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

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

RECOMMENDATIONS FOR ADAPTING THE CENTRAL ASIAN HE SYSTEM TO THE NEEDS OF THE DIGITAL GENERATION

(KYRGYZSTAN)

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

Deliverable number:	1.4
Title:	Recommendations for Adapting the Central Asian HE System to the Needs of the Digital Generation (Kyrgyzstan)
Type of nature of deliverable:	Report
Dissemination level:	International level
Status/Version:	Final
Date:	January, 2021

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This document has been produced with the support of the European Commission under the ERASMUS+ Programme, KA2 – Capacity Building in the Field of Higher Education: 598092-EPP-1-2018-1-BG-EPPKA2-CBHE-SP. It reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

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1. INTRODUCTION

Ala-Too International University, Kyrgyz Technical University, and Tynystanov State University 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 the Kyrgyz Republic.

The purpose of this questionnaire was to gather feedback on the knowledge and experience of Kyrgyz Universities and their teaching staff on the implementation of innovative educational technologies and didactic models in the process of teaching and learning in higher education. It will provide information about the current state of affairs of teaching methods and technologies in the Kyrgyz Republic. We received 218 answers to our questionnaire from all the Universities in Kyrgyzstan. Among the respondents, there are 128 lecturers, 52 PhD students, 15 professors, 7 post doctors, 6 researchers and others.

2. HIEDTEC QUESTIONNAIRE RESULTS

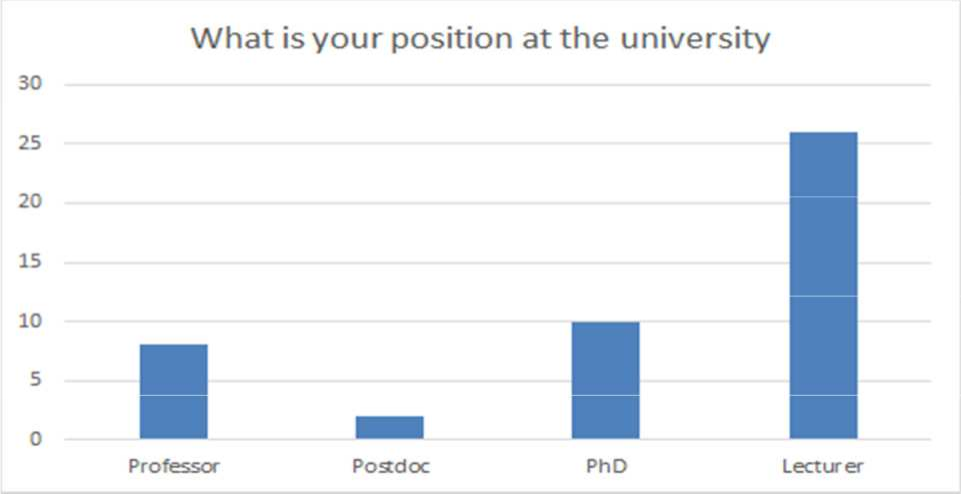

Figure 1. Structure of respondents

The questionnaire includes 19 questions and consists of 6 parts:

1. Teaching methods, approaches and techniques;

and/or

nd / or answers are very

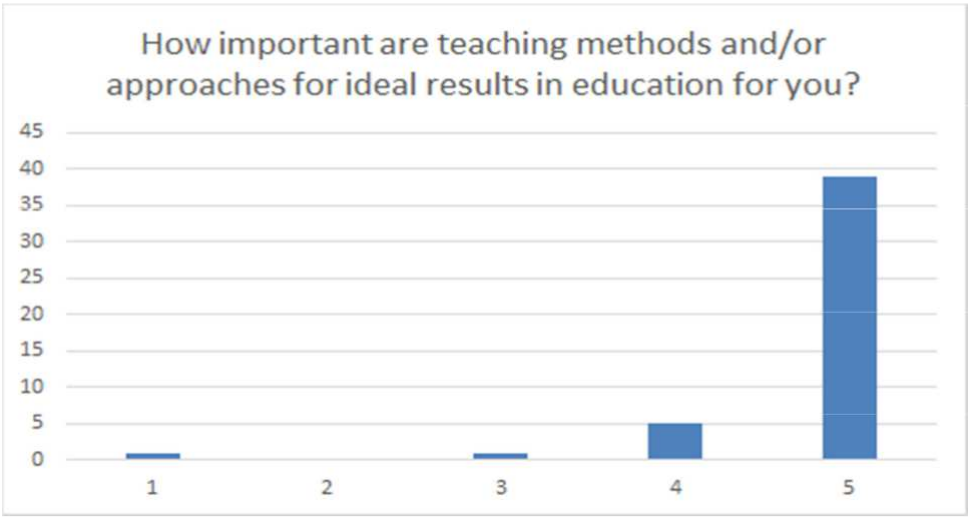

Figure 2. Results of the answers to the question "How important are teaching methods and / or approaches to achieving ideal results in education for you"?

Question 2. What innovative teaching methods do you know?

The shaded 5 methods in the table seem to be known by respondents at high level.

Table 1: Innovative teaching techniques frequencies

Innovative teaching techniques	Frequency
Add Multimedia Elements to Presentations	148
Use Videos for Mini-Lessons	110
Gather Student Feedback in online forms and surveys	109
Adaptive learning programs	90
Hands on Learning-Practical learning	90
Base Assignments on Technology-Focused Subjects	71
Run Learning Stations	70
Play Simulations	70
Role Play	70
Provide Online Activities for Students Who Complete Work Early	67
Introduce a Game-Based Learning Platform	65
Use Virtual Manipulatives	60
Run a Virtual Field Trip	40
Use Online Mind Maps for Class Brainstorms	34
Offer Open-Ended Projects	33
Play Podcasts	28
Story Telling	25
Launch a Wiki Page for a Collaborative Assignment	25
Share an Online Class Calendar	23
Sports Based Learning	22
Use Twitter or similar Hashtags to Take Questions	10
Quiet a Noisy Classroom	7
Participate in a Webquest	2

Question 3. What innovative teaching methods do you use at your University?

The most common and used techniques almost do not change, except "gathering student feedback in online forms and surveys". Seemingly, most of the teachers know this technique, however they don't use it or there are some obstacles to use it properly.

Another thing we recognize is that almost all techniques are known by teachers twice more than their usage rate indicates.

Table 2: Innovative teaching techniques usage frequencies

What innovative teaching techniques are you using?	Frequency
Add Multimedia Elements to Presentations	169
Use Videos for Mini-Lessons	153
Practical training	147
Adaptive learning programs	125
Base Assignments on Technology-Focused Subjects	123
Role Play	122
Story Telling	120
Gather Student Feedback in online forms and surveys	106
Offer Open-Ended Projects	100
Run Learning Stations	88
Use Online Mind Maps for Class Brainstorms	75
Play Simulations	63
Provide Online Activities for Students Who Complete Work Early	63
Introduce a Game-Based Learning Platform	60
Share an Online Class Calendar	46
Use Virtual Manipulatives	37
Play Podcasts	35
Launch a Wiki Page for a Collaborative Assignment	31
Quiet a Noisy Classroom	27
Participate in a Webquest	25
Run a Virtual Field Trip	18
Use Twitter or similar Hashtags to Take Questions	6
Sports Based Learning	0

Question 4. What teaching methods, by your experience, are the most useful and achievable for teaching students (including those that do not exist at your University)? Why?

Table 3: Teaching methods used to attract students

What teaching do you use in order to attract students' attention and interest?	Frequency
Add Multimedia Elements to Presentations	148
Use Videos for Mini-Lessons	139
Story Telling	120
Adaptive learning programs	115
Hands on Learning-Practical learning	113
Role Play	109
Offer Open-Ended Projects	98
Gather Student Feedback in online forms and survey	77
Introduce a Game-Based Learning Platform	76
Base Assignments on Technology-Focused Subjects	50
Use Online Mind Maps for Class Brainstorms	45
Play Simulations	43
Run Learning Stations	42
Provide Online Activities for Students Who Complete Work Early	42
Play Podcasts	39
Run a Virtual Field Trip	30
Share an Online Class Calendar	24
Use Virtual Manipulatives	20
Quiet a Noisy Classroom	20
Use Twitter or similar Hashtags to Take Questions	19
Launch a Wiki Page for a Collaborative Assignment	18
Participate in a Webquest	10
Sports Based Learning	3
None of the above	2

Four techniques are widely used during a teaching process in order to attract students' interest. In our understanding, only one of those four is devoted to students. Instead, students should be involved into the process and learn by doing and upon their reflection.

One of the respondents stated his/her opinion as following: "In my opinion, the teaching methods associated with engaging students in intensive communication during a lecture with a teacher, and theoretical knowledge fixed on practical and laboratory studies give a good result. In this case, during the lecture, it is recommended to use visual aids, mini videos and animation materials."

Question 5. What teaching methods, in your experience, are the most useful and purposeful for teaching students (including those that do not exist at your University)? And why?

The most common answer was (6 times) project-based teaching. Here are some interesting answers: "animated flash, case study, microteaching, problem-based learning, use online mind maps for classroom brainstorms, e-learning, flipped classroom, classic methods, study tour, design thinking, MOOC's, simulations etc."

2.2. Educational Technologies

Question 6. What educational technologies do you know?

Table 4: Frequencies of awareness about educational technologies

Which educational technologies do you know?	Frequency	%
Mobile Learning	35	76
MOOCs	21	46
Open Content	20	43
3D Printing	16	35
Cloud Computing	15	33
Games and Gamification	15	33
Virtual and Remote Laboratories	14	30
Tablet Computing	12	26
Learning Analytics	12	26

Papertab	4	9
LessonCast	3	7
Flashnotes	2	4
Snagit	2	4
Jing	2	4
Camtasia	2	4
Chromebooks	1	2
LEAP Motion	1	2
Glogster EDU	1	2

Almost half of the Kyrgyz teachers know mobile learning, MOOCs, open content, and 3D printing. Very few know technologies such as LEAP Motion, Glogster editor etc.

Question 7. What educational technologies are used in your University for education?

The following educational technologies are used at universities of Kyrgyzstan: Mobile Learning, MOOCs, Learning Analytics, Open content.

Question 8. Which of these technologies proved to be the best in your opinion? Why?

According to Kyrgyz universities there is no unique educational technology that could prove itself. MOOCs, Learning analytics, mobile learning have proved themselves.

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

25 out of 46 answered Yes, 19 of them No, 2 of them answered maybe. If yes, how do you involve them?

Several answers to this question:

- I ask their advice on how to improve teaching;
- I attract undergraduates during teaching practice;
- With the help of surveys and students self-management;
- As far as possible, all our students are involved in the process of introducing new teaching methods;

- Demonstrate, show, teach and practice, involve;
- Students are organizing study times and each explains and teaches what he or she knows the best;
- Students acted as teachers or their opinions were asked while new teaching methods are being prepared.

2.3. Quality of the Teacher

Question 10. What do you think makes the lecturer innovative?

Kyrgyzstani lecturers believe that an innovative lecturer is creative, open-minded, enthusiastic and gives stimulation to students.

Question 11. What qualities do lecturers / teachers need to teach 21st century students?

21st century learners, according to Kyrgyzstani respondents, should be taught by open-minded, creative, empathic lecturers/teachers.

2.4. Status of Innovative Learning in Higher Education Classes

Question 12. How do you think the current level of education today? Is it innovative enough?

To the question 'How is, in your opinion, the current status of today's teaching? Is it innovative enough?' most of the respondents answer negatively. The average of the country is 5.3 out of 10. It is really bad rating according to the NPS method.

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

We received very different answers to this question. Some were interesting, some were surprising. Here are some of the answers:

- Insufficient understanding of the role of teaching in stimulating and motivating students, poor student involvement in innovative projects
- At insufficient level. In my opinion there are several reasons: low salary; low basic, school knowledge of students; not sufficient equipment laboratories with new instruments, devices and devices;

- Teachers and students are not motivated enough;
- The lack of students' preparation and teachers' qualification are not enough to be innovative;
- It needs the modernization and analyse;
- We should adapt to the system every day it is changing so, we should follow the innovations;
- I think in order to fully be innovative need more resources;
- Innovative enough;
- Luck of technical facilities, innovative technologies in integrative learning, relationships with business entities;
- Don't know;
- Lack of financial support.

2.5. Quality Assurance of Teaching and Learning

Question 13. Do you allow your students to rate your lectures?

We wanted to know if teaching staff let's students evaluate their lectures and if yes, why they do this and if not, why not. According to answers Kyrgyz teachers let their students evaluate lecture quality.

Some answered by just saying that they do so, giving very few explanations:

- To establish a good feedback mechanism;
- To understand what the students are still missing and whether they understand my lecture;
- I need a feedback from students about my lesson; to measure the competence of teachers;
- I want to know, what and where I have to improve;
- In order to be criticized by students and see the missing sides and improve it.

All Kyrgyz Universities have special systems for the evaluation that is not under the control of the teacher himself like academic management platforms etc.

Other teachers use surveys to collect opinions like i.e. online or paper questionnaires or discussions with the students themselves.

Question 14. What tools / methods do you use to do this if the answer to question 13 is yes?

Kyrgyz teachers mostly use the following instruments: Google form, Moodle, Flubaroo, questionnaire, University web page, and automation management systems of the University, discussions, oral survey.

Question 15. What teaching methods do students complain about the most, which are used in your University?

We also wanted to know the biggest complaints students have about teaching methods their University uses?

The outcome was that students appreciate innovative teaching methods of some teachers in Universities. Complaints are: "outdated methods; monotonous lectures; retelling lecture content; uniformity of teaching methods, low student involvement in discussions and project implementation; lack of technical training facilities and the lack of specialized laboratories; they complain in curriculum content, University conditions for students; I cannot say about for all lecturers, but for my course student complained about the time given for the quiz that it is not enough; not enough visual methods; slow internet; not available to answer, because of the results of students' evaluations are not objective mostly and not transparent for professors; dictation of lectures; passive teaching etc."

Question 16. What are the criteria for evaluating teachers at your University?

We received 21 responses to what are the criteria for evaluating the lecturers at the Universities. There seem to be some formal criteria, but lectures think that the student's initiative to vote online is the most important for the evaluation of lecturers.

Other important criteria are about teachers' teaching skills, quality of study material, availability of teachers to provide help, etc. The students evaluate them and teachers have to meet some procedures, like providing information and grades on time to students in information systems. One very important criterion mentioned is the scientific performance (most important), pedagogic performance and management duties of the teachers.

Question 17. "Do you use any innovative methods of feedback (survey, Google forms, etc.)? If yes, please specify."

Some innovative ways of providing feedback: Google forms; Flubaroo; Moodle; Survey Monkey; AVN; other Google apps.

Question 18. Do you think that the current training program for lecturers in your country meets the needs of modern schools and Universities?

The second last question, number 19. asked if the teachers think that the present curriculum of a lecturer education serves the needs of present-day schools and Universities and also wanted to know their opinions on that. Many lecturers had no real answer to this question. It seems there is too little interaction between different lecturers. Of course, it depends on the lecturer. Some lecturers structure their teaching program very well and are always up-to-date with any new methods/approaches from their field, but lecturers have to study and to follow the trends and students interests.

Only a few lecturers know how to use the currently available new teaching methods. In general, curricula are still very scientific, not including contents in the context of methods and teaching and learning techniques. The world is changing very quickly and lecturers have to adapt in the same way which is often not possible due to lack of time and resources. A University teachers pedagogic training would be very necessary and should be mandatory for new teachers. Also, lecturers are selected mainly on their performance of project acquisition and, possibly, publication record. Teaching, unfortunately, plays a very small role. Some comments on this question: "lots of constraints by ministry of education; a lot of unneeded lessons like Kyrgyz language, history, philosophy, ecology etc."

2.6. Continuous Professional Development of Teachers

Question 19. What are you doing to improve your skills in teaching methods?

Almost all Kyrgyz teachers answer that they take part professional development face-to-face, online courses, attend classes of colleagues, read articles, research papers on new teaching methods. Here are some other interesting answers: "learn from student surveys; invite colleagues to my classes; take part in Erasmus plus mobilities for training or similar programs; work with a mentor; read and/or participate in Blogs."

3. RECOMMENDATIONS

Based on the survey, we consider it necessary to provide some recommendations for managers and subjects of education of the Kyrgyz Republic.

For the Ministry of Education and Science of the Kyrgyz Republic:

1. Carry out work by improving the regulatory framework in higher education, aimed at:
   - Lifting limitations in Distance learning i.e. increasing number of eligible online courses, allowing students for online examinations.
   - creation of a system to secure authors rights those who developed online courses, in order to avoid plagiarism
   - implementation of the adaptation of the regulatory framework to the using of interactive technologies and distance learning, ensuring proper quality, credit recognition mechanism and regulation of intellectual property rights;
   - training and retraining of teachers in the development and application of digital educational technologies;
   - stimulating the development of electronic, mobile and distance learning;
   - further development of international educational programs, academic mobility;
   - creation of a single republican base of scientific and educational materials, an inter-University network;
   - Optimization of the curriculum by reducing over credited or out of favored subjects [based on the answers of Q 18]
   - Encouraging school students to cope with innovation to avoid further delays
2. To promote the creation of a national network of innovative educational technology centers, digital educational resources.

Heads of higher education institutions:

1. Consider the possibility of encouraging university staff for the development and implementation of digital educational resources and technologies in the educational process;
2. Improve the qualifications of pedagogical staff at the republican and international level in the field of innovative teaching methods and technologies, distance learning, using cloud technologies professional online courses with certificates.
3. Ensure the availability of high-speed Internet in educational buildings, to create a broadband infrastructure of wireless Internet.
4. Acquire or develop independently own institutional automation and management software.
5. Continuously improve e-learning platforms.
6. Continue the development and implementation of innovative educational technologies and didactic models, including augmented reality (AR), virtual reality (VR), big data (Big Data), Internet of things, Internet of everything, artificial intelligence and machine learning, security, personalized training.
7. Develop blended learning (traditional + e-learning) as the main way of training specialists with the appropriate skills necessary for successful functioning in a digital society.
8. Use innovative educational technologies to attract foreign students by developing multilingual web sites and by actively involving on social media.
9. Promote and replicate the results of the implementation of innovative educational technologies and didactic models through mass media, regional and national seminars and conferences, social networks and others.