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**“Change in Classroom: Promoting Innovative Teaching & Learning to Enhance Student Learning Experience in Eastern Partnership Countries”,
PRINTeL**

THE REPORT

of evaluation of students’ feedback for subject courses delivered with application of new T&L innovative methods with recommendations for improvement

BREST STATE TECHNICAL UNIVERSITY

BREST 2020

CONTENTS

1. Importance of feedback in assessment. The purpose and objectives of the survey.....	3
2. Methodology and criteria of the survey.....	3
3. Number of respondents and selection of participants.....	5
4. Analysis of the results.....	5
5. Strengths of the implementation of innovative forms of education.....	11
6. Weaknesses of the implementation of innovative forms of education.....	12

1. Importance of feedback in assessment. The purpose and objectives of the survey.

Feedback is an important part of the assessment process. It has a significant effect on student learning and has been described as “the most powerful single moderator that enhances achievement” (Hattie, 1999).

The feedback from students on the implementation of innovative teaching methods was based on 4 principles.

Constructiveness: it is necessary to assess the strengths and weaknesses of the implementation of innovative teaching methods, which will improve the activity. The teacher's understanding of the strengths and weaknesses of the implementation of innovative forms of learning encourages them to accept their work in a critical way and reflect on what they need to do to improve it. It also helps teachers and students take a fresh look at learning and get more satisfaction from it. All this contributes to the development of dialogue between teachers and students.

Timeliness: the necessity to leave a review, while the evaluated work is still fresh in the student's memory, before the student proceeds to subsequent tasks.

Significance: the teacher and student should be focused on individual needs, tied to specific assessment criteria. Feedback on the introduced innovative form of teaching should be received by the teacher on time in order to benefit subsequent work.

Effective feedback: helps teachers to adapt and adjust their learning strategies, guides teachers to adapt and adjust their teaching in accordance with the needs of students. Helps students become independent and self-reflective learners. It stimulates reflection, interaction and dialogue about improving learning in a constructive way, so that students feel inspired and motivated to improve.

Feedback is particularly valuable when it is received, understood and operated. The way how students analyze, discuss, and respond to innovative teaching methods, as well as how teachers analyze feedback, is just as important as the quality of the feedback itself. Due to the interaction of students and teachers through the feedback, they begin to understand how to develop their learning.

The purpose of the survey: to analyze the effectiveness of innovative forms of training implementation in the framework of the PRINTEl project at BSTU, to identify strengths and weaknesses.

Objectives of the survey: to identify the most frequently implemented innovative forms of education, and to determine the needs and desires of students, to determine whether the student and teacher have mutual contact, to identify whether the student's work has been strengthened and whether innovations have contributed to the effectiveness of teaching.

2. Methodology and criteria of the survey.

The choice of the type of survey is determined by its objectives, organizational and economic capabilities, as well as the requirements for the credibility and reliability of information. According to the method of information obtaining in our case, we have chosen a questionnaire survey. It is a survey using a questionnaire, a document on Google Form containing questions that should be answered on-line. The questionnaire is transmitted directly to the respondent by

the interviewer via the Internet. The choice of platform for questioning is not accidental. On this platform, simultaneous processing of information occurs immediately.

Preparation for the collection of information began with the development of a survey form (questionnaire). The questionnaire includes 10 questions, some of which suggest an unambiguous answer, part multivariate (at the request of the respondent). For each teacher, a questionnaire was developed based on the template. Everyone has the same questions and answer options, the main difference is the surname and name of the teacher, the name of the specialty, course and the name of the subject studied by students, where innovative forms of training were introduced. Evaluation of the results was for each teacher and then summarized.

1. In the first question “Please note how the education process as a whole was organized: In the form of a monologue of a lecturer, without the participation of students. With a greater degree of involvement of the lecturer than students. The participation of the teacher and students was equal. Mostly in the form of the greater involvement of students. Not sure” it is examined how students are involved in the educational process during the classes: are students passive students or active participants of the education process.

2. The purpose of the second question “Please indicate to what extent do you agree with the following statement. “The teaching and learning methods applied during the course aroused interest in the topic and stimulated my learning” was to find out how the teaching and learning methods stimulate students.

3. The purpose of the third question of the questionnaire “How often have active and innovative teaching and learning methods been used during the course?” is to find out how often the teacher uses active and innovative teaching methods.

4. The fourth question of the questionnaire “What innovative teaching methods and interactive platforms were used during the training: Online discussion seminars. Group discussions, brainstorm. Group discussions, brainstorm using mobile phones. Individual projects. Group projects. Zoom. Google class. Google meet. Moodle. Gamification” explores which of the innovative methods the teacher uses.

5. The fifth question “In your opinion, which of the active and innovative teaching methods mentioned below are useful for acquiring material: Online discussion seminars. Group discussions, brainstorm. Group discussions, brainstorm using mobile phones. Individual projects. Group projects. Zoom. Google class. Google meet. Moodle. Gamification” examines students' opinions about the usefulness of particular innovative methods.

6. In the sixth question “Evaluate on a scale of 1 – 5, the lecturer’s use of active and innovative approaches to the course” it is explored how, according to students, the teacher uses active and innovative methods to complete the course.

7. In the seventh question “Evaluate on a scale of 1-5 the effectiveness of the lecturer's communication with the audience”, the effectiveness of the teacher’s communication with students is examined.

8. The purpose of the eighth question “Please rate how useful the course was for you as a whole: Useful. Applicable in the future. Interesting. Motivating. Necessary. It was hard to understand the material. Boring. Exhaustive. Useless. Uninteresting. Not sure” was a study of how the course was useful for students.

9. In the ninth question, “Would you like your other courses to be taught in the same way using similar methods and approaches?” Definitely yes. Rather, yes. Probably not. Definitely not. Not sure.” was examined the students' opinion on the extension of the practice of conducting the course to other disciplines.

10. The tenth question, “Due to the use of active and innovative teaching methods by teachers: My motivation has increased. The digestibility of educational material has increased. My productivity has improved. It has become more convenient for me to work. Control over my teaching activities has increased on the part of the teacher. Other ”explores how students are influenced, in their opinion, by the use of active and innovative teaching methods.

3. Number of respondents and selection of participants.

Brest State Technical University (BrSTU) is one of the largest scientific and educational centers in the western region of Republic of Belarus. It enables training of highly qualified specialists and conducts fundamental scientific research in the areas of civil engineering, architecture, electronics and information technology, mechanical engineering, economy and environmental science. The scientific potential of the University includes 14 Doctors of Science, 152 Candidates (Ph.D.) and experienced academic instructors. The training of 6390 students is conducted at six faculties.

During the establishing the feedback with students, 2 tasks were set. First, interview about 10% of students. The sample size is really important because it determines the cost of future research, not to mention the quality of the final results and conclusions. The gender and age structure of the respondents is similar and is 17-25 years in priority. Second, try to interview respondents from all faculties (CivilEngineering, ElectronicInformationSystems, EngineeringSystemsandEcology, Economics, MechanicalEngineering, FacultyofEngineeringandEconomicsofcorrespondenceeducation).

As a result of the survey, a solution to the tasks set can be noted. The survey involved teachers from all 6 faculties (31 teachers). The sample amounted to 13% of all BrSTU students (838 people), this suggests a high degree of the survey reliability.

Also, during the survey, the task was set to interview students about the results of innovative forms of teachingimplementation in different departments and in different disciplines. Therefore, the survey included technical disciplines, as well as sociological, economic, and legal ones. This made it possible to assess the breadth of the implementation of innovative forms of education, its interdisciplinarity.

4. Analysis of the results.

31 teachers from Brest State Technical University during the project PRINTeL have implemented innovative teaching methods in their activities. More than **30 courses** have been adapted to the active use of innovative methods. Teachers have introduced innovative methods such as:

- Online discussion seminars;
- Group discussions, brainstorming;
- Group discussions, brainstorming using mobile phones;

- Individual projects;
- Group projects;
- ZOOM;
- Google class;
- Google meet;
- Moodle;
- Gamification.

To get information about the results of the introduction of innovative forms of training and to get feedback from students we created the Google form survey. We sent out an example of a survey to teachers and asked them to conduct a student survey in Google form. For those who could not create the survey in Google form, we created it centrally and sent a link. Each teacher had his own link with the survey. During the survey were interviewed **838 students from 6 Faculty** (100% faculty coverage). Analysis of the responses showed the following:

1. Teachers widely use innovative teaching methods (question #3 in survey). Most students (60%) rated this like “often use” and near 10% students rated this like “always use”.

2. Most students respond that lessons are conducted with the involvement of students (question #1 in survey).

3. Most of the students noted that innovative methods of teaching have caused interest and increased their motivation (question #2 in survey).

4. The most widely used innovative educational methods: ZOOM; Google class; Online discussion seminars (question #4 in survey). Some of them use Moodle, m-learning; Gamification .

5. Students find useful innovative educational methods such as ZOOM; Online discussion seminars; Group discussions, brainstorming; (question #5 in survey).

6. Students appreciate the use of innovative forms of teacher training (question #6 in survey). Most students (80%) rated 4 and 5 the use of innovative forms of teacher training on a five-point scale where 5 is great.

7. Students evaluate the effectiveness of the teacher’s communication with students as good and very good (question #7 in survey). This is a very important point because often interactive and innovative forms of study reduce the communication between the teacher and the student.

8. Most students liked innovative teaching methods and would like to see such forms of training in other disciplines (question #8, 9, 10 in survey).

Nevertheless identified directions for future work:

1. Control of students not increased so much, it’s mean that that the teacher does not fully use the opportunities of innovative educational technologies.

2. A wide variety of innovative educational platforms reduces the effect of their implementation. Students have some difficulty in working with a large number of educational platforms (Zoom, Moodle, Google).

	NAME, SURNAME ACADEMIC STAFF	POSITION ACADEMIC STAFF	COURSE (SUBJECT)	YEAR OF STUDY	PROGRAMME (SPECIALTY)	NUMBER OF STUDENTS SURVEYED	HOW OFTEN HAVE ACTIVE AND INNOVATIVE TEACHING AND LEARNING METHODS BEEN USED THROUGHOUT THE COURSE?.	WHAT INNOVATIVE TEACHING METHODS AND INTERACTIVE PLATFORMS WERE USED MOST DURING THE TRAINING?	RATE ON A 5- POINT SCALE THE EFFECTIVENESS OF THE LECTURER'S COMMUNICATION WITH THE AUDIENCE 5- PERFECTLY 1- BADLY
1	Andrei Prarouski	Head of department, PhD	Investment activity	3	Marketing/ Economy faculty	10	Often – 70%	Group discussions – 80%; Google meet- 80%	5- 60% 4-30%
2	Galina Skopets	Senior lecture	Basics of competitiveness	2	Finance/ Economy faculty	49	Always – 32% Often – 59%	Google meet- 93%; Online	5- 57% 4- 32%
3	Alena Khutava	Senior lecture	Marketing	2	Marketing/ Economy faculty	40	Always – 27% Often – 66%	Google meet- 100%; Google class – 90%.	5- 67% 4- 25%
4	Galina Berezhnaja	Senior lecture	1. Marketing research	2	Marketing/ Economy faculty	12	Often – 83%	Google meet- 91%; Google class – 91%.	5- 55% 4- 41%
			2. Innovative marketing	3					

5	Yuliya Vlasiuk	Associate professor, PhD	Marketing communications		E-marketing/ Economy faculty	8	Always – 37% Often – 25%	Google class – 87% Group	5- 75% 2- 12%
6	Pavel Kachurko	Associate professor, PhD	Internet Systems Design	3	Information technology software/ Electronic faculty	26	Often – 63%	Group discussions- 63%	5- 19% 4- 52%
7	Poyta Piotr	Professor	Soil mechanics, foundations and foundations	2	industrial and civil engineering/ Building faculty	36	Always – 44% Often – 55%	Online seminars – 77,8% Individual projects	5- 86,1% 4- 13,9%
8	Chetyrbock Natallia	Head of department, PhD	Fundamentals of business and law in information technology	3	Automated information processing systems/ Electronic faculty	8	Always – 25% Often – 37,5%	Zoom- 100% Moodle – 62% Group discussions – 50%; Online seminars – 50%	5- 37,5% 4- 50%
			Foreign economic activity	3	Economics and Enterprise Management/Engineering and Economics Faculty of Distance Education	38	Always – 8% Often – 46%	Group discussions – 68%;	5- 51,4% 4- 40,5%
9	Kulakova Leila	Senior lecture	Enterprise economy	2	Accounting, analysis and audit/ Economy faculty	39	Always – 46% Often – 48%	Online seminars – 71%; Zoom – 97%.	5- 77% 4- 18%
			Finance and Credit						
1	Lazarchuk Irina	Senior lecture	Enterprise economy	2	Logistics/ Economy faculty	17	Always – 11% Often – 65%	Online seminars – 88%;	5- 35% 4- 58%

1	Ermakova Eleanor	Senior lecture	Intellectual Property Management	3	Economics and Enterprise Management/ Economy faculty	25	Always – 12% Often – 64%	Zoom – 92%. Google meet –	5- 32% 4- 40%
1	Kavalevich Olga	Senior lecture	National Economy of Belarus	2	E-marketing/ Economy faculty	6	Always – 33% Often – 67%	Zoom – 100%. Online seminars –	5- 16% 4- 66%
1	Kastenko Natallia	Associate professor, PhD	Fundamentals of business and law in information	3	Automated information processing/ Electronic faculty	40	Always – 7% Often – 50%	Zoom – 95%. Online seminars –	5- 32% 4- 40%
1	Czech Evgenia	Senior lecture	Economics of the construction industry	4	Production of building products and structures/ Building faculty	19	Always – 10% Often – 47%	Google meet – 73%	5- 32% 4-52%
1	Tatsiana Lisouskaya	Head of department	History of Belarus, Politology, Religion Studies, Sociology	1, 2	Electronic faculty, Building faculty	18	Always – 12 % Often – 70 %	Google class – 55,5 % Zoom, Skype – 70,1% m-learning –	5- 38,8% 4- 38,8%
1	Dzianis Budnik	Senior lecture	Sociology	2	Machinery faculty	27	Always – 22% Often – 59%	Google class – 96% Zoom – 55,5	5 - 77.7% 4 – 22,2 %
1	Yuri Danilov	Senior lecture	Politology	1,2	Electronic faculty, Building faculty	39	Always – 58,9% Often – 18%	Zoom, Skype – 71,8 m-learning –	5 – 17,9% 4 – 61,5 %
1	Sviatlana Hrybava	Associate professor	Politology	1	Machinery faculty	12	Often – 25% Rarely – 41,6	Zoom, Skype – 91,6% Online	5 – 66,6% 4 – 25 %
1	Volga Ipatava	Senior lecture	Law	2,3	Economy faculty	45	Always – 9% Often – 51,1% Rarely – 20%	Google Class – 98% Zoom, Skype –	5 – 37,7% 4 – 33,3 %
2	Natallia Kavaliova	Associate professor	History, History of culture	1	Faculty of Environmental Engineering Systems	24	Always – 8,3% Often – 58,3%	Google Class – 98% Skype – 95,8%	5 – 41,7% 4 – 29,1 %

2	Veranika Varych	Associate professor	Logic	2	Electronic, Building, Economy faculty	54	Always – 59,2% Often – 22,2%	Moodle – 83,3% m-learning – 29,1 Online seminars	5 – 70,3% 4 – 14,8%
2	Liudmila Malykhina	Associate professor	History of culture	1	Building Faculty	13	Always – 23% Often – 46,1%	Google Class – Skype – 84,6% Online seminars – 76,9%	5 – 61,5% 4 – 23%
2	Prilutskaya Nadezhda	Senior lecture	Personnel Management	4	Economics and organization of production	4	Always – 50% Often – 50%	Online seminars- 100%, Google Class- 100%, Google meet –	5 – 100%
2	Obukhova Inna	Associate professor	Finance	2	Finance/ Economy faculty	23	Often – 44%	77,7% - Google class, 33,3% - individual projects.	66,7% - 3; 33,3% -4,
2	Charnavokaya Alena	Head of department, PhD	Theoretical foundations of accounting, analysis and audit	1	Accounting, analysis and audit/Economy faculty	25	Always – 40% Often – 60%	80%-Google class Google meet, 40%- Online seminars –	60%-5, 20%-4, 20%-3
2	Kaydanovskaya Tatyana	Senior lecture	Analysis of economic activity in industry	3	Accounting, analysis and audit/Economy faculty	44	Often – 50% 27,8% - Seldom	77,8% - Google class, 44,4%-Google meet	8,9% - 4, 33,3% - 3, 27,8% - 5
2	Averinalrina	Senior lecture	Specialist workstation	3	Finance and credit/Economy faculty	27	Always – 33 % Often – 40%	53.3% - Google meet, 40% - Google class	33,3% - 0, 26,7% - 4, 26,7% - 5, 6,7% - 2, 6,7% - 3

2	Yurchik V.	Senior lecture	Accounting and analysis	3	Economics and enterprise management/Economy faculty	40	Often – 47,4%	63,2% - Google meet, 47,4% - Google class, 10,5% - Zoom	42,1% - 4, 31,6% - 5, 21,1% - 3, 5,3% - 0
2	Nadeina Nadezhda	Associate professor	1.Pricing 2.Marketing basics	2 1	Marketing/ Economy faculty	20	Always –45 % Often – 45%	100% - Google class, 100% - Google meet	90% - 5
3	Kramarenko Anna	Senior lecture	Intellectual Property Management	3	Logistics/ Economy faculty	14	Always –14 % Often – 57%	Online seminars – 78,6%;	36,7%-5, 56%-4
3	Garchuk Inna	Senior lecture	Basics of Competitiveness	1	Marketing/ Economy faculty E-marketing/ Economy faculty	36	Always –8 % Often – 63%	50% - Google class Online seminars – 41,7%	25%-5, 47%-4

5. Strengths of the implementation of innovative forms of education.

A survey of students was conducted at Brest State Technical University in order to study the use of active and innovative teaching methods by teachers, as well as on the usefulness of these methods implementation, according to students.

1. Most students note that in general, lectures are conducted with the involvement of students. Survey results show that teachers and students understand the importance of students' active participation in the learning process in order to increase the effectiveness of the educational process.
 2. Most students noted that the new courses aroused interest and increased their motivation. This is a very important characteristic, confirming that active and innovative teaching methods increase students' motivation, which, in turn, affects the effectiveness of the entire educational process.
 3. Almost all students respond that innovative and active teaching methods are often used. But the positive responses of students should not reassure teachers themselves. The education system, like the global economy as a whole, is developing very rapidly. If you stop, then the competitiveness of graduates in the labor market, and the university in the market of educational services can be lost very quickly.
 4. When asked what methods were used during the course, they answered: Google class, Google meet, online discussions, group projects. Students highlighted these innovative teaching methods and interactive platforms as questioning took place at the background of coronavirus pandemic and the transfer of teaching to distance forms. But the task of further improving the quality of education will be other active and innovative methods of education
 5. Students find group discussions, projects, and brainstorming useful. These methods belong to active methods. They help to establish emotional contacts between students, develop creativity, the ability to think outside the box and be able to defend their point of view, form teamwork skills, providing high motivation in self-development and self-education, an active life position, and unleashing of creative potential.
- As practice shows, the use of active methods in teaching, reduces the level of nervous load of students, makes it possible to switch students' attention to key questions and topics of classes.
6. Students highly evaluate the teacher's use of innovative forms of learning. There are being developed not only teaching methods, but also technologies. Work skills at the modern technological level are necessary not only for teachers, but also for students.
 7. Students evaluate the effectiveness of communication between the teacher and students as good and very good. Despite all the modern technologies, the direct contact of the teacher with the student will always be very important. And the effectiveness of such contact is very important for the effectiveness of the educational process.
 8. Most of the students think that the course is useful, applicable in the future, interesting. The high marks given by students indicate that teachers are improving their skills in the right direction.
 9. Most students liked the course and would like to see such forms of training in other disciplines. It is very important to establish at the university the transfer of best practices through

the institute of advanced training so that active and innovative methods are not used by individual teachers, but become a common practice for the university.

10. Students responded that motivation has increased, the acquisition of learning material has improved, productivity has improved, and work has become more convenient. Students confirmed the hypothesis about the usefulness of active and innovative methods of education.

In general, the survey results indicate the widespread introduction of innovative methods of education through the project.

6. Weaknesses of the implementation of innovative forms of education.

Analysis of the results of students feedback showed that there are weaknesses in the process of implementation of innovative forms of education.

Firstly, there was revealed a weak effect of the implementation of innovative forms on strengthening the supervision on students' activity. Many innovative forms of teaching are aimed specifically at strengthening control, ensuring constant monitoring of students' activity. The reasons for this may be the misuse of control instruments or their insufficiency.

Secondly, as the study showed, the teachers of the Brest State Technical University do not use the entire arsenal of active and innovative methods. In this regard, it is extremely important to disseminate the positive experience of introducing innovative educational technologies within the TSDC. It is important to establish a system of continuous teacher training at the university and transfer of world experience to the educational process of the Brest State Technical University.

Thirdly, a very insignificant part of the respondents noted that a course with the use of innovative forms of training will help them to master the profession. This suggests the need for practical orientation of innovative learning. This can be achieved through the implementation of real projects, using the practical experience of specialists in innovative teaching methods (for example, to make a video of how everything happens in practice or to involve practitioners in the work with students).