Co-funded by the
Erasmus+ Programme
of the European Union

Modernisation of Higher Education in
Central Asia through New Technologies
(HiEdTec)

# COOPERATION FOR SHARING EXPERIENCE AND EXCHANGE OF GOOD PRACTICES IN THE FIELD OF INNOVATIVE EDUCATIONAL TECHNOLOGIES AND DIDACTIC MODELS

# PRODUCED

# TURKMENISTAN

**Project: Modernisation of Higher Education in Central Asia through New Technologies (HiEdTec)**

**Project No: 598092-EPP-1-2018-1-BG-EPPKA2-CBHE-SP**

**Project Coordinator: ANGEL KANCHEV UNIVERSITY OF RUSE**

## Editor

*Deliverable number:*          1.4

*Title:*          Cooperation for sharing experience and exchange of good practices in the field of innovative educational technologies and didactic models

*Type of nature of deliverable:*          Report

*Dissemination level:*          International level

*Status/Version:*          Final

*Date:*          February, 2021

## Main authors

HYDYRGULY KADYROV – OGUZ HAN ENGINEERING AND TECHNOLOGY UNIVERSITY OF TURKMENISTAN

AHAL AKGAYEV - OGUZ HAN ENGINEERING AND TECHNOLOGY UNIVERSITY OF TURKMENISTAN

## Contributing persons

STEFANIE OESTLUND, AUREL MACHALEK, LATIF LADID – UNIVERSITY OF LUXEMBOURG

ANGEL SMRIKAROV, STOYANKA SMRIKAROVA, TZVETOMIR VASSILEV – UNIVERSITY OF RUSE

BAYRAM JUMAYEV - TURKMEN STATE POWER ENGINEERING INSTITUTE

NAZAR MAMMEDOV - THE INTERNATIONAL UNIVERSITY FOR HUMANITIES AND DEVELOPMENT

## WORK PACKAGE 1
Cooperation for sharing experience and exchange of good practices in the field of innovative educational technologies and didactic models

### Task. WP1-T2+4
Developing a Google forms survey for getting feedback on the level of implementation of digital tools in the higher educational institutions in the partner countries. Analysing the results. Generating "Recommendations for Adapting the Central Asian HE System to the Needs of the Digital Generation".

## ANALYSIS OF THE RESULTS OF THE QUESTION TO RECEIVE LEVEL REVIEWS INTRODUCTION OF DIGITAL TOOLS IN HIGHER EDUCATIONAL INSTITUTIONS OF TURKMENISTAN

Oguz han Engineering and technology university of Turkmenistan conducted a survey of students and faculties of universities to get feedback about the level of implementation of digital tools in higher educational institutions of Turkmenistan.

The survey was attended by representatives of 6 universities with different areas of study. Among them are state regional multi-purpose universities, technical, economic, agricultural, pedagogical universities.

A total number respondents which participated in the survey is 138, and 73.8 % of them are teachers and researchers, 59,1% lecturer, 18,2% is students. The structure of respondents can be viewed in more detail in Figure 1. Thus, it was possible to find out the opinion of both teachers and students, which makes the survey results more reasonable.
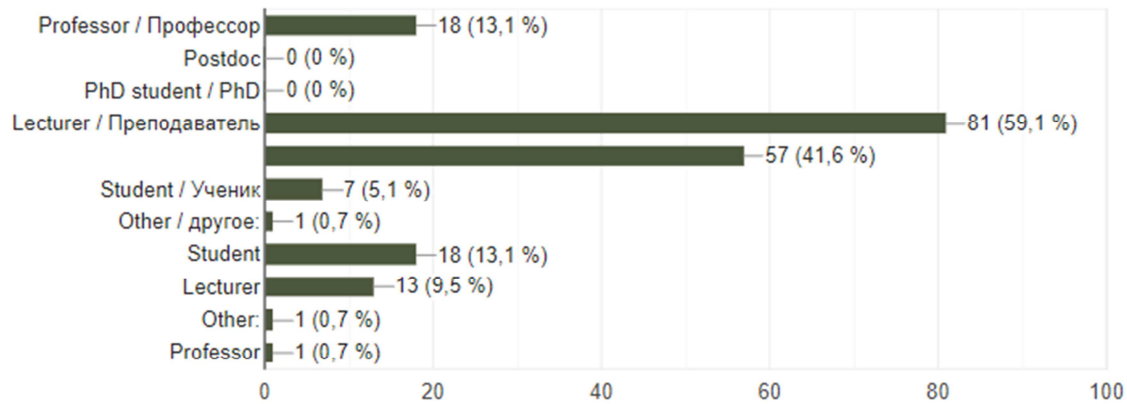
Co-funded by the
Erasmus+ Programme
of the European Union

**Modernisation of Higher Education in
Central Asia through New Technologies
(HiEdTec)**

*Figure 1. - Structure of respondents*

The questionnaire includes 19 questions and consists of 6 parts:
A. Teaching methods, approaches and techniques;
B. Educational technologies;
C. Educator qualities;
D. Status of innovative teaching in higher education classrooms;
E. Quality assurance of the teaching and learning process;
F. Continuous professional development of teaching staff;

Let's go to the description of the survey results.

**SECTION A. "TEACHING METHODS, APPROACHES AND TECHNIQUES."**

1. **Question: "How important are teaching methods and/or approaches for ideal results in education for you?"** *Mark only one oval.*

Co-funded by the
Erasmus+ Programme
of the European Union

Modernisation of Higher Education in
Central Asia through New Technologies
(HiEdTec)

Legend:
- Not important / Не важный
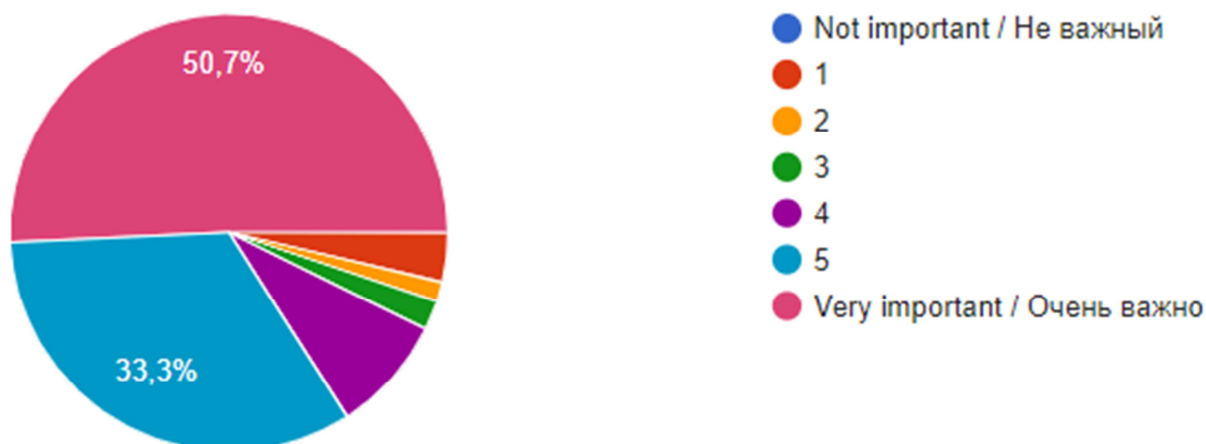- 1
- 2
- 3
- 4
- 5
- Very important / Очень важно

***Figure 2. - Results of the answers to the question "How important are teaching methods and/or approaches for ideal results in education for you?"*** *(in% of the total number of answers)*

## 2. Question: "Which innovative teaching techniques do you know?"

Analysis of the results of the answers to this question showed that the most frequently noted answer is 'Run a Virtual Field Trip '56.9 %, among the most common answers, there are 10 of them: 'Preview Field Trips Virtually (45.3 %), 'Quiet a Noisy Classroom' (55.5%), 'Use Videos for Mini-Lessons', 'Adaptive Learning', 'Add Multimedia Element to Presentation, 'Gather Students Feedback in online forms' and etc. Less familiar, 'Hands on Learning' and 'Play Simulations' and some others. (Figure 3.)
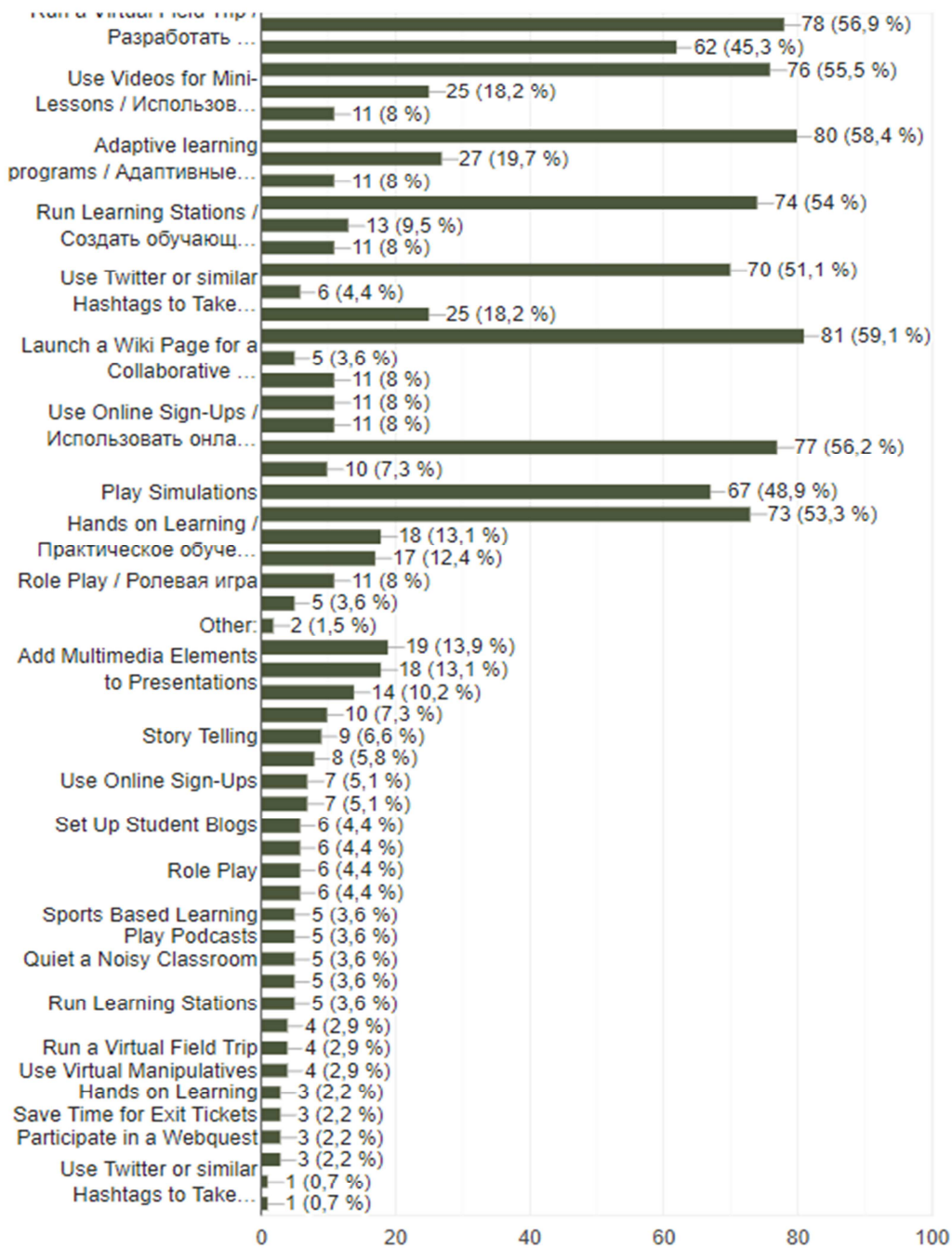
Co-funded by the
Erasmus+ Programme
of the European Union

Modernisation of Higher Education in
Central Asia through New Technologies
(HiEdTec)

*Figure 3. - Histogram of answers to the question "Which innovative teaching techniques do you know?"*

Co-funded by the
Erasmus+ Programme
of the European Union

**Modernisation of Higher Education in
Central Asia through New Technologies
(HiEdTec)**

### 3. Question: "What innovative teaching techniques are you using at your University?"

Respondents' answers showed that the largest number of them Run a Virtual Field Trip (55.3 % of all answers), Preview Field Trips Virtually (43.2 %), Adaptive learning programs (49.2 %), Provide Online Activities for Students (53 %), as well Participate in a web quest, play Simulations and some others (Figure 4). The results of the answers to this and previous questions allow us to conclude that the known methods of teaching are used by teachers in the educational process.
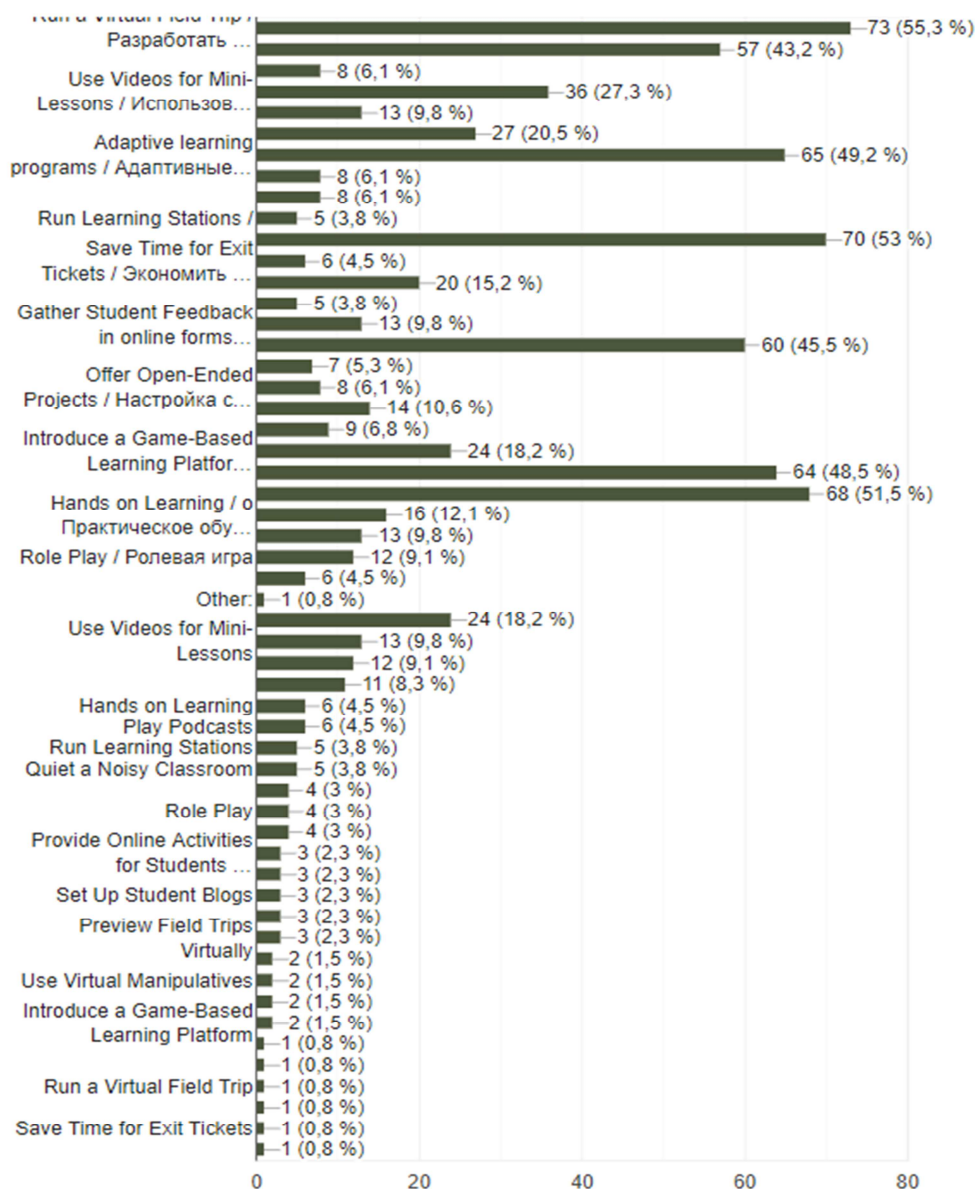


*Figure 4.*

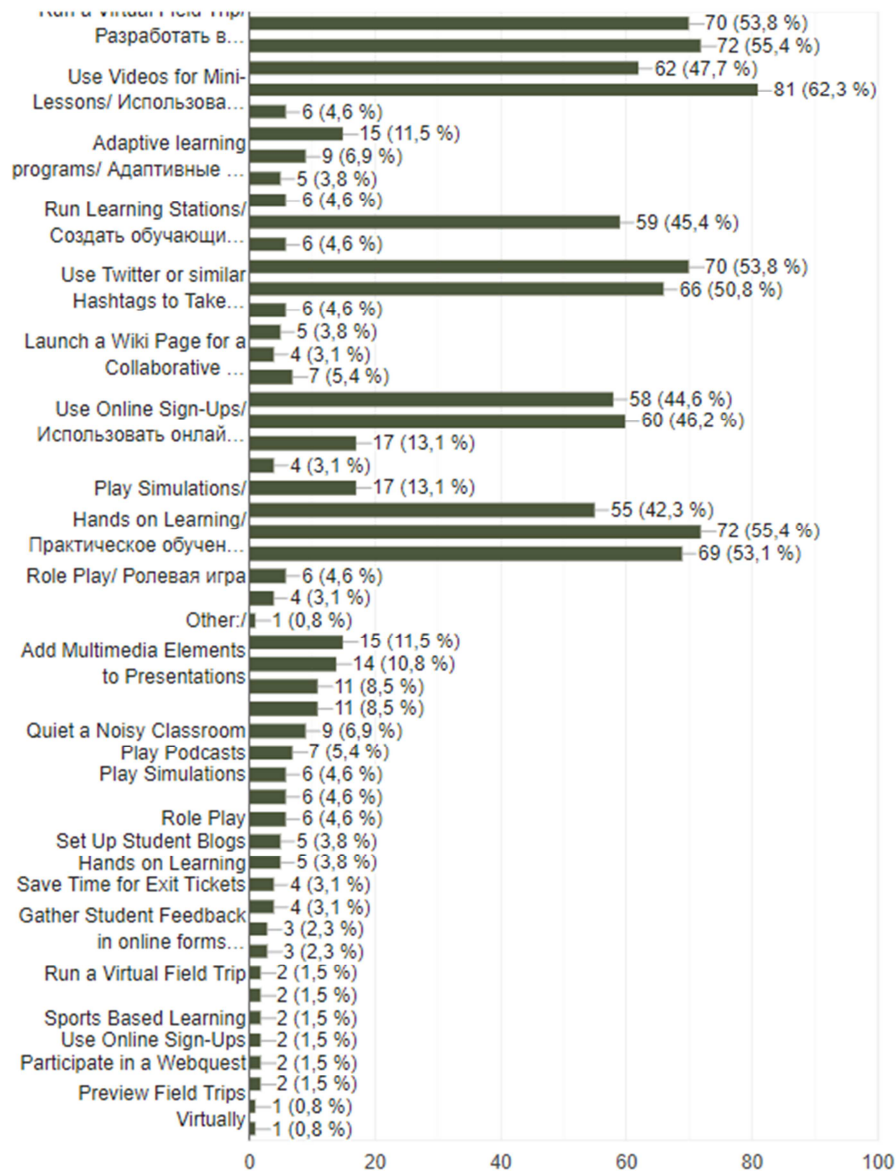## 4. Question: "What teaching methods do you use in order to attract students' attention and interest?"



*Figure 5.*

**5. Question: "Which teaching techniques are, in your experience, the most beneficial and purposeful for student learning (including the ones that do not exist at your University)? Why?"**

The importance of techniques related to the Internet and the adaptability of the learning system is widely noted. It is indicated that adding multimedia elements to the presentations are very useful for beneficial and purposeful student learning. It is also noted that base assignments on technology-focused subjects are very important. Here are some more comments: 'Online self-assignment', 'Conducting exams in electronic form', 'Real life context based approach', 'Place-Based Education', etc.

**SECTION B. "EDUCATIONAL TECHNOLOGIES."**

**6. Question: "Which educational technologies do you know?"**

Analysis of the results of the answers to this question showed that the respondents indicated about 4 dozen different, in their opinion, innovative learning technologies (Figure 6). The most frequently noted answer is Cloud Computing 62.1%, among the most common answers, there are 10 of them: Mobile Learning (27.3%), MOOCs / MOOK (61.4%), learning analytics, LEAP Motion/LEAP, Kid Blog, Tablet Computing, Games and Gamification and etc., respondents are less familiar with 'SnagIt, Jing, Camtasia'.
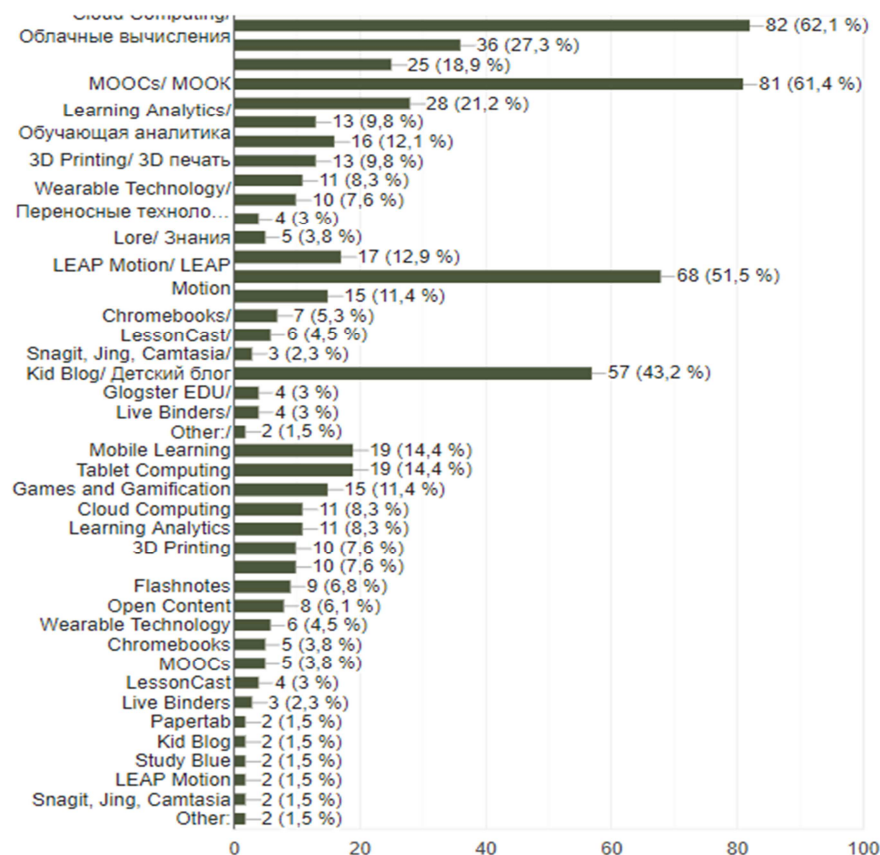
Co-funded by the
Erasmus+ Programme
of the European Union

**Modernisation of Higher Education in
Central Asia through New Technologies
(HiEdTec)**

*Figure 6.*

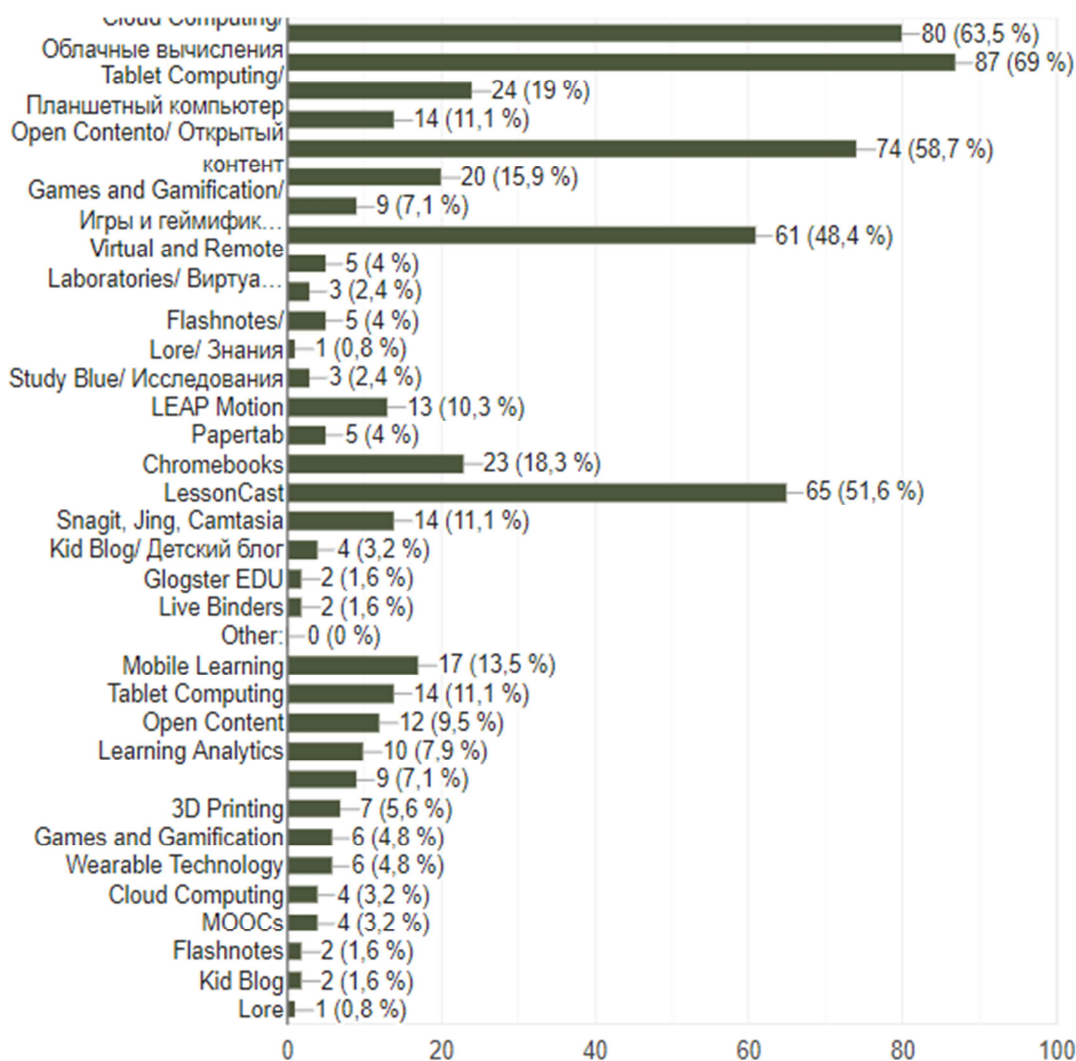## 7. Question: "What educational technologies are used at you University for teaching?"



*Figure 7.*

The most frequently noted, as in the previous question, the answer is Cloud Computing 63.5 %, among the most common answers, there are 10 of them: Mobile Learning (69 %), Tablet Computing (19 %), 3D printing (48.4 %), Lesson casts, Chromebook and etc.

The analysis of the two questions shows that the answer options are the same in frequency, i.e. teachers use familiar technologies, the number of which is significant, but familiar and only a few of them are used.

## 8. Question: "Which of these technologies have proven to be the best in your opinion? Why?"

Mobile learning

I think mobile learning. Why? because learning can be accessed anywhere and anytime information is more readily accessible Incorporate all learning styles

Mobile learning. Easy to download apps from stores.

Games and gamification

Mobile learning will be proven because students can learn every time what time they want.

We don't use many of them. MOOCs are very useful.

mobile

Virtual laboratories

Learning analytics

Learning Analytics

mobile learning

Tablet computing

Cloud Computing, Virtual and Remote Laboratories

i think mobile learning is the best because every student have mobile device and they can use everywhere they want

biotechnology

Mobile Learning/ Мобильное обучение

Moodle platform

Moodle

MOOCs

Virtual Lab

Moodle

MOOC

MOOCs, Moodle

Tablet computing

Co-funded by the
Erasmus+ Programme
of the European Union

**Modernisation of Higher Education in
Central Asia through New Technologies
(HiEdTec)**

**9. Question: " Are students involved in the process of finding new teaching methods and introducing new technologies at your University"**



Legend:
- Yes/ да
- No/ нет
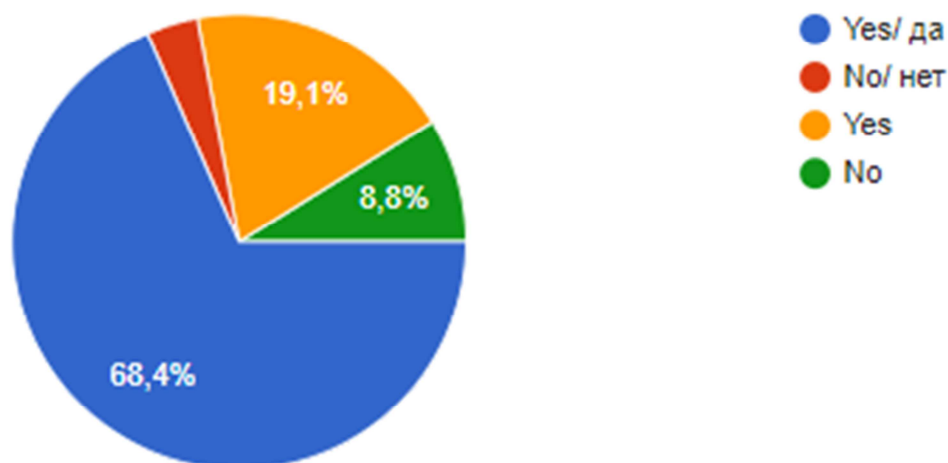- Yes
- No

Values: 19,1% · 8,8% · 68,4%

*Figure 8.*

*If yes, how do you involve them?*

Interest and explanation, independence, learning from others,
Through Students Union Clubs
They are giving some proposals during the lesson some times.
They usually go online and come back with an idea about how to teach
As passive participants
You need to make students work on themselves.
using the competition method
we are organizing competitions
Competitiveness, providing the activities and study clubs
Team work, debates
virtual teaching method
Their opinions are very important. Their initiatives are oriented in proactive participation.
Asking their preferences and opinions, feedback
their direct participation into the process
Preparing contents of courses, flash, or animations.
Asking their views
We are opening classes in the clubs of the faculty.
Filling in the surveys
We pay students tuition

## SECTION C. "EDUCATOR QUALITIES."

### 10. Question: "What, in your opinion does make a lecturer an innovative one?"

The results are shown in *Figure 9*.

In response to the question "What, in your opinion does make a lecturer an innovative one?" 64,2 % of the respondents said that creativity and at the same time open-mindedness, 53.7% innovation, 55% humility, 64.2 % Imagination and etc.
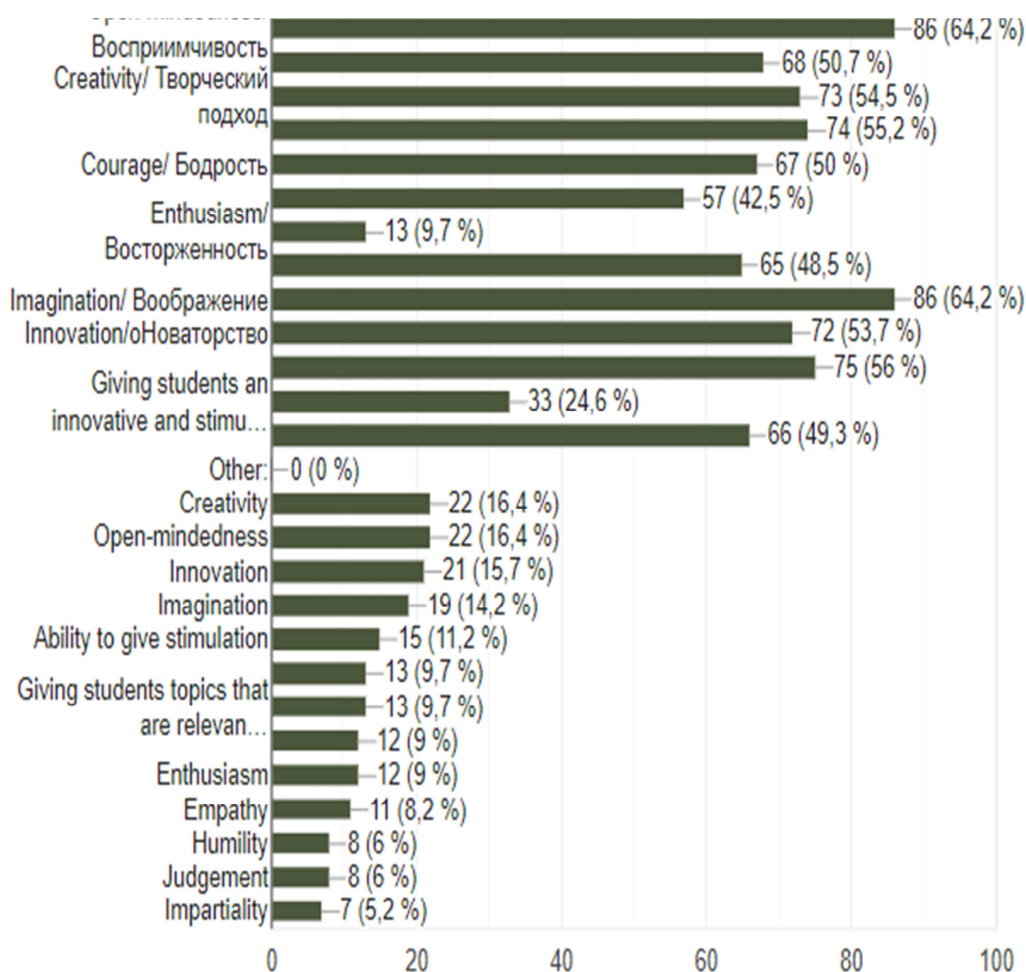


| Category | Value |
|---|---|
| Восприимчивость | 86 (64,2 %) |
| Creativity/ Творческий подход | 68 (50,7 %) |
| | 73 (54,5 %) |
| | 74 (55,2 %) |
| Courage/ Бодрость | 67 (50 %) |
| Enthusiasm/ Восторженность | 57 (42,5 %) |
| | 13 (9,7 %) |
| | 65 (48,5 %) |
| Imagination/ Воображение | 86 (64,2 %) |
| Innovation/oНоваторство | 72 (53,7 %) |
| | 75 (56 %) |
| Giving students an innovative and stimu… | 33 (24,6 %) |
| | 66 (49,3 %) |
| Other: | 0 (0 %) |
| Creativity | 22 (16,4 %) |
| Open-mindedness | 22 (16,4 %) |
| Innovation | 21 (15,7 %) |
| Imagination | 19 (14,2 %) |
| Ability to give stimulation | 15 (11,2 %) |
| | 13 (9,7 %) |
| Giving students topics that are relevan… | 13 (9,7 %) |
| | 12 (9 %) |
| Enthusiasm | 12 (9 %) |
| Empathy | 11 (8,2 %) |
| Humility | 8 (6 %) |
| Judgement | 8 (6 %) |
| Impartiality | 7 (5,2 %) |

*Figure 9.*

Recommendations for Adapting the Central Asian HE System to the Needs of Digital Learners (Turkmenistan)

Co-funded by the
Erasmus+ Programme
of the European Union

**Modernisation of Higher Education in
Central Asia through New Technologies
(HiEdTec)**

**11. Question: "What are the qualities required of lecturers/teachers to teach 21st century learners?"**



*Figure 10.*

Co-funded by the
Erasmus+ Programme
of the European Union

**Modernisation of Higher Education in
Central Asia through New Technologies
(HiEdTec)**
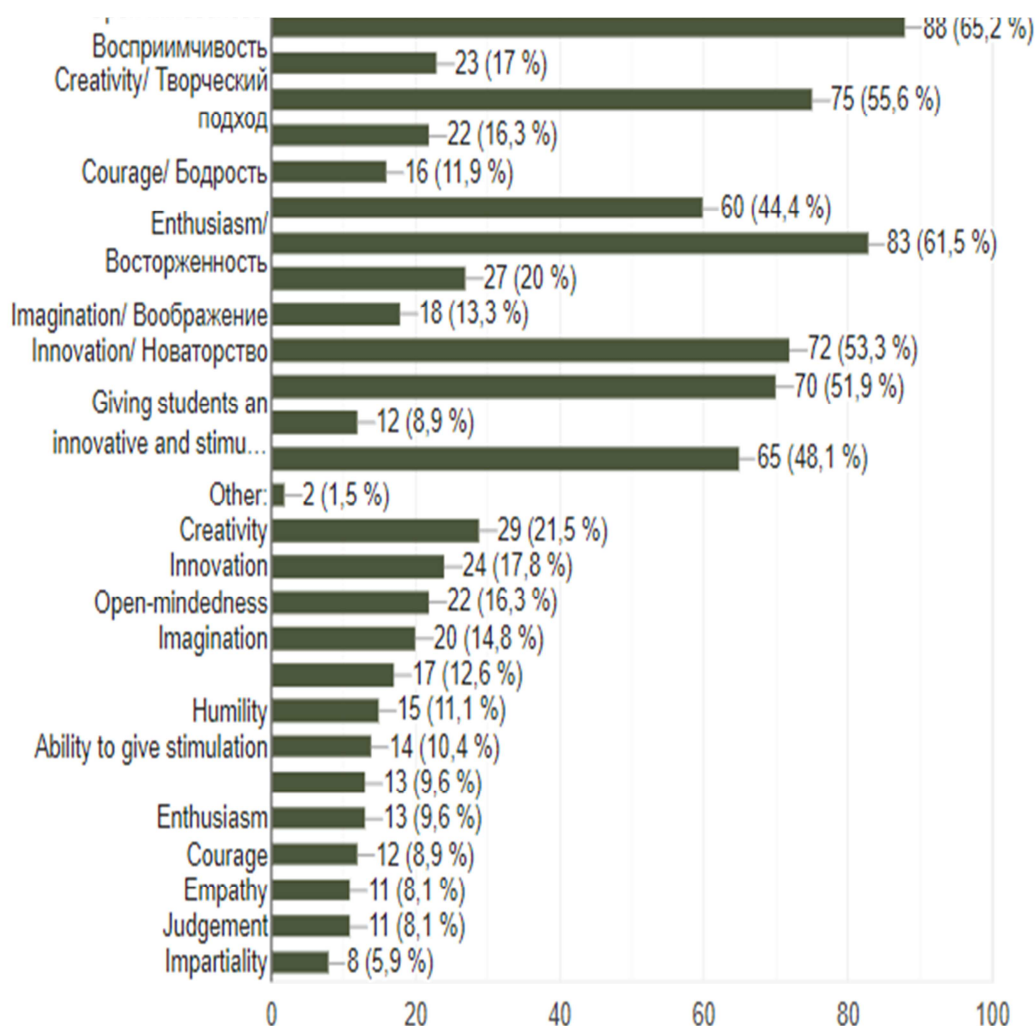
## SECTION D. "STATUS OF INNOVATIVE TEACHING IN HIGHER EDUCATION CLASSROOMS."

**12. Question: "How is, in your opinion, the current status of today's teaching? Is it innovative enough?"**
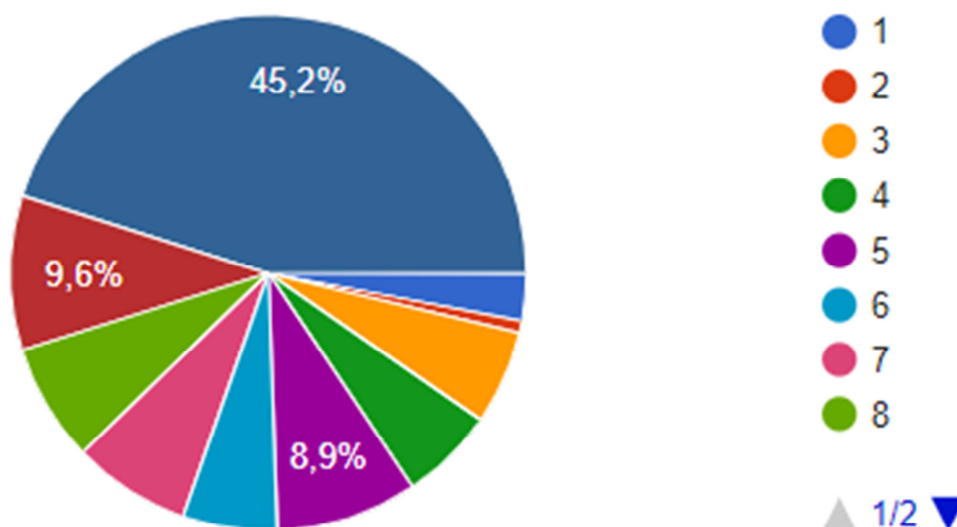


*Figure 11.*

*Please give a reason why you think it is innovative enough or why it needs improvement. What is still missing?*

- I think it needs improvement. Make skills as important as knowledge. For example energy producing roads. Roads could work as solar panels and produce electricity for street lights. Medical innovations also.
- Gap between innovation initiation and adaptation
- Motivation of teachers' for their students' professional vision and preparedness lack in students. Theoretical courses cannot be explained through examples and application.
- Modern technologies in teaching. All the institutions should be fully equipped with latest technologies.
- In my opinion the teachers need to be impartial
- Innovations never be enough
- Because we need more articles and information about our state's education.
- Teachers are focused on repeating previous practices traditional and ineffective
- It needs improvement because both lecturers and students should be upgraded to the level of "technology deliverers" but not just "technology users"

Recommendations for Adapting the Central Asian HE System to the Needs of Digital Learners (Turkmenistan)

- Education most important thing in our life.
- new exam acceptance methods
- Teachers could be more active and be able to get students attention by trying different creative methods.
- it can be improved
- I think we are young institute we haven't got enough experience...
- not enough, tech is need
- It still needs improvement in innovative accommodations in terms of being well equipped.
- Present-day education demanding contemporary efforts
- Education tries to meet up-to-date requirements
- Lack of the equipment.
- Specialists (or trainings) and equipment are required
- We use modern methods
- collective, unified approach is need to the whole process of teaching/education
- It is innovative enough, still need to be improved referring international experiences.
- Datas from lectures need to be updated and should be focused on problem solving.

## SECTION E. "QUALITY ASSURANCE OF THE TEACHING AND LEARNING PROCESS."

### 13. Question: "Do you let your students evaluate your lectures? Why / Why not?"

The survey shows that the majority of teachers (90.2 % of the total number of respondents) allow their students to evaluate lectures (Figure 12).
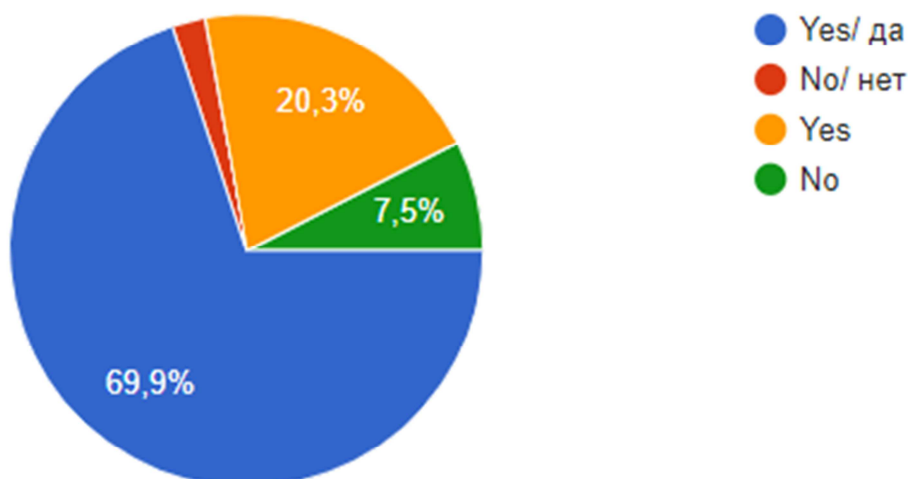


*Figure 12.*

**14. Question: "What instruments/techniques do you use to do this if the answer is 'yes'?"**

Surveys, Forms, feedback, using of I-board technology, interviewing, Computer, Chalk Energy holding energy simulation, solar panels, machine technology devices , Feedback after the lecture, Peer observation, All the time at the end of every course student are encouraged to give reasonable feedback, Questionnaire, Social network, and the university's, university portals, google forms, Conducting surveys, Google survey, Google survey platform

**15. Question: "What do students complain about the most in the teaching methods your University uses?"**

Most respondents found it difficult to answer. Students note that lectures held without presentations are ineffective; rewriting the material takes a long time.

**16. Question: "What are the criteria for evaluating the lecturers at your University?"**

Effective teaching qualities
Quality of teaching
Age
Teacher's ability to stimulate
To do more researches.
Language skills, presentation skills
Good results
student opinion
Level of knowledge
Good teacher
high level
giving open lectures
Good speaking skills
method of teaching, scientific degree
educational and scientific degree
Their compliance with modern educational requirements.
Their competences
At the end of every semester students are evaluating the teachers' performance
Knowledge of English!
Their work performances
observation
Surveys
Lecture quality, modernity and easy access

**17. Question: "Do you follow any innovative ways of providing feedback (like survey monkey, google forms etc.)? If 'yes', please specify."**

Among the answers, directly or indirectly, is the Internet. These include online surveys, social networks and internet messengers. However, majority of respondents did not answer to this question and some of them answered 'No".

**SECTION F. "CONTINUOUS PROFESSIONAL DEVELOPMENT OF TEACHING STAFF."**

**18. Question: "Do you think that the present curriculum of lecturer education serves the needs of present-day schools and Universities? Why do you think so?"**

The majority of respondents (92.1 %) believe that the present curriculum of lecturers in Turkmenistan meets the needs of modern schools and universities (Figure 13).
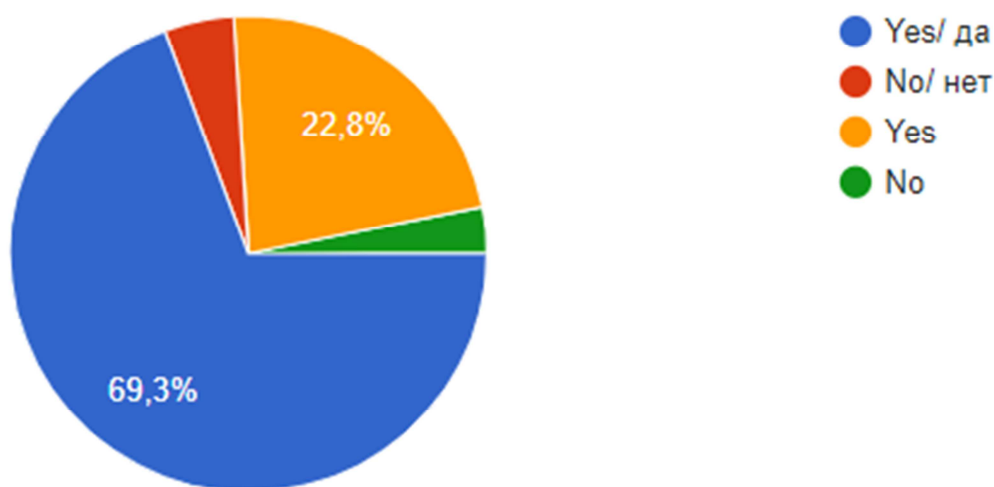


*Figure 13.*

**19. Question: "What are you doing to upskill yourself in methods of teaching?"**
Teachers mainly improve their skills in teaching methods through reading articles, searching for information on new teaching methods, and many years of experience, and teachers are known to participate in their peers 'classes to improve their teaching methods. I also contribute to our experience, albeit with a little interest, by taking an interest in the experiences of professors of foreign teachers and drawing conclusions from them.

**RECOMMENDATIONS FOR ADAPTING THE TURKMEN HE SYSTEM TO THE NEEDS
OF THE DIGITAL GENERATION**

We recommend that technology will be made available on an equitable basis for use in improving student learning and enhancing teacher's professional development in the country.

Technology includes computers, tablets, smartphones, and other learning tools that can help students with a diversity of learning needs and preferences. In addition, technological tools provide teachers with an enhanced array of strategies for instruction.

For technology to reach its full potential to engage and empower learning, education stakeholders must focus on using it to improve learning outcomes, create new types of transformative learning experiences and delivery systems that better serve students of different circumstances, and collaborate across institutions, educational providers, and other key stakeholders to ensure that system and ecosystem-wide goals are achieved.

**Promote Excellence in Learning**

**Instructors** should use formative and summative data available to them to systematically and continuously study how students are learning in their courses.

This data can be used to diagnose the learning experience and identify both effective practices that have led to successful learning as well as identify underlying causes of failure, so they can diagnose areas where the learning experience can be improved. This data can be made available through existing course management systems, or generated in real-time through student activities.

**Institutions** should encourage instructors and department leaders to review courses with large failure and withdrawal rates, especially large first-year required courses, and employ technology-based applications, tools, and resources to redesign these courses to support student success. Student success in these courses is especially important because they often have a significant impact on a student's retention or time to completion. Because of their large size, technology can be used to complement the instructor interaction and the available academic and non-academic support.

**Educational technology developers** should build tools and capabilities into educational technology solutions that can provide diagnostic insights into student learning and generate real-time, actionable data that can be used by students, instructors, and other stakeholders to improve learning outcomes. When developing software or digital content, developers will benefit by providing greater transparency about their software's accessibility features and alignment with standards.

The Internet should be available to all schools and higher education institutions. The Internet has potential value for networking students and teachers, and to disseminate valuable materials. At the proper level, technological opportunities for professional cooperation and growth of teachers and for creation, based on professional interests.

As the survey reveals, students like the teaching styles that include "multimedia elements in the presentations" and "using mini videos in lectures". Therefore, educational bodies should foster their teachers to do so. In fact, in addition to preparing lecture notes or presentations, instructors,

lecturers and teachers should also develop their video lectures and upload them to the educational portal of the institution.

The survey also shows that "real life context-based approach" is one of the preferred teaching methods among students and lecturers. This preference must be considered while developing digital learning materials such as presentations, video lectures and in the gamification as well.

Another issue which must be considered is that due to the survey result, institutes or universities hardly use virtual or remote laboratories. However, in digital education virtual laboratories are the backbone for technical fields. Therefore, the conception, roadmap or development programme should include points considering the implementation of virtual laboratories.

<span style="color:red; text-decoration: underline;">To carry out this recommendation, it will be essential to:</span>

❖ Enable teachers to establish contacts for mentoring, participate in networks, and access a variety of curricular and pedagogical models, via technology.
❖ Organize qualification courses for instructors on using virtual laboratories.
❖ Adapt the education system to the digital generation by massive and effective applying of ICT-based innovative educational technologies and didactic models. Along with that it is necessary to integrate research in the education process in order to shift the emphasis from the mere unidirectional communication of notions to the discovery of knowledge and development of skills.
❖ Provide all students with access to appropriate technologies for learning the subjects.
❖ Build a reliable and fast broadband wireless internet infrastructure within all universities.
❖ Equip all classrooms with interactive presentation systems, including laptops.
❖ Provide educational software on various subjects and disciplines.
❖ Train educators to create and use shared cloud resources in the teaching and learning process.
❖ Use effective digital assessment tools and feedback systems during lectures.
❖ Equip the common areas of universities with interactive information screens (kiosks) which provide up-to-date information, incl. information for public, cultural, sporting and other events.
❖ Virtual classes should be organized through the educational portal.

<span style="color:red; text-decoration: underline;">Furthermore, we should implement other innovative educational technologies:</span>

❖ Use smartphones in education and transforming them into virtual personal assistants of the students.
❖ Use social networks in the teaching and learning process.
❖ Gamification of the teaching and learning process.
❖ Use Internet of Things (IoT) in the teaching and learning process.
❖ Use Internet of Everything (IoE) in the teaching and learning process.
❖ Use robots in the teaching and learning process:
  • as objects of control;
  • as teacher's assistants.
❖ Create training companies in universities.
❖ Create conditions for giving universities the status of INNOVATIVE UNIVERSITY.

❖ Create a virtual university – a model of the university in the virtual educational space (web site) providing not only comprehensive information about the university but also a full set of administrative and educational services, and, most importantly, efficient distance learning.

**Modernisation of Higher Education in Central Asia through New Technologies (HiEdTec)**

# Contents