



DEMOCRATIZING POTENTIAL OF DISTANCE EDUCATION

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Abstract: *The article presents results of research for the purpose of which a hundred of exam sheets were analysed and answers to the questions related to the material covered during lectures, tutorials and via distant education (DE) modules were compared. It was found that the level of students' understanding the lecture material varied. The research showed that sometimes students who got the lowest grades were more familiar with issues presented via DE modules than with those discussed during lectures. The students who were experienced in using the MOODLE platform obtained 91% for questions referring to material covered in DE mode. Group 1, which did not have any DE classes before, achieved lower grades in-the exam.*

Keywords: lecture, tutorials, blended learning, exam, effectiveness

INTRODUCTION

Highly motivated users benefit the most from DE (Blieck, 2018: 91). These include people with physical and cognitive disabilities (Fryia, 2009, Cinquin et al., 2019), stay home parents, students living at a significant distance from a school or university (Rzeźnik, 2006: 131). The average DE users do not often study systematically. Hence, there is a high dropout rate in e-learning (Blieck et al., 2019).

There is still controversy over the reasonableness of replacing some of the traditional, presence-based classes (lectures and tutorials) with DE modules. Opponents of DE link direct contact with the lecturer exclusively with the opportunity for asking questions, for multi-channel communication and thus with more efficient perception of lecture content, with better understanding of problems being discussed and hence with greater effectiveness of teaching.

1. AIM, HYPOTHESIS AND METHODS

The aim of this study was to examine the extent to which students acquire knowledge during traditional, presence-based lectures and tutorials and to which by DE mode. The research method included:

1. analysing three test exam sheets for points scored for knowledge of material discussed during lectures, tutorials and via DE,
2. analysing and comparing official documents sourced from the Virtual University service containing average annual grades of students participating in the study.

In addition, analysis included documents prepared exclusively for this study - surveys carried out among students after Exam 1 aimed at finding their attitude to learning in virtual environment.

The research question of the study was: Does generation Z learn better when taught on a direct contact basis or in the digital environment?

A hypothesis was formulated: *students benefit the most from blended learning*. In order to test its validity, a series of case studies (Stake, 1995) was carried out and the results of exams in two subjects conducted in five groups of students were analysed. The author analysed correct answers to questions related to the content presented during the lectures, discussed during tutorials and published on the platform in distance education mode (as blended learning approach).

The author chose to carry out longitudinal, mixed, comparative, nonexperimental research (Burke 2014). The quantitative research included statistical analysis which allowed comparison of sums and percentages of grades and scores obtained by different groups of students (Pasikowski, 2012: 121). Additionally, coefficients were calculated, including Spearman R_s rank correlation coefficient. Quantitative research which was insufficient for the research problem being studied was supplemented with a qualitative analysis of the students' behaviour, its dynamics and change patterns over time.

The phronetic approach to research (Tracy, 2007, 2013: 4) is based on relating systematically gathered data and its interpretation to real world in order to introduce positive changes, which, in this case, included improving the overall education system and the way students are examined. *Phronēsis*, understood by Aristotle as “prudence” and “practical wisdom” (Aristotle, 2004: 193) implies the accumulation of contextual, action oriented and values-dependent knowledge (Cairns & Śliwa, 2008).

2. RESEARCH MATERIAL

Data available in the form of examination sheets for the modules *Fundamentals of Social Communication* and *Theory of Media and Communication* filled by second year students of the undergraduate courses: *Culture and Media Studies* and *Polish Philology* (specialty: *Social and Media Communication*), as well as first year master's degree students of *Culture and Media Studies* in the module of *Theory of Media and Communication*. Lectures, tutorials and DE instruction were delivered in the academic years 2017/2018 and 2018/2019 and the exam papers came from three examination sessions held during those two years.

Students in *Cultural and Media Studies* and in *Polish Philology* jointly participated in lectures and classes, while they attended tutorials separately in the Institute of Polish Philology (Table 1, Table 2, Table 3).

Table 1.

Exam 1. – in Fundamentals of Social Communication

	Polish Philology, Social and Media Communication 2 nd year undergraduate students (Group 1)	Culture and Media Studies, 2 nd year undergraduate students (Group 2)
Number of students	7	52
Number of lecture hours	14	18
Number of on campus tutorials	30	16
Number of the DE hours	12	8
Number of questions on lecture content	12	12
Number of questions on tutorials content	6	6
Number of questions on DE content	7	7

Source: Own work

Table 2.**Exam 2. – in Theory of Media and Communicatin**

	Polish Philology, Social and Media Communication 2nd year undergraduate students, (Group 3)	Culture and Media Studies 2nd year undergraduate students (Group 4)
Number of students	9	11
Number of lecture hours	12	10
Number of on campus tutorials	24	20
Number of DE hours	6	6
Number of questions on lecture content	10	10
Number of questions on tutorials content	20	20
Number of questions on DE content		

Source: Own work

Table 3.**Exam 3. – in Theory of media and communication**

	Culture and Media Studies, 1st year master's degree students (Group 5)
Number of students	21
Number of lecture hours	10
Number of on campus tutorials	10
Number of DE hours	6
Number of questions on lecture content	12
Number of questions on tutorials content	6
Number of questions on DE content	2

Source: Own work

3. LIMITATIONS

The study was conducted on a small sample, so it is highly probable that external factors had an impact on the results e.g. students' personalities, lecturers'

personalities, social opinions about DE, technical problems, family and/or health status etc.

4. RESULTS

4.1. Effectiveness of each type of classes

The percentages of points scored by students for questions related to the material presented during lectures, tutorials and DE were compared. It was found that the DE used by competent (master's degree) students was the most effective type of education (see Group 5). Distant education is effectively used by talented (see Thomson, 2010) and inept students alike. But those who are less motivated and less technically advanced learn the least effectively from a distance.

Table 4.

Percentage of correct answers to questions related to material discussed during lectures, tutorials and via DE

		Lectures	Tutorials	DE
Exam I	Group 1	70%	69%	41%
	Group 2	68%	79%	75%
Exam II	Group 3	74%	69%	
	Group 4	78%	76%	
Exam III	Group 5	79%	57%	91%

Source: Own work

4.1.1. Knowledge of lecture content

Table 4 shows that on average students score about 70% for their knowledge of lecture material and this is a stable trend resulting from the traditional nature of this form of university education. However, the effectiveness of lectures varied between 68% and 79% in the studied groups. The experienced master's degree students who attended the lectures in small groups benefited the most (Group 5: 79%, Group 4: 78%). On the other hand, undergraduate students who attended the lectures in large groups learned the least (Group 2: 68%, Group 1: 70%).

It can be said that the lectures can contribute to increased differences between students. Reducing education to lectures only or excessive use of them in case of the digitized generation Z (also known as Post-Millennials, multitasking generation, @ generation) leads to an inequitable distribution of knowledge among young people for whom digital environment is the main area of constant acquisition of knowledge about the ever-changing world.

This observation is important especially in case of post-communist and post-colonial countries in which there are still present social inequalities – the remnants of the previous systems. Acquiring knowledge – as many other organized human activities – is influenced by the social environment. Social relations of power affect students, academic teachers and researchers (Kuhn, 1962; Lincoln & Guba, 2000; Heilbron et al. 2018). Transfer of knowledge by means of outdated and undemocratic presence-based, traditional lectures only deepens existing social inequalities in its distribution, and thus increases social divisions.

4.1.2. Knowledge of the tutorial material

Despite the long academic tradition of the tutorials, in case of many students they were ineffective. Their effectiveness ranged from 57% to 79%, so it depended on various factors.

The second-year undergraduate students of Culture and Media Studies who were split into two groups and instructed by an experienced tutor benefited the most from the tutorials. During the exam, they provided better answers to questions related to the issues discussed during tutorials than to questions related to the material discussed during traditional lectures. The difference here was as high as 11%.

On the other hand, students from the master's degree course, Group 5, benefited the least from the tutorials. Although they were experienced and able to organize their own learning, they provided correct answers only to 57% of questions related to the topics discussed during tutorials. It negatively impacted the results of their exam, because they remembered the material presented in the DE mode in 91%, and material presented during the lectures in 79%. Such a low educational effectiveness of the tutorials may have resulted from the fact that they were not connected with DE content, as the students had been used to having tutorials content available on-line. Moreover, tutorials in this group were run by an academic who did not utilize the DE mode for teaching.

Therefore, the effectiveness of the tutorials depended on external factors which influenced the students' overall results of the exam, even in case of experienced master's degree students.

4.1.3. Knowledge of the content discussed via DE

The DE tutorials did not have the desired effect in cases of students who were not familiar with this form of education. A small group of second year female students of *Polish Philology* were not familiar with DE during the first year of their study. This group even questioned classes with the use of digital technologies because they required personal involvement from the students, meeting technical expectations, gave opportunity for tracking their online activity, required lots of reading and precisely following instructions as well as the skills for using the appropriate software. Meanwhile, when students from this group

started their first degree, they expected that traditional education based on working with textbooks will be continued in the second year of their studies in *Polish Philology*. They distanced themselves from digital technologies and did not wish to invest in laptops being convinced that they would not need them for their studies.

Additionally, also the academics looked unfavorably at DE because they associated it with increased workloads inevitable in preparation and delivery of the DE and blended learning classes, related to this time pressures, need for technical advancements and the need to update their qualifications but also unclear intellectual property rights to the teaching materials created by them, lack of financial recognition for time spent preparing for the DE classes and involvement in the DE not being recognized in appraisals of the academics and the university.

The low effectiveness of the DE (40%) in small Group 1 composed of first degree students of *Polish Philology* who upheld a conservative outlook at teaching methods contrasted with the high efficiency (91%) of the DE instruction in Group 5 composed of second degree students of Culture and Media Studies who had previously participated in several DE-based courses, were able to organize their learning, meet time lines and efficiently use electronic resources for expanding and deepening their knowledge. In this case, the DE classes were successful because they were run in a favorable environment which included competent students, an experienced tutor, supportive educational institution, appropriate technological facilities, well-organized education system, etc.

All the above factors caused that over time the students were able to use digital materials and the DE tutorials more and more efficiently. The percentage of the correct answers to questions related to content of the DE is shown in the last column of *Table 4*.

4.2. Efficiency of the DE classes

When the results of Exam 1 were analyzed, due to the lack of the normality of the distribution of both the number of points obtained by students for knowledge of issues discussed during lectures and the exam score, non-parametric tests were used. The Spearman R_s correlation coefficient was used to study the relationship between these two features. A statistically significant ($p = 0.000019$) relation between the number of points obtained for knowledge of content of the DE classes and the exam score ($R_s = 0.53$) for all students ($n = 59$) was obtained. It is a strong monotone correlation, which means that the higher the number of points obtained for questions related to the DE classes the higher final exam grade. The detailed distribution of grades, depending on the number of points obtained by students for their knowledge of the lectures. The trend is shown in Figure 1.

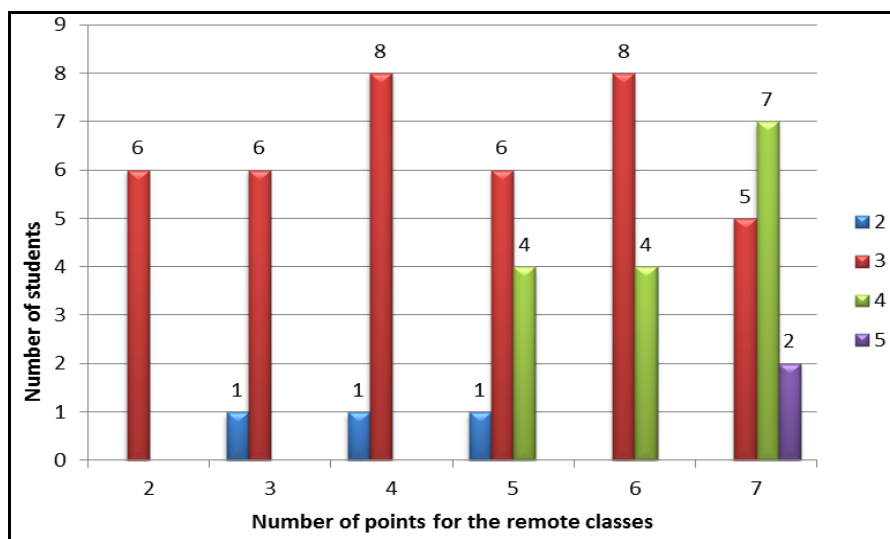


Figure 1. Exam 1 – grades vs active participation in DE classes

Source: Own work

Figure 1 shows that six students received only two points for knowledge of the content delivered via the DE classes. All those students, however, passed the exam (obtaining Credits) because as they progressed in their learning they were getting feedback on their poor results. Therefore, they were aware early enough that the knowledge they got was not sufficient, so they kept on improving it during tutorials and lectures and by using published digital educational resources.

On the other hand, three students who received respectively 3, 4 and 5 points for their knowledge of the issues discussed in the DE classes (43%, 57% and 71%) did not pass the exam. It means that two students had little knowledge of the content of the DE classes. On the other hand, two students who received high distinction for Exam 1 also got the maximum number of points for their familiarity with the content of the DE classes. Students working the most poorly were, therefore, able to complete the majority of questions, and the highest grades went hand in hand with the best knowledge of the DE classes' content. This trend is illustrated in Figure 3.

In Figure 2, one can also see that the DE classes were easily apprehensible to all students: the poorest performing ones managed to complete assignments, and the average number of points scored by a student was 4.98 out of 7 possible i.e. 71%. It is also evident that the students from the group which worked most intensively with the DE part of the unit were awarded the highest grades for the exam (high distinctions).

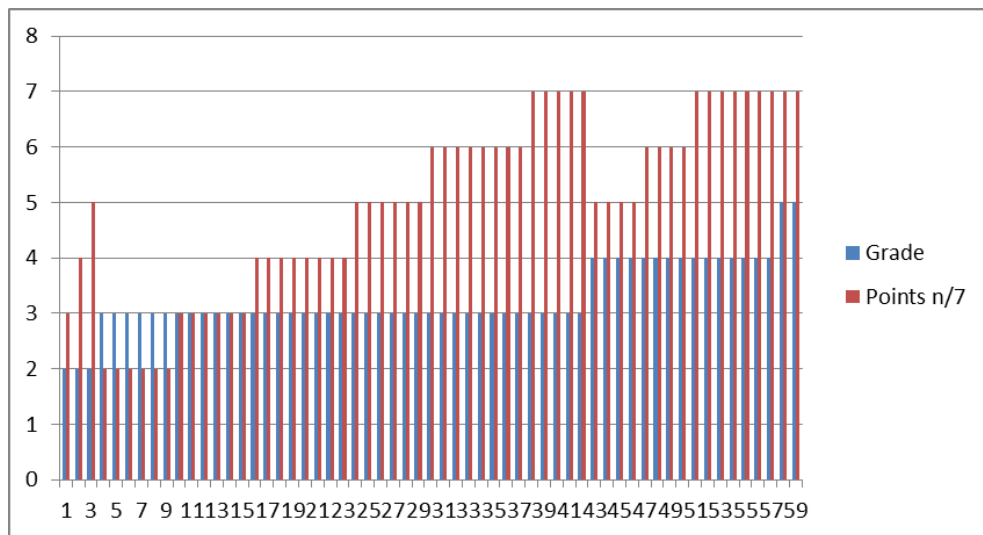


Figure 2. Exam 1 – grades for students’ active participation in DE

Source: own work

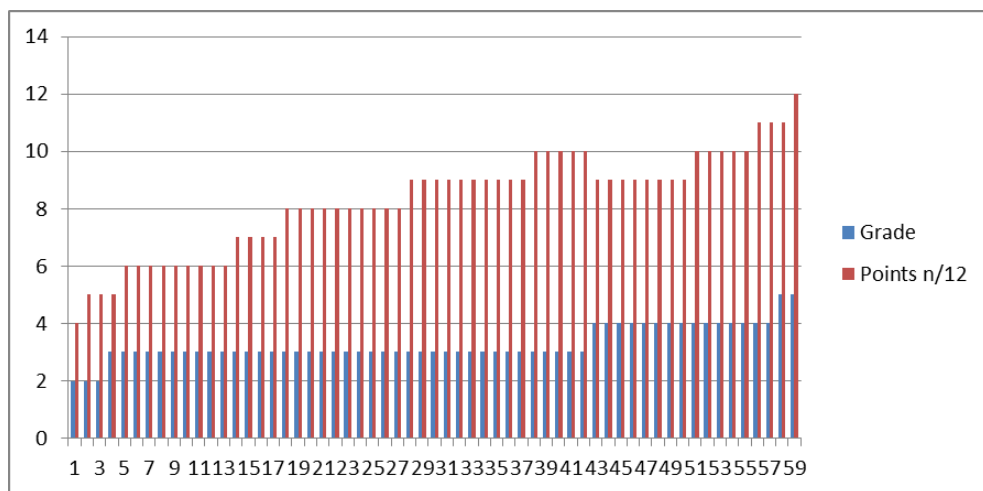


Figure 3. Exam 1 – grades for knowledge of the lectures’ content

Source: Own work

On the other hand, the lectures were not as easily comprehended by the students as the DE classes. Lectures proved to be differentiating the students. A statistically significant ($p < 0.000001$) correlation between the number of points obtained for the lecture and the exam grade ($R_s = 0.67$) for every student ($n = 59$) was obtained. *Figure 3* shows, however, that the most poorly performing students who did not pass the exam also failed to benefit from the lectures scoring only 33% and 38% i.e. 10%-33% less than for their knowledge of the DE classes’ content. Only one student managed to get 100% for their knowledge

of the lectures' content, while in the case of the DE classes as many as 14 students managed to get that score. Nevertheless, *Figure 3* shows that it was not necessary to obtain the maximum number of points for the knowledge of the lectures' content in order to be awarded the top grade for the exam. The lectures, then, turned out to be less comprehensible and less useful for obtaining a high distinction for the exam than the DE classes; even though the students could receive maximum of 12 points for the lectures and only 7 for the DE classes.

Therefore, it can be concluded that the level of understanding and degree of retaining the lectures by the students were more diverse than the level of understanding and degree of retaining the easy to comprehend and to follow content delivered via the DE mode.

4.3. Correlation between the DE classes and exam results

There were various correlations discovered between the results for the knowledge of DE content and the results of the exam:

1. Three students who received feedback while attending the DE classes informing them that they scored low, improved their poor result by working more intensively; also during tutorials and lectures.
2. Three students who did little or did not do any work in the DE classes (a student who did not sign in to DE classes, attended lectures and exercises, but did not take the exam) failed the exam.
3. Only those students who used the DE classes most intensively obtained distinctions and high distinctions for the exam. The student who passed the exam the best was among the most active students in the DE part of the unit, because she made the use of the available additional resources.

Therefore, it can be said that DE had a democratizing character: it helps poorly performing students to pass the exam, and it assist the average and capable students in broadening and deepening their knowledge. Students who did not spend enough time on the DE content did not pass the exam.

4.4. The distribution of knowledge of students who were the most and the least successful in the exam

Nine students who obtained the best results in Exam 1 statistically utilized the classes to the greatest extent, in 5 cases obtaining 100% for tutorials' content. In case of the lectures, only the student, who passed the exam with the highest score, benefited from them to such an extent. Three good students from this group gained more from the DE mode than from the lectures. This means that for the best students the lecture was not the most suitable form of knowledge transfer. This is illustrated in *Figure 4*.

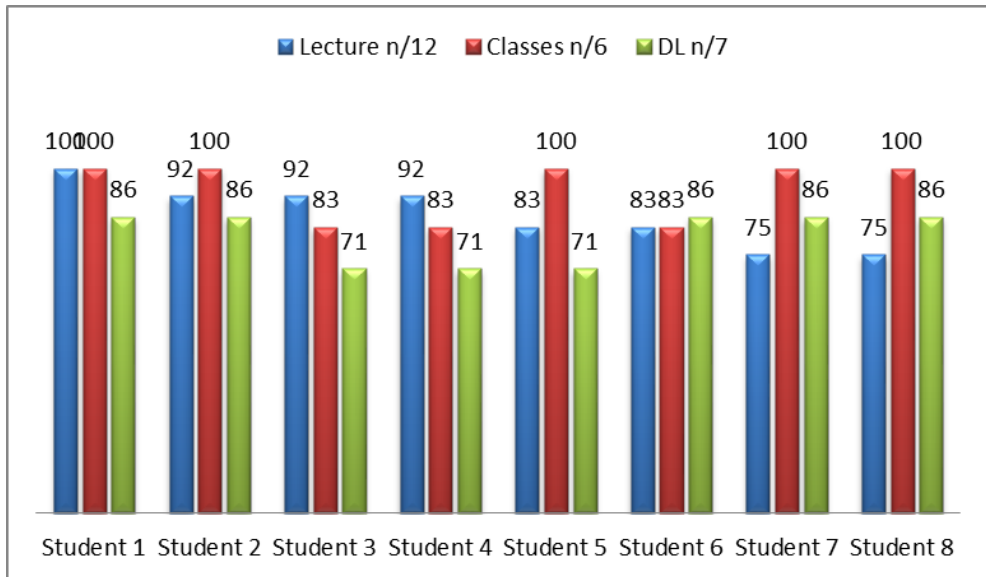


Figure 4. Exam 1 – distribution of the best grades

Source: Own work

Students who got the lowest grades also learnt the most during classes (students 3 and 8 scored 100% for questions on tutorials’ content). Only for two students, lectures turned out to be the most effective form of knowledge transfer. Also, two students (6,7) gained more from the DE than from lectures.

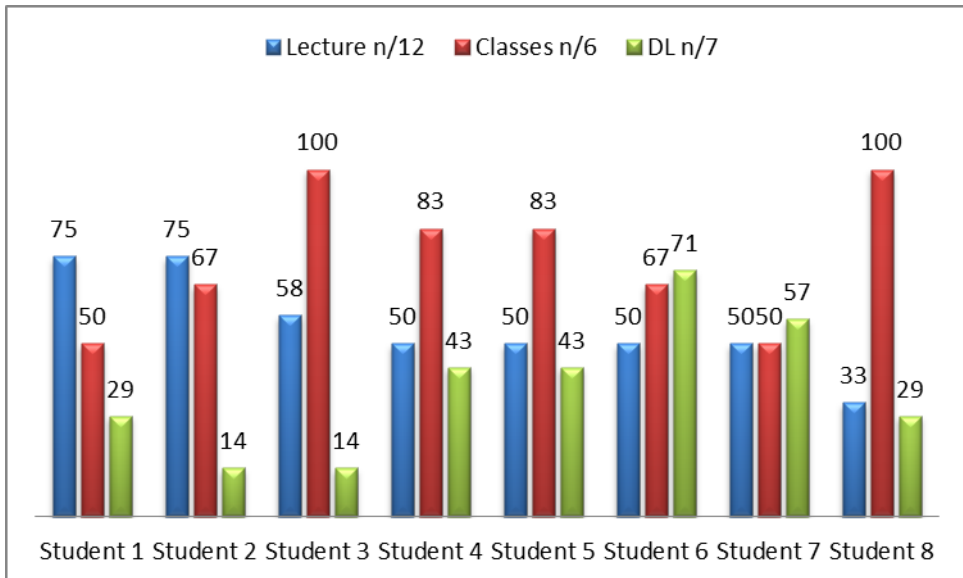


Figure 5. Exam 1 – distribution of the lowest grades

Source: Own work

Figure 4 and Figure 5 show that the lectures were not the most effective form of knowledge transfer neither in case of talented nor below-average students. All students required tutorials, while some preferred DE.

4.5. Grades of students freshly commencing the DE classes - Group 1

Group 1 students who have not used the DE classes before ($n = 7$) obtained an average of 2.86/7 points (41%) for questions relating to content delivered via the DE mode. The student who answered 4/7 questions regarding the content of the DE classes but was not familiar with the content of lectures and tutorials failed the exam.

Other students from Group 1 got satisfactory marks for the exam and those grades were related to correct answers to 2-4 questions regarding content of the DE classes. Group 1 got very low grades for Exam 1 – average 2.85, while in Group 2 the average grade was 3.26.

On average, both groups obtained a higher final grade-average than for the Exam 1: Group 1 achieved a final grade-average of 3.83 (0.98 higher than for the exam), and Group 2 achieved 3.92 (0.66 higher than for the exam). Group 1 students were unpleasantly surprised with their low grades they obtained for Exam 1, especially when they compared them with Group 2's exam results. They suddenly realized the ineffectiveness of their learning method.

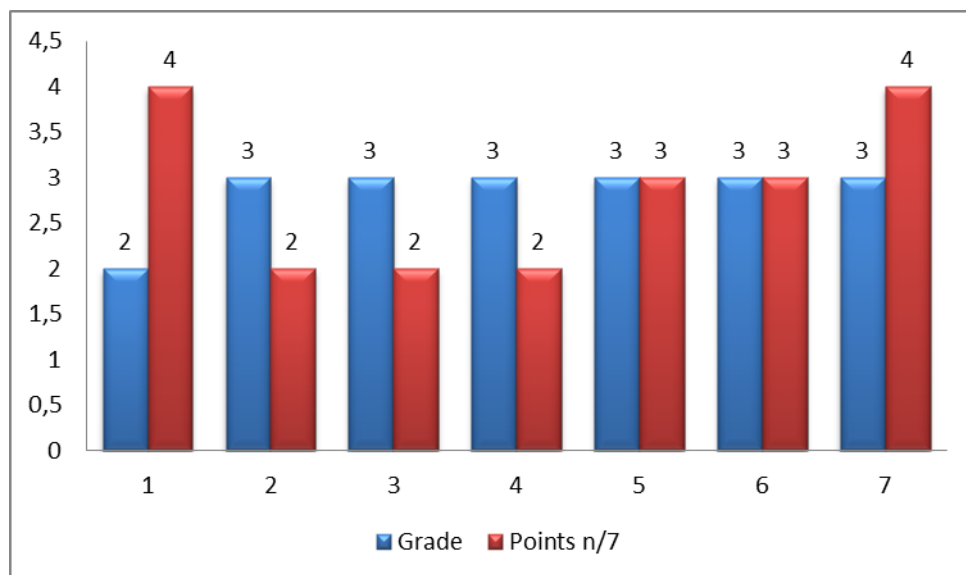


Figure 6. Group 1 – grades vs students' active participation in DE classes

Source: Own work

Five months later Group 1 took Exam 2 as Group 4 comprised of nine students. The DE classes were combined with tutorials and delivered as blended learning – the issues discussed in the classroom were explored in a digital environment.

This time the students achieved better results because they were already better acquainted with the Internet and *computer applications* (Picciano & Seaman, 2007, Kintu et al., 2017). On average, they obtained 15.33/20 points (76%). Students who provided the best answers to questions related to blended learning content also passed the exam the best. The students who were not very much familiar with the virtual learning environment received the lowest grades for Exam 2. This is illustrated by *Figure 7*.

The correlation between the use of blended learning and the result of the exam may be related to the fact that more committed students were willing to do various exercises and to gain additional knowledge. On the other hand, the less involved students did not take the effort and did not want to participate in the DE classes, which involved the need to review additional education materials, doing exercises under time pressure and assessing their knowledge.

On the other hand, the correlation of the number of points obtained for the responses related to the lectures' content and the exam grade in the case of Group 4 was less pronounced. Students who answered 6-9 questions related to the lectures (span of 3/10 points or 33%) received good grades. In the case of blended learning it was 16-18 points (span 2/20 points or 10%). Therefore, it can be said that the answers to questions related to material discussed during lectures were not as strongly correlated with exam grades as answers to questions associated with issues discussed during blended learning classes. This trend is illustrated by *Figure 8*.

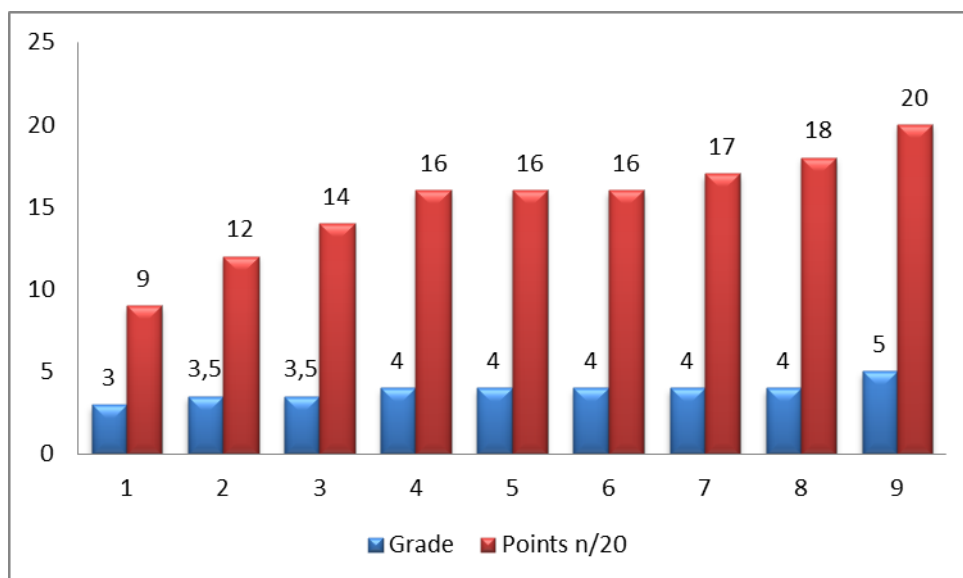


Figure 7. Group 4 – grades for knowledge of the content delivered in blended learning mode

Source: Own work

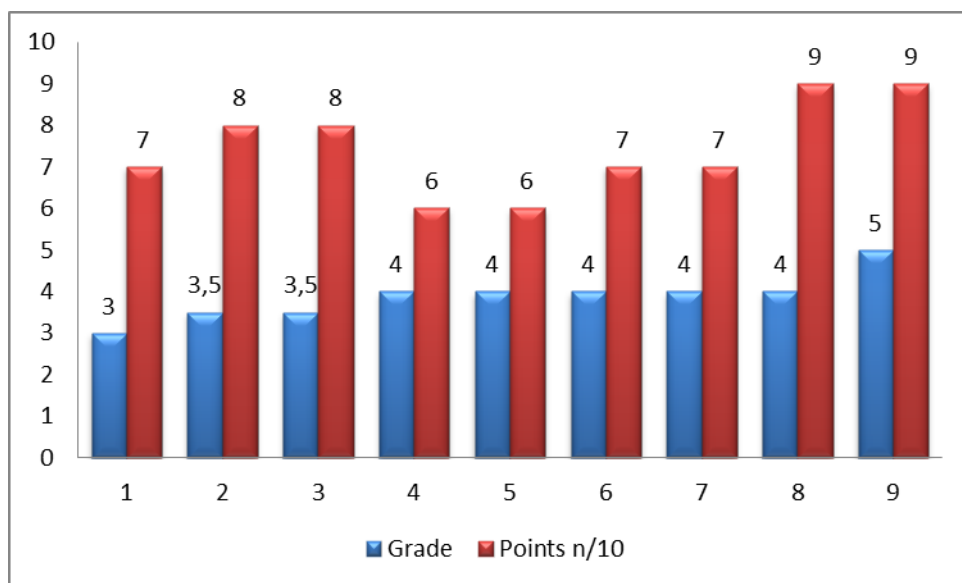


Figure 8. Group 4 – grades vs answers to questions related to lectures' content

Source: Own work

5. STUDENTS' OPINIONS

After Exam 2, an anonymous survey was conducted to obtain information on research participants attitudes toward e-learning. 32 questionnaires were returned. 19 students perceived the advantages of DE: *you can acquire knowledge calmly, at your own pace* [10], [DE teaches you:] *how to quickly make use of information* [4], *how to work independently and be disciplined* [14], *how to manage time effectively* [25]; *one can send posts on the forum, see the presentations made by others and learn from their mistakes* [7]; *increase [the quantity] because they are interesting* [1].

On the other hand, 14 students indicated the disadvantages of the learning mode via DE considering self-evaluation exercises [10, 16], non-compulsory chat [11, 15], and even compulsory tests [12, 13, 17, 18, 23, 24, 25] unnecessary.

All students have successfully passed tests which were part of the DE course. However, 21 respondents said that the time limits for completing the tests were too stringent, for example: *we have spent a certain amount of time and instead of focusing on tasks we think only about elapsing time* [26], *there is not enough time allowed for the completion of the quizzes, it could be better if there were no time [limits]. Then, quizzes would be easier and less stressful* [3], *time limits stress students and they do not focus on deepening their knowledge* [14].

It can be said, then, that the second year students of the first degree courses have some difficulties mainly with their time management. This is in line with the observation that teaching in the digital environment fails due to the students' difficulties with time management (Rovai, 2003; Selim, 2007; Clarke 1999).

6. CONCLUSIONS AND RECOMMENDATIONS

The research hypothesis was confirmed: *students gain the most knowledge from blended learning*. This means that DE has a democratizing potential. The results of the study allowed for the formulation of the following statement: *the Z generation students gain more from the learning via DE than from lectures*. Because the DE forms include proven: additional materials. Exercises and self-evaluations and it is also a more reliable source of information than improvised stationary tutorials.

Further comparative research on the effectiveness of lectures, tutorials and e-learning is needed. Larger samples, various environmental, age-related, cultural etc contexts should be studied. On the basis of the presented research results one can attempt to put forward a theory on the democratizing potential of blended learning and DE. Such a theory would be an additional impulse for the development of this form of teaching, and this development is inevitable (Zalewska, 2015: 112). Such theory would also most likely contribute to the greater interest of the conservative academics in DE and would greatly assist in obtaining wider support of decision makers for developing such university platforms.

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