TeComp

Report on the level of PPM knowledge/skills of university lecturers and on the current state of technology enhanced teaching and learning-University of Niš, Serbia

July 2019

Project acronym:	**TeComp**
Project full title:	**Strengthening Teaching Competencesin Higher Education in Natural and Mathematical Sciences**
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Lead organization of WP1:	P5- "Eqrem Çabej" University Gjirokastër ECUG
Task 1.1	Quantitative analysis of teaching competences of young, newly hired university lecturers at the PC HEIs
Task 1.2	Detailed analysis of the use of modern educational technologies in teaching and learning at the PC HEIs
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ENTRY

This research is done on the framework of TeComp project: "Strengthening Teaching Competences in Higher Education in Natural and Mathematical Sciences", co-funded by the Erasmus + Program and the European Union. The main objective is to improve the quality of higher education in the field of natural and mathematical sciences in higher education institutions in Serbia and Albania, in line with advanced EU practices, enhancing their comparability and competitiveness in Europe and beyond. This main goal will be achieved by completing a number of specific objectives in the areas of university study that the project covers:

- to enhance the professional competencies and skills of teaching staff through training courses in contemporary pedagogical approaches, methodologies and educational technologies;
- to improve the educational infrastructure as a basis for a wider integration of pedagogical principles and modern technologies in teaching and learning;
- to offer new / modified courses in psychology, pedagogy, teaching methodology and technology promotion in HEIs in line with modern European strategies;
- To strengthen the personnel infrastructure through the introduction of continuous professional development in the higher education system.

According to these objectives, the project is expected to achieve the following results:

- Identifying and adopting measures and actions needed to improve the quality of teaching and learning processes;
- Improving educational infrastructure;
- Training of teaching staff on the use of pedagogical and methodological principles and new ways of teaching and learning;
 Develop methodology and platforms for wider integration of ICT into teaching and learning.

The project will focus in particular on the transition from a learning-oriented approach to a learning-oriented approach to the learning process, a flexible and individualized approach, as well as better communication and interaction between lecturers and students. Target areas in Serbian and Albanian universities that need qualitative improvement of teaching and learning processes will be identified and a concrete action plan will be identified with the necessary measures and actions.

The purpose of WP1 (PREP) is to identify the necessary institutional measures, activities and documents for the successful implementation of new T&L modes. First, the current situation in HEIs will be analyzed from the aspect of staff education level lecturers in the areas of pedagogy and teaching methodology (PMT), as well as the level of use of technological innovations in T&L. Following will be the experiences of EU HEIs and the forms of T&L models that use, a comparative analysis will be made, the needs and opportunities of the HEIs will be identified and a concrete action plan will be developed, with the necessary measures and actions.

The lectures and students of four Serbian universities (Nis, Belgrade, Novi Sad and Kragujevac) and two Albanian universities (Gjirokastra and Korca) have volunteered for its implementation. Two types of questionnaires (Appendix 1 & 2) were used as the data collection study tool: Questionnaire 1 "Survey for lecturers" and Questionnaire 2 "Survey for students". These questionnaires were designed by the project working group and agreed on their content and quality by CMT members. To fill in the questionnaires, both electronic and physical forms (hard-copy) were chosen. During the period April 2019-May 2019 they were supplemented by finding the cooperation and dedication of a considerable part of the lecturers and students available at the above-mentioned universities.

The data collection, their processing and the preparation of individual reports were carried out by the working groups of each university. The final drafting of the Summary Report and its presentation was carried out by Dr. Romeo Mano, Lecturer and coordinator of the project at Gjirokastra's "Eqrem Çabej" University, which is the university responsible for WP1.

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Chapter I   BASIC INFORMATION OF PARTICIPANTS

1.1 University of Niŝ, Serbia

The survey was filled in by 31 lecturers, 14 (45.16%) of whom were women and 17 (54.48%) men. Lecturers from six areas were present in the sample in the following way: mathematics (6), geography (4), computer science (9), physics (3), chemistry (5) and biology (4). The survey was conducted electronically during April 2019.

The average number of years of teaching experience is 15.26 years (the standard deviation is 6.15 years). The shortest teaching experience in the sample is 5 years, while the longest teaching experience is 30 years. In the further report, we will consider lecturers and associates whose work experience is up to 12 years under the younger teaching staff, while experienced lecturers will consider lecturers with experience over 12 years. Translated to the age of the respondents, we can identify 12 years of experience with 35 years of age.

Work at the university allows for a significant individual distribution of time. For these reasons, lecturers / associates filled out how many hours of work were active during the week and how it was arranged. Average respondents said they spend 47.15 hours of work on different activities (with a standard deviation of 12.54). Operating hours vary from 25 hours to 75 hours. The amount of time spent in the week on individual activities is given in Table 1.1.1 and Figure 1.1.1.

Table 1.1.1 Average distribution of working hours and comparison between young and experienced lecturers at the University of Nis

activity	average number of hours all	average number of hours- young lecturer	average number of hours – experienced lecturers	p-value	significance
scientific work	**15.0**(5.05)	13.91 (4.44)	15.63 (5.39)	0.377	NO
realization of teaching	**8.7** (3.32)	8.45 (3.42)	8.84 (3.35)	0.764	NO
administration	**6.25** (6.25)	5.32 (5.87)	6.79 (6.55)	0.544	NO
preparation of classes	**7.03** (2.85)	5.54 (2.73)	7.89 (2.60)	0.026	**YES**
Other activities (management,	**5.34** (4.48)	4.45 (3.11)	5.89 (5.16)	0.413	NO

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popularization, writing reviews, etc.)					
Individual work with students (consultations, conducting study research work, etc.)	**5.00** (3.29)	3.82 (2.23)	5.68 (3.65)	0.137	NO
IN TOTAL	**47.15** (12.54)	41.50 (7.75)	50.42(13.76)	0.059	**YES**

Figure 1.1.1 Percentage distribution in relation to total time spent on young lecturers for the University of Nis
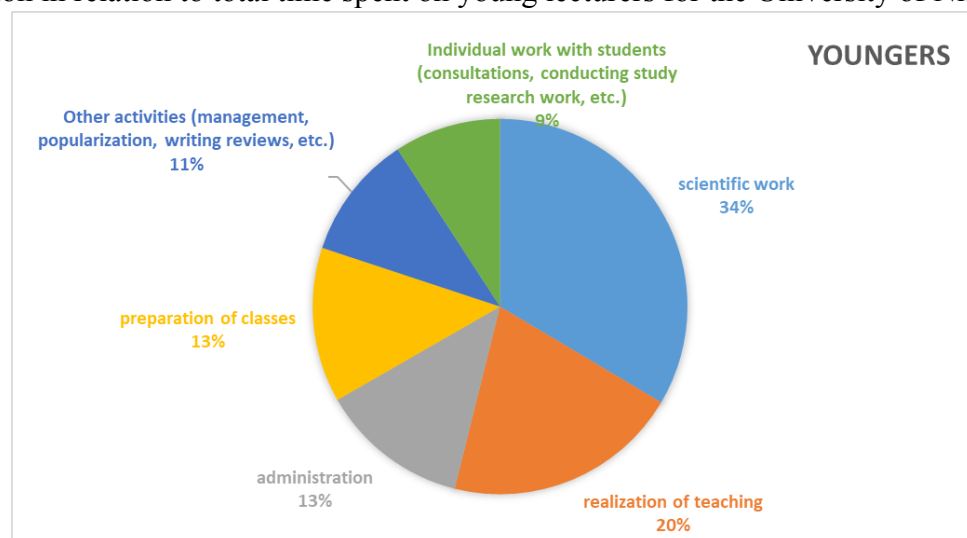
Figure 1.1.2 Percentage distribution in relation to total time spent on experienced lecturers for the University of Nis

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- Individual work with students (consultations, conducting study research work, etc.) — 11%
- scientific work — 31%
- realization of teaching — 17%
- administration — 13%
- preparation of classes — 16%
- Other activities (management, popularization, writing reviews, etc.) — 12%
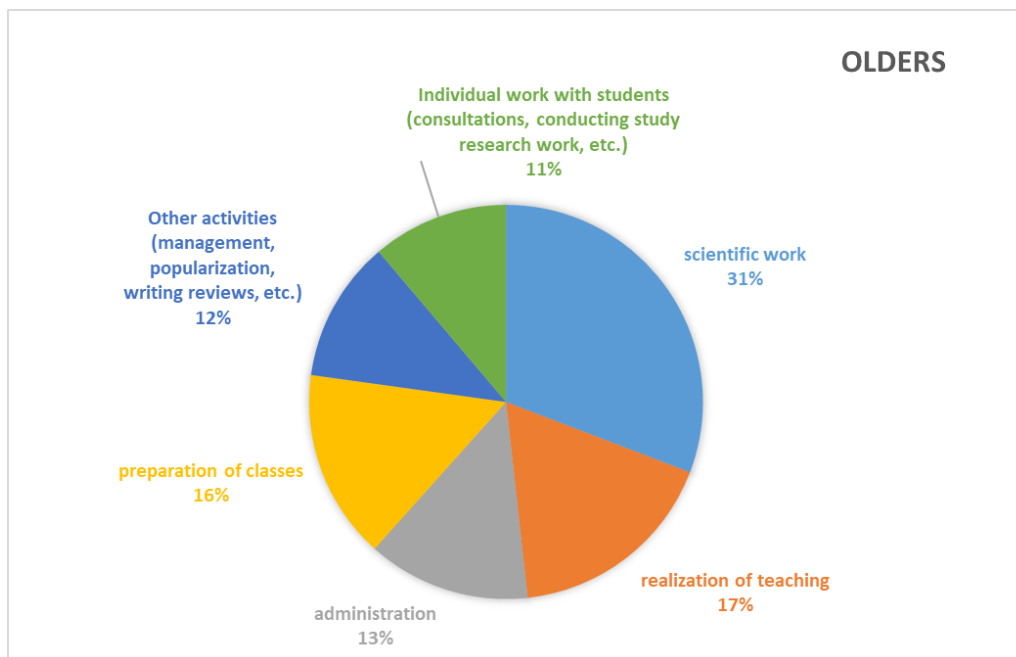
Chapter II PREVIOUS EDUCATION OF LECTURERS THAT COULD INFLUENCE ON THEIR TEACHING COMPETENCES AND OPINIONS

2.1 University of Niŝ, Serbia

Table 2. 1.1 Percentage distribution of Courses in methodology and comparison between young and experienced lecturers at the University of Nis.

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courses	in total	Young lecturers	Experienced lecturers
Electronic learning methodology	9 (30.00%)	2 (18.18%)	7 (36.84%)
Methodology of teaching	14 (46.67%)	3 (27.27%)	11 (57.89%)

Figure 2.1.1 Graphic representation of percentage distribution of Courses in methodology and comparison between young and experienced lecturers at the University of Nis
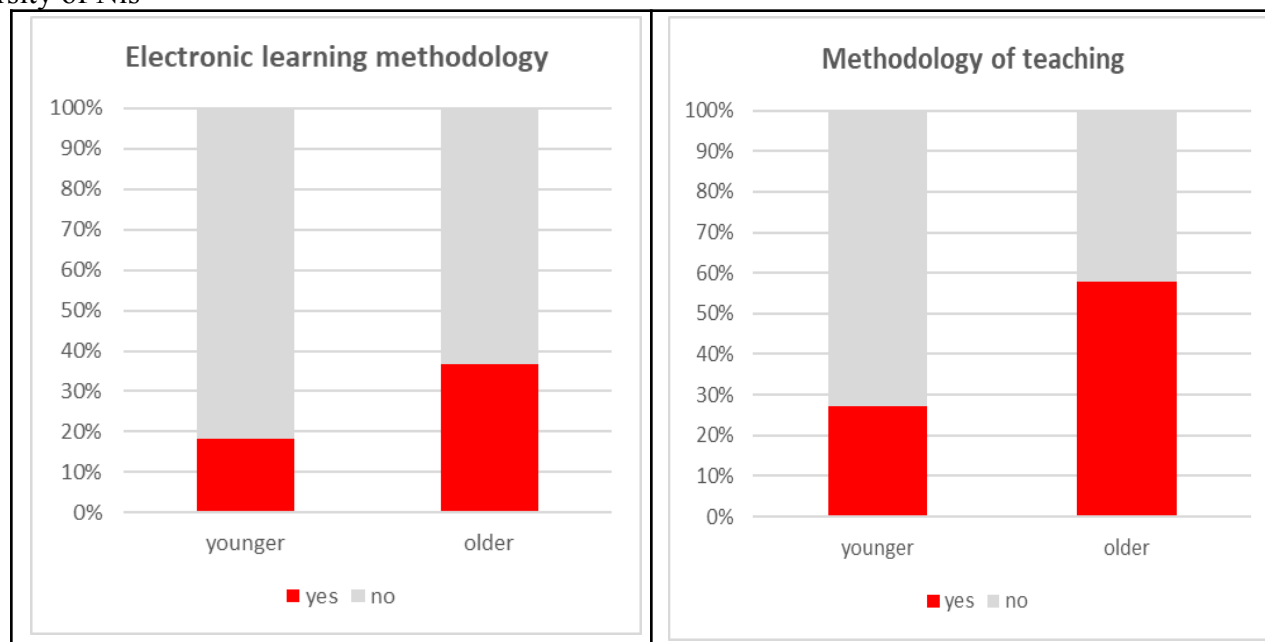
Table 2.1.2 Number distribution of the type of e-learning methodology at the University of Nis

Areas	number of respondents

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Electronic publishing (Latex, HTML, XML, PDF, etc.)	6=5+1 [1]
Online Technology in Teaching	3=3+0
Open source software (MOODLE, Python, GeoGebra, MOOC, etc.)	5=3+2

[1]We note that there are cases and there are respondents who have declared that they have not been listening to the method of electronic learning but have listened to some of the contents listed in the previous table. The first one is the number of respondents who have attended the method of electronic learning, while the second one is the number of respondents who did not attend

At Question: *Did you give at least one lecture in English? If yes, specify when and where*, less than 15%, or 4 respondents answered yes.

At Question: *Have you prepared at least one lecture or part of the lecture on the electronic platform? If yes, specify on which platform* only 3 respondents answered yes (and they used the Moodle platform or Office 365 Education).

Table 2.1.3 Percentage distribution of conference attendance and discussion with students on innovative teaching methods and comparison between young and experienced lecturers at the University of Nis

Question	Young lecturers	Experienced lecturers	IN TOTAL
Have you participated in a professional conference whose emphasis was on applying innovative teaching technologies?	3 (27.27%)	9 (47.37%)	12 (40.00%)
Have you ever discussed with students about the impact of using modern technologies on the quality of teaching and learning?	8 (72.73%)	16 (84.21%)	24 (80.00%)

Chapter III SELF-ESTIMATION OF THE QUALITY OF TEACHING AND THE LECTURERS' KNOWLEDGE AND SKILLS IN USING MODERN INFORMATION TECHNOLOGIES IN TEACHING AND LEARNING

3.1 Self-estimation of the quality of teaching and opinions on importance of using modern educational technologies

Respondents answered how much the following claims are true for them on the five-level Lihter scale (1- It's not true at all; 2 - It's not true in general; 3- Equally true and not true; 4 - Generally true. 5. totally true)

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notation	Statements
p1 (II-1)	The use of new technologies in teaching is very important for the quality of the lecture.
p2 (II-2)	Group work, multimedia presentations and modern software capabilities save valuable lecturers time.
p3 (II-3)	Student presentations and discussions save time for the teacher.
p4 (II-4)	You want to improve your teaching skills using information technology, because it would help you prepare lessons easier.
p5 (II-5)	You want to improve your teaching skills using information technology, because it will bring you more respect from students.
p6 (II-6)	You want to improve your teaching skills using information technology, because it will bring you more respect from colleagues

3.1.1 University of Niŝ, Serbia

Figure 3.1.1.1 Distribution of attitudes on the use of ICT in teaching at the University of Nis

	1	2	3	4	5
p1	0	1	1	22	6
p2	1	2	5	12	10
p3	2	3	11	12	2
p4	1	0	2	17	10
p5	0	7	11	11	2
p6	5	4	13	8	1

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Table 3.1.1.1 Descriptive statistics of attitudes on the use of ICT in teaching and comparison between young and experienced lecturers at the University of Nis.

statement	TOTAL			Young lecturers			Experienced lecturers		
	mean	median	mode	mean	median	mode	mean	median	mode
p1	4.1	4	4	4.182	4	4	4.053	4	4
p2	3.933	4	4	3.909	4	4	3.947	4	5
p3	3.3	3	4	3.455	3	3	3.211	3	4
p4	4.167	4	4	3.909	4	4	4.316	4	4
p5	3.258	3		3.083	3		3.368	3	3
p6	2.871	3	3	2.917	3	3	2.842	3	3

CONCLUSION: All the lecturers agree that the quality of their lectures will be better if they use the contemporary technologies in teaching. If we look at the response values, we will notice that the opinion of younger and experienced professors is almost identical about all the issues. The least number of respondents (the average for question p6 is 2.871) consider that improving their teaching skills is important for bringing greater respect from their colleagues. The results show that the greatest score (even above 4.1) got the opinion that using ICT in teaching is very important for the quality of the lecture and that it helps in easier preparation lessons. Most of them have opinion that group work, multimedia presentations and modern software capabilities save valuable lecturers time.

3.2 Self-assessment of the lecturers' knowledge and skills in using modern information technologies in teaching and learning

Respondents assessed their knowledge of ICT on the five-level Lihter scale (1- Not true 2- not true in general 3- neither not true nor true 4-true in general 5-totally true), indicating in what degree they agreed with the following claims

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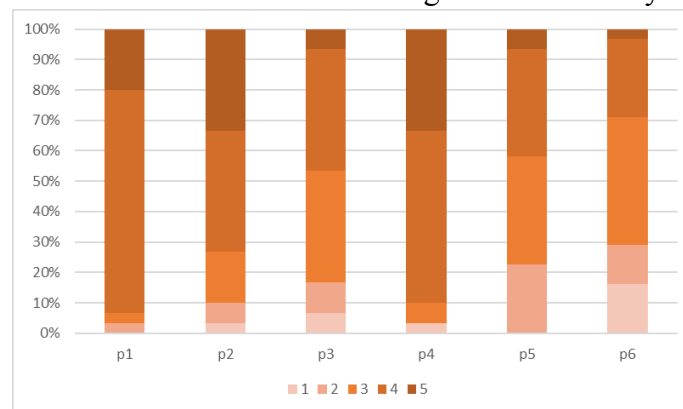| notation	statement
t1	The level of your knowledge and skills in applying Office software package:
t2	Level of your knowledge and skills in applying Open Source software:
t3	Level of your knowledge and skills in implementing Web conferencing software:
t4	Level of your skills in the application of Learning Management System (LMS):
t5	The level of your knowledge and skills in applying online learning platform:
t6	Use electronic materials (presentations) as teaching materials.
t7	Use electronic books / textbooks as teaching materials.
t8	Use animations / movies as teaching material.
t9	Use forums and other forms of online communication in teaching and learning.
t10	Use online courses as a teaching material.
t11	Use web conferences as a teaching material.
t12	Use databases in teaching and learning.
t13	You are open to communicating with students via social networks (Facebook, Twitter, etc.).

3.2.1 University of Niŝ, Serbia

Table 3.2.1.1 Descriptive statistics of self assessments of ICT competences and comparison between young and experienced lecturers at the University of Nis

statement	TOTAL			Young lecturers			Experienced lecturers		
	mean	median	mode	mean	median	mode	mean	median	mode
t1	4.30	4	5	4.17	4	4	4.39	4.5	5
t2	3.19	3	3	3.08	3	3	3.26	3	3
t3	2.23	2	3	2.33	2	2	2.16	2	3
t4	2.00	2		1.83	2	2	2.11	2	1
t5	2.58	3	3	2.42	3	3	2.68	3	
t6	4.00	4	4	3.42	4	4	4.37	4	4

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t7	3.94	4	4	3.83	4	4	4.00	4	4
t8	3.29	4	4	2.92	3		3.53	4	4
t9	2.63	3	3	2.67	3	3	2.61	2.5	1
t10	2.45	2	2	2.75	2.5	2	2.26	2	1
t11	1.84	2	1	1.67	1	1	1.95	2	1
t12	2.61	3		2.42	3	3	2.74	3	1
t13	3.23	3		3.25	3	3	3.21	4	4

Figure 3.2.1.1 Average distribution of self assessments of ICT competences and comparison between young and experienced lecturers at the University of Nis
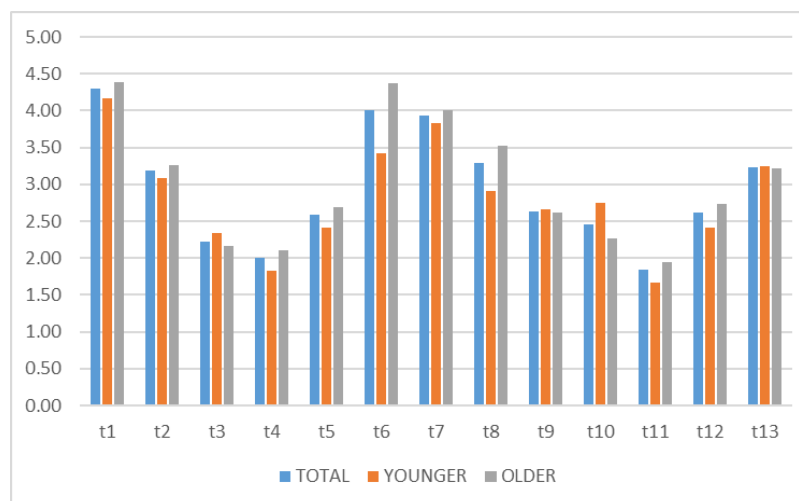
CONCLUSION: As it can be seen, the assessments of young and experienced er lecturers are pretty uniform here, too. The respondents assessed their knowledge and skills related to the Office software package with very high score (4.30) as well as using of electronic materials

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(presentations) as teaching materials (average score for t6 is 4.00) and using of electronic books/textbooks as teaching materials (average 3.94). Very rarely lecturers use web conferences as a teaching material (1.84) and most of them have undeveloped knowledge/skills on using LMS, Moodle for example (average 2.00). The self-assessment for all other questions is less than 3, or very little above 3 what indicates that improving ICT knowledge and skills in teaching process is more than necessary.

Chapter IV   THE USING ONLINE PLATFORMS TECHNOLOGY IN TEACHING

4.1 University of Niŝ, Serbia

Figure 4.1.1 Percentage distribution of the benefits of using online technologies in teaching and learning at the University of Nis
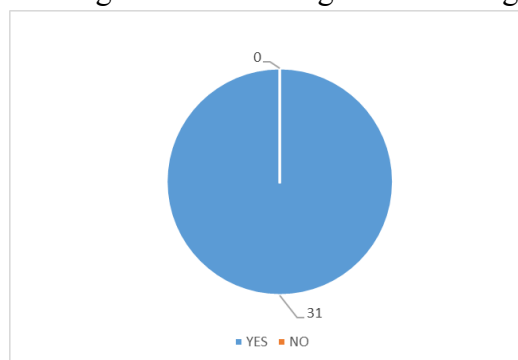
Table 4.1.1 Percentage distribution of benefits of using online technologies in teaching and learning at the University of Nis

Benefit	YES	%
Save time	14	45.16%
It facilitates the preparation of classes	16	51.61%
Increases students' level of interest	26	83.87%
Increases the quality of teaching materials	23	74.19%
It makes learning easier	21	67.74%
Improves communication between lecturers and students	20	64.52%

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CONCLUSION: All the lecturers (100%) notice the benefits of using ICT in the teaching and learning, and they think that, the most important advantage of using modern technologies in teaching and learning, is increasing student level of interest, but the benefits like increasing the quality of teaching materials (74.19%), easier learning (67.74%) and better communication between lecturers and students (64.52%) are very important, too.

Table 4.1.2 Percentage distribution of using some free online learning platforms for courses at the University of Nis

Moodle	4	13.33%
Nasport	1	3.33%
teaching platform	1	3.33%
Coursera	1	3.33%
No	24	80.00%

CONCLUSION: Unfortunately, most of the respondents (80.00%) do not use any learning platform. The greatest number of lecturers who work on platforms use Moodle (13.33%). Using of online free learning platforms is needed to be promoted and implemented in teaching because of their importance for modernization of education.

Chapter V Previous education and interests in teaching skills, the use of teaching strategies and psychology in teaching

5.1 University of Niŝ, Serbia

Figure 5.1.1 proportionally share the ratio between teaching and learning to make education more successful at the University of Nis

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Ratio between teaching and learning
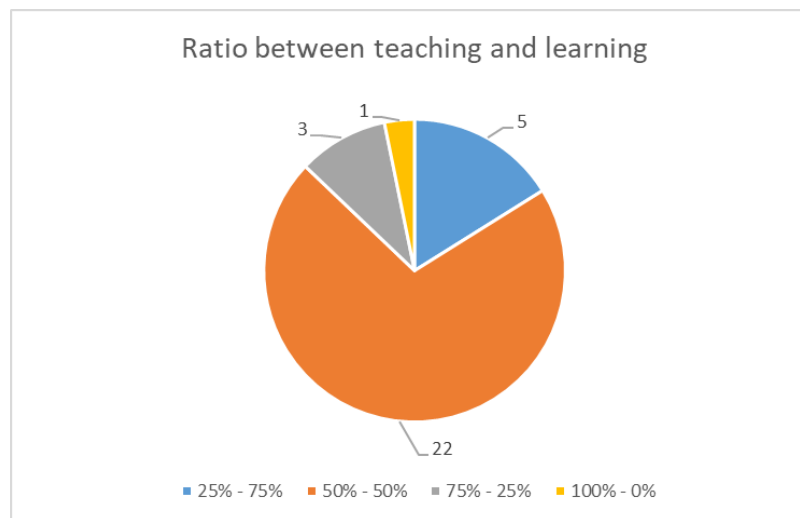
Table 5.1.1   Distribution of level of skills in English at the University of Nis

	low	middle	high
Listening	1	6	24
reading	0	8	23
writing	3	11	17
talk	3	13	15

CONCLUSION: Majority of lecturers self-assessed their English language competences with high marks.

Table 5.1.2 Percentage distribution of some of the disciplines followed during formal education for lecturers of the University of Nis

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Course	YES	NO
Pedagogy	14	16
Psychology	15	15
Teaching methodology	10	18
Application of new technologies in teaching	8	19
English language	27	4
You have not attended a course of any of these disciplines		14

Table 5.1.3 Percentage distribution of some of the disciplines that you helded a course or had educated yourself informally for lecturers of the University of Nis

Course	YES	NO
Pedagogy	7	21
Psychology	10	18
Teaching methodology	13	15
Application of new technologies in teaching	17	12
English	14	13
You have not taught or learned a course of any of these disciplines		16

Table 5.1.4 Distribution of the level of agreement with the fact that teaching skills of university professors are very important for the quality of their classes for the lecturers of Nis University

I totally agree	27
I partially agree	4
I do not agree	0

Figure 5.1.2 Percentage distribution of lecturers attending conferences focusing on teaching and feedback from students regarding quality of your teaching for the lecturers of Nis University

Did you participate in a professional conference whose emphasis was on education?	Have you tried to provide feedback from students as part of the institutional evaluation

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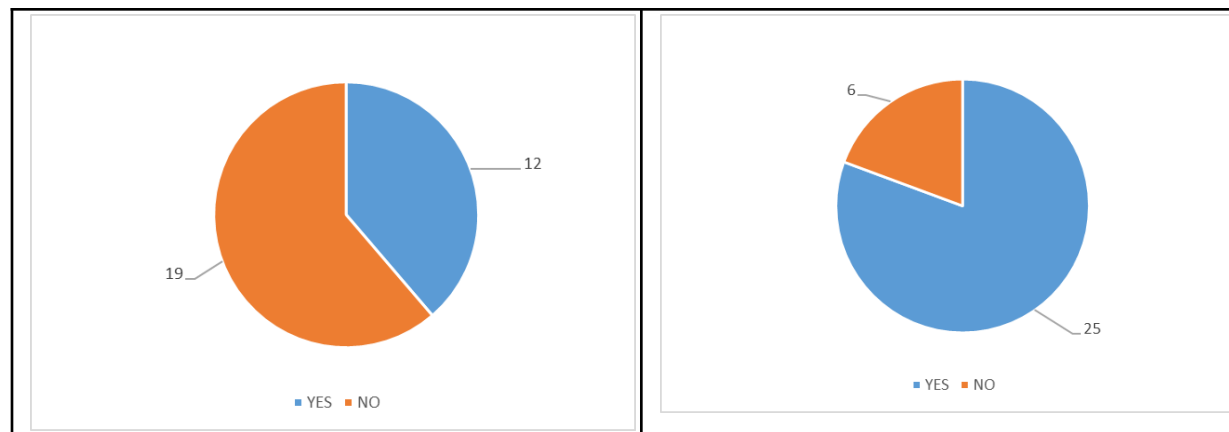
Table 5.1.5 Percentage distribution of factors that have influenced the improvement of teaching skills for lecturers of the University of Nis

Get more respect from colleagues or students	9	29.03%
Possibility of easier preparation of classes	11	35.48%
Achieve better quality of teaching	27	87.10%
Attracting more students to elective courses	19	61.29%
Getting some financial or material compensation	7	22.58%
You are not interested	0	0.00%

CONCLUSION: About half of the respondents attended courses Pedagogy, Psychology, while less number of them (about one-thirds) attended courses in Teaching methodology during their formal education. Very small percent of the lecturers attended courses about using contemporary technologies in teaching, but most of them educated themselves in using ICT during their carrier. Only a quarter of them had a dedicated ICT course. Most of the lecturers consider that the teaching skills are very important for the quality of teaching process and, also 87.10% of the respondents stated that their main goal is to achieve better quality of teaching. All responses indicate that there is a strong lecturers' motivation to improve teaching, so we strongly believe that training courses and well-organized education material can give excellent results.

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Chapter VI THE USE OF TEACHING STRATEGIES, ENGLISH LANGUAGE AND TECHNOLOGY IN TEACHING

6.1 University of Niŝ, Serbia

Figure 6.1.1 Average rating in implementation of teaching strategies involving students for lecturers of the Universities of Nis

	1	2	3	4	5
s1	0	1	0	9	21
s2	1	0	0	3	27
s3	2	1	4	9	15
s4	1	2	6	16	6
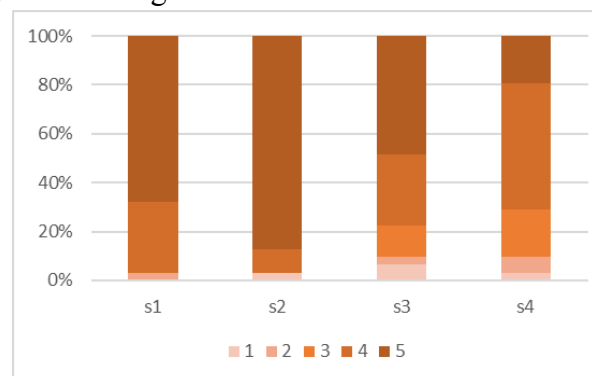
Table 6.1.1 Descriptive distribution of implementation of teaching strategies involving students and comparison between young and experienced lecturers at the University of Nis

statement	TOTAL			Young lecturers			Experienced lecturers		
	mean	median	mod	mean	median	mod	mean	median	mod
s1	4.613	5	5	4.667	5	5	4.579	5	5
s2	4.774	5	5	4.917	5	5	4.684	5	5
s3	4.097	4	5	4.25	4	4	4	5	5
s4	3.774	4	4	3.583	4	4	3.895	4	4

 CONCLUSION: All the lecturers assessed with high-grade their educational strategies about involving students. About 90% of them provide clear information to students on how to evaluate the course, the truthfulness of the claim s1 is very good, too, while the smallest is number of

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lecturers (younger as well as experienced) who give students homework, short-term assignments or some other form of preparation for the coming time.

Figure 6.1.2 Average rating in implementation of intellectual engagement and impact on learning for lecturers of the Universities of Nis

	1	2	3	4	5
a1	0	0	1	13	17
a2	1	0	2	15	13
a3	0	1	3	14	12
a4	0	0	3	12	16
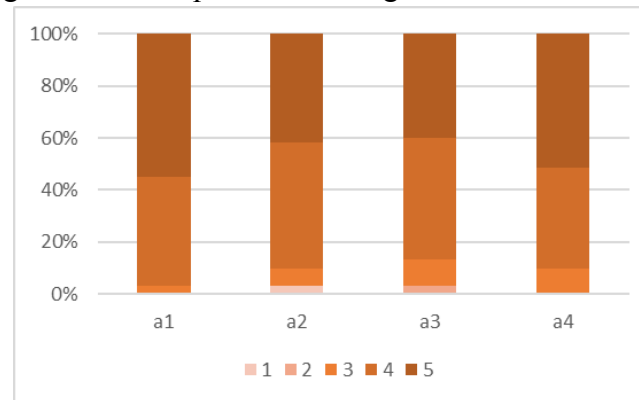
Table 6.1.2 Descriptive distribution of implementation of intellectual engagement and impact on learning and comparison between young and experienced lecturers at the University of Nis

	TOTAL			Young lecturers			Experienced lecturers		
statements	mean	median	mod	mean	median	mod	mean	median	mod
a1	4.516	5	5	4.417	4	4	4.579	5	5
a2	4.258	4	4	4.333	4	4	4.211	4	5
a3	4.233	4	4	4.25	4	4	4.222	4	
a4	4.419	5	5	4.667	5	5	4.263	4	4

CONCLUSION: The respondents rated all the claims from this group with very high grades, which means that they agree with all the claims.

Figure 6.1.3 Average assessment of the factors that determine the teacher-student relationship according to the lecturers' perceptions of the Universities of Nis

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	1	2	3	4	5
o1	0	0	0	12	19
o2	2	2	9	8	10
o3	0	0	0	5	26
o4	0	0	0	8	23
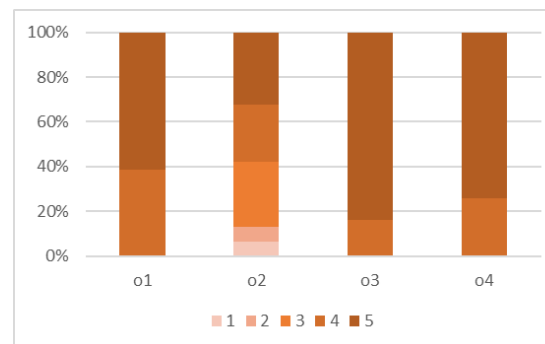
Table 6.1.3 Descriptive distribution of teacher-student relationship factors and comparison between young and experienced lecturers at the University of Nis

statements	TOTAL			Young lecturers			Experienced lecturers		
	mean	median	mod	mean	median	mod	mean	median	mod
o1	4.613	5	5	4.667	5	5	4.579	5	5
o2	3.71	4		3.75	3.5	3	3.684	4	4
o3	4.839	5	5	5	5	5	4.737	5	5
o4	4.742	5	5	4.75	5	5	4.737	5	5

 CONCLUSION: The responses show that the lecturers highly estimate their relations to students with respect, they communicate with students with smile and friendly tone, while the less number is open for communication through social networks.

Figure 6.1.4 Average assessment of the factors that determine the level of cooperation according to the lecturers' perceptions of the Universities of Nis

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	1	2	3	4	5
b1	2	2	5	17	5
b2	1	4	5	8	13
b3	6	6	8	5	6
b4	0	0	2	10	18
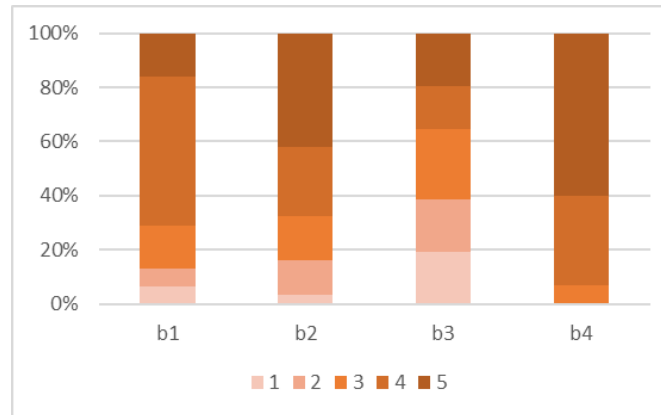
Table 6.1.4 Descriptive distribution of cooperation's factors and comparison between young and experienced lecturers at the University of Nis

statements	TOTAL			Young lecturers			Experienced lecturers		
	mean	median	mod	mean	median	mod	mean	median	mod
b1	3.677	4	4	3.333	3.5	4	3.895	4	4
b2	3.903	4	5	3.417	3.5		4.211	5	5
b3	2.968	3	3	2.917	2.5		3	3	3
b4	4.533	5	5	4.417	4.5		4.611	5	5

CONCLUSION: In the group of claims on cooperation the lecturers very poorly use collaborative software in communication with students. About all demands both younger and experienced er respondents have almost the same assessment.

Figure 6.1.5 Average assessment of the factors that determine the level of Student-centered teaching and learning according to the lecturers' perceptions of the Universities of Nis

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	1	2	3	4	5
c1	0	0	1	13	17
c2	2	1	11	7	10
c3	0	0	2	15	14
c4	0	0	1	6	23

Table 6.1.5 Descriptive distribution of the factors that determine the level of Student-centered teaching and learning and comparison between young and experienced lecturers at the University of Nis

statements	TOTAL			YOUNGER			EXPERIENCED ER		
	mean	median	mod	mean	median	mod	mean	median	mod
c1	4.516	5	5	4.417	4.5		4.579	5	5
c2	3.71	4	3	3.417	3	3	3.895	4	5
c3	4.387	4	4	4.25	4	4	4.474	5	5
c4	4.733	5	5	4.545	5	5	4.842	5	5

CONCLUSION: Lecturers estimate that they are oriented to student-centered teaching and learning. They are very interested in students' opinion and take care of students' wishes and priorities to improve teaching process (the average for all claims is greater than 3.7). Students assessments of truthfulness of these statements are on the lower level and it would be useful to find deeper reasons for this disagreement.

Figure 6.1.6 Average assessment of the factors that determine the level of enthusiasm and style of teaching according to the lecturers' perceptions of the Universities of Nis

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	1	2	3	4	5
d1	0	2	2	15	12
d2	1	2	4	9	15
d3	4	7	4	9	6
d4	1	1	3	12	14

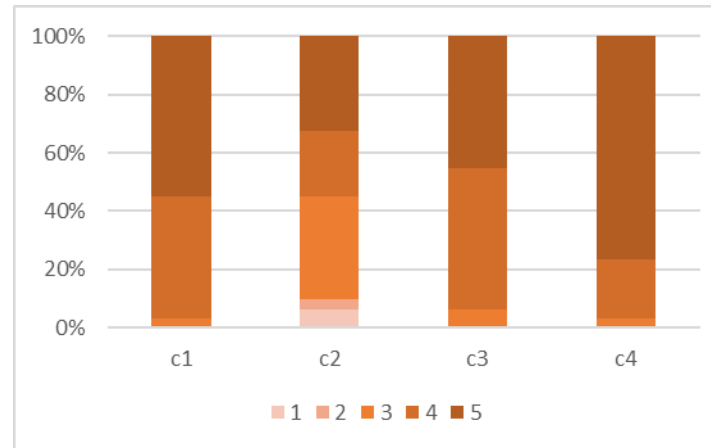Table 6.1.6 Descriptive distribution of the factors that determine the level of enthusiasm and style of teaching and comparison between young and experienced lecturers at the University of Nis

	TOTAL			Young lecturers			Experienced lecturers		
statements	mean	median	mod	mean	median	mod	mean	median	mod
d1	4.194	4	4	4.083	4	4	4.263	4	5
d2	4.129	4	5	3.333	3.5	4	4.632	5	5
d3	3.2	3.5	4	2.833	2.5	2	3.444	4	4
d4	4.194	4	5	4	4	4	4.316	5	5

CONCLUSION: Less than 50% of lecturers estimate the statement d3 that refers to the work in pairs or groups, workshops and other techniques during classes with highest level marks. Majority of lecturers (two-third of them) stated that in general they are in general or completely ready to adopt teaching methods to maintain students' interest adapt methods and type of work to students while 90% of respondents consider that they motivate students for active learning.

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Figure 6.1.7 Average assessment of the factors that determine the level of class structure according to the lecturers' perceptions of the Universities of Nis

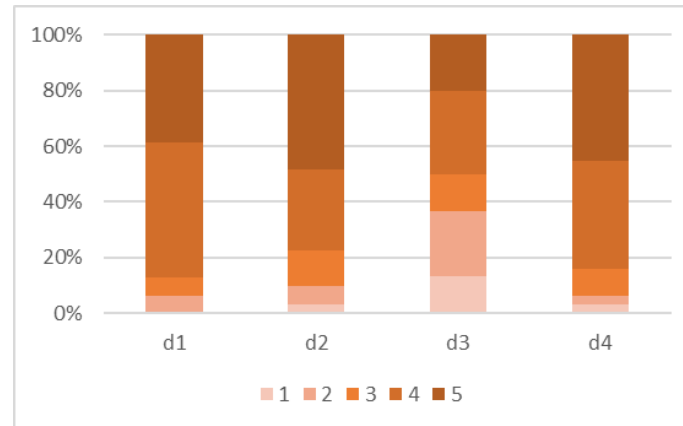|	1	2	3	4	5
e1	0	0	0	15	16
e2	0	0	2	12	15
e3	0	0	5	9	17
e4	0	0	2	9	20
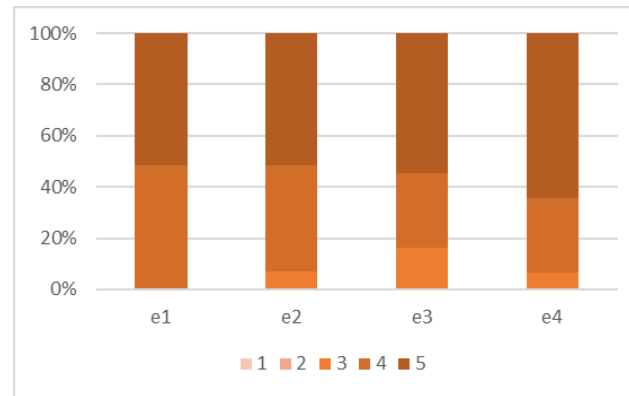
Table 6.1.7 Descriptive distribution of the factors that determine the level of class structure and comparison between young and experienced lecturers at the University of Nis

statements	TOTAL			Young lecturers			Experienced lecturers		
	mean	median	mod	mean	median	mod	mean	median	mod
e1	4.516	5		4.333	4	4	4.632	5	5
e2	4.448	5	5	4.5	4.5	4	4.412	5	5
e3	4.387	5	5	4.333	4.5	5	4.421	5	5
e4	4.581	5	5	4.417	4	4	4.684	5	5

CONCLUSION: All the statements considering the structure of classes and teaching materials are rated high, especially by experienced er respondents, while about 50% of students stated that majority of lecturers practice the activities mentioned in the above statements. Nevertheless, a significant number of students chose the option *A few lecturers* which indicates that there is space for strengthening teaching competences for a large number of lecturers.

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APPENDIX

Appendix 1   Survey for lecturers

The TeComp main objective is improvement of the quality of higher education in Serbia and Albania. These questionnaires will be base for the comparative analysis of the current situation at the EU and Serbian and Albanian institutions.

PART I: Basic data of the research participants and the data on their previous education that could influence their teaching competences and opinions

Dear participants,

The survey in front of you is anonymous and its results will be used for scientific purposes. Please, answer the questions as honestly and accurately as possible.

a) Your gender is

b) You have teaching experience at the university, including assistantship, of _____ years.

c) The area of your teaching is

☐ Mathematics ☐ Computer sciences ☐ Physics ☐ Chemistry ☐ Geography ☐ Biology and Ecology

A) The aim of this part of the survey is to identify "state-of-art" and to give detailed picture about the using of modern information technologies in teaching and learning in the field of natural and mathematical sciences at the PC HEIs.

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1. Please rate how many hours, per week, you are spending on the following activities:

activity	hour
scientific research	
realization of teaching	
administration	
preparation of classes	
other activities (managing, popularizing the domain, writing reviews...)	
individual work with students (consultation, conducting study research works, etc.)	

2. Have you ever studied any of the listed disciplines during your formal education?

Discipline		
methodology of e-learning	€ YES	€ NO
methodology of teaching	€ YES	€ NO

3. Please specify the type of e-learning methodology

Discipline		
electronic publishing (Latex, HTML, XML, PDF etc.)	€ YES	€ NO
online technologies in teaching	€ YES	€ NO
open source software (MOODLE, Python, GeoGebra, MOOC etc.)	€ YES	€ NO
I have never studied any of these disciplines	€ YES	€ NO

4. During last two years:

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You have held at least one teaching lesson in English. If YES, indicate where and when	€ YES	€ NO
You have prepared at least part of the lesson on the electronic platform. If YES, indicate on which platform:	€ YES	€ NO

5. Have you attended any professional conference that had focus on using innovative technologies in teaching?
    a. YES
    b. NO
6. Have you ever discussed with students about the influence of using comprehensive technologies to the quality of teaching?
    a. YES
    b. NO

PART II: Self-estimation of the quality of teaching and opinions on importance of using modern educational technologies

To what degree are the following statements true to you or closet to your beliefs?

		Not true at all	Generally not true	Equally true and not true	Generally true	Completely true
1.	Using contemporary technology in university teaching is very important for the quality of classes.	1	2	3	4	5
2.	Group work, multimedia presentations and modern software opportunities waste valuable teaching time.	1	2	3	4	5
3.	Students' presentations and discussions waste valuable teaching time.	1	2	3	4	5

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4.	I want to improve my teaching skills in the use of information technologies because it will help me prepare classes more easily.	1	2	3	4	5
5.	I want to improve my teaching skills in the use of educational technologies because it will bring me more respect among students.	1	2	3	4	5
6.	I want to improve my teaching skills in the use of educational technologies because it will bring me more respect among colleagues.	1	2	3	4	5

PART III: Self-assessment of the lecturers' knowledge and skills in using modern information technologies in teaching and learning
Point out to what level the following statements true to you.

		none	few	average	fine	excellent
1.	The level of my knowledge and skills in using Office package software:	1	2	3	4	5
2.	The level of my knowledge and skills in using Open source software:	1	2	3	4	5
3.	The level of my knowledge and skills in using Web conferencing software:	1	2	3	4	5
4.	The level of my knowledge and skills in using Learning Management System (LMS) software:	1	2	3	4	5
5.	The level of my knowledge and skills in using online learning platforms:	1	2	3	4	5

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6.	I use electronic materials (presentations) as educational material.	1	2	3	4	5
7.	I use e-books/ e-textbooks as educational material.	1	2	3	4	5
8.	I use animations/movies as educational material.	1	2	3	4	5
9.	I use forums or other forms of online communication in teaching and learning.	1	2	3	4	5
10.	I use online courses as educational material.	1	2	3	4	5
11.	I use web-conferences as educational material	1	2	3	4	5
12.	I use databases in teaching and learning	1	2	3	4	5
13.	I am open for communication with students through social networks (Facebook, Twitter, etc.).	1	2	3	4	5

PART IV: The use online platforms technology in teaching.

1. Can you see the benefits of using online technologies in teaching and learning?
   a. YES
   b. NO
2. What are these benefits?
   a. save time
   b. easier preparing the classes
   c. higher level of students' interest
   d. higher quality of learning materials
   e. easier learning
   f. better communication between teacher and students
3. Do you use some free online learning platforms for needs of the courses?
   If your answer is yes, please, submit which platform do you use.

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    a. YES, _____

    b. NO

4. Do you think that using online learning platforms can
    a. allow students easier and faster access to the learning material
    b. allow students easier and faster access to the relevant information
    c. allow students access at any time
    d. contribute to the realization of the active role of students
    e. contribute to the realization of individualization of learning
    f. better communication between teacher and students

5. Is the system for electronic testing of students developed at your institution?
    a. YES
    b. NO

6. Do you think that the system for self-testing of students has a positive impact on success of learning?
    a. YES
    b. NO

7. Is your HE institution able to provide enough quality and expensive laboratory equipment?
    a. YES
    b. NO

8. Are your students able to participate in experiments from remote locations?
    a. YES
    b. NO

9. The most significant barriers for engaging modern educational technologies in teaching and learning are
    a. Lack of ICT skills
    b. Lack of time
    c. Lack of hardware
    d. Lack of software
    e. Lack of computer access

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Part V

Based on your opinion, at which of the following ratios should teaching and learning contribute to the successful education?

a) 100%-0% b) 75%-25% c) 50%-50% d) 25%-75% e) 0%-100%

B) The aim of this part of the survey is to collect the data of the research participants,

Their previous education, interests in teaching skills, the use of teaching strategies and psychology in teaching. It measures how often lecturers use chosen pedagogical methods.

1. Please estimate your English skills in

listening	€LOW	€MID	€HIGH
reading	€LOW	€MID	€HIGH
writing	€LOW	€MID	€HIGH
speaking	€LOW	€MID	€HIGH

2. Have you ever attended a course in any of the listed disciplines during your formal education?

Discipline		
pedagogy	€ YES	€ NO
psychology	€ YES	€ NO
methodology of teaching	€ YES	€ NO
application of new technologies in teaching	€ YES	€ NO
English language	€ YES	€ NO
I have never studied any of these disciplines	€ YES	€ NO

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3. Have you ever taken some course or made some self-organized unformal learning (consulted any of the resources: books, articles, online resources, professional organizations, senior colleagues, mentors and so on) in any of the listed disciplines during your career?

Discipline		
pedagogy	€ YES	€ NO
psychology	€ YES	€ NO
methodology	€ YES	€ NO
application of new technologies in teaching	€ YES	€ NO
English language	€ YES	€ NO
I have never studied any of these disciplines	€ YES	€ NO

4. Do you find teaching skills of university lecturers very important for the quality of their classes?
   a) I completely agree
   b) I partially agree
   c) I disagree

5. Have you attended any professional conference that had focus on teaching?
   a) YES
   b) NO

6. Have you tried to provide feedback from students, apart from institution-provided evaluation, regarding quality of your teaching?
   a) YES
   b) NO

7. What would motivate you to engage in improving your teaching skills?
   a) Gaining more respect among colleagues or/and students
   b) Enablingeasier preparation of classes

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c)   Achieving better quality teaching

d)   Attracting more students to elective courses

e)   Gaining some financial or material reward

f)   I am not interested

PART VI: The use of teaching strategies, English language and technology in teaching.

The following statements present the number of different pedagogical and methodological procedures used in teaching. Please answer how frequently you use them in your teaching practice.

Using teaching strategy to engage students		Not true at all	Generally not true	Equally true and not true	Generally true	Completely true
1.	I provide prompt and detailed feedback on students' tests, assignments or works in progress.	1	2	3	4	5
2.	I provide clear information about the way in which the course is going to be evaluated.	1	2	3	4	5
3.	I give students clear instructions how to prepare for the next class.	1	2	3	4	5
4.	I give students homework assignments, short-term tasks, or some obligatory reading or other form of class preparation.	1	2	3	4	5
Intellectual engagement and learning impact						
5.	I encourage students to produce new ideas and find creative solutions to the problems we study.	1	2	3	4	5
6.	I stimulate students to find multiple solutions to the problem and compare them.	1	2	3	4	5

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7.	I usually initiate discussions in class over complex problems.	1	2	3	4	5
8.	I ask students to explain their ideas.	1	2	3	4	5
Teacher – student relationship						
9.	Students communicate with me openly and freely.	1	2	3	4	5
10.	I am open for different forms of electronic communication and social networking with students (Facebook, Twitter, etc.).	1	2	3	4	5
11.	I treat students with respect.	1	2	3	4	5
12.	I welcome students with a smile and warm and friendly tone.	1	2	3	4	5
Collaboration						
13.	I give students group tasks to perform during class or at home.	1	2	3	4	5
14.	I encourage students to help each other understand content and communicate during classes and while preparing for exams.	1	2	3	4	5
15.	I use collaborative editing software with my students (Google Docs, Wikis, etc.).	1	2	3	4	5
16.	I ask students to involve in discussions and introduce their opinion.	1	2	3	4	5
Student-centered learning practices						
17.	I am ready to make slight changes in content or methods of my course in order to fit it to students' needs.	1	2	3	4	5

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18.	I respect student's preferences and wishes when giving individual assignments.	1	2	3	4	5
19.	I connect the idea from my courses to students' prior experiences and knowledge.	1	2	3	4	5
20.	I am interested in students' opinion.	1	2	3	4	5
Enthusiasm and teaching style						
21.	I change teaching methods in order to keep students interested.	1	2	3	4	5
22.	I use e-books, presentations, video clips, films, etc. in my classes.	1	2	3	4	5
23.	I use work in pairs, group work, workshops or other techniques that promote interaction during classes.	1	2	3	4	5
24.	I encourage students to look for the learning resources apart from obligatory materials and critically estimate their reliability.	1	2	3	4	5
Structure						
25.	During classes I summarize and emphasize important points.	1	2	3	4	5
26.	During classes I am aware of time and keep it well adjusted.	1	2	3	4	5
27.	I structure and organize learning material.	1	2	3	4	5
28.	I take care that all my classes are well structured.	1	2	3	4	5

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Appendix 2 Survey for students

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PART I: Basic data of the research participants and the data on their previous education that could influence their teaching competences and opinions

Dear participants,

the survey in front of you is anonymous and its results will be used for scientific purposes. Please, answer the questions as honestly and accurately as possible.

d) Your gender is

e) The level of your study is:

☐ Undergraduate studies   ☐ Master studies   ☐ Doctoral studies

f) The year of your studies is:

☐ first   ☐ second   ☐ third   ☐ fourth   ☐ fifth

g) The study program you are currently attending is in the field of:

☐ Mathematics ☐ Computer sciences ☐ Physics ☐ Chemistry ☐ Geography ☐ Biology and Ecology

A) The aim of this part of the survey is to identify "state-of-art" and to give detailed picture about the using of modern information technologies in teaching and learning in the field of natural and mathematical sciences at the PC HEIs.

7. Please rate how many hours, per week, you are spending on the following activities:

activity	hour
attendance at classes (lectures and exercises)	

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doing homework and other activities	
self-study	
work (learning) with other students	
other activities which are realized at the Faculty	

8. Have you ever attended a course in any of the listed disciplines during your education?

Discipline		
methodology of e-learning	€ YES	€ NO
methodology of teaching	€ YES	€ NO

9. Please specify the type of disciplines in e-learning methodologywhich you have studied during your education

Discipline		
electronic publishing (Latex, HTML, XML, PDF etc.)	€ YES	€ NO
online technologies in teaching	€ YES	€ NO
open source software (MOODLE, Python, GeoGebra, MOOC etc.)	€ YES	€ NO
I have never studied any of these disciplines	€ YES	€ NO

10. During your study:

You attended at least one lecture, in the field of your study realized in English. If YES, indicate where and when	€ YES	€ NO
You have an opportunity to attend some course (or a part of course) realized on an electronic platform?	€ YES	€ NO

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If YES, indicate on which platform:		

PART II: Estimation of the quality of teaching and learning and opinions on importance of using modern educational technologies

A. To what extent do you agree with the following statements?

New technologies - electronic materials (presentations), animations/movies, online learning platforms, web-conferences		Not true at all	Generally not true	Equally true and not true	Generally true	Completely true
7.	The use of new technologies in teaching motivates students to get more involved in learning activities.	1	2	3	4	5
8.	The use of modern technologies in teaching help students acquire knowledge more successfully.	1	2	3	4	5
9.	The use of contemporary technology in university teaching allows students to be more creative and imaginative.	1	2	3	4	5
10.	The use of modern technologies in teaching promotes the development of students' interpersonal skills (e.g., ability to relate or work with others).	1	2	3	4	5
11.	The use of modern technology in increases students' confidence to participate actively in the class.	1	2	3	4	5

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12.	Using online learning platforms allow students easier and faster access to the relevant information.	1	2	3	4	5
13.	The use of online learning platforms contribute to the realization of individualization of learning.	1	2	3	4	5
14.	The use of new technologies in teaching and learning is essential to prepare students to live and work in the 21st century.	1	2	3	4	5
15.	Lecturers who use modern technology in teaching are more respected by students.	1	2	3	4	5
16.	It is very important that lecturers are open for communication with studentsthrough social networks (Facebook, Twitter, etc.).	1	2	3	4	5
17.	The use of online learning platforms increases the amount of stress and anxiety among students.	1	2	3	4	5
18.	The use of modern technologies in teachingcontributes to students being less interestedin the contents of lectures.	1	2	3	4	5

B. Please answerthe following statements, in respect of the percentage of lecturers who give you opportunities for using modern technologies in learning.

	None of lecturers	Few of them	Some of them	The most of them

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14	Students can communicate to lecturers through forums or other forms of online communication.	1	2	3	4
15	Lecturers are open for communication with students through social networks (Facebook, Twitter, etc.).	1	2	3	4
16	Lecturers post the results of tests, give assignments, and share other valuable information with students online.	1	2	3	4
17	Lecturers use online examination system to test students.	1	2	3	4
18	Lecturers share with students electronic textbooks and use multimedia learning software and platforms (Moodle for example).	1	2	3	4
19	During classes lecturers use electronic materials (presentations), animations/movies, etc. as educational material.	1	2	3	4
20	Lecturers encourage us to use e-books, e-textbooks and other online material as educational material.	1	2	3	4
21	Students are encouraged by the lecturers to use online courses as educational material.	1	2	3	4
22	Lecturers use online learning platforms in classes.	1	2	3	4

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23	Lecturers encourage students to work in groups by creating online forums to discuss about certain topic.	1	2	3	4
24	Students are instructed how to use online tools, learning platforms and other internet and electronic sources when completing their assignments.	1	2	3	4
25	Lecturers create online questionnaires for the purpose of facilitating students' self-testing process.	1	2	3	4
26	Students get prompt answers to questions asked through online communication tools.	1	2	3	4
27	Lecturers expect students to use collaborative editing software in communication with them and other students (Google Docs, Wikis, etc.).	1	2	3	4
28	Lecturers make available electronic bases of secondary sources that they recommend for individual or group research tasks.	1	2	3	4
29	During classes, lecturers use web-conferences as educational material.	1	2	3	4

Part III

Based on your opinion, at which of the following ratios should teaching and learning contribute to the successful education?

a) 100%-0% b) 75%-25% c) 50%-50% d) 25%-75% e) 0%-100%

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B) The aim of this part of the survey is to collect the data of the importance on using different pedagogical and methodological procedures in learning.

1. Have you ever attended a course in any of the listed disciplines during your formal education?

Discipline		
pedagogy	€ YES	€ NO
psychology	€ YES	€ NO
Methodology of teaching	€ YES	€ NO
application of new technologies in teaching	€ YES	€ NO
English language	€ YES	€ NO
I have never studied any of these disciplines	€ YES	€ NO

2. Have you ever been involved in giving feedback and evaluation of your study program or teaching quality at your institution?
   c) YES
   d) NO

Please answer the listed statements, in respect of the percentage of the teacher who gave you opportunities for different pedagogical and methodological procedures

	None of lecturers	Few of them	Some of them	The most of them
Teaching strategies that engage students				

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29.	I get feedback from my lecturers on my tests, assignments or works in progress.	1	2	3	4
30.	I get clear information about the way in which the course is going to be evaluated.	1	2	3	4
31.	I get clear instructions from lecturers how to prepare for the next class.	1	2	3	4
32.	Lecturers give us homework assignments, short-term tasks, or some obligatory reading or other form of preparation for the next class.	1	2	3	4
Intellectual engagement and learning impact					
33.	We were encouraged to produce new ideas and find creative solutions to the problems we studied.	1	2	3	4
34.	In classes we seek for multiple solutions to the problem and compare them.	1	2	3	4
35.	In classes, we usually have discussions over complex problems.	1	2	3	4
36.	Lecturers ask us to explain our ideas.	1	2	3	4
Teacher – student relationship					
37.	I can communicate to the lecturers openly and freely.	1	2	3	4
38.	I can communicate to lecturers through social networks (Facebook, Twitter, etc.).	1	2	3	4
39.	Lecturers treat me with respect.	1	2	3	4
40.	Lecturers welcome us with smile and friendly tone.	1	2	3	4
Collaboration					

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41.	We are often assigned group tasks to perform in class or at home.	1	2	3	4
42.	Students are encouraged to share their knowledge and help other students in classes or while preparing for exams.	1	2	3	4
43.	Lecturers expect us to use collaborative editing software in communication with them and other students (Google Docs, Wikis, etc.).	1	2	3	4
44.	Lecturers expect us to get involved by stating our opinion.	1	2	3	4
Student-centered learning practices					
45.	Lecturers show flexibility concerning content or methods of their course in order to fit it to students' needs.	1	2	3	4
46.	I can freely choose the themes of individual assignments in accordance with my wishes and preferences.	1	2	3	4
47.	Lecturers try to connect the contents of their courses with our prior experiences and knowledge.	1	2	3	4
48.	Lecturers show interest in students' opinions.	1	2	3	4
Enthusiasm and teaching style					
49.	Lecturers keep students interested by changing methods and way of work from class to class.	1	2	3	4
50.	Lecturers use e-books, presentations, video clips, films, etc. in classes.	1	2	3	4

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51.	Lecturers use work in pairs, group work, workshops or other techniques that promote interaction among students during classes.	1	2	3	4
52.	Lecturers encourage us to look for the learning resources other than obligatory materials and critically estimate their reliability.	1	2	3	4
Structure					
25.	During classes lecturers summarize and emphasize important points.	1	2	3	4
26.	Lecturers adjust the timing of the classes and manage the time of the classes well.	1	2	3	4
27.	Learning materials are well structured and organized.	1	2	3	4
28.	Classes are well structured.	1	2	3	4

APPENDIX 3. REPORT ON STUDENTS' SURVEY - SERBIA

Structure of the sample

The questionnaire consisted of 79 questions. Respondents who answered less than 35 questions (in total 4 respondents) were excluded from the sample. The total number of questionnaires that were considered was 397. The survey was conducted electronically in April and May 2019.

Note: The average number of responses per questionnaire is 77.2. Due to the small number of missing data, no filling was done, but the analysis was based directly on the answers given by students.

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The questionnaire was filled out by students of four state universities: 185 students (making 46.6% of the sample) from the University of Belgrade, 47 students (11.8% of the sample) from the University of Kragujevac, 77 students (21.4%) from the University of Nis and 80 (20.2%) from the University of Novi Sad.

Note: The results in the reports are presented collectively for all four universities and the abbreviations (SRB) for the joint results are shown in the tables in black. In addition to the aggregated results, the results for each individual university were also given. The abbreviation BG was used for the University of Belgrade, and the results are shown in gray. The University of Kragujevac is marked with KG and in green color, the University of Niš with NIS and red color, and the University of Novi Sad with NS and blue.

The structure of the sample is based on gender, area of study, level of studies and year of studies is given in Tables 1-4. The charts are given for the whole sample, i.e., for SRB.

Gender	SRB	SRB%	BG	BG%	KG	KG%	NIS	NIS%	NS	NS%
Male	102	27.6%	37	21.4%	14	33.3%	25	32.5%	26	33.3%
Female	268	72.4%	136	78.6%	28	66.7%	52	67.5%	52	66.7%

Table 1: Gender

male, 27.6%

female, 72.4%
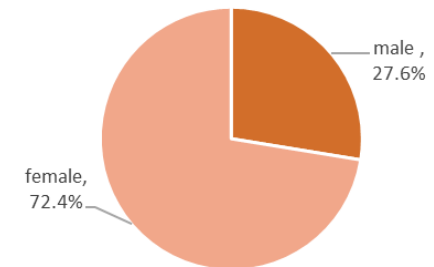
Area	SRB	SRB%	BG	BG%	KG	KG%	NIS	NIS%	NS	NS%
Biology	192	48.5%	155	84.2%	17	36.2%	19	22.4%	1	1.3%
Physics	22	5.6%	16	8.7%	2	4.3%	4	4.7%	0	0.0%
Geography	23	5.8%	0	0.0%			17	20.0%	6	7.5%
Chemistry	10	2.5%	0	0.0%	1	2.1%	2	2.4%	7	8.8%
Mathematics	75	18.9%	8	4.3%	15	31.9%	28	32.9%	24	30.0%
Computer science	74	18.7%	5	2.7%	12	25.5%	15	17.6%	42	52.5%

Table 2: Areas of studies

Com, 18.7% · Bio, 48.5% · Mat, 18.9% · Che, 2.5% · Geo, 5.8% · Phy, 5.6%
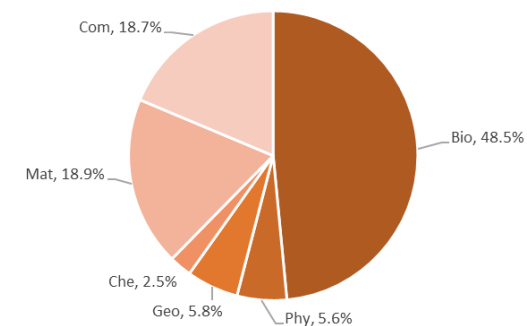
Level	SRB	SRB%	BG	BG%	KG	KG%	NIS	NIS%	NS	NS%
Bachelor	299	75.3%	142	76.8%	44	93.6%	47	55.3%	66	82.5%
Master	76	19.1%	24	13.0%	3	6.4%	36	42.4%	13	16.3%
PhD	22	5.5%	19	10.3%	0	0.0%	2	2.4%	1	1.3%

Table 3: Level of studies

PhD, 5.5% · master, 19.1% · bachelor, 75.3%

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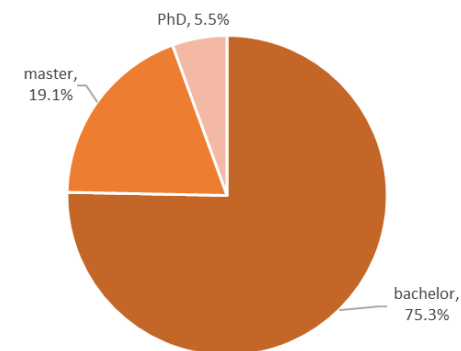
Year	SRB	SRB%	BG	BG%	KG	KG%	NIS	NIS%	NS	NS%
1st	151	38.0%	65	35.1%	16	34.0%	62	72.9%	8	10.0%
2nd	85	21.4%	41	22.2%	5	10.6%	16	18.8%	23	28.8%
3rd	68	17.1%	31	16.8%	6	12.8%	3	3.5%	28	35.0%
4th	63	15.9%	29	15.7%	19	40.4%	3	3.5%	12	15.0%
5th	30	7.6%	19	10.3%	1	2.1%	1	1.2%	9	11.3%

Table 4: Year of studies

Pie chart: 1st, 38.0%; 2nd, 21.4%; 3rd, 17.1%; 4th, 15.9%; 5th, 7.6%
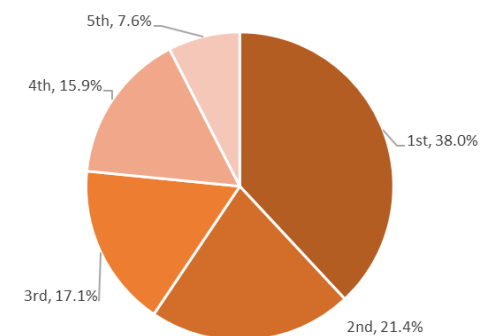
Evaluation of weekly engagement

Activity	SRB average hours	SD[1]	BG average hours	SD	KG average hours	SD	NIS average hours	SD	NS average hours	SD
Presence at classes (lectures and exercises)	12.91	8.06	12.11	7.93	17.39	7.74	12.69	7.45	12.37	8.49
Creating homework and other activities	4.75	5.16	4.80	4.86	4.07	3.59	4.00	4.96	5.81	6.49
Self-study	12.49	9.81	13.08	10.40	9.39	7.43	14.28	9.87	11.06	9.16
Work (learning) with other students	2.13	2.78	2.09	3.06	2.82	3.11	1.68	2.30	2.31	2.29
Other activities that are realized at the faculty	1.58	3.98	1.39	2.80	1.40	1.77	1.03	2.27	2.68	7.10
Total	33.61	18.27	31.75	18.92	33.50	17.66	32.80	16.52	34.10	19.11

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[1] SD – standard deviation

Table 5: distribution of weekly engagement

Figure 5: distribution of activities

Figure 6: distribution of students according to total weekly engagement
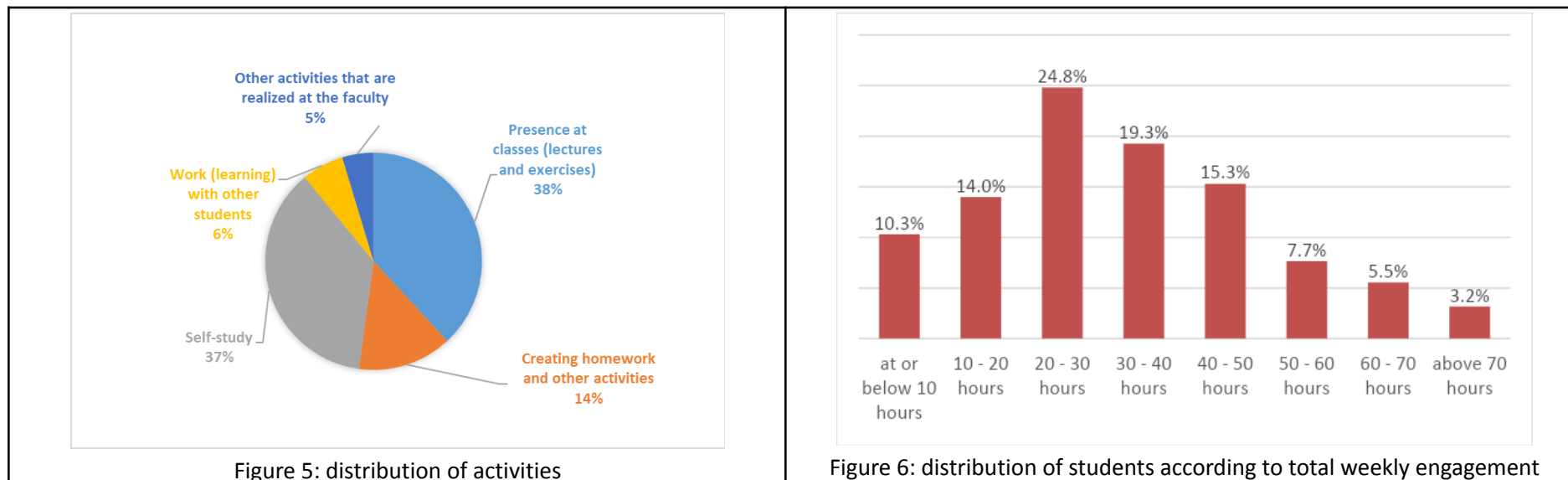
CONCLUSION: Looking at the total engagement of students, we notice that they have estimated their load at about 34 hours, which is slightly less than the anticipated load of 40 hours. However, a standard deviation of 18.27 hours indicates that student self-assessment is in a wide range (Figure 6). The largest number of students (one-fourth of the students) estimated their weekly workload in the range of 20 to 30 hours. The two activities taking most of the time are Presence at classes (lectures and exercises) and Self-study (Table 5 and Figure 5).

Courses in methodology

	SRB		BG		KG		NIS		NS	
course	**YES**	**NO**	YES	NO	YES	NO	YES	NO	YES	NO

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Electronic learning methodology	**88**	**307**	24	161	12	34	13	72	39	40
Teaching methods	**102**	**293**	24	161	14	32	17	68	47	32

Table 6a: Absolute frequency of students who listened (or not) two courses in the methodology

course	**SRB%**		BG%		KG%		NIS%		NS%	
	YES	**NO**	YES	NO	YES	NO	YES	NO	YES	NO
Electronic learning methodology	**22.28%**	**77.72%**	12.97%	87.03%	26.09%	73.91%	15.29%	84.71%	49.37%	50.63%
Teaching methods	**25.82%**	**74.18%**	12.97%	87.03%	30.43%	69.57%	20.00%	80.00%	59.49%	40.51%

Table 6b: Percentage of students who listened (or not) two courses in the methodology
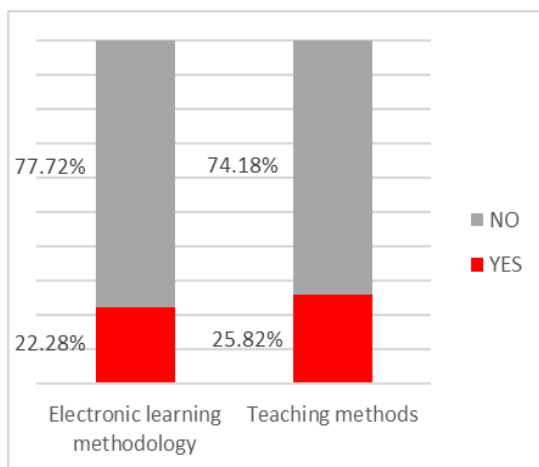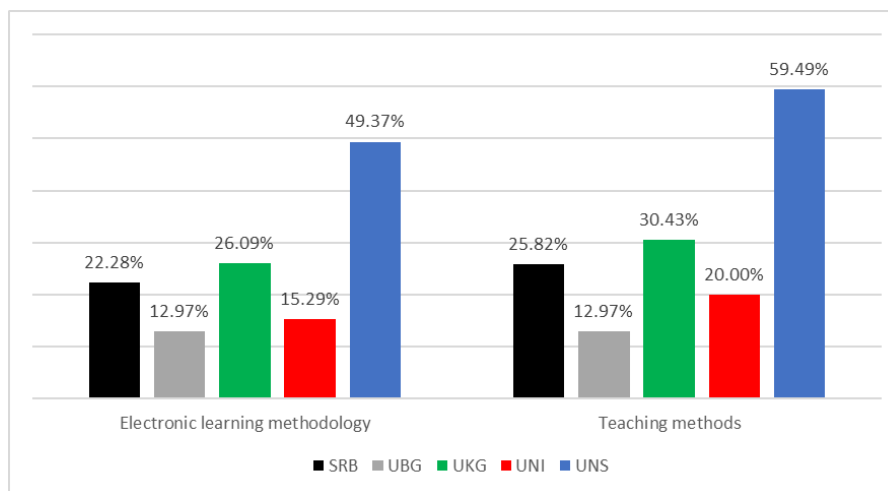

Figure 7a

Figure 7b

CONCLUSION: The answers to this question are in direct correlation with the study program and with the year of studies. Courses in the field of methodology are mandatory for teacher education programs. This is also the reason for the rather unevenness of the universities.

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Types of disciplines of e-learning methodologies (which you had the opportunity to study at the studies)

area	SRB		BG		KG		NIS		NS	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Electronic publishing (Latex, HTML, XML, PDF, and so on)	151	223	45	128	29	14	28	52	49	29
Online Technology in Teaching	100	274	30	143	7	36	18	62	45	33
Open-source software (MOODLE, Python, GeoGebra, MOOC, and so on)	127	248	20	154	24	19	24	56	59	19
I've never heard of any of these disciplines	109	262	66	109	7	32	30	51	6	70

Table 7a: Absolute frequency of students

area	SRB%		BG%		KG%		NIS%		NS%	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Electronic publishing (Latex, HTML, XML, PDF, and so on)	40.37%	59.63%	26.01%	73.99%	67.44%	32.56%	35.00%	65.00%	62.82%	37.18%
Online Technology in Teaching	26.74%	73.26%	17.34%	82.66%	16.28%	83.72%	22.50%	77.50%	57.69%	42.31%
Open-source software (MOODLE, Python, GeoGebra, MOOC, and so on)	33.87%	66.13%	11.49%	88.51%	55.81%	44.19%	30.00%	70.00%	75.64%	24.36%
I've never heard of any of these disciplines	29.38%	70.62%	37.71%	62.29%	17.95%	82.05%	37.04%	62.96%	7.89%	92.11%

Table 7b: Percentage of students

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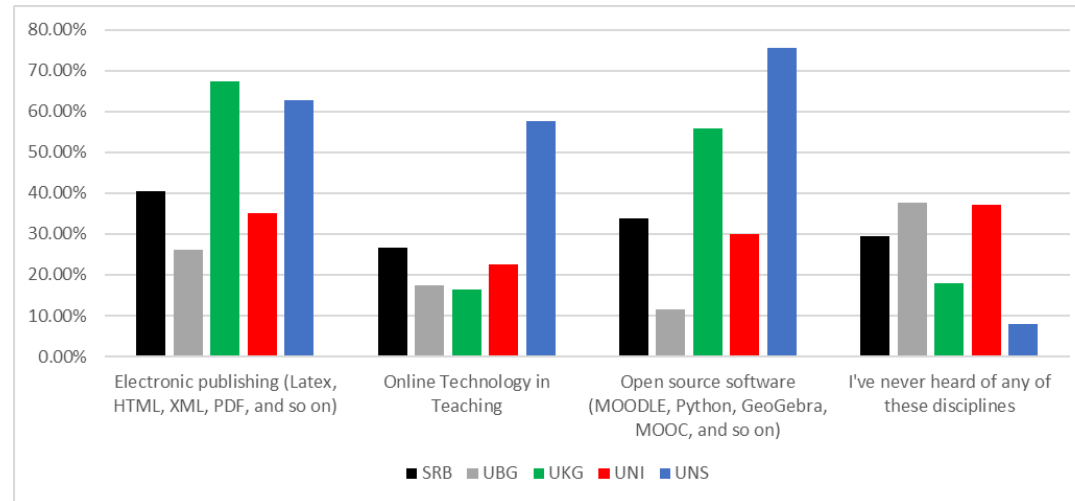Erasmus+ Programme
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Figure 8

CONCLUSION: The answers to this question largely depend on the field of study. Thus, students in the field of computer science and mathematics (KG, NS) answered these questions with YES, while students in other areas dominantly responded with NO

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You attended at least one English language lecture in your area of study. If yes, indicate when and where?

SRB		BG		KG		NIS		NS	
YES	%	YES	%	YES	%	YES	%	YES	%
84	22.11 %	54	29.51 %	8	17.78 %	8	11.11 %	14	17.5 %

Table 8

Did you have opportunity to attend a course (or part of a course) that was realized on an electronic platform? If yes, please indicate on which platform

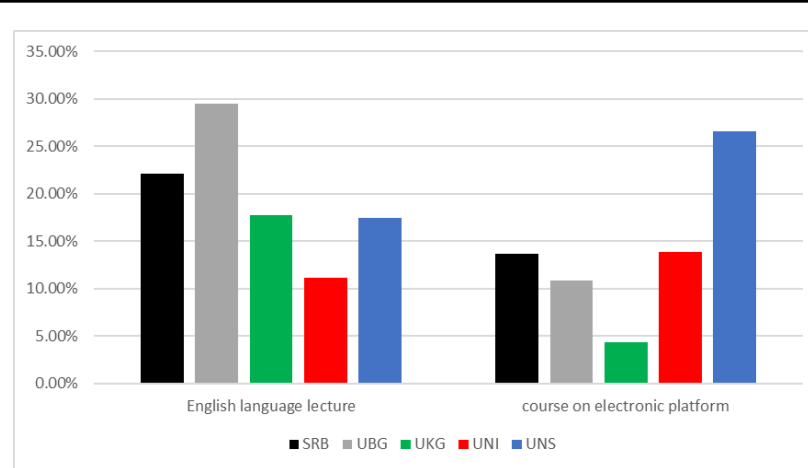| SRB		BG		KG		NIS		NS	
YES	%	YES	%	YES	%	YES	%	YES	%
52	13.65 %	20	10.87 %	2	4.35%	10	13.89 %	21	26.6 %

Table 9

Figure 9

CONCLUSION: The data show that students had very little experience in attending classes in English. Less than ¼ said they attended a lecture in English, and in most cases, it was one time only. Even more unfavorable situation is in attending a course on an electronic platform. This experience had less than 1/6. Among students who have had the opportunity to attend online courses are mostly students of computer science.

New technologies - electronic materials (presentations), animations / films, online learning platforms, web conferences

Attitudes about the use of new technologies in teaching
Respondents answered how much the following claims are true for them on the five-level Lihter scale (1- It's not true at all; 2 - It's not true in general; 3- Equally true and not true; 4 - Generally true; 5. - Totally true).

notation	statements
a1	Using new technologies in teaching motivates students to get involved more actively in the learning process.
a2	The use of new technologies in teaching helps students to acquire new knowledge more effectively.
a3	Using modern technologies in higher education allows students to be more creative and imaginative.

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a4	The use of new technologies in teaching promotes the development of students' interpersonal skills (i.e., the ability to talk and work with others).
a5	The use of modern technologies increases students' self-confidence to be more active at lessons.
a6	Using the online platform allows students easier and faster access to relevant information.
a7	Using the online learning platform contributes to the realization of the individualization of teaching.
a8	The use of new technologies in teaching and learning is the essence of preparing students to live and work in the 21st century.
a9	Students are more respected by teachers who use modern teaching technologies.
a10	It is very important that teachers are open to communicating with students through social networks (Facebook, Twitter, etc.).
a11	Using the online learning platform reduces the amount of stress and nervousness of students.
a12	The use of modern teaching technologies makes students less interested in the content of lessons.

		a1	a2	a3	a4	a5	a6	a7	a8	a9	a10	a11	a12
SRB	Average	3.78	3.95	3.75	3.66	3.27	4.40	3.87	4.14	3.07	3.04	3.10	2.49
	Median	4	4	4	4	3	5	4	4	3	3	3	2
	Mode	4	4	4	4	3	5	4	5	3	3	3	2
BG	Average	3.68	3.92	3.59	3.45	3.08	4.43	3.87	4.01	3.09	2.78	3.03	2.35
	Median	4	4	4	4	3	5	4	4	3	3	3	2
	Mode	4	4	4	4	3	5	4		3	2	3	2
KG	Average	3.53	3.83	3.64	3.54	3.43	4.16	3.65	4.22	3.00	3.23	3.15	2.53
	Median	4	4	4	4	3	4	4	5	3	3	3	3
	Mode		4	4	4	3	5	4	5	3	3	3	1
NIS	Average	3.96	4.02	3.92	3.94	3.35	4.41	3.77	4.21	3.05	3.33	3.24	2.63
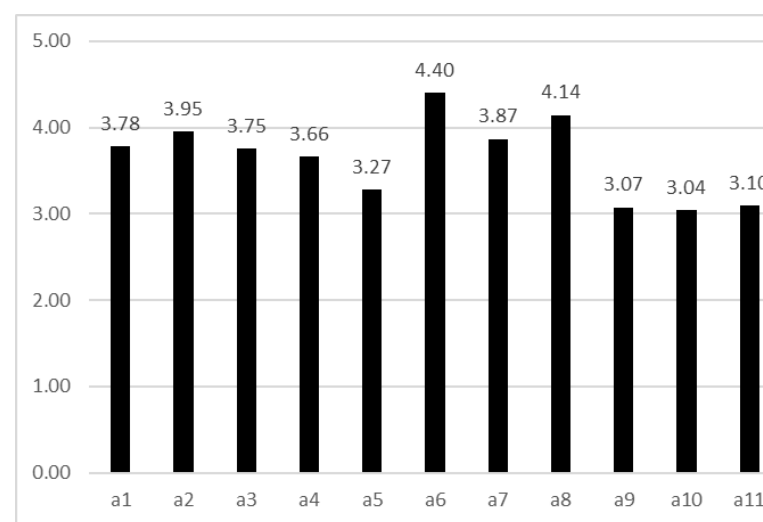
Figure 10

	Median	4	4	4	4	3	5	4	4	3	3	3	2.5
	Mode	4	4	4	4	3	5	4	5	3	3	3	2
NS	Average	3.98	4.01	4.01	3.93	3.56	4.48	4.08	4.35	3.1	3.23	3.08	2.62
	Median	4	4	4	4	4	5	4	5	3	3	3	2
	Mode	4	4	4	4	3	5	4	5	3	4	3	2

Table 10: Mean response values of the respondents

	SRB					BG					KG					NIS					NS				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
a1	9	27	89	188	84	5	14	45	92	29	3	5	14	14	11	0	4	17	42	22	1	4	13	40	22
a2	6	20	76	181	114	4	12	31	86	52	1	4	9	21	12	0	0	21	41	23	1	4	15	33	27
a3	13	24	114	141	103	9	15	57	65	39	3	3	14	15	12	0	4	23	33	24	1	2	20	28	28
a4	11	35	114	152	84	6	24	62	66	27	2	7	11	16	10	1	2	24	32	26	2	2	17	38	21
a5	20	67	148	103	56	11	46	64	44	19	3	7	14	11	11	3	10	39	20	13	3	4	31	28	13
a6	3	13	29	125	222	3	3	10	64	103	0	5	5	13	22	0	3	9	23	50	0	2	5	25	47
a7	7	24	94	156	111	4	12	39	76	52	3	3	12	17	11	0	6	28	29	21	0	3	15	34	27
a8	7	19	57	137	172	3	15	29	68	69	2	2	5	12	25	1	0	17	28	38	1	2	6	29	40

a9	54	62	136	85	57	25	31	58	42	28	8	6	16	12	5	11	11	38	11	13	10	14	24	20	11
a10	61	80	102	83	68	36	47	46	29	25	7	6	13	11	10	9	11	27	19	19	9	16	16	24	14
a11	49	67	133	89	57	29	30	59	39	27	4	11	14	10	8	7	13	33	17	15	9	13	27	23	7
a12	79	136	110	46	23	40	70	51	15	8	15	7	13	9	3	13	29	24	12	6	11	30	22	10	6

Table 11: Distribution of the responses to the twelve observed claims

CONCLUSION: The students had the highest agreement (the average grade above 4) in relation to the claims a6 (Using the online platform allows students easier and faster access to relevant information.) and a8 (The use of new technologies in teaching and learning is the essence of preparing the students to live and work in the 21st century.) The least agreement (the average score below 2.5) was shown by students in relation to the claim a12 (The use of modern teaching technologies makes students less interested in the content of lessons.) Students showed relatively low agreement (average grade of about 3) with claims a9 (Students are more respected by teachers who use modern teaching technologies), a10 (It is very important that teachers are open to communicating with students through social networks (Facebook, Twitter, etc.)) and a11 (Using the online learning platform reduces the amount of stress and nervousness of students).

The second group of consisted of statements about the use of modern technologies by teachers. The students assessed for how many teachers the statement is true, using the phrases: none of the teachers, a few teachers, majority of teachers, and all the teachers.

notation	statement
b1	Students can communicate with teachers via forums or other forms of online communication.
b2	Teachers are open to communicating with students via social networks (Facebook, Twitter, etc.).
b3	Teachers set test results, give assignments, and share other useful information with students online.
b4	Teachers use electronic test systems to test students.
b5	Teachers share with students electronic textbooks and use multimedia software and learning platforms (Moodle for example).
b6	In the classes teachers use electronic material (presentations, animations / films, etc.) as teaching material.
b7	Teachers encourage us to use electronic books, electronic textbooks, and other online educational materials.

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b8	Teachers encourage students to use online courses as educational materials.
b9	Teachers use online learning platforms at their classes.
b10	Teachers encourage students to work in teams, form groups, and discussion forums.
b11	Students are given instructions on how to use online tools, learning platforms, and other electronic resources to help them complete their tasks more easily.
b12	Teachers create online tests to ease student self-examination and enable them to check their own knowledge.
b13	Students get ready answers to questions from tests through online communication tools.
b14	Teachers expect students to use collaborative software to communicate with them and other students (Google Docs, Wikis, etc.).
b15	During classes, teachers use web conferences as teaching materials.

	SRB				BG				KG				NIS				NS			
	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers
b1	8.6%	31.4%	38.7%	21.3%	13.5%	36.8%	38.4%	11.4%	8.5%	29.8%	31.9%	29.8%	3.6%	29.8%	34.5%	32.1%	2.5%	21.5%	48.1%	27.8%
b2	43.1%	40.6%	12.9%	3.3%	57.1%	38.0%	4.3%	0.5%	40.4%	42.6%	10.6%	6.4%	25.0%	38.1%	28.6%	8.3%	31.6%	48.1%	17.7%	2.5%
b3	3.6%	19.8%	47.5%	29.2%	2.2%	28.3%	53.3%	16.3%	14.9%	27.7%	19.1%	38.3%	1.2%	11.9%	39.3%	47.6%	2.5%	3.8%	59.5%	34.2%
b4	51.7%	36.8%	8.7%	2.8%	47.5%	47.0%	4.4%	1.1%	59.6%	29.8%	8.5%	2.1%	69.4%	17.6%	10.6%	2.4%	36.8%	38.2%	17.1%	7.9%
b5	19.2%	41.3%	25.6%	13.9%	25.5%	53.8%	16.8%	3.8%	19.1%	44.7%	19.1%	17.0%	22.4%	32.9%	36.5%	8.2%	1.3%	19.0%	38.0%	41.8%
b6	1.5%	17.6%	45.7%	35.2%	2.7%	10.4%	50.3%	36.6%	2.1%	31.9%	27.7%	38.3%	0.0%	26.5%	39.8%	33.7%	0.0%	16.5%	51.9%	31.6%
b7	12.2%	35.6%	38.7%	13.5%	15.2%	40.2%	35.3%	9.2%	17.0%	40.4%	34.0%	8.5%	13.1%	32.1%	34.5%	20.2%	1.3%	25.6%	53.8%	19.2%

Table 12: Distribution of the responses to the fifteen observed claims

Claim	Inst. 1				Inst. 2				Inst. 3				Inst. 4				Inst. 5			
b8	28.2%	40.2%	24.4%	7.1%	38.5%	40.1%	17.6%	3.8%	27.7%	42.6%	21.3%	8.5%	27.1%	38.8%	27.1%	7.1%	6.3%	40.5%	39.2%	13.9%
b9	30.9%	42.6%	19.9%	6.6%	41.5%	46.4%	10.4%	1.6%	23.9%	45.7%	23.9%	6.5%	34.5%	35.7%	22.6%	7.1%	6.3%	39.2%	36.7%	17.7%
b10	33.1%	37.2%	24.2%	5.6%	38.6%	40.8%	19.0%	1.6%	37.0%	37.0%	21.7%	4.3%	27.4%	39.3%	21.4%	11.9%	24.1%	26.6%	40.5%	8.9%
b11	31.2%	41.4%	20.7%	6.6%	44.5%	39.6%	13.2%	2.7%	17.4%	52.2%	26.1%	4.3%	25.0%	52.4%	15.5%	7.1%	15.2%	27.8%	40.5%	16.5%
b12	48.7%	35.8%	11.7%	3.8%	42.4%	50.5%	6.0%	1.1%	67.4%	21.7%	4.3%	6.5%	63.5%	17.6%	12.9%	5.9%	36.7%	29.1%	27.8%	6.3%
b13	59.5%	26.2%	10.4%	3.8%	62.5%	28.3%	7.6%	1.6%	63.0%	23.9%	8.7%	4.3%	66.7%	16.7%	9.5%	7.1%	43.0%	32.9%	19.0%	5.1%
b14	42.3%	32.1%	18.6%	6.9%	45.4%	30.1%	17.5%	7.1%	39.1%	43.5%	13.0%	4.3%	44.0%	31.0%	17.9%	7.1%	35.4%	31.6%	25.3%	7.6%
b15	64.6%	22.1%	9.7%	3.6%	75.0%	20.1%	4.9%	0.0%	56.5%	26.1%	13.0%	4.3%	63.1%	20.2%	10.7%	6.0%	46.8%	26.6%	17.7%	8.9%

%The yellow color indicates the field with the highest percentage of answers for each question and for each institution.

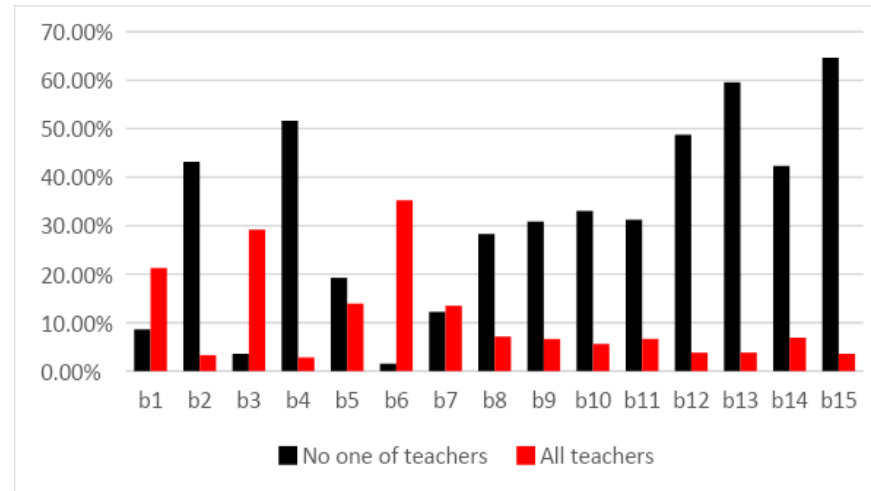Table 12: Distribution of the responses to the fifteen observed claims

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Figure 11

CONCLUSION: The analysis of the student's response indicates that the claims in this group can be clustered into three groups. The first group of claims are those for which the students to a large extent (over 70%) have declared that the claim applies to all or almost all teachers. This group includes only two claims: b3 and b6 (b3 - Teachers set test results, give assignments, and share other useful information with students online and b6 - In class teachers use electronic material (presentations, animations / films, etc.)) as teaching material.) The second group of statements are the claims for which the students have indicated (over 70%) that they are not used by any or several of the teachers. This group consists of b2, b4, b9, b10, b11, b12, b14, b13 and b15, to which more than 50% of students stated that a NO teacher does not practice. The third group of questions are other questions b1, b5, b7, b8.

In your opinion, what ratio (in percent) should be between teaching and learning in education to make education the most successful?
To this question,

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	SRB		BG		KG		NIS		NS	
	SRB	SRB%	BGD	BGD%	KG	KG%	NIS	NIS%	NS	NS%
0% - 100%	8	2.03%	3	1.63%	0	0.00%	4	4.71%	1	1.25%
25% - 75%	48	12.15%	28	15.22%	5	10.87%	8	9.41%	7	8.75%
50% - 50%	262	66.33%	118	64.13%	26	56.52%	65	76.47%	53	66.25%
75% - 25%	73	18.48%	33	17.93%	15	32.61%	8	9.41%	17	21.25%
100% - 0%	4	1.01%	2	1.09%	0	0.00%	0	0.00%	2	2.50%

Table 13
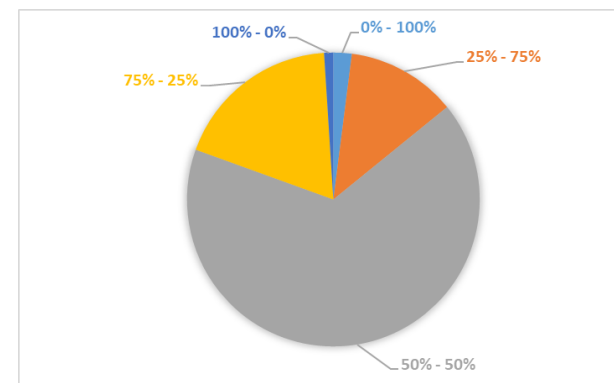
Figure 12

Conclusion: The two thirds of the students choose the option of 50% - 50%, which agrees with the teachers' answers. However, the dominant choice of this option may indicate that neither teachers nor students understand what is meant by teaching and what is meant by learning.

Have you ever attended a course in one of the following disciplines during your previous school education?

course	SRB	SRB%	BGD	BGD%	KG	KG%	NIS	NIS%	NS	NS%
Pedagogy	108	28.27%	25	13.81%	13	28.89%	29	35.37%	41	55.41%
Psychology	104	27.30%	25	13.89%	13	28.89%	35	42.68%	31	41.89%
Teaching methodology	53	14.10%	14	7.91%	9	20.00%	10	12.20%	20	27.78%
Application of new technologies in teaching	68	18.28%	15	8.47%	9	20.45%	15	18.52%	29	41.43%
English language	235	60.72%	76	41.99%	44	95.65%	50	60.24%	65	84.42%
You have not learned any of these disciplines	69	20.97%	54	33.54%	2	5.88%	9	12.86%	4	6.25%

Conclusion: The answer to the attendance of the English course is very variable according to the university. In BG, only 42% of students stated that they had attended a course in English !? while in KG this percentage reaches 95%. Students may not understand this group of questions.

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Have you ever given feedback and participated in the evaluation of your study programs and in assessing the quality of teaching in your institution?

	SRB	SRB%	BGD	BGD%	KG	KG%	NIS	NIS%	NS	NS%
YES	270	68.35%	127	69.02%	31	67.39%	49	57.65%	63	78.75%
NO	125	31.65%	57	30.98%	15	32.61%	36	42.35%	17	21.25%

Table 14
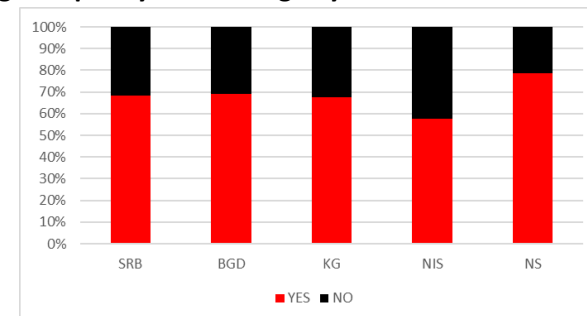
Figure 15

Conclusion: Regardless of the fact that students participate in evaluating the teaching process by completing a survey which is mandatory in most higher education institutions, it is surprising that only 2/3 indicated that they participated in the evaluation of the study program.

Application of educational strategies

The students assessed for how many teachers the next groups of statements are true, using the phrases: none of the teachers, a few teachers, majority of teachers, and all the teachers.

Teaching strategies involving students

notation	statements
c1	You receive feedback from your teachers about test solutions, tasks, and ongoing work.
c2	You get clear information on how to evaluate the course you are attending.
c3	You get clear instructions from your teacher how to prepare for the next lesson
c4	Teachers give you homework, short-term assignments, an obligation to read something or some other form of preparation for the next lesson.

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	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers
c1	6.91%	27.62%	35.81%	29.67%	10.99%	32.97%	35.71%	20.33%	4.35%	30.43%	41.30%	23.91%	4.76%	17.86%	30.95%	46.43%	1.27%	24.05%	37.97%	36.71%
c2	2.29%	8.91%	35.37%	53.44%	2.75%	7.14%	41.76%	48.35%	2.17%	17.39%	32.61%	47.83%	3.53%	8.24%	18.82%	69.41%	0.00%	8.75%	40.00%	51.25%
c3	10.18%	31.04%	38.68%	20.10%	8.79%	30.77%	42.31%	18.13%	15.22%	34.78%	34.78%	15.22%	15.29%	25.88%	27.06%	31.76%	5.00%	35.00%	45.00%	15.00%
c4	8.91%	49.62%	30.28%	11.20%	7.14%	51.10%	31.87%	9.89%	15.22%	54.35%	21.74%	8.70%	11.76%	42.35%	29.41%	16.47%	6.25%	51.25%	32.50%	10.00%

Table 15

Conclusion: The students with the highest mark evaluated the claim c2, i.e., close to 90% students claim that the majority or almost all teachers give clear information about the assessment and attendance of the course. The least mark is given to the question that teachers, in the opinion of students, give homework, short-term assignments, and obligation to read something or some other form of preparation for the next lesson (c4).
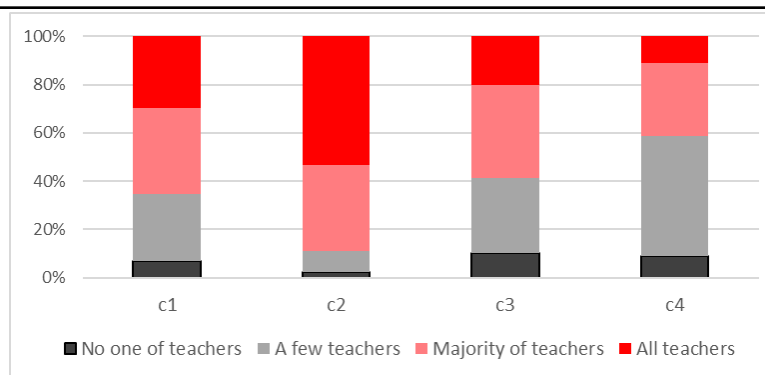

Figure 16

Intellectual engagement and impact on learning

notation	statement
d1	You are motivated and encouraged to develop new ideas and find creative solutions to the problems during learning.
d2	During classes, you look for more solutions to the same problem and compare them.

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d3	During classes, you usually discuss complex issues.
d4	Teachers ask you to explain your ideas.

	SRB				BG				KG				NIS				NS			
	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers
d1	14.58%	51.15%	27.37%	6.91%	18.13%	64.84%	12.64%	4.40%	21.74%	45.65%	28.26%	4.35%	13.10%	33.33%	39.29%	14.29%	3.80%	41.77%	48.10%	6.33%
d2	18.93%	52.69%	21.99%	6.39%	27.07%	59.67%	9.94%	3.31%	15.22%	50.00%	30.43%	4.35%	11.76%	44.71%	30.59%	12.94%	10.13%	46.84%	35.44%	7.59%
d3	14.32%	45.01%	28.64%	12.02%	22.10%	52.49%	17.68%	7.73%	13.04%	34.78%	41.30%	10.87%	7.06%	37.65%	38.82%	16.47%	5.06%	41.77%	35.44%	17.72%
d4	13.55%	45.01%	27.88%	13.55%	18.23%	54.70%	19.89%	7.18%	10.87%	30.43%	39.13%	19.57%	10.59%	35.29%	34.12%	20.00%	7.59%	41.77%	32.91%	17.72%

Table 16

Conclusion: In this group of claims, as can be seen from Table 16 and Figure 17, the majority answers are *A few teachers*. This indicates that there is a significant area for improving the teaching process through stronger motivation for students to actively participate.
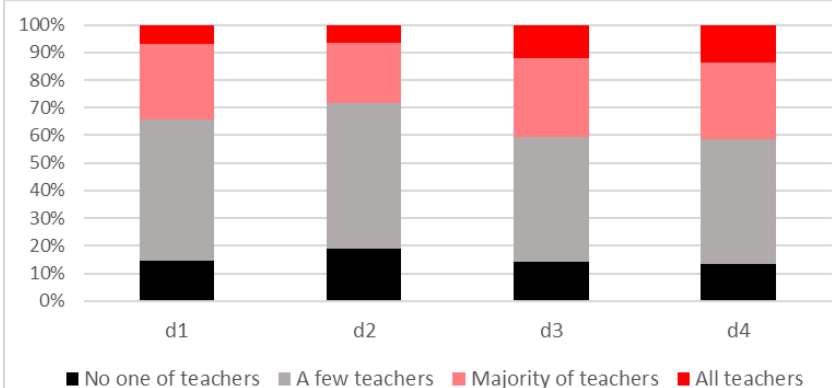
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| | Figure 17 |

Relationship: teacher - student

notation	statement
e1	You can communicate with teachers openly and freely
e2	You can communicate with teachers via social networks (Facebook, Twitter, etc.).
e3	Teachers come to you with respect.
e4	Teachers greet you with a smile and friendly tone.

	SRB				BG				KG				NIS				NS			
	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers
e1	3.83%	33.16%	43.37%	19.64%	6.01%	42.08%	39.89%	12.02%	2.17%	32.61%	43.48%	21.74%	2.35%	22.35%	47.06%	28.24%	1.28%	24.36%	47.44%	26.92%
e2	47.83%	34.78%	12.79%	4.60%	64.84%	30.77%	3.85%	0.55%	39.13%	47.83%	8.70%	4.35%	33.33%	25.00%	29.76%	11.90%	29.11%	46.84%	17.72%	6.33%
e3	1.53%	14.76%	43.00%	40.71%	1.09%	19.67%	50.27%	28.96%	4.35%	15.22%	36.96%	43.48%	1.18%	8.24%	40.00%	50.59%	1.27%	10.13%	32.91%	55.70%
e4	3.56%	30.79%	48.85%	16.79%	4.92%	38.25%	48.63%	8.20%	2.17%	36.96%	36.96%	23.91%	2.35%	20.00%	57.65%	20.00%	2.53%	21.52%	46.84%	29.11%

Table 17

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Conclusion: The use of social networks is still very weak in teaching process. For the remaining three claims that describe the attitude of teachers toward students, students emphasize that they are valid for most or all the teachers.
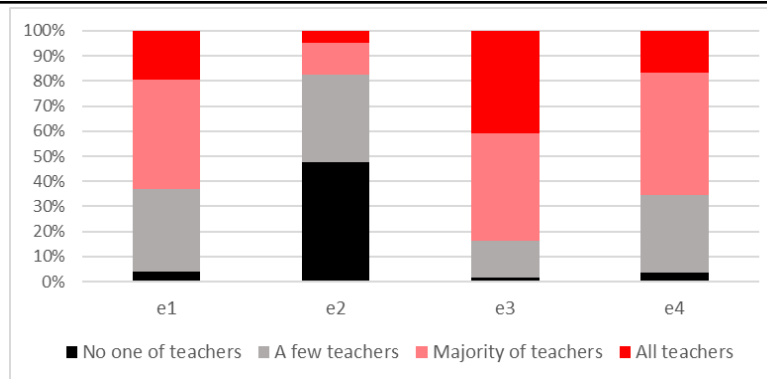

Figure 18

Cooperation

notation	statement
f1	Often group assignments are assigned to you that you need to realize at class or at home.
f2	Students are motivated and stimulated to share their knowledge and help other students during classes or during the preparation of the exam.
f3	Teachers expect you to use collaborative software to communicate with them and other students (Google Docs, Wikis, etc.).
f4	Teachers expect you to get involved by expressing your opinion.

	SRB				BG				KG				NIS				NS			
	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers
f1	17.48%	62.21%	17.99%	2.31%	17.68%	67.96%	13.81%	0.55%	22.22%	57.78%	20.00%	0.00%	25.00%	51.19%	16.67%	7.14%	6.33%	63.29%	27.85%	2.53%
f2	17.18%	46.41%	26.92%	9.49%	23.20%	52.49%	18.23%	6.08%	17.39%	47.83%	30.43%	4.35%	13.10%	32.14%	39.29%	15.48%	7.59%	46.84%	31.65%	13.92%

f3	39.23%	39.74%	15.90%	5.13%	42.54%	39.23%	13.26%	4.97%	45.65%	36.96%	13.04%	4.35%	35.71%	42.86%	16.67%	4.76%	31.65%	39.24%	22.78%	6.33%
f4	9.74%	44.36%	34.62%	11.28%	11.54%	55.49%	24.73%	8.24%	19.57%	28.26%	36.96%	15.22%	4.71%	29.41%	49.41%	16.47%	5.19%	44.16%	40.26%	10.39%

Table 18

Conclusion: Based on the students' responses, there is a significant opportunity to improve the teaching process through strengthening cooperation and encouraging students to get involved in group work, as well as to share their knowledge.
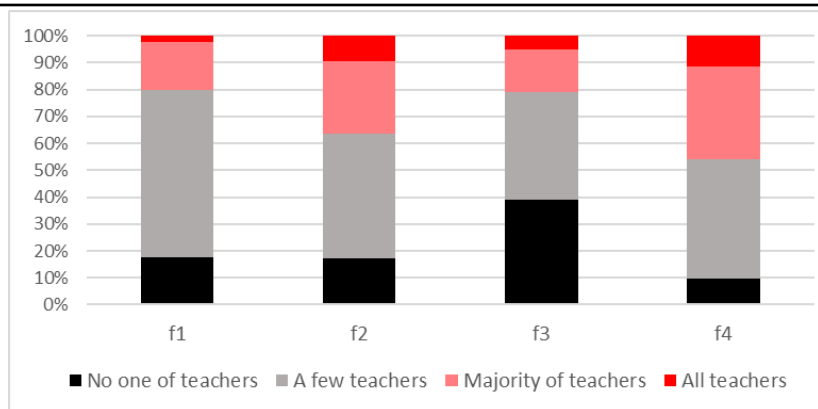

Figure 19

Student-centered teaching and learning

notation	statement
g1	Teachers show flexibility as far as the content or methods of their course are concerned, in order to adapt it to the needs of students.
g2	You can freely choose the themes of individual tasks in accordance with your preferences, interests and priorities.
g3	Teachers try to link the contents of their courses with your knowledge and experience gained through the subjects you have previously listened to.
g4	Teachers show interest in students' opinions.

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	SRB				BG				KG				NIS				NS			
	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers
g1	13.66%	45.88%	32.47%	7.99%	18.23%	50.83%	26.52%	4.42%	23.91%	32.61%	36.96%	6.52%	2.35%	44.71%	38.82%	14.12%	9.21%	43.42%	36.84%	10.53%
g2	19.28%	47.81%	24.68%	8.23%	24.86%	53.04%	17.68%	4.42%	23.91%	50.00%	26.09%	0.00%	10.71%	45.24%	28.57%	15.48%	12.82%	37.18%	35.90%	14.10%
g3	11.05%	34.45%	41.13%	13.37%	12.15%	44.20%	34.25%	9.39%	15.56%	20.00%	53.33%	11.11%	7.06%	23.53%	49.41%	20.00%	10.26%	32.05%	41.03%	16.67%
g4	7.77%	41.45%	34.72%	16.06%	8.38%	54.75%	24.58%	12.29%	17.78%	24.44%	37.78%	20.00%	5.95%	26.19%	47.62%	20.24%	2.56%	37.18%	42.31%	17.95%

Table 19

Conclusion: Students indicated that few teachers demonstrate flexibility in terms of content and methods used (g1) and to a small extent enable students to choose topics for individual tasks. Some teachers, in the opinion of students, are trying to link content with the knowledge or experience of students (g3). Students have various opinion about the number of teachers who show interest in the student's opinion (g4).
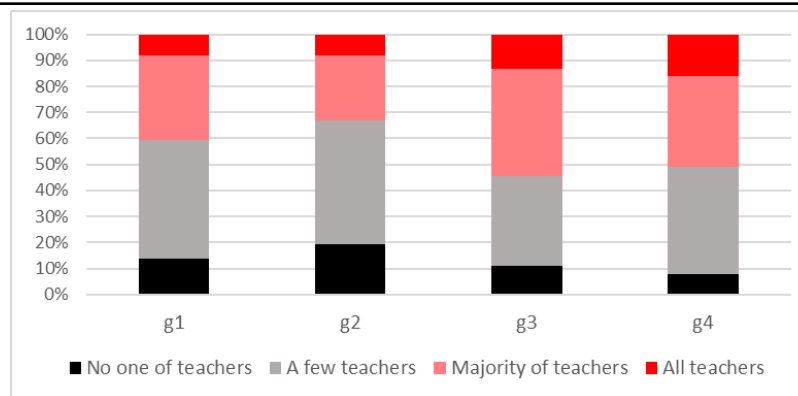

Figure 20

Enthusiasm and way of teaching

notation	statement
h1	Teachers maintain student interest by changing teaching methods and methods of work from time to time.
h2	Teachers use electronic books, presentations, video clips, movies, etc. at their classes.
h3	Teachers organize work in pairs, group work, workshops, etc. to improve interaction among students on lessons.
h4	Teachers stimulate students to seek additional learning resources, in addition to compulsory materials, critically assessing their reliability.

	SRB				BG				KG				NIS				NS			
	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers
h1	23.45%	54.64%	17.78%	4.12%	30.94%	59.67%	6.63%	2.76%	22.22%	53.33%	22.22%	2.22%	19.05%	40.48%	32.14%	8.33%	11.54%	58.97%	25.64%	3.85%
h2	5.15%	38.92%	39.95%	15.98%	4.42%	37.57%	43.09%	14.92%	20.00%	37.78%	28.89%	13.33%	2.38%	39.29%	39.29%	19.05%	1.28%	42.31%	39.74%	16.67%
h3	23.58%	55.44%	17.10%	3.89%	26.67%	60.00%	11.11%	2.22%	36.36%	43.18%	20.45%	0.00%	23.81%	46.43%	21.43%	8.33%	8.97%	61.54%	24.36%	5.13%
h4	15.54%	46.11%	28.50%	9.84%	16.11%	53.89%	22.22%	7.78%	31.82%	25.00%	29.55%	13.64%	14.29%	39.29%	32.14%	14.29%	6.41%	47.44%	38.46%	7.69%

Table 20

Conclusion: Over ¾ students indicated that none of the teachers or a few teachers maintain student interest by changing teaching methods from time and time (h1). These answers show that there is a great need for the development of pedagogical competences among teachers.
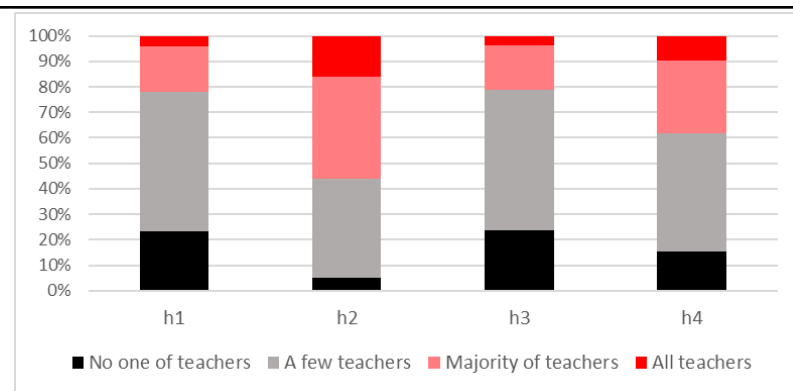

Figure 21

Structure

notation	statement
j1	During classes, teachers summarize the material and highlight the most important parts.
j2	Teachers adjust the time of instruction and do well time management.
j3	Teaching materials are well structured and organized.
j4	Classes are well organized.

	SRB				BG				KG				NIS				NS			
	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers	No one of teachers	A few teachers	Majority of teachers	All teachers
j1	5.66%	38.82%	43.96%	11.57%	6.04%	43.96%	41.76%	8.24%	8.89%	31.11%	42.22%	17.78%	1.19%	32.14%	50.00%	16.67%	7.69%	38.46%	43.59%	10.26%
j2	5.14%	28.28%	47.81%	18.77%	6.04%	37.36%	41.76%	14.84%	11.11%	15.56%	51.11%	22.22%	3.57%	20.24%	48.81%	27.38%	1.28%	23.08%	58.97%	16.67%

j3	5.67%	36.60%	44.85%	12.89%	9.34%	44.51%	38.46%	7.69%	8.89%	22.22%	55.56%	13.33%	1.20%	34.94%	40.96%	22.89%	0.00%	28.21%	57.69%	14.10%
j4	3.61%	35.05%	48.20%	13.14%	4.42%	48.62%	38.12%	8.84%	10.87%	21.74%	54.35%	13.04%	1.20%	28.92%	48.19%	21.69%	0.00%	17.95%	67.95%	14.10%

Table 21

Conclusion: As far as the structure of the class is concerned, students have chosen to a large extent the answer that *most teachers* practice the activities mentioned in the statement. Nevertheless, a significant number of students have chosen the option *A few teachers* which indicates that there is space for improving pedagogical for a large number of teachers.
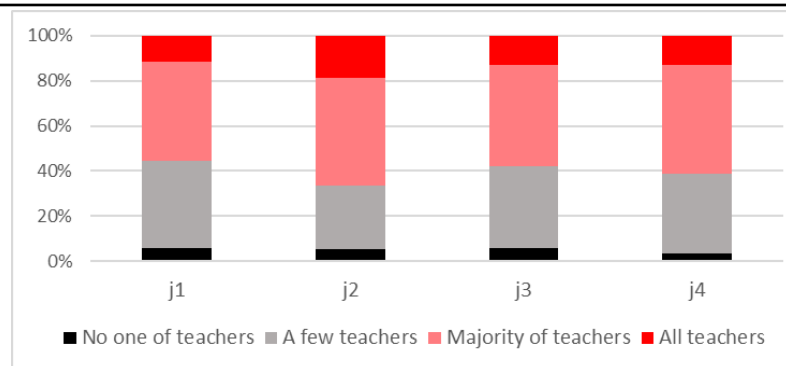

Figure 22

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