PHYSICAL PERFORMANCE IN VIRTUAL EDUCATION: TEACHING COMMUNICATION SKILLS ONLINE

Andriana Lacković, Milan Bajić, Petar Jandrić

Polytechnic of Zagreb (CROATIA)
alackovi1@tvz.hr, mbajic@tvz.hr, pjandric@tvz.hr

Abstract

Comparisons between e-learning and face to face instruction are plentiful and even somewhat outdated. However, early studies in efficiency of e-learning are usually constrained to traditional fields such as language, mathematics, science and humanities. Recent research indicates that contemporary information and communication technologies may also be able to offer significant opportunities for education in the field of performing arts such as classical and modern dance [1]. On such basis, authors of this study have tried and implemented e-learning into the highly skills-based field of communication science. This study compares training in communication skills in physical and virtual learning environments. Using a combination of quantitative and qualitative research methodologies – questionnaires and focus groups – it compares various elements contributing to student success in two groups of students at Specialist graduate study in IT technologies at the Polytechnic of Zagreb. The first group of students has attended traditional face to face lectures, while the second group of students has studied independently using online multimedia textbook 'Communication Skills' written by Petar Jandrić (2012) [2]. Both groups have been surveyed at the beginning, in the middle, and at the end of the semester. Questionnaires and focus groups have been focused to student motivation, expectations from face to face and e-learning classes, average time spent learning, achieved grades and advantages and disadvantages of e-learning. On such basis, this study identifies the main opportunities and challenges for education for physical performance using the contemporary information and communication technologies.

Keywords: Virtual education, e-learning, hybrid class, communication skills, multimedia.

1 INTRODUCTION

In October 2012, an e-book by Petar Jandrić, Ph.D., entitled *Communication Skills*, was published. The online multimedia textbook is intended for the online lecture demonstrations for the module Communication Skills, for the students at the Polytechnic of Zagreb [2].

We have decided to conduct this research in order to find out the extent to which the online multimedia textbook is suited to students' needs, whether it could be used for e-learning, if it could entirely replace lecture demonstrations, whether the online multimedia textbook could be improved, and to find out how the students at the Polytechnic of Zagreb reacted to this way of learning.

Therefore, this study will compare e-learning with traditional learning through the method of singling out a group of students who will attend the course in communication skills electronically and who will not attend lectures, whilst the rest of the students will attend the course in a traditional manner.

In theoretical part e-learning and education theory was considered and problem was presented, purpose of the study was given as motivation for research. It was conducted with qualitative and quantitative approach, with focus groups and questionnaire. Results are sorted by surveys, in three separated sections and most interesting observations were quoted. Advantages and satisfaction was discussed and conclusions with high decision impact are given.

2 THEORETICAL PART

Before the technology development and broadband Internet breakthrough in everyday life in the 90's, traditional ways of education have not changed much from their humble beginnings. Education was mostly based on use of a blackboard and a piece of chalk. Technological advances opened up possibilities for new types of teaching; e-learning. E-learning was growing with the development of information sciences and communications technologies. In the earlier phases of e-learning development, the biggest focus was on development of technologies which were more compatible for

massive use [3]. In later development of e-learning, that focus was moved to specialist and social aspects of e-learning [3].

E-learning is present in most developed countries today, but it is still impossible to practice it in some undeveloped parts of the world where people don't posses the technology necessary for it [3].

New problems, which do not exist in classical learning, appeared with developing and spreading of e-learning.

Previous research studies have shown that factors such as accessibility to materials, amount of communication with other students and teachers, the ability to control the time and schedule spent learning and costs have influence on different opinions of students about e-learning [4].

In one research [5] undergraduate students which were attending e-learning had better final results in a course than students which were attending the traditional course, but were less happy with the classes. One of the most important reasons for that was that they needed more time to study. If we take into consideration the period when they conducted this and previous one study, it is questionable if the results are still applicable.

Good teachers have a big impact on learning. Previous studies have shown that those students who had a better teacher, who is putting in more effort and was better at connecting with them, motivating them and giving them a positive response when they make progress, will have better results. Studies have also shown that students whose teachers are putting in more effort and were connecting with them better have a lower chance to drop out. In traditional classes, lecturers easily receive feedback from their students and are able to better identify students who don't study or who are unsatisfied, while the same tasks are more difficult for a lecturer practicing distance learning. Therefore, teachers must find other ways to track progress and motivate their students [6].

3 PURPOSE OF THE STUDY

The purpose of this research study was to compare e-learning with traditional classes on the experimental group of students at the Polytechnic of Zagreb.

We compared student satisfaction, time spent learning, grades, advantages and disadvantages of e-learning on two different ways; a focus group and with a questionnaire. We also wanted to find out how satisfied the students were with different parts of the online multimedia textbook *Communication skills*.

Almost half of the students at Polytechnic are not from Zagreb so even partial using of e-learning during studies would be significant reduction in time and money spent on travel. For the same reason Polytechnic of Zagreb implements e-learning in many subjects, so this research will be starting point for time needed to motivate and inspire students going thru e-learning course.

4 METHODOLOGY

This paper explores the effectiveness of and satisfaction with e-learning, using an online multimedia textbook for the course in communication skills at the Polytechnic of Zagreb during the semester which started in October 2012 and ended in February 2013. 116 students enrolled in Communication Skills and 15 of them were selected to attend lecture demonstrations through e-learning. The remaining 101 students attended lecture demonstrations in a traditional manner. All students attended the course's lectures in a traditional manner.

The research was twofold - qualitative, using focus groups, and quantitative, using group surveys.

The students who employed e-learning were mostly selected voluntarily, since they were offered to attend lecture demonstrations in this manner by the professor at one of the lectures. Seeing as an insufficient number of students volunteered, some were also selected randomly. The method of volunteering was chosen because of equality. The problem of inequality occurred because singling out a group of students to attend their classes differently gave rise to the question whether such a thing was fair to students. It could happen that the group attending traditional lectures finds the course easier because the professor could further instruct them on what their preliminary exam will be like and direct them to focus on topics which are more important. The students attending traditional lectures will also have insight into online materials intended for e-learning for the same course, and it

could happen that their results are better for this reason. On the other hand, the students attending online classes will not have to travel to the classroom and back, thus saving time.

In e-learning, there also exists the problem of the lack of motivation otherwise attainable when students can compare themselves to their peers. E-learning also often leads to isolating oneself from socialising in person. In order not to isolate themselves too much, students in e-learning programs in the USA attend organised joint trips, gatherings and camps, and there are also support groups for students in e-learning programs and their parents [7].

In order to alleviate the problem where two different groups from the same generation attend their lecture demonstrations in different ways, we organised three meetings with the professor, i.e. focus groups. The first focus group was organised in the first week of traditional lecture demonstrations, the second was organised in the middle of the semester and lecture demonstrations, and the third was organised at the end, when the students had already passed the course. The professor used these focus groups to discuss the advantages of e-learning with students, as well as its disadvantages and the problems they had encountered. They were asked to express their opinion on what they had encountered and to provide comments and suggestions for the future improvement of e-learning. In order to reduce the differences between the students who attended lecture demonstrations in a traditional way and the students who attended the exercises through e-learning, the professor would choose the most important part of the traditional exercises for each meeting and would give a lecture on it to the students, in addition to giving them examples and organising a discussion on the subject at the end.

At each focus group, students were asked to fill in questionnaires with the aim of finding out the most common advantages and disadvantages of e-learning and online multimedia textbooks related to the different factors with the potential of influencing the students' opinion.

In order to facilitate the comparison of the survey results of the students who attended the lectures through e-learning with those of the students who attended lecture demonstrations in a traditional manner, a group of such students was randomly selected and given the survey on the same dates as the first two surveys in the group which attended lecture demonstrations through e-learning. The questions in the traditional learning survey were posed in a way similar to the questions in the e-learning survey and required answers which were comparable to the results of the survey of the first group. The number of students in the traditional learning group varied depending on how many students had attended lecture demonstrations on the day of the survey. 12 students attended the first survey and 14 students attended the second.

The last survey was not conducted on the group of students who had attended lecture demonstrations in a traditional manner on technical grounds (the lecture demonstrations were completed before the students were graded and, after their completion, it was no longer feasible to assemble the surveyed group of students), and the results of the third survey of the e-learning group were thus compared with the results of the previous surveys and the overall performance of all traditional learning students.

The results obtained through the surveys were analysed using spreadsheets and a more detailed analysis was conducted through manual data clustering.

5 RESULTS

5.1 Demographic Data

The students who participated in this research are aged 19-23. Of these, 73.33% of the e-learning students were male and 26.67% were female, and 91.67% of the traditional learning students were male and 8.33% were female. None of the participants works full-time, and the e-learning group features 25% more students with part-time jobs. There were no married students or students with children in either of the groups.

The ratio of the housing situations of the students who participated in the research was similar in both groups (Table 1).

Table 1: Housing situation of participants in research.

housing situation	with parents	alone	with roommates	with spouse
e-learning	80,00%	6,67%	13,33%	0,00%
traditional learning	83,33%	8,33%	8,33%	0,00%

5.1.1 Travel time to lecture demonstrations

There is a notable difference in travel times to lecture demonstrations between the two groups. There are 16.67% more e-learning students who spend less than an hour travelling to and from lecture demonstrations, and 8.33% more students who spend an hour to two on travel. In the group of students who spend two to three hours travelling, there are 6.67% more students who attend traditional lecture demonstrations, and there are 18.33% of those students in the group whose travel time is more than three hours.

5.2 The first survey

5.2.1 General expectations from the course

Here are the main answers to the question of what the students expected from the classes for the course in communication skills, by two different groups of students who attended lecture demonstrations in a traditional way:

- Student not motivated to attend the course: "I have no expectations but to pass the course because I have to".
- Student interested in the course: "I expect to better my communication skills and alleviate my stage fright when performing in front of large groups of people".

The following are the main answers to the same question by the e-learning students:

- Student motivated neither for the course nor e-learning: "I don't expect anything much, a course like any other. It makes no difference whether it's at home or at the university".
- Student motivated for e-learning: "I expect something new I can like, so we can also recommend it to our professors for other courses. I really hope the 'project' succeeds. For yours and our own sakes".
- Student motivated for e-learning simply because it would mean not attending lecture demonstrations: "I expect more free time".

5.2.2 Expectations regarding differences between face to face and online instruction

The most expectations regarding differences between face to face and online instruction in face-to-face group of surveyed students are the following:

- Student who believed both groups would find it equally difficult: "We all have the same course materials and online multimedia textbook so I think it is the same".
- Student who believed the e-learning group would find it more difficult: "We do a lot of things in lecture demonstrations which cannot be done or deduced online".
- Student who believed the traditional learning group would find it more difficult: "The e-learning students choose when to devote their time to demonstrations themselves; they do not miss them and can attend them even if they are physically incapable of going anywhere".

The most expectations regarding differences between face to face and online instruction in e-learning group of surveyed students are the following:

- Student who believed both groups would find it equally difficult: "I believe we will find it as difficult as our traditional learning colleagues. On the one hand, we have to force ourselves to study and continuously follow the teaching materials, and on the other hand, our colleagues are obliged to attend demonstrations every week and thus have to spare their time. They will be able to ask questions about whatever bothers them on the spot, and we will have to try to find out the answers on our own".

- Student who believed the e-learning group would find it more difficult: "Because I think that communication skills are best improved face to face, whilst it is possible to learn 'theory' 'by heart' in any way available".

5.3 The second survey

5.3.1 Satisfaction with the classes for the course

The students who attended lecture demonstrations through e-learning evaluated the classes with an average grade of 4.53, and the students who attended traditional lecture demonstrations gave it an average grade of 3.64.

5.3.2 Advantages and disadvantages of e-learning

E-learning students tend to emphasize the advantages of e-learning, as opposed to traditional learning students who emphasized its disadvantages. The highest percentage of e-learning students stated that they did not consider themselves stinted by the fact they took part in e-learning and found travel time to lecture demonstrations its main advantage (53.33%), followed by skipping previously known lecture materials (26.67%) and the fact e-learning was interesting (20%). A total of 20% e-learning students felt they were stinted by e-learning for similar reasons - they found it easier to learn in person and they found it easier to learn in person than by watching videos (Fig. 1).

The students who attended lecture demonstrations in a traditional way mostly did not feel stinted by the fact they did not partake in e-learning, and their reasons included finding it easier to learn in person and finding it easier to learn in person than by watching videos (42.86%), socialising with their peers (28.57%), the significance of authority (7.14%) and the fact some difficult terms were clarified in lecture demonstrations (7.14%) (Fig. 1).

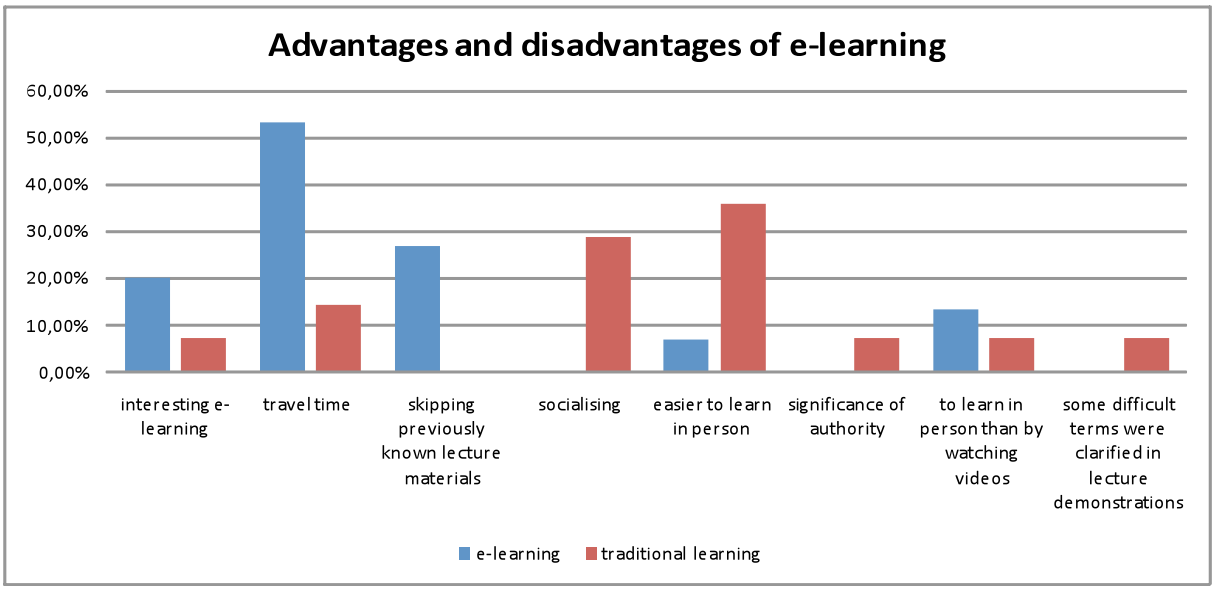

Fig. 1: Graphic representation of advantages and disadvantages of e-learning.

The question was repeated in the third survey of the e-learning students, and the answers were compared to the data from second survey, and results where similar. Certain changes were visible and on the end of the semester and amount of answers that advantage of e-learning is skipping previously known lecture materials and disadvantages are lack of socialization, lack of authority and easier studying in live were increased by 6,67%.

5.3.3 The comparison of the number of online multimedia textbook lessons covered and lecture demonstrations attended

The comparison of the answers to the mid-semester survey about how many lessons the traditional learning group had covered in the online multimedia textbook and how many lecture demonstrations they had attended showed that the e-learning group had covered a higher percentage of lessons (77.14%) than the other group (69.64%).

The question was repeated in the third and final survey of the e-learning students, and the answers were compared to the data on class attendance by the traditional learning students, and those students who did not meet any of their obligations (they were disallowed from taking the course or had withdrawn from participation in it) were omitted from the results. Certain changes were visible and it was clear that the traditional learning students had attended a higher percentage of lecture demonstrations (62.36%) than the e-learning students (58.61%).

A more detailed analysis showed that the traditional learning students tended to emphasise the various advantages of traditional learning in a higher percentage in the second survey, and that the e-learning students tended to emphasize the advantages of e-learning.

The e-learning students who had read more online multimedia textbook lessons also tended to emphasize the advantages of e-learning in the second and third survey and were less prone to stating they felt stinted by attending lecture demonstrations in the above manner.

Following a decline in the number of lessons covered, there was also a visible decline in the number of students who had stated they would certainly partake in e-learning lecture demonstrations again (there was an increase in "maybe" as an answer).

5.3.4 Time spent studying

All of the traditional learning students spent less than an hour per week studying compared to the e-learning group (60%).

5.3.5 The level to which the course was interesting and challenging

When asked to grade the level to which the course was interesting and challenging on a scale from one to five, the e-learning students on average rated it 0.28 higher (4,13) than the traditional learning students (3,86).

A more detailed analysis using data clustering showed that the e-learning students who found the course interesting had also covered a larger number of lessons (the second survey analysis). On average, the students who graded the level to which the course was interesting a two or a three had covered 3.5 lessons, whereas those who graded it a four or a five had covered 5.66 lessons on average. The same relationship existed between the level to which the course was interesting and the time spent studying - the students who graded the course a lower grade had also spent less time studying using the online multimedia textbook.

5.3.6 The most common comments

The following are the most common comments at the end of the second survey and in the second focus group:

- "Perhaps it would be useful and more challenging for students if every week or every two weeks we had some sort of homework, which would increase the usage of the communication skills online multimedia textbook.",
- "It would have increased the quality of the course if we had to write a summary every week and give feedback on every topic in this course, so we could find out for ourselves whether we've understood the topic and to make us participate in e-learning some more." and
- "I think it would be better to have more live lecture demonstrations and to get rid of the lectures completely."

5.4 The third survey

5.4.1 Satisfaction with the classes for the course

The mid-semester level of satisfaction with classes among the e-learning students (4,53) was nearly the same as the level of satisfaction at the end of the semester (4,47).

5.4.2 The comparison of the answers to the question of who would find it more difficult to pass the course (the first survey) and which of the ways of learning was better (the third survey)

Fig. 2 shows the comparison between the answers to the question of which of the ways of learning was better, posed in the survey of the e-learning students conducted at the end of the semester, and

the answers to the question of who would find it more difficult to pass the course, posed to both groups before the start of lecture demonstrations. This graph shows that, in the first survey, a higher percentage (11.67% more) of traditional learning students believed that e-learning was more difficult than traditional learning. In the first survey, the highest percentage of e-learning students (20% more than the traditional learning students) believed that both manners of learning were equally difficult. Having experienced e-learning, their answers changed and 6.67% more students believed that e-learning was better. There also appeared some differences in other answers and there were now students who believed that traditional learning was better (20%), and the percentage of students who believed both manners of learning to be equally difficult decreased (Fig. 2).

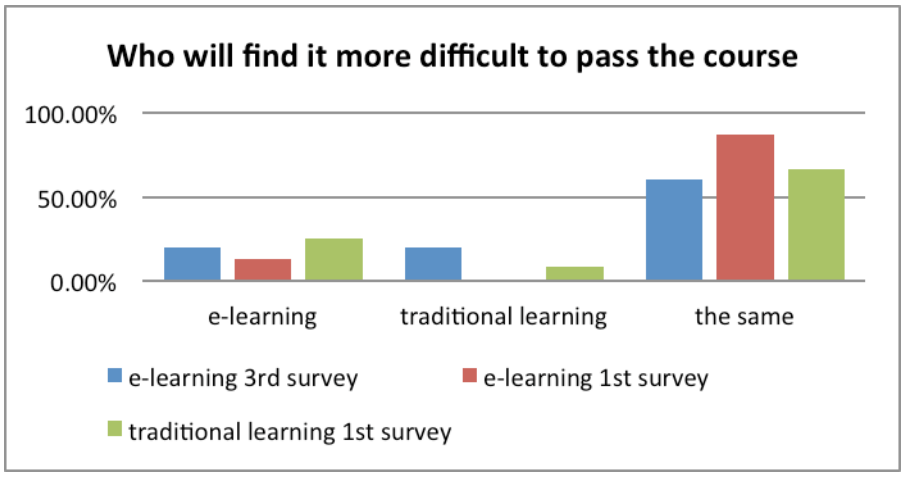

Fig 2: Comparison of the answers to the question of who would find it more difficult to pass the course (the first survey) and which of the ways of learning was better (the third survey).

A more detailed data analysis showed that the e-learning students who believed that the quality of traditional learning was worse than that of e-learning had covered less online multimedia textbook lessons than the rest of the participants in the research.

5.4.3 Would you attend another e-learning course in the future

The answers to the last two questions in the final survey showed that the average grade the e-learning students gave to the level of satisfaction with the quality of e-learning was 4.2. 66.67% of students stated that they would attend another e-learning course in the future, 33.33% stated that they would consider attending such a course, and none stated that they would not.

A more detailed analysis of the students' answers showed that the students who answered the above question by stating they would attend such a course in the future had also covered more lessons in the online multimedia textbook, 8.5 on average, and were more satisfied with the course's quality and gave it an average grade of 4.4. The students who answered the same question with "maybe" had covered 5.2 lessons on average and gave the quality of the course an average grade of 3.8.

The highest percentage of students who stated that they would attend an e-learning course in the future listed the fact that it saved time due to not having to commute to lecture demonstrations as its main advantage (70%). As its main disadvantage, they listed the fact they found it easier to learn in person (30%), and 10% listed the lack of socialising with peers as a disadvantage (none of the students who answered the question with a "maybe" listed the lack of socialising with peers as a major disadvantage).

The students who answered the question of attending another e-learning course in the future with "maybe" listed skipping the already familiar materials and picking up speed when dealing with less difficult topics as the main advantage (40%), and they listed the lack of authority (20%) and the fact they found learning in person easier (20%) as the main disadvantages. Unlike them, none of the students who would definitely like to attend another e-learning course in the future listed the lack of authority as a major disadvantage.

5.4.4 Comparison of average grades

Of 116 students, seven failed to make any of the commitments which were required to sit the final exam. All seven of them attended traditional lecture demonstrations. Furthermore, 14 students did not take preliminary exams, meaning they would have to sit for the final exam instead, and they all attended traditional lecture demonstrations. Of the students who had sat the preliminary exams, 23 failed to pass the course through the preliminary exams and all of them also attended traditional lecture demonstrations.

Due to the above data, the final academic standings were compared to the academic standings of the students who had withdrawn from participation in the course or did not manage to pass the course through preliminary exams, and were also observed without these students' standings so as to achieve more realistic data (the e-learning students were selected at a lecture, meaning they were present at the lecture and that it was unlikely that their group would feature students who would skip lectures). In Table 2, the average grades and points of the e-learning students were compared to the average grades and points of all other students. The average grade of e-learning students was a grade higher than the average of traditional learning students and the students who did not pass the course, and if we compare their grades to the grades of all students, the difference is even bigger (Table 2).

Table 2: comparison of average grades

average grade	1 - 5
traditional learning - with fails	2,85
traditional learning - only pass	3,57
e-learning	4,53

5.4.5 The most common comments

The following are the most common comments at the end of the third survey and at the third focus group:

- "Everything was great, more or less, but we could do with a bit more communication amongst ourselves related to lecture demonstrations“.
- "More motivation for e-learning".,
- "Allow e-learning for the entire future generation, I think they will be extremely satisfied and won't feel stinted".
- "Come up with a task for every week, an exercise a week, as opposed to four random exercises a month".
- "It is necessary to have a test which would allow the professor to see whether we've really covered all the lessons. Perhaps organise e-learning with video conferences?”
- "Introduce more interaction with students via web, introduce homework and exercises into all that. All in all, I'm happy with classes like these".

The conclusion of the third focus group was a suggestion by the students to organise classes for future generations which would be a combination of e-learning and traditional learning. They suggested that it would be best if 3 or 4 lecture demonstrations were done in person so that the students had a better grasp of communication skills. After all, this is a unique course where real life practice means a lot.

6 DISCUSSION

The results presented in the previous section show that attendees of e-learning were more satisfied with the quality of classes, and that they considered the course more interesting and challenging than other students.

Another, contrary study [8], showed that the attendees were satisfied with traditional learning classes, hybrid method attendees were a little bit less satisfied, and e-learning attendees were the most dissatisfied. When comparing these results it should be taken into account that not all e-learning attendees were selected at random and there is a chance that students more interested in the course

were selected for this study. Furthermore, it should be taken into account that by the definition which Riviera and Rice gave, this hybrid method was actually composed of traditional lectures and focus groups, with only the exercises executed completely online.

Students who have read more chapters from online multimedia textbook were more satisfied with the quality of classes and they considered the course as more interesting. Nevertheless, e-learning attendees have gone through slightly less lessons than the attendees that have gone through the traditional exercises. From this we can conclude that, despite the higher level of satisfaction with the quality of teaching, they were somewhat less motivated.

Most of the attendees of e-learning spent more than one hour a week on studying, and had better results at exams. Similar results were also confirmed by other studies in which the attendees of e-learning had average or above-average grades, but they were less satisfied with classes due to the difficulties in the implementation of classes or longer time that they needed to adopt the curriculum [8] [5].

Unlike them, the attendees of traditional learning mostly believed that traditional learning has multiple advantages over e-learning, but they did worse on their exams.

Attendees of e-learning had emphasized most of the advantages of distance learning: time saved because they didn't need to travel to the classroom, time saved because a student could define their own pace through the curriculum, and an interesting experience of e-learning. They disadvantage reported as the most significant was the ease of traditional means of study. In the third survey, they also mentioned the lack of socialization and authority as a disadvantage.

For comparison, a survey made by Riviera and Rice showed that the majority of students thought that it is easier to learn through traditional, live lectures [8].

6.1 Answers about attending e-learning revisited

No students involved in the study stated that they would prefer not to attend an e-learning course again.

Students that stated that they would gladly attend an e-learning course again have read more lessons from online multimedia textbooks and gave a higher score for the quality of classes. An advantage they stressed out the most is the huge amount of time saved by the e-learning method. The disadvantages reported mirrored those of the previous studies, citing lack of socialization and authority most often.

Similarly, the students that stated they might attend an e-learning course again mentioned the same advantages and disadvantages as the first group.

The conclusion of the third focus group is quite important and it was a suggestion by the students to organise classes for future generations which would be a combination of e-learning and traditional learning. After all, this is a unique course where real life practice means a lot.

7 CONCLUSION

Students of Polytechnic in Zagreb were mostly satisfied with e-learning and on the end of the semester they got higher grades in course than other students.

All students answered they would maybe or for sure attend another e-learning course. Because of that we can consider this experiment as a success.

Most of the attendees of e-learning had emphasized the most the advantages of distance learning: time saved because they didn't need to travel to the classroom and time saved because a student could define their own pace through the curriculum. It can be concluded from that that e-learning is the best for students who live far from the campus.

It would be good to organise hybrid classes which would be a combination of e-learning and traditional learning for future generations of students who live closer to the campus

The results would possibly be slightly different if the experimental group was assembled by completely random choice of participants, so another try on more random sample or on group of students who are located farther away from their college and are the targeted group of e-learning is also recommended.

REFERENCES

[1] Račić, P.; Jandrić, P.; Vučina, Ž. (2011). E-learning and dance education: instructional design for professional issues in ballet. Conference Proceedings: International Technology, Education and Development Conference (INTED 2011). Gómez Chova, L.; Candel Torres, I.; LópezMartínez, A. (Eds.). Valencia: International Association of Technology, Education and Development (IATED), 2011, pp. 2608-2617.

[2] Jandrić, P. (2012). Communication Skills. Zagreb: Polytechnic of Zagreb. Retrieved 28 March 2013 from: http://nastava.tvz.hr/komunikacijske-vjestine/index.php/en/.

[3] Jandrić, P. &. Boras, D. (2012). Critical e-learning: struggle for power and meaning in the network society. Zagreb: FF Press & Polytechnic of Zagreb.

[4] Middleton, A. J. (1997). How effective is distance education? International Journal of Instructional Media, 24(2), pp. 133-137.

[5] Carr, S. (2000). Online psychology instruction is effective, but not satisfying, study. retrieved 03/12/2013 from: The Chronicle of Higher Education: http://chronicle.com/article/Online-Psychology-Instruction/26306.

[6] Gaudioso, E.; Hernandez-del-Olmo, F. & Montero, M. (2009). Enhancing E-Learning Through Teacher Support: Two Experiences.IEEE Transactions on Education, 52(1), pp. 109-115.

[7] Kochenderfer, R. (2013). What About Socialization? retrieved 03/12/2013 from: Homeschool: http://www.homeschool.com/articles/socialization/default.asp.

[8] Rivera, J. K. (2002). A Comparison of Student Outcomes & Satisfaction Between Traditional & Web Based Course Offerings. Online Journal of Distance Learning Administration, 5(3).