

THE ROLE OF THE TEACHER IN DISTANCE EDUCATION

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***Abstract:** Distance learning through information and communication technologies is becoming increasingly popular. It enables long-distance education, expanding education and staff qualifications. Distance learning helps with frequent changes in requirements for new skills and competencies of workers. Experience shows that the outcomes of distance students are often worse than those of full-time students, especially at the beginning of studies. This article shows a comparison of results achieved by distance learning students and those attending traditional classes. The article describes the importance of the teacher and his influence on the quality of distance learning. A questionnaire survey was conducted among teachers. The results show the teachers' attitude to distance learning.*

Keywords: distance education, e-learning, Learning Management System, tutor, teacher.

INTRODUCTION

Distance and blended forms of teaching are increasingly required. This is due to the need to frequently increase and supplement staff qualifications. Employees usually have to improve their requirements and change their focus more than they did in the past (Bozkurt & Akgun-Ozbek, 2015) (Cavanaugh & Gillan, 2004) (Markova & Glazkova, 2017) (Roszak & Kołodziejczak, 2017). Experience with distance learning at the University of Ostrava shows that long-distance education is very complicated for a large part of its students and many students are not completing courses. The Department of Informatics and Computers has been using distance learning for 20 years. Distance education creates more significant demands on students than studying full-time. It is reflected in the results of the students. Differences can be observed between the distance learning group and the full-time group of students. The most significant differences are reported in the first semester. The success rate of full-time students is 64% in the first semester. The success of distance learners is only 39% in the first semester. It shows that it is

not enough to create quality teaching materials. It is also to create the conditions for the proper management of distance teaching. The role of teachers is also essential for distance learning. This is also important for reasons that students typically do not have practical experience with distance form of study (Kołodziejczak, 2017) (Porter & Graham, 2016) (Ozturk & Eyikara, 2016).

1. COMPARING THE SUCCESS OF DISTANCE AND FULL-TIME STUDENTS

There is a regular comparison of distance students and full-time students at the University of Ostrava. A large number of distance students do not complete the courses. Many students postpone their assignments and do not even start studying. The most significant differences between distance and attendance students are in the first semesters of bachelor studies. Differences are not significant in the following bachelor and master study years (Hannay & Newvine, 2005) (Levy, 2007).

The results of both groups (distance and full-time students) were compared using the T-test: Two-Sample Assuming Equal Variances. Two sample t-test is used to compare a difference between two populations. This parametric test assumes that the variances are the same in both groups. This assumption was tested by the F-Test Two-Sample for Variances. The data variability was measured in each item and the variation coefficient was used. A t-test was performed to interpret the results of the second-degree classification. The results were processed using MS Excel and statistical software Wizard for the operating system Mac OS X and statistical software Statistics Visualizer for iPad (Chráška, 2007) (Řehák & Brom, 2015).

The following hypotheses were determined:

Zero hypothesis: The study results of the two groups studied will not differ.

Alternative hypothesis: The study results of the two groups studied will differ.

2. RESULTS

The graph in Figure 1 shows the average of successful students in some selected bachelor's degree courses in computer science. All enrolled students were included in the survey. The following results are from 2017. Each course lasts for one semester, which is 13 weeks of teaching and a subsequent examination period. Full-time students had an average of 76% success rate. Distance students had an average of 54% success rate. Successful students earned at least 51 points out of 100 and they completed the course. The curriculum of all courses was the same for both distance and full-time students. List of courses in the first semester: APZOS -

Architecture of hardware and Fundamentals of operating systems (number of full-time students = 63 / number of distance students = 57), ALDS1 – Basic of Programming (56/66). Second semester: OPSY1 – Operating Systems (43/29), ALDS2 - Algorithms and Data Structures (30/15). Third semester: PRGCC – Programming in C/C++ (28/12), UVDAT - Introduction to Databases (38/19), LZUI1 - Logic for informatics (38/17), GALPR - The Principles and the Algorithms in the Computer Graphics (32/10). Fifth semester: OOPR3 - Programming server applications (30/8), SOFCO - Basics of softcomputing (32/10), ZMATS - Basics of Mathematical Statistics (28/12). Sixth semester: KKDAT - Data coding and compression (35/14).

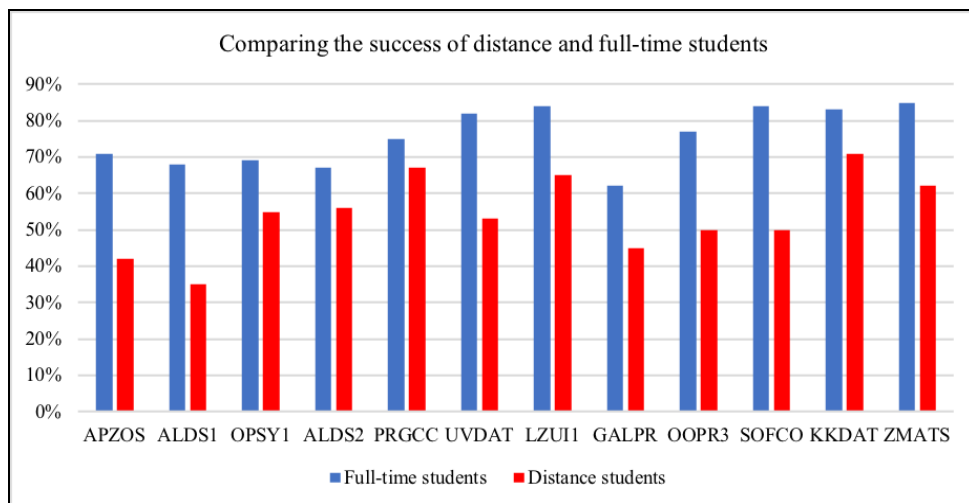


Figure 1. Comparing success in the courses

Source: Own work

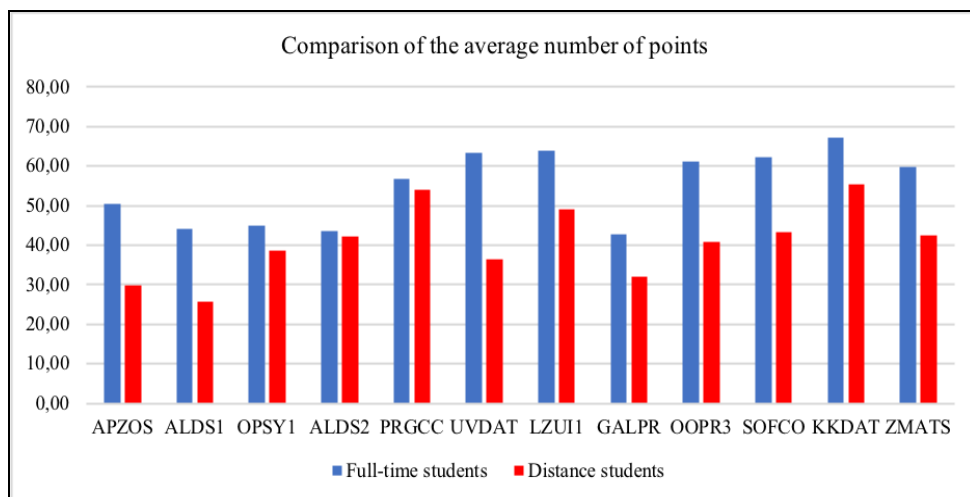
The chart in Figure 2 shows the average earnings of all students who enrolled in these subjects. The graph and results of t-tests confirm the worse results of distance students. The maximum number of points for the course is 100 points. The student must obtain at least 51 points to be successfully graduated from the course. A large part of the spacer of the students does not get any point. A significant portion of students receives zero points because it does not study and homework. Students who do not do homework do not usually get to the exam. These students typically do not finish a course or study. A T-test was performed for each of the courses. Table 1 shows an example of one of the tests for the course Architecture of hardware and Fundamentals of operating systems.

Table 1.**T-Test: Two-Sample Assuming Equal Variances for course Architecture of hardware and Fundamentals of operating systems**

t-Test: Two-Sample Assuming Equal Variances	Distance students	Full-time students
Mean	39,05	54,95
Variance	1643,70	1020,12
Observations (number of students)	76	94
P(T<=t) one-tail	0,00239	
t Critical one-tail	1,65397	
P(T<=t) two-tail	0,00478	
t Critical two-tail	1,97419	

Source: Own work

The results show that we must reject the null hypothesis. Distance learning students had worse results than full-time students.

**Figure 2. Comparison of the average of points (all students)**

Source: Own work

Another comparison shows the results of students who have completed the courses. Figure 3 shows that the results of both groups are very similar. Distance learning students gained more points in some courses.

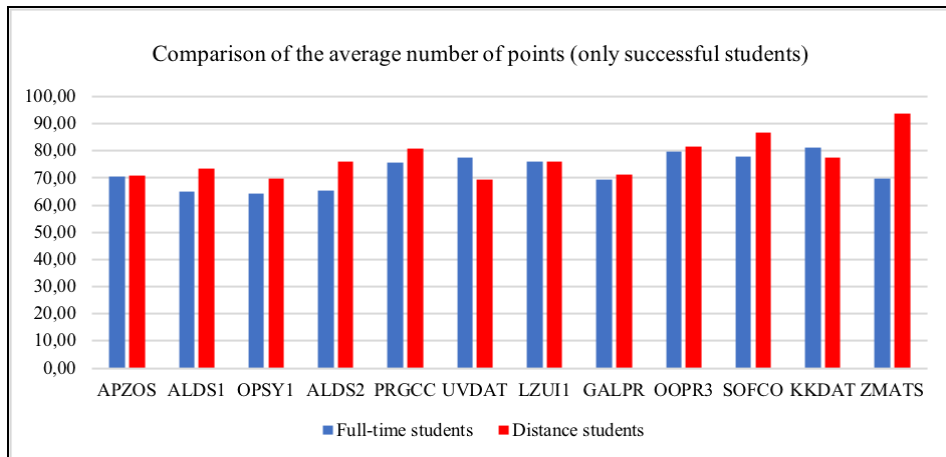


Figure 3. Comparison of the average number of points (only successful students)

Source: Own work

The results show that distance students can have more points than full-time students. A large proportion of distance students have problems with the organisation of their studies. That is why there are so many unsuccessful distance students, especially at the beginning of the bachelor study. It turns out that the teacher has a vital role in distance learning. Students typically do not have practical experience with distance learning, and therefore, it is essential that the teacher helped them (McPhee & Marks, 2012).

3. SURVEY AMONG TEACHERS OF DISTANCE LEARNING

A brief survey among teachers was conducted at the department. Twelve teachers from participated in a questionnaire survey and personal interviews on distance education. Respondents have taught in the distance education mode for an average of eleven years. Teachers must have other didactic knowledge and, in particular, skills in distance learning. Some teachers have an occasional problem with this new form. They also lack experience with this form of education.

The questionnaire looked at the attitudes and opinions of teachers on distance learning. 83% of them said they had a positive attitude toward distance learning. Many have stated that distance students are often more motivated than full-time students. Only 17% of the respondents had a neutral attitude toward distance learning. None of the respondents had a negative attitude.

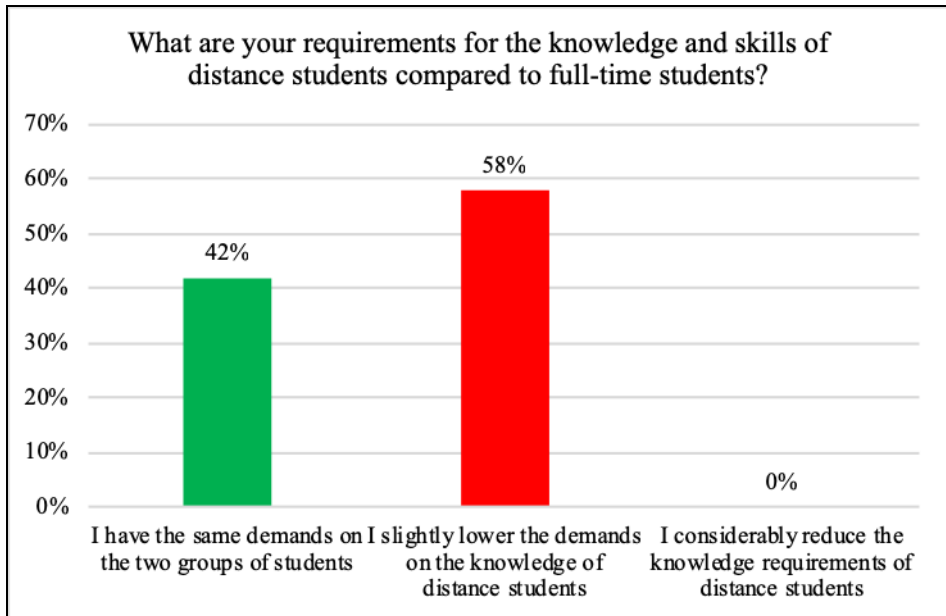


Figure 4. Teacher requirements

Source: Own work

Requirements for both distance and full-time students must be the same. However, the survey results suggest that some teachers have less demand for distance students. Figure 4 shows how respondents approach to their requirements for students.

The components of distance learning are tutorials. These usually take place on Saturdays and 2 to 3 times per course during the semester. The tutoring usually takes 2 to 4 hours. Tutorials have an essential role in teaching management and are often the only attended classes in the course. Part of the distance learning courses. It is usually held on a Saturday. Courses play a vital role in teaching and are often the only way that full-time teaching in the course. Students and some teachers often think that the tutorials are to be used for presentation of the curriculum.

Figure 5 shows what kind of tutorials teachers use. The most significant part presents and explains some of the topics in the course. The results of the interviews with the teachers show that this fact is caused by a smaller experience of teachers with distance learning. Some students have little practice in the curriculum, so they have no questions. The teacher must teach students to study the subject in front of the tutorial. Tutorials should serve mainly as a collective consultation.

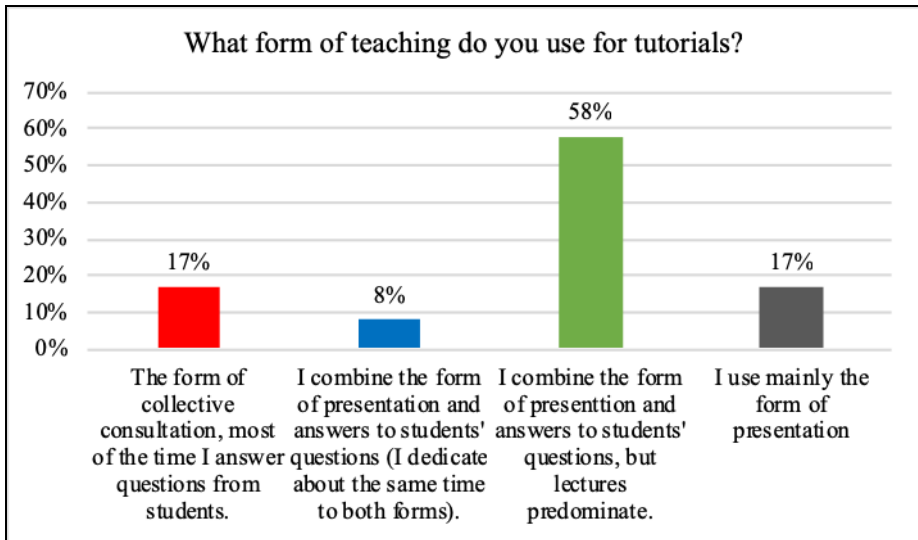


Figure 5. Forms of tutorials

Source: Own work

Communication between the participants of the course learning management is essential (Klimová Frydrychová, 2015) (Paechter & Maier, 2014). The electronic conference appears as one of the most appropriate instruments for communication among distance students and teachers. The conference is supposed to replace the discussion in the traditional classroom. If students send their questions by means of e-mails, these questions and answers cannot be seen by other students. All distance students in the electronic conference see all the questions and the answers and can respond to them. Experience shows that it is advisable to support student engagement at the Moodle conference. For example, the awarding of points for activity in the conference. The results of the survey show that teachers use the Moodle conference less than is appropriate (Figure 6). Experience with distance course management shows that it is essential to motivate students to work actively on a continuous basis. Students who work continuously during the semester usually have better results. Continuous activity can be assured, for example, by assisting with regular tasks that students have to develop. For example, once every 2-3 weeks. A long timespan between correspondence tasks proved inappropriate.

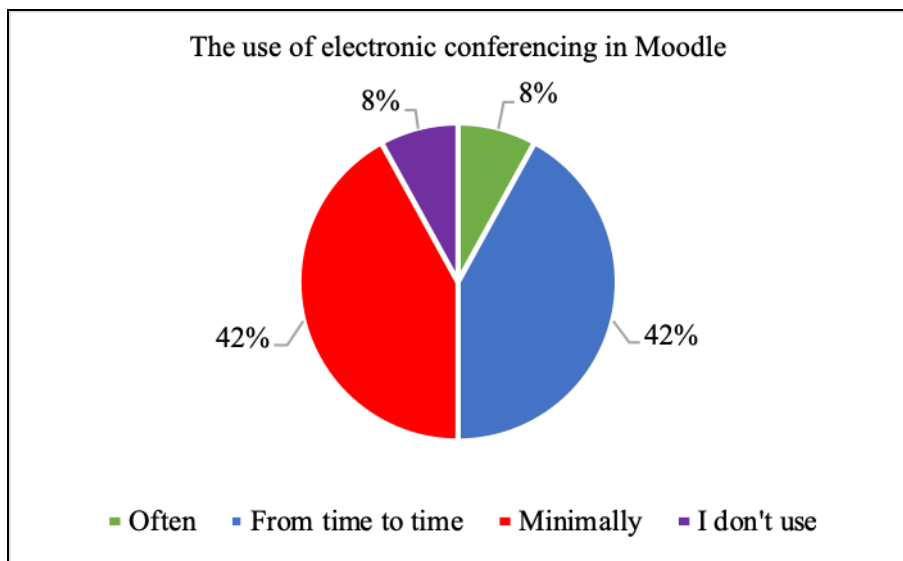


Figure 6. The use of electronic conferencing in Moodle

Source: Own work

All teachers communicate by email. Almost all of the teachers also used full-time consulting. However, this form of communication is often complicated to use due to the workload of distant students or considerable distance.

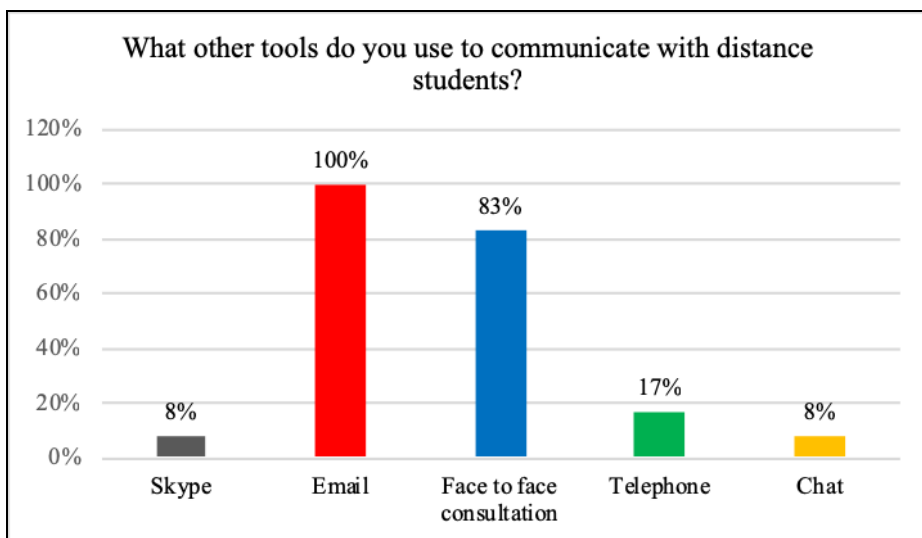


Figure 7. Other communication tools among teachers and students

Source: Own work

The respondents consider it essential to have high-quality teaching materials for distance learning. Not only texts, but also tests, multimedia materials, video lectures, and so on (Leszczyński 2018). Students need feedback. For example, results of tests and most importantly homework. Respondents answered the question of how much homework they assign. Teachers usually create four assignments as homework in one course per semester. Some teachers, however, assign only one task or vice versa to ten tasks. Setting the right amount of homework is very difficult. A small number of tasks do not activate students often enough, and students do not usually study continuously. On the contrary, a large number of tasks can be demotivating for students and can discourage them.

CONCLUSION

The results of the comparison of success rates demonstrate that distance students have on average worse results than full-time students, especially at the beginning of the bachelor study. Among them was a large group of students who could not properly organise and plan a course study. They often postpone the tasks, and then they do not get to the test, and they finish their studies.

Experience shows that it is not enough to have only good teaching material. Distance students need leadership courses. Students usually have little practical experience with distance learning. Therefore, it is necessary that the teacher helped students organise their university courses of study. The survey showed that even teachers, who teach for a relatively extended period, do not use the right method. For example, teachers make little use of electronic conferences that can, to a certain extent, replace student discussions in traditional teaching. Teachers prefer e-mail communication. Other students cannot participate in this communication. The electronic conference is beneficial for communicating with distance students. Teachers also do not use tutorials as a consultation but as a presentation of topics, which is not very appropriate due to the limited timescale. For quality distance learning, it is necessary to train teachers in the distance learning methodology. Most teachers usually have practical experience only with traditional teaching.

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