CG) for the pre-test and the post-test

As Table 2 shows, all *p*-values in tests for the pre-test are greater than the chosen level of significance 0.05 and therefore, in pre-tests there were not statistically significant differences in single skills. The control and the experimental group have nearly equal results. Also in total there were not statistically significant differences.

In post-tests, there was a statistically significant difference between the experimental and the control group only in listening. For other skills, differences between both groups were not statistically significant.

In general, *p*-values from 0.05 to 0.75 represent a slight difference between EG and CG, *p*-values bigger than 0.75 signify no difference.

Data analysis and the interpretations of the results of students´ questionnaires

The analysis of data is based on statistical calculation. Students of both groups were given questionnaires in which they expressed their views on the appropriateness of the inclusion of e-learning into the lessons of Business English within distance studies and the effectiveness of e-learning as far as the language skills (except for speaking) and language issues (vocabulary) are concerned. 94 questionnaires in the paper form were distributed among students the last lesson in the winter term 2012/2013. We did not have problem with low response rate because we collected all questionnaires personally. The return was 93%. In seven questionnaires, students did not respond to some questions and that is why these questionnaires were excluded from the analysis. Collected data were processed quantitatively.

There were 51 men (58.6%) and 36 women (41.4%) among respondents. As far as fields of studies are concerned, the most highly-represented specified field was the field of study of Business and Administration with 23 students (26.4%). Then it was Economics and Management field of study with 19 students (21.8%). Trade and Business with Technique field of study was represented by 17 students (19.6%). "Another" (not specified field of study) was represented by 28 students (32.2%). 68 respondents (78.2%) were students in their first year of studies, only 7 respondents (8%) were in their second year of studies and 12 respondents (13.8%) were students in their third year of studies. 47 respondents took part in the e-learning course, while 40 did not.

71 respondents (81.6%) think that the inclusion of e-learning into the ESP lessons for distance students is proper, while only three respondents think that it is improper (3.4%), the remaining 13 respondents (15%) did not know.

In other six questions, based on opinions of students, we tried to determine whether or not the development of single skills

(with the exception of speaking) and vocabulary by using the e-learning online course can be as effective as the face-to-face instruction. Under the same effectiveness it is understood that the results of pre-tests and post-tests of students studying through the e-learning online course and those studying through the face-to-face instruction will be relatively the same, i.e. from the statistical point of view, there will not exist any statistically significant differences in the results between both groups. The frequency of single responses is shown in the following table and figure:

	Yes	Rather yes	Rather not	No	Do not know
Overall effectiveness of e-learning course	6 (6.9%)	38 (43.7%)	31 (35.6%)	11 (12.6%)	1 (1.1%)
Reading with comprehension	11 (12.6%)	34 (39.1%)	31 (35.6%)	10 (11.5%)	1 (1.0%)
Listening with comprehension	22 (25.3%)	38 (43.7%)	15 (17.2%)	9 (10.3%)	3 (3.4%)
Writing	24 (27.6%)	44 (50.6%)	10 (11.5%)	5 (5.7%)	4 (4.6%)
Translation	28 (32.2%)	33 (37.9%)	17 (19.5%)	7 (8.0%)	2 (2.3%)
Vocabulary	36 (41.4%)	24 (27.6%)	17 (19.5%)	4 (4.6%)	6 (6.9%)

Table 3: Frequency of responses
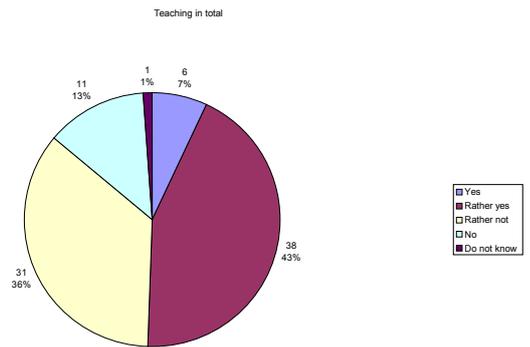
Figure 1: Frequency of responses

Opinions of students whether or not the effectiveness of the e-learning course and the face-to-face instruction is the same were also evaluated separately for the experimental group (students who took part in the e-learning course) and the control group (students without e-learning course). Results of this analysis are shown in Table 4.

Skills	Yes or Rather yes			Rather not or No			Do not know		
	EG	CG	Total	EG	CG	Total	EG	CG	Total
Overall effectiveness of e-learning	29	15	44 (50.6%)	17	25	42 (48.2%)	1	0	1 (1.1%)
Reading	29	16	45 (51.7%)	18	23	41 (47.1%)	0	1	1 (1.1%)
Listening	34	26	60 (69.0%)	12	12	24 (27.6%)	1	2	3 (3.4%)
Writing	39	29	68 (78.2%)	8	7	15 (17.2%)	0	4	4 (4.6%)
Translation	35	26	61 (71.1%)	12	12	24 (27.6%)	0	2	2 (2.3%)
Vocabulary	31	29	60 (69.0%)	13	8	21 (24.1%)	3	3	6 (6.9%)

Table 4: Results of the questionnaire analysis for the experimental group (EG), the control group (CG) and for both groups together

As far as **the overall effectiveness of the e-learning course** is concerned, 44 students (50.6%) think that using the e-learning online course can be as effective as the face-to-face instruction. From this number of students, 29 took part in the e-learning course, 15 of them did not. Six (6.9%) respondents are persuaded on 100% ("Yes"), 38 respondents (43.7%) think "Rather yes". 42 students (48.2%) think that the e-learning course probably cannot be of the same effectiveness as the face-to-face instruction. From this number of students, 17 took part in the e-learning course, 25 did not. One student (1.1%), who took part in the e-learning course, did not express any opinion (do not know). The development of **reading** in the e-learning course is thought to be the same as through the face-to-face instruction by 45 students (51.7%). 29 of them took part in the e-learning course, 16 did not. 41 students (47.1%) think that the development of the skill through e-learning cannot be of the same effectiveness as through the face-to-face instruction. 18 of them took part in the e-learning course, 23 did not. One student (1.1%), who did not take part in the e-learning course, responded "Do not know". As far as **listening** is concerned, 60 students (69%) had confidence in the effectiveness of e-learning in comparison with the face-to-face instruction. 34 of them took part in the e-learning course, 26 did not. 24 students (27.5%) think of this issue more negatively – in their opinion the development of listening is not so effective through the e-learning online course as through the face-to-face instruction. Three (3.4%) students (one took part in the e-learning course, two did not) did not have any opinion on this issue. The development of **writing** through e-learning is thought to be very effective by many students. 68 students (78.2%) think that it can be of the same effectiveness as the face-to-face instruction. 39 respondents took part in the e-learning online course, 29 did not. Only 15 students (17.2%) think that it is not so effective like the face-to-face instruction. Four students (4.6%), who did not take part in the e-learning course, responded "Do not know". **Translation** learnt through the e-learning online course is thought to be of the same effectiveness as the face-to-face instruction by 61 (70%) students (35 took part in the e-learning online course, 26 did not) and less or not effective by 24 (27.6%) students (12 took part in the course, 12 did not). Two (2.3%) students, who did not take part in the e-learning online course, did not express their opinion. The development of **vocabulary** through e-learning online course is viewed as to be of the same effectiveness as the face-to-face instruction by 60 (69.0%) students (31 took part in the e-learning course, 29 did not), and not to be of the same effectiveness by 21 (24.1%) students (13 took part in the e-learning course, 8 did not). Six (6.9%) students did not know what to answer. Three of them took part in the e-learning course, 3 did not.

Table 4 shows that in most cases, negative views of the effectiveness of e-learning course showed that those students who expressed their negative view of effectiveness did not take part in the e-learning course. On the contrary, as far as the positive attitude to the e-learning effectiveness is concerned, the number of students who took part in the e-learning online course prevailed.

Discussion

From the point of view of the statistical significance there were not any statistically significant differences between the experimental and the control group. At the end of the term, the total results in post-tests were absolutely equal, there were not any statistically significant differences. The students of

experimental group were statistically significantly better in listening comprehension, they had exactly the same results in translation and writing as the control group, and very slightly worse results in vocabulary and reading comprehension than the control group, but not statistically significant. Thus, e-learning method could be considered as an equally efficient method as the face-to-face method. Moreover, it was shown that students using e-learning may achieve in some skills even better results than students taught face-to-face, such as in listening comprehension in case of this study (Kučírková, Kučera and Vostrá Vydrová, 2013).

The findings from the questionnaires of students were also very important as students expressed their views on the effectiveness of the e-learning course and its inclusion for distance studies. The findings in opinions on the development of single skills show students' positive attitude to e-learning. As far as the development of single skills is concerned, more than half of the respondents (52% – 78%) think (in all questions relating to it) "Yes" or "Rather yes", i.e. that the results of pre-tests and post-tests of students studying through the e-learning online course and those studying through the face-to-face instruction will be relatively the same. Most of the students who participated in the course evaluated the course positively and think that it could be included within distance studies, even more than a half of those students who did not take part in the course (controlled group) think that it could be included within studies of distance students. Even if there existed statistically significant difference in responses to question connected with the effectiveness of the e-learning method, more than half of students expressed the view that the ESP e-learning course could be of the same effectiveness as the face-to-face instruction.

A similar research on the use of computers in second and foreign language learning in research studies from 1990 to 2000 inclusive was conducted at the University of Texas. The authors (Liu et al, 2010: 24) explored the research evidence with regards to how computer technology can enhance language skills acquisition. They went through 70 research studies using quantitative and/or qualitative methodologies on Computer Use in Second Language Learning, but there were only a few studies on e-learning in English teaching, and none of them was on ESP e-learning. Research provided some evidence on the effectiveness of computer technology in second language learning. Only a few studies focused on listening and speaking, but instead, most of the studies addressed reading and writing skills. Although there has not been convincing evidence on the use of computer technology to improve language skills in all areas, the majority of the studies reviewed indicated enthusiastic responses and positive attitudes toward technology use from the students (Liu et al, 2010).

Conclusion

As of right now, we have not been aware and have not found any research focused exclusively on ESP e-learning experiment comparing the statistically significant differences in results of the control and the experimental group. It can be concluded that the experimental research is original and contributional to the pedagogical and second language research.

E-learning enables the students to adjust learning to their individual needs and time requirements, it is motivating for them. Tests are immediately assessed and the content of the course is possible to be kept up-to-date. However, there are also some disadvantages – some skills such as speaking are more difficult to practise online, problems could include technical

issues, some students are unable to learn individually, they need teacher´s directions.

From the practical point of view, the e-learning course is intended to be used for distance students and also for full time students as a support material for the face-to-face instruction or in case of illness, as the results of the experiment showed that there had been statistically significant differences in listening comprehension, specialist vocabulary, in reading comprehension, in translation and in writing in the outcomes of university students learning through the e-learning method (= purely online course) between their pre-test and post-test. It means that students improved in the skills due to the participation in the e-learning course throughout the term.

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