



Digitalization of Higher Education and Response to Covid-19 Pandemic in Latvia

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1. Summary

The report is developed for Erasmus+ project Navigating Social Worlds: Toolbox for Social Inquiry (SocialWorlds), No 2020-1-PL01-KA226-HE-096356 and includes analyses of HE system in Latvia, the response to Covid-19 pandemics and case study. The digitisation of various fields of society is developing at an increasingly rapid rate, which effects the way people receive services and how familiar they are with innovations and technological challenges in educational environments. Future members of society must be prepared to participate in the creation of new innovative solutions as well as to support the process of knowledge creation. Despite the fact that rapid development of technologies requires society to immediately respond, even under these circumstances society must be able to make meaningful decisions. In this report we will analyse the situation in higher education (HE) to understand what is done for digitalization of HE and how HE responded to challenges of Covid-19 pandemics.

The digitization of higher education in Latvia is determined by several policy planning documents:

- Education Development Guidelines 2021 – 2027,
- Digital Transformation Guidelines 2021 - 2027,
- National Development Plan 2021 - 2027,
- National Industrial Policy Guidelines 2021-2027.

In these documents the digitization goals are specified to reach in Latvia by 2027:

1. Actively use digital solutions in digital study platforms, technology
1. integration in study content and in research and for streamlining internal processes;
2. To improve the skills of both academic staff and researchers in the use of digital technologies;
3. Transfer new knowledge and new technologies to the population (lifelong learning).

Digitization and increasing study in the virtual environment are changing students' attitudes towards studies. Students are the main drivers of digital transformation of education both internationally and in Latvia. There are two main directions for the use of digital technologies in studies: digital learning the use of methods in the study process, such as audiovisual lecture materials, digital tests, and integration of technologies in the study content requires digital corresponding to the respective field of study the availability of technologies and academic staff who are able and motivated to use these technologies. To ensure that HEIs would be able to develop in both directions, ecosystem elements should be provided at several levels: international level, the national level, the interinstitutional level and the institutional level of the institutions.

2019, when the new Covid-19 virus began to spread rapidly, has brought the world huge challenges in almost every field. Although various epidemics that have crossed national borders have been known in the past, the situation is different today in that digitalization makes it possible to use innovative solutions to provide access to a variety of services and to continue working and learning. In a situation where the whole world had to move education to the digital environment at the same time, which created many challenges for both teachers and students it must be acknowledged that this has also shown that learning can take place differently and that distance learning opportunities can be used to enable students to achieve (in whole or in part in different fields of study) their learning objectives. However, a successful learning process in a remote environment also has its own challenges, and universities sought solutions to ensure the continuity of the educational process.

This material contains information on the situation in higher education in Latvia at the beginning of the Covid-19 pandemic, when an emergency situation was declared in March 2020, which is expected to continue until January 2022. University of Latvia is used as a case study to explain the situation in higher education in Latvia and data from students of Faculty of Education, Psychology and Art is analyzed on learning during a pandemic.

2. Methodology used

For this report there were used several research methods to prepare the overview of situation in Latvia about digitalization of higher education and response to Covid-19 challenges:

- 1) Analyses of secondary research
- 2) Analyses of normative documents of Latvia
- 3) Analyses of normative documents of University of Latvia
- 4) Survey of students of Faculty of Education, Psychology and Art

3. Description of HE in Latvia

The higher education system in Latvia is binary, as the Education Law distinguishes between academic and professional higher education, but it is not strictly institutionalized. Universities and other higher education institutions mainly offer both academic and professional programs. Higher education is provided in colleges and universities.

The higher education institution is a higher education institution that provides first and second level professional higher education programs and academic higher education programs (bachelor's (LQF level 6), master's (LQF level 7) and doctoral (LQF level 8) degree programs), in which scientific, research and creative activities take place. In higher education institutions named "higher education institution" at least 40% of the elected positions of the academic staff must have a doctoral degree and institutions named "academy" filling 50% of the academic positions with a doctoral degree, unless the Cabinet determines otherwise on the basis of a specific field of education (eg art, architecture, theology, security, maritime affairs or national defense) (see figure 1)

The education system of the Republic of Latvia (2019)

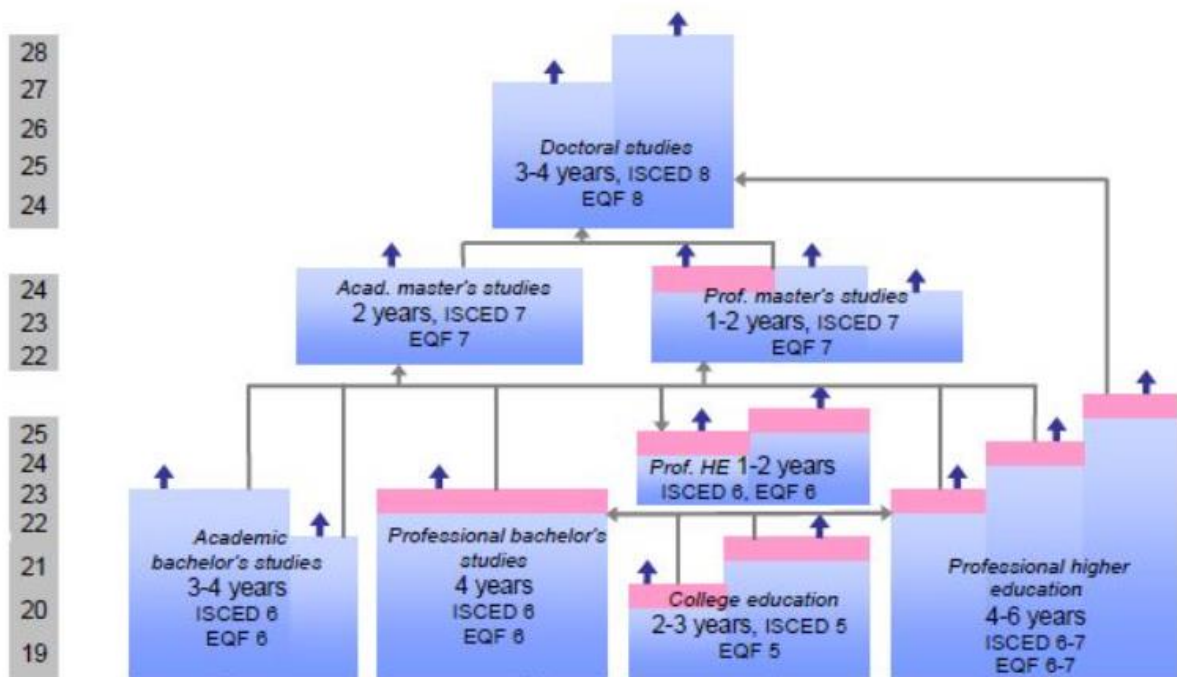


Figure 1. The HE system in Republic of Latvia

Management of higher education

The higher education system is managed at two levels - national and institutional. The Parliament (Saeima), the Cabinet of Ministers and the Ministry of Education and Science are the main decision-making bodies at the state level. The Ministry of Education and Science is the institution for the development and implementation of education policy, which oversees the network of state educational institutions, sets educational standards and determines the content and procedures of teacher training.

The language of study

In accordance with the requirements specified in the Law on Higher Education Institutions, study programs in higher education institutions and colleges are implemented in the state language which is Latvian.

1. Study programs which foreign students acquire in Latvia and study programs which are implemented within the framework of the European Union program and co-operation provided for in international agreements may be implemented in the official languages of the European Union. The compulsory amount of study courses for foreign students includes the acquisition of the state language, if studies in Latvia are expected for more than six months or exceed 20 credit points (30 ECTS);
2. no more than one-fifth of the amount of credit points of the study program may be implemented in the official languages of the European Union, taking into account that this part may not include final and state examinations, as well as the development of qualifications, bachelor's and master's theses;
3. study programs, the implementation of which in a foreign language is necessary for achieving the objectives of the study program, in accordance with the classification of education of the Republic of Latvia in the following groups of educational programs: language and culture studies, language programs
4. A joint study program may be implemented in the official languages of the European Union.

Credit point system

One creditpoint in Latvia is defined as the amount of the workload of one week full time studies. The scheduled amount of the full-time studies for one academic year, is 40 credits. Recalculating in European Credit Transfer System (ECTS) points, the amount of Latvian creditpoints has to be multiplied by 1.5.

4. Digital transformation and digital competence

Digital transformation, i.e. “a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies” (Vial, 2019), is taking place in all spheres of our lives. The field of education has been somewhat resistant to widespread

digital transformation up until the crisis caused by Covid-19 for various reasons – a lack of financing for technologies and technological solutions; a lack of continuous technological support and quality further education for educators; a negative attitude towards technologies caused by a lack of experience or negative experience using technologies. The Covid-19 crisis overshadowed all of these reasons with an unprecedented and unavoidable need for long-term mass remote learning. This need could not be fully met by any other means than using technologies, therefore considerably accelerating the digital transformation of education by investing a large amount of resources in it – not only by buying the technologies and technological solutions needed to carry out remote learning but also by organizing learning events for educators, students and by searching for new approaches to enhance students' remote learning experience. We acknowledge that the digital transformation of education in these circumstances is somewhat unusual as it is not strategically initiated or led, but rather is a desperate attempt to adjust to the state of current affairs (Azorín, 2020; livari, Sharma, Ventä-Olkkonen, 2020; Karalis, 2020; Tria, 2020). Nevertheless, solutions for providing continued access to education relied extensively on digital technologies and initiated attempts to manage and deal with a variety of structural and cultural changes and barriers obstructing the successful implementation of digital solutions in education (Reimer and Schleiche, 2020).

The definition of digital competence of academic staff is most often applied by the definition of the European Commission - digital competence is a combination of knowledge, skills and attitudes that everyone needs for self-realization and development, employment opportunities, social integration and active citizenship (European Commission, 2018). Focusing on digital competence in the field of education, it is noted that it is “the use of digital technologies, knowledge and attitudes necessary for learning and working in the information and communication society” and includes "the creative, critical and secure use of digital technologies based on prior knowledge in the textual, numerical, visual, graphic and audio dimensions" (Guillen-Gamez et al, 2020). One of the questions that have been raised is regarding the topic of digitization, or whether lecturers and students of higher education have appropriate digital skills. For effective and meaningful participation in the on-line study process,

relevant digital skills for lecturers and students are essential since those with low or insufficient digital skills are disadvantaged in online classes (Adedoyin, Soykan, 2020). Although researchers have not agreed on a common definition of digital competence of academic staff, most of them agree that digital competence includes the cognitive knowledge and skills needed to succeed in a technology enhanced study environment. Being a digitally competent faculty means being able to read and write using online resources, select sources appropriate to the tasks, synthesize and develop meaningful study materials, and explain them to the audience. (Podorova, Irvine, Kilmister et.al., 2019).

Crisis situation when we had to ensure remote teaching it was realized that there are big challenges to ensure that students receive qualitative education. The (un)readiness to provide teaching and learning in such a remote format, in which any face-to-face contact is gradually limited and denied, has been and continues to be different in higher education. Adaptation is intertwined with both technical support and new ways of thinking and acting. Lecturers had to acquire new digital and pedagogical skills in a massively decisive short time, combining them in pedagogically digital competence in order to masterfully choose technologies and technological solutions to achieve pedagogical goals. In order to teach study courses in synchronous and asynchronous mode, intensive communication in various communication channels, development of study materials and tasks in a huge amount was necessary. The students have been especially challenged by the need to rearrange their time planning and self-organization habits, in which more emphasis is placed on self-directed learning supported by the lecturer. In general, HEIs have done a great job to strengthen the competence of the whole academic community to work - learn and teach digitally - which is also confirmed by the results of SIA PricewaterhouseCoopers study "Evaluation of Digitalization of Higher Education Institutions in Latvia" (PricewaterhouseCoopers, 2020).

5. Digitalization of HE in Latvia

With ever-increasing technological advancement, the educational environment is transforming. Educators must introduce various technological innovations to prepare students for their professional career, where they will have to deal with different technology to make the learning process more interesting, keep students more engaged in the learning process, and, in order to improve motivation, facilitate self-directed learning. On the other hand, solutions are always being sought on using technology to make education more sustainable and to achieve Sustainable Development Goals that are put forward for education. Another important aspect is the desire to use technology to reduce the financial burden that lies on the education system by organising day-to-day activities, as well as paying for lecturers' hours of work and managing the premises in which studying takes place. Educational technologies are perceived as a means to improve student Learning Outcomes (LO) and, at the same time, optimise financial resources. The study process in Higher Education (HE) is a transitional line between general compulsory education and the work environment, in which employers seek highly-qualified and innovative young specialists. This is one of the arguments in support of emerging technologies and looking for new ways to ensure that HE keeps up with the innovations and transfers accumulated knowledge.

At the political level, academics should be able to use various ICT within the framework of the study process, implement blended learning, as well as create digital learning materials to help students acquire the competence needed for today's labour market. Academic staff of Higher Education Institutions (HEI) are founders of education innovations. Digital tools offer wide opportunities to improve teaching and learning processes in HEI if innovative education concepts are accepted, additionally, innovative teaching process requires development of new competence of teaching staff. At the level of HE political aims and practice, a big gap in the context of digitalisation exists for the integration of technologies is a complex process that requires not only integration of the technologies but, mainly, change of pedagogical approach in the study process (Thorvaldsen & Madsen, 2018; Strods, Daniela,

Rubene, 2019; Strods, Daniela, Gabriel, 2018). HE digitalisation should also be evaluated at a political level as the integration of technologies has an economic pressure. The need for HEI to support academic staff in implementing pedagogical innovations into student-centred study process, as well as to assure the opportunity for academic staff to work in a digitalised study environment and to acquire and discover the potential of digital technologies in teaching and learning processes, have been raised as priorities at the ministerial conferences organised in the last years, in which educational ministers involved in the Bologna process meet to discuss progress and aims for the next planning period. To reach the raised priority, blended learning approach that will improve quality of education and integration of society in digital world is suggested to be implemented into the study process (Yerevan Communiqué, 2015; Paris Communiqué, 2018). The vision set out in the communiqué of the Rome Ministerial Conference in November 2020 emphasizes the free movement of students, lecturers and graduates for study, teaching and research. The vision message emphasizes that such an approach will foster creativity, critical thinking, the free movement of knowledge, and expand the opportunities offered by technological developments to promote research-based lifelong learning. Higher education systems must offer all learners equal opportunities in accordance with their potential and wishes, which in fact also determines the direction of the lecturer's professional competence growth (Rome Ministerial Communiqué, 2020).

Directions and areas of digitization

The strategic goals of HEI digitization are defined in the *Guidelines for Education and Skills Development 2021.- 2027*, as well as in the *Digital Transformation Guidelines*. The *Education and Skills Development Guidelines for Digitization* state that HEIs actively uses digital solutions in studies, research and internal processes efficiency. The *Digital Transformation Guidelines* set out by 2027 states that HE needs to improve education and access to education, management, quality of science, development of digital teaching materials and accounting system, as well as to improve the quality and availability of research data and researchers digital literacy. The guidelines *Guidelines for the Development of Education for 2021-2027" Future skills for the society of the*

future" identifies digitalisation as a major horizontal change, envisaging the development of digital skills as a cross-cutting competence, increasing the supply of e-learning in vocational, higher and adult education, the development of digital learning management platforms, digital learning resources and support materials and integration in the study process. In *The Guidelines for the Development of Education 2021-2027* digitization is planned as an essential pillar of both curriculum and learning approach: training tools and resources, learning platforms, governance and process management, etc. New knowledge and new technologies must also be transferred directly to HEIs population, i.e. citizens in the labor market or entrepreneurs who already have one or more higher education, but no knowledge of recent trends. During the period of guidelines, the Ministry of Education and Science plans to develop a new approach and methodology in certain study areas, promoting resource sharing through active use and integration of technologies (technology enhanced learning) and digital solutions in the study process. It is planned to create virtual joint study programs in certain fields of study at the national and international level, modernization of studies by investing in higher education digitization, university materials in the technical base (infrastructure, equipment), study process and academic staff. In the report of Price Waterhouse Coopers (2020) ordered by Ministry of Education and Science of Latvia, there are identified several strengths of digitalization of HE:

- 1) Understanding of importance of digitalization of HE among stakeholders
- 2) Well developed infrastructure for management of HE
- 3) There are good examples of sharing solutions for digital services
- 4) Students would like to use more digital solutions
- 5) There are implementations of use of artificial intelligence in data analyses

In this report there were also identified shortcomings for digitalization and it is suggested that in HE there should be:

- 1) Strengthening of digital competence for students and faculty
- 2) Financial support for strengthening already existing digital solutions and for improving of digital competence for all stakeholders
- 3) Development of new digital solutions
- 4) Support for smart environment.

It was concluded that in order for HEIs to be able to provide digitally skilled, technology-motivated academic staff, they must ensure:

1. Digital learning resources appropriate for teaching the course, incl. computer equipment, information availability of resources and software. Both technical infrastructure and information. The availability of resources and software is regularly updated (not just based on
3. project funding). Access to the international information space facilitates the study course preparation;
2. Digital skills and competence in both the use and effective use of the systems available to HEIs distance learning methods, use of virtual laboratories, etc.;
3. Continuous availability of technical support for digital technologies used in the study process (helpdesks, system administrators, etc.);
4. Motivation system to promote the use of digital technologies.

Price Waterhouse Cooper (2020) also suggests Common principles for the use of learning technologies and the e-government model:

- At the international level, HEIs provide interoperable solutions for data exchange, HEIs
- services are available to foreigners. HEIs use international sharing solutions on a voluntary basis through partnerships.
- At national level, there are mandatory centralized national information systems and sharing solutions and are voluntary solutions in the form of services. About only those solutions whose sharing provides added value to HEIs should be mandatory customers, businesses, other HEIs and / or whose need for use is determined international normative acts. The state offers voluntary sharing solutions as services (eg machine translation, network of virtual assistants as part of from the sharing services offered that HEIs can use to promote their competitiveness and value to customers.
- At the inter - institutional level, HEIs voluntarily offer other HEI solutions in the form of services and ensure their maintenance and technical support. The provision of services is being formalized shared service centers.

- At the institutional level, HEIs develop their e-service solutions and shape the lives of their customers situation-specific services on demand. HEIs can be selected or used international, national voluntary or inter-institutional voluntary solutions service way. The choice is determined by the HEI strategy. For example, if HEI digitization and e-services are considered as a significant competitive advantage, they are free to design their own solutions by providing data transfer to international, national and other institutional solutions as required.

In European Framework for the Digital Competence of Educators (DigCompEdu) there are set six areas of activity: 1. Professional Engagement – using technologies and technological solutions for communication, collaboration and professional growth; 2. Digital Resources – acquiring, creating and sharing them; 3. Teaching and Learning – integrating digital solutions into the study process; 4. Assessment – use of the digital application to diversify the evaluation process; 5. Empowering Learners – integration of digital solutions into an inclusive, personalized and active study environment; 6. Facilitating Learners' Digital Competence – providing students with the opportunity to creatively and responsibly use digital solutions for information acquisition, communication, digital content creation, well-being and problem solving.

6. Response to Covid-19 in HE in Latvia

In Latvia situation with Covid-19 was similar as it was in other countries when in March 2020 all the education was closed around the world. At national level, the Emergency Situation came into force immediately with the Cabinet Order of 12 March 2020 (Order of Cabinet of Ministers No. 103, 2020) and it was stated that emergency situation starts on 13th March to 14th April, 2020. The on-site training process was stopped, providing remote learning in all educational institutions as far as possible. The Order was adopted at the Cabinet meeting shortly after 17:00, informing the Prime Minister and the Minister for Health of the new conditions at the press conference following the meeting and reporting to the media in the evening news, which did not actually leave

the possibility of preparing for the transition to remote learning. At the beginning it was assumed as temporary closure of all institutions and we just need to wait one month. As the situation did not improve, emergency situation in Latvia was extended to 11th of June, 2020. With the sudden change in course delivery mode, it was realized that there is a need to quickly become online educators, with less-than-ideal levels of technical and pedagogical support.

Later on amendment in Education law was accepted where the term “remote learning” is included and it states that *remote learning* is a part of the full-time educational process in which learners learn, including by using information and communication technologies, without being physically in the same room or place as the teacher (Education Law, 1998, as amended in 2020, November 20).

In report prepared by project group (Jansone-Ratika et al 2020) it was concluded that almost every study course is implemented in a differentiated way using web-based learning, and during an emergency, virtually every study course is modified to be implemented remotely and online.

Higher education institutions were free to issue their own internal documents to organize internal processes to follow the government regulations. About organization of study process University of Latvia (UL) issued the first Rector’s decree on how to organize processes on 12th of March, 2020 where it was stated that all activities should be organized remotely (Rector’ Decree 1/99). It influenced possibility to do research, to organize practice and therefore do all the courses required for obtaining qualification. To solve these problems for vocational education in 28th of April, 2020 the Minister of Education and Science issued a Decree No 1-2e/20/166 “On reducing the amount of qualification practice” where it was stated that practice can be reduced in vocational education (Decree of Minister of Education and Science, 2020). Higher education institutions were free to take their own decisions on how to organize study process and it was allowed to change the requirements for research activities and students were allowed to prepare their final works without empirical part.

Ministry of Education and Science on October 26, 2020 issued recommendations for higher education on how to organize practice, saying that if it is necessary to comply with epidemiological requirements, there should be issued internal order on changes in the work organization of the educational process for each stage of practice which can be implemented remotely (Recommendations for universities and colleges ..., 2020).

It was also allowed to reduce the amount of practice in study programs and to change the structure of study programs. Only in May 2020 there was accepted amendment in the regulation about emergency situation and it was allowed to organize on-site exams only if it was not possible to organize them remotely. As reaction to amendment in Cabinet order UL issued amendment No 1/174 in Rector's decree 1/99 which stated that for specific programs (biology, medicine, sports etc.) practical exams can be organized on-site if the group of people is up to 25 (amendment No 1/174 to Rector's Decree 1/99, 2020). For all other study programs exams should be organized using online platforms and video solutions. All the previously mentioned restrictions was soften on 10th of June with new Rector's Decree No 1/215 which stated that up to 100 people can be in one room if there is the distance of 2 meters among them (Rector's Decree 1/215, 2020).

It was also allowed to extend the study year to help students prepare for final exams until the end of June (in usual situations it ends in middle of June). It lead to situation when it was needed to organize final exams and at the same time to organize entrance exams for universities and it brought a huge burden to higher education institutions. In the fall semester of 2020 the study process began as on-site studies but as the number of Covid-19 cases increased the decision was taken to declare Emergency Situation (from 9th November 2020 to 6th April 2021) and it came into force immediately with the Cabinet Order No 655 of 6th November 2020 (Cabinet of Ministers, 2020) and again all the study process was organized remotely and all the practice was cancelled.

On 28th of April, 2021 new Cabinet Order No 293 (Cabinet of Ministers, 2021) was issued where it was stated that all educational and scientific personnel has a priority to receive the vaccination and it was hoped that there will be a possibility to open education and return back to a on-site study process as everyone understands that there is a need for practise and for research activities to be fully prepared for profession.

From the start of study year 2021/22 it was declared that on-site study process is absolute priority and therefor new regulation of Cabinet was issued on 17th of August, 2021 (No 565) where it was stated that all participants of study process should be vaccinated. In Latvia study process always starts in the second week of September. For students there were time period given until 10th of October to allow them to come to lectures with negative Covid-19 tests. After 10th of October it was planned that in on-site study process there can participate only those students who are vaccinated. Academic staff was required to be vaccinated to work with students already from the first of September. Due to huge increase in Covid-19 cases situation changed again and from 11th October 2021 to 11th January 2022, new Emergency Situation is declared in Latvia (Cabinet order No 720) and on 20th of October there was amendments made in this order with Order No 748 and it was declared that there is a lockdown from 21st of October until 15th of November and all the educational institutions turn to full remote learning process and only students of medical study programs are allowed to have practice. It is assumed that after 15th of November study process will be organized in hybrid form and students who have the certificate of vaccination will be allowed to participate in on-site study process. Others can participate in remote learning activities or agree on individual learning plan, which allows students to learn in their own pace but in this case, students should pay for their education. We call it third wave of Covid-19 pandemics. As the Covid-19 cases are very high, Government of Latvia also declared that those employees of public authorities who will not be vaccinated until 15th of November will be suspended from work without wage.

7. Case analyses of Faculty of Education, Psychology and Art

For analyses of the situation we will use the data gathered in Faculty of Education, Psychology and Art (UL) after the fall and spring semesters in study year 2020/21 where a questionnaire was distributed among students to find out their opinion about remote learning process. The questions were the same for the first and for the second round to understand how the situation is changed. All together there were 13 questions where for some questions students had to give their opinion by using Likert scale. In this report we analyze only those questions which show students opinion about remote learning process. University of Latvia has seven branches in different cities around Latvia where study programs of Faculty of Education, Psychology and Art is provided and therefore the questionnaire was distributed to students whose study place is in Faculty and also in branches of University. Results are summarized and for answers gathered after the fall semester is used code "I" and for the spring semester the code "II" to distinguish between two rounds of surveying.

At the beginning of the questionnaire students were asked to give demographic information about their gender and study direction. In the fall semester answers were given by 673 female and 51 male students. In the spring semester answers were given by 652 female, 59 male and 3 students who didn't want to indicate their gender. In the fall semester there were 726 answers and in spring semester 714 answers. Questionnaire was filled by 499 students who represented educational sciences, 131 represented psychology, 64 students of Art programs and 32 of sport programs in fall semester. In spring semester there were 537 students who represented educational sciences, 111 represented psychology, 33 were from arts programs and 33 from sports programs. After that students were asked to evaluate remote study process and the first question was if students believe that they have achieved all the study results. From the data it can be seen that results are improved from the fall to spring semester and answer "Yes, all the results are achieved" are given by 23% of students in the fall semester (see figure 1) and by 34,8% of students in the spring semester (see figure 2). It indicates that students and faculty have adapted to remote learning process and

strategies are found to support achievement of study results. The situation is not perfect as there are students who believe that they haven't reached all the study results and it is important to develop pedagogical strategies and provide technological solutions for remote learning as it looks like that pandemics is continued and we need to provide study process which supports achievement of all the study results also remotely.

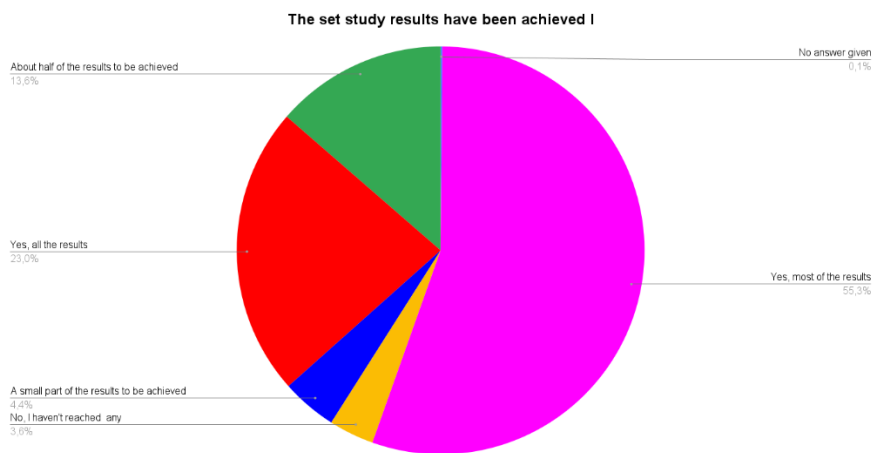


Figure 1. Study results achieved. Fall semester



Figure 2. Study results achieved. Spring semester

Students also were asked to express their opinion about possibility to continue remote learning after Covid-19 pandemics. Results show that in fall semester 49,4% of students (see figure 3) and in spring semester 65,7% (see figure 4) fully agreed that lectures can be organized remotely. Also about seminars 30,6% of students in fall semester (see figure 5) and 42% students in spring semester (see figure 6) fully agreed that seminars can be organized remotely. It can be concluded that students have acquired new learning strategies and also faculty have developed better teaching strategies for online learning. It also shows new direction for organizing study process in remote mode to allow participate in study process those people who can't participate in on-site learning because of their place of living, their social situation or their special needs.

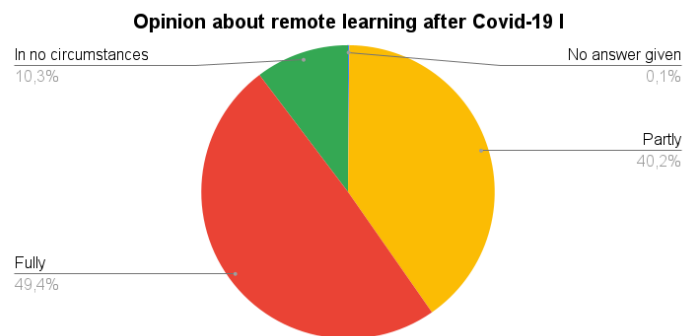


Figure 3. Remote learning (lectures) after Covid-19 I

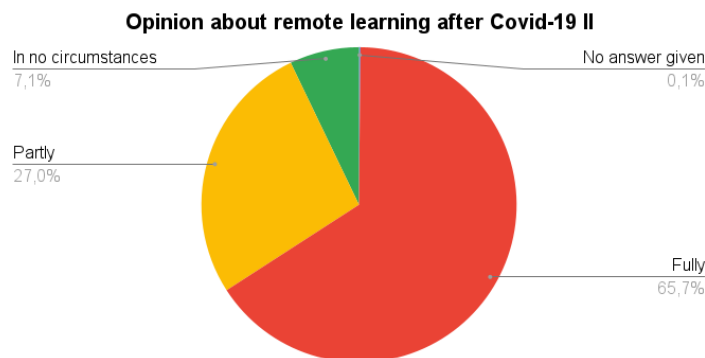


Figure 4. Remote learning (lectures) after Covid-19 II

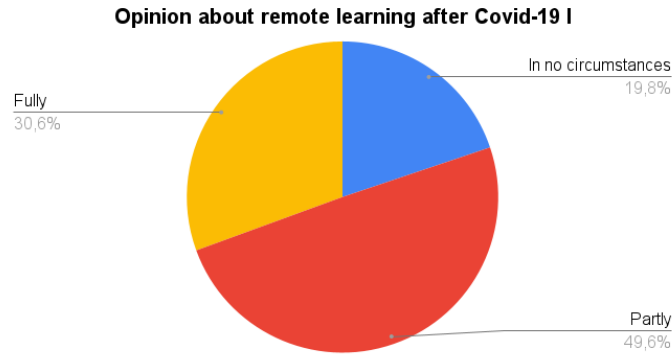


Figure 5. Remote learning (seminars) after Covid-19 I

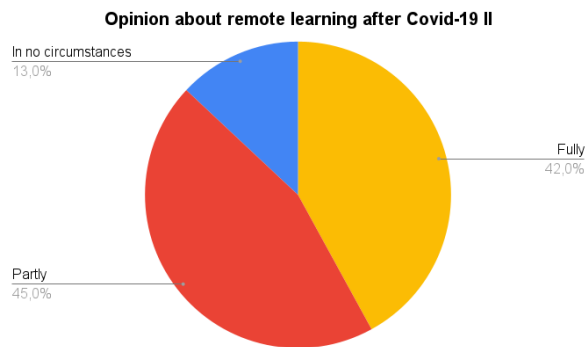


Figure 6. Remote learning (seminars) after Covid-19 II

The next questions were about what students are missing during the remote process and they had to evaluate different aspects of learning. As first they were asked to evaluate if they miss meetings with peers and results show that in fall semester 44,4% of students (see figure 7) and in spring semester 30,4% students missed peers (see figure 8) to a very large extent. In fall semester answer “do not miss” was given by 11,8% of students (see figure 7) and 19% of students gave such answer in spring semester (see figure 8). These results show that students do not miss meetings with other peers and numbers of such students are increasing, which can be quite an alarming signal that students are losing their social contacts with their peers and it can be hard to develop these contacts later on.

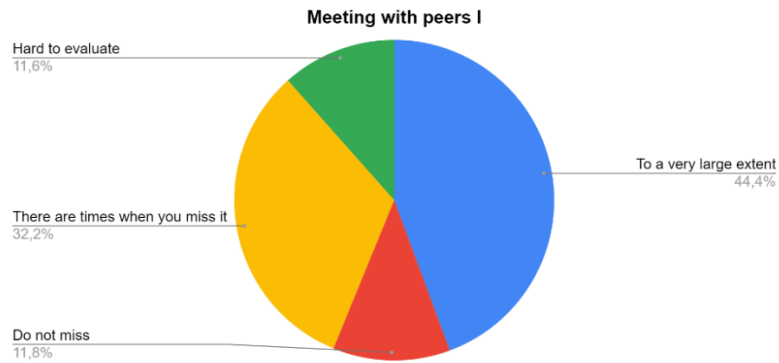


Figure 7. Meeting with peers I

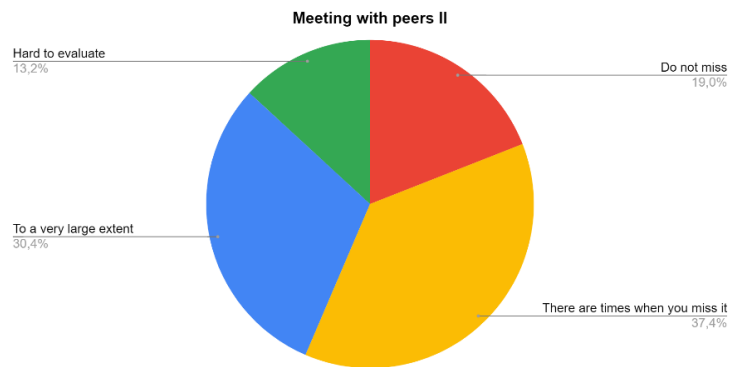


Figure 8. Meeting with peers II

Students were also asked if they miss meeting with faculty and in the fall semester 29,3% of students missed it (see figure 9) and in the spring semester 22,4% (see figure 10) missed it to a very large extent. Answer “do not miss” was given by 11% of students (figure 9) in the fall semester and by 18,6% (figure 10). These results let us think that remote learning strategies are improved and faculty members have developed better strategies to work with students remotely.

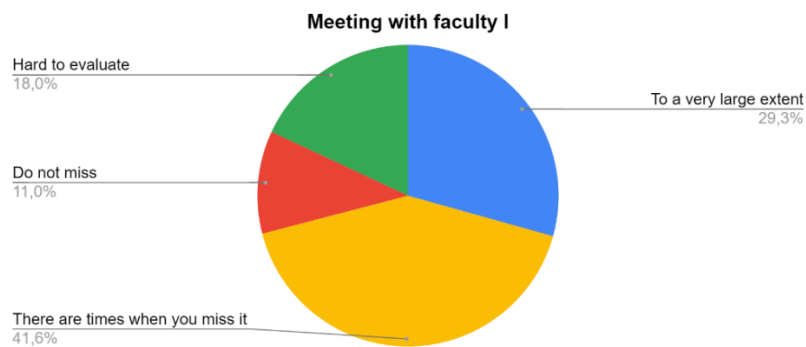


Figure 9. Meeting with faculty I



Figure 10. Meeting with faculty II

As the next question students were asked if they miss possibility to find out all the issues in person and 37,6% of students in fall semester (see figure 11) and 26,3% in spring semester (see figure 12) chose answer that they miss it to a very large extent. Also those who chose the answer “do not miss it” improved and it confirms previously stated conclusions that teaching and learning strategies are improved and students found out the ways, how to learn and how to find out all the issues they are interested in.

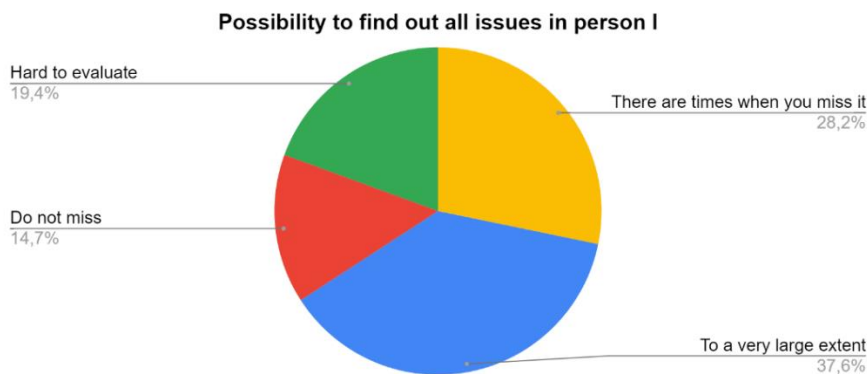


Figure 11. Possibility to find out all issues in person I

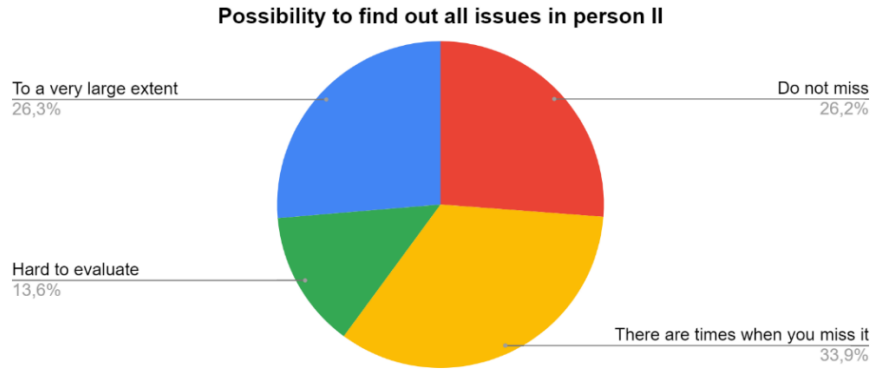


Figure 12. Possibility to find out all issues in person II

For the question if students miss possibility to participate in discussions in the fall semester there were 37,3% of students (see figure 13) who missed it to a very large extent and in the spring semester there were 27,7% students (see figure 14) who missed this option. It can be explained by changed MS teams possibilities where there was added option to organize discussion groups and students and faculty learned how to use these options in study process.

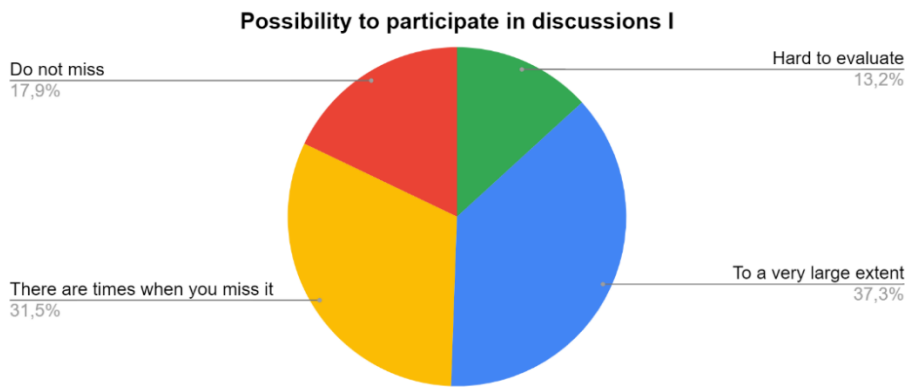


Figure 13. Possibility to participate in discussions I

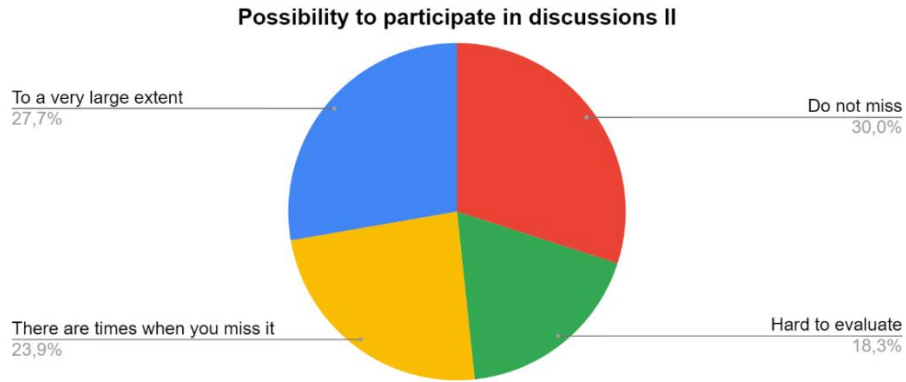


Figure 14. Possibility to participate in discussions II

Students were also asked to give their opinion if they miss possibility to fully acquire all competencies and in the fall semester 37,6% of students missed it to a very large extent (see figure 15) and in the spring semester 26,5% of students expressed their opinion that they miss it in a very large extent.

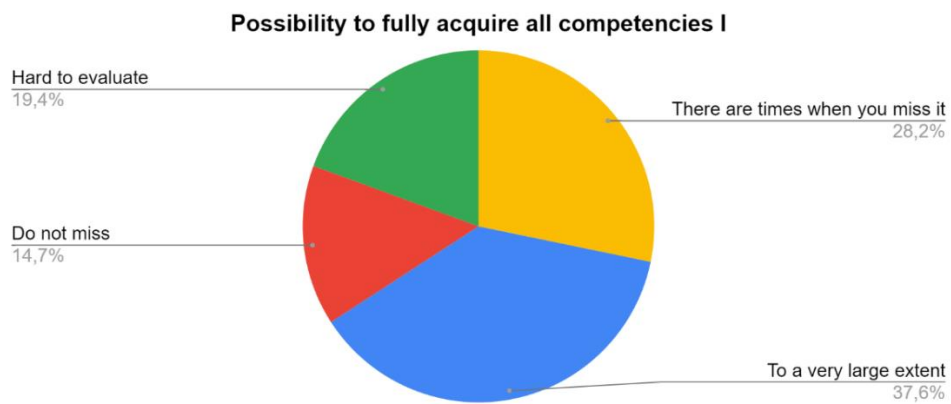


Figure 15. Possibility to acquire all competencies I

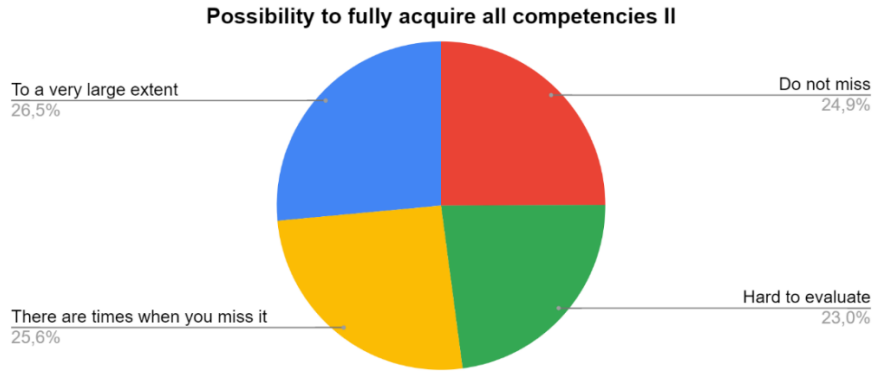


Figure 16. Possibility to acquire all competencies II

Analyses of provision of remote learning in UL during different rounds of pandemic let us understand how the processes were organized and how the students were assessing these processes. A consistent trend towards digitalization of both learning and teaching, and administrative processes was set several years ago. Electronic document circulation, data synchronization in systems, automated workflows, remote application for services, digital communication, etc. were introduced in many processes. Despite the intensive use of the e-learning environment and the technologies integrated in the study process, the study process was based on a face-to-face form, which revealed the use of digitalization solutions as an enhancement to the effectiveness of the study process rather than the provision of basic activity. The provision of IT infrastructure may be considered as appropriate, however, its capacity needed to be increased significantly to improve the results of study process in remote learning mode. During the pandemics different stages only first month of it there was some uncertainties how to organize study process. Later on it was agreed that all the lectures and seminars should be organized according to plan and faculty should ensure that students receive all the knowledge and competencies foreseen in particular program. Faculty needed both human encouragement and practical advice and assistance in the implementation of the remote study process and understanding its regularities and adapting them to specific areas, as previous experience in using educational technologies and providing remote learning, as well as views on quality standards and opportunities to provide them online were very different. Therefore different courses are organized for academic staff to improve their competence in providing remote learning process. Trends in higher education in general reflect an

intensified transition to blended learning, which encourages academic staff to combine face-to-face and online training experience in a well-considered and meaningful way, including synchronous and asynchronous pedagogical activities.

8. Conclusions

About digital competence

In order to promote the quality of higher education, it would be necessary to support lecturers in strengthening the following pedagogical-digital competence aspects:

- promoting the use of technology in the study process to achieve learning goals, so that students gain more experience in using technology for learning purposes;
- use of technologies in the study process to create innovative learning solutions;
- bringing the distance learning process closer to the implementation of a student-centered education approach.

The e-learning environment is already in use and will continue to be the most important element of the study process. Information about the student, field of study, program, course, assessment, study progress, etc. must be available in the study environment as well as digital learning resources, digital content, including study materials (audiovisual materials, digitized tests, e-books, etc.). Although currently basic information about students and study materials is available in HEI e-learning environments, HEIs need to continuously improve them:

- 1) Publishing interfaces that could be used for integration with other HEI e-learning environments;
- 2) Complementing and improving digital learning resources, incl. the content of study materials;
- 3) Ensuring mutual communication of students, including collaborative environments;
- 4) Recommendations for improving knowledge and skills, for example by publishing short video tutorials on the use of a specific tool or software. In this way, it is possible to provide the student with the necessary additional

knowledge or basic required knowledge, which needs to be used as a basis for mastering a specific new course; Information on the use of digital libraries and e-resources, use of specialized software, on digital security.

- 5) Most HEIs create digital student surveys to evaluate a particular course, but less common functionality would allow students to generate feedback during study courses as well as receive feedback on them. Increasing the opportunities for feedback can provide HEIs with significant benefits for the implementation of various innovations, for example, receiving feedback from students on some e-learning functionality or receiving students' opinions on various news in a particular HEI;
- 6) Complemented by collaboration, appropriate tasks using virtual laboratories;
- 7) Business intelligence solutions for personalized studies, as well as assessment of students' progress. A particularly important aspect of the e-learning environment is the increasing share of digital studies;
- 8) Lifelong learning section: online lifelong learning courses;
- 9) In the e-learning environment it can be integrated with the student's e-file when it will be created.

About Covid situation

It is already the third emergency situation in Latvia and students and academic staff learned new strategies how to organize study process and it is showed by data gathered from students of one faculty. There are also some alarming signals and they are about social contacting as students miss social contacts with their peers less than in the beginning of closures at the start of pandemics. We believe that this phenomenon can influence future professionals who will have to work in field of education, psychology and sport. We have to think how to support social interaction as it is one of the main goals since the social constructivist approach highlights the importance of social interaction for the best learning to occur (Campbell, 2004).

The challenges caused by this crisis have contributed to the availability of digital resources and the improvement of the digital competencies of professionals involved in all levels of education who now have to implement blended and especially remote

learning in their practice. There is a growing interest among education professionals in digital content and opportunities to communicate, collaborate, and create a favorable 'learning ecosystem' online. It is agreed that better technological solutions are needed to achieve the required educational goals, but it is even more important to provide professional development and the necessary resources for educators to make appropriate use of existing and new technological solutions. Therefore, we believe that the process of digital transformation in education needs to be continued in order to ensure a modern and efficient learning process at all levels of education in the future. Looking at the experience gained during the Covid-19 pandemic quite naturally calls for a debate on the driving forces and obstacles to the development. Actually, this emergency can be seen as a revolutionary force in the higher education sector, which came only with an imperative must, without leaving any options or offering alternatives. The question was not about whether 'I want / I don't want, I know / I don't know, I can / I can't'. Representatives of the education sector know particularly well that the most difficult thing is changing the usual practice and changing thinking. Paradoxically, a human sometimes lacks the power to change the mind-set, but an external driver directs it immediately. A factor in the effectiveness of rapid change is the indiscriminate situation and the deficit of guilt or power agency. What we can blame for the fact that the pedagogical process needs to change rapidly is in fact a dehumanized, depersonalised Covid-19 infection to which we cannot say 'no' and for which arguments concerning time constraints or traditions established in pedagogical practice do not exist. It has embodied global destruction and, at the same time, a revitalizing comprehensive review and change of routine and practice.

9. Recommendations

At the individual level

Ensuring a remote learning process, lecturers should be able to:

- master the use of simple technologies in the study process and move towards more complex technological solutions to create a more interactive, engaging and skills-oriented study process;
- make decisions about the choice of specific educational technologies or solutions, evaluating the tools available free of charge, purchasing ready-made solutions or adapting existing solutions. The decision is primarily based on the aim to achieve the pedagogical goal of the study process, harmonizing the set goals with the existing possibilities (provision of resources, competence in use, compatibility with existing solutions, etc.).
- to involve students in the process of cognitively challenging learning to acquire theory;
- to create mutual learning activities for solving tasks of higher complexity;
- to find innovative solutions for the acquisition of students' practical skills;
- to promote students' self-directed learning skills;
- to provide students with a safe study environment in which to reflect on experience and experiment in order to fully master the study content and create innovative new solutions;
- to obtain confirmations about the quality of the learning process and to provide mutual feedback on the achieved study results and the learning process in general;
- align assessment approaches (summative and formative) and types of tests to ensure objective assessment of learning outcomes and change the understanding of assessment. Thus, in the remote learning process, the mutual evaluation activities of students would also be integrated;
- to review and adjust approaches and tests for the assessment of study results, focusing on the choice of complex types of tests of knowledge, skills and attitudes that are as authentic as possible - adapted to life situations. This would both increase students' judgment, analysis, problem-solving and unique, original content creation skills, as well as reduce the need to diversify and strengthen the use and development of academic integrity testing technologies.
- purposefully strengthen pedagogically digital competence, using a combination of available resources - knowledge of individual technological development news, their acquisition in independent work, research of scientific literature on

technology-enriched study process, consultations of university pedagogy professionals and participation in various further education activities.

At the level of the higher education institution

- To create HEI-based pedagogical competence centers, which: - develop and expand the existing digital competence training offer and expand its sharing between HEIs; - supports the offer and form of continuing education curriculum in the analysis of the needs of lecturers; - modernization of the study process and improvement of lecturers' pedagogical digital competence is aligned with the accents of the general education content and competence approach, in order to strengthen the synergy of innovations and create a unified teaching and learning model based on self-directed approach at general and higher education level; - for the improvement of quality, the provision of the content and implementation of continuing education is brought closer to the specifics of the specific activity of the HEI; - promotes and systematically organizes mutual observation of lecturers and exchange of experience; - strengthens co-teaching as an approach to the implementation of study courses in hybrid forms of learning; - promotes the development of lecturers' understanding of the prevention of observance of the principles of academic honesty, violations and their risks in the digital environment (their types, features, detection, consequences).
- In a situation of force majeure, accelerated and ever-consistent integration of technologies to ensure the learning process is fully justified, and in the future HEIs should think about technology adaptation (choosing specific educational technologies or solutions, evaluating free tools, purchasing ready-made solutions or adapting existing ones).
- to achieve the goals of the study process and to promote quality.
- It is necessary to improve the technical compatibility of the systems, interoperability and data synchronization, reflecting as much as possible their functions in one interface, in order to facilitate the work of the lecturer.
- Provide full pedagogical, technical and psychological support by involving support staff to jointly find tailored solutions for a pedagogically correct and safe learning

process (including tests), as well as for analyzing and interpreting available information, data and evidence-based decision-making.

- Targeted HEIs to form and strengthen support teams for administrative, technical and pedagogical staff.
- To review the current lecture and lesson planning model and to promote its compliance with the meaningful implementation of the technology-enriched study process.
- To update the model of lecturers' workload planning and remuneration in accordance with the changes in the implementation of the study process.
- Based on the results of research, exchange of experience and analysis of practice, look for new opportunities for the acquisition of practical skills through technology, defining those groups of skills, the full acquisition of which is possible only in on-site activities.
- To promote the development of a culture of joint development and sharing of study materials by cooperating and at the same time correctly respecting copyright and promoting academically fair practice.
- It is necessary to create a support system for better provision of pedagogical work, in which assistants - doctoral students or young scientists - are networked with lecturers, as well as purposefully implemented mentoring.
- To develop observational and predictive analytics at the individual and institutional level in order to promote the quality of the study process in general and to substantiate the pedagogical benefits of technology integration.

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