

## Article

# Students' Perspective on Remote On-Line Teaching and Learning at the University of Latvia in the First and Second COVID-19 Period

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**Abstract:** In Spring 2020, due to the rapid spread of COVID-19, all educational institutions in Latvia, including the University of Latvia (UL), transitioned from face-to-face on-site learning to remote learning. After a short period of face-to-face on-site learning in autumn, UL returned to remote learning in November for the second time. This paper investigates the UL students' perspectives on remote teaching and learning at the UL during the first and second COVID-19 periods. The research assesses several remote study organization aspects, including the lecturer's and student's digital skills, their access to information and support during the study process, planning and implementation of the study process, and students' acquisition of the content. The study used an original questionnaire designed in the Spring 2020 semester. Seven questions from the first questionnaire were included in another follow-up questionnaire distributed in the Spring 2021 semester. A total of 2248 UL students from the Spring 2020 semester and 742 students from the Spring 2021 semester participated in the study, representing 13 faculties across all study levels. The survey responses were collected via a QuestionPro survey platform and then downloaded into an IBM SPSS 28 file for a reliability check. Next, descriptive statistical analyses were conducted for each reported survey item using Microsoft Excel 2016. The research presented here implies that, in general, students perceive positive improvements in almost all the investigated aspects of the organization of the remote study process when comparing the first and second COVID-19 periods, which could indicate a certain level of resilience in students and university lecturers when subject to COVID circumstances. However, the results reveal that students have, in one year, developed a more realistic approach in assessing their digital skills. The results lead us to believe that remote on-line learning is not just a short-term solution but could become a valuable element for providing qualitative education in the long term. It could indicate that the students and lecturers at university are ready for new and sustainable higher education study organization solutions in the future.

**Keywords:** remote on-line learning; higher education; organization of study process; COVID-19; student perspectives



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## 1. Introduction and Background

COVID-19 interrupted the customary business procedures in higher education around the globe. To protect students and university staff from COVID-19, higher education institutions were temporarily closed, and all students and lecturers were required to stay at home. It is estimated that 200 million students worldwide were affected by COVID-19 [1]. The European University Association's (EUA) thematic peer group, *Approaches in learning and teaching to promoting equity and inclusion* (2021), emphasizes that the COVID-19 pandemic has affected all student populations [2].

After the government of Latvia declared a state of emergency as a result of COVID-19 on 13 March 2020, all students and lecturers at the University of Latvia (UL) were required

to stay at home and transition from face-to-face on-site teaching and learning to remote on-line teaching and learning. During the first COVID-19 period, which lasted until the end of June 2020, the study process (lectures, seminars, laboratory works, etc.) and examinations were discontinued in all national higher education institutions of Latvia. Furthermore, all available public events (scientific, cultural, sports) were canceled. Students had access to the university library, providing that they presented a valid UL student card, only to receive or return books but not to work on site.

After a short period in the autumn (one and a half months) during which face-to-face on-site learning was resumed, the second period of COVID-19 prompted all students and lecturers at the University of Latvia to stay at home and turn to remote on-line learning again in November 2020. Epidemiological restrictions similar to those during the first COVID-19 period remained in place until the end of the academic year 2020/2021. Beginning from the middle of April 2021, some minor restrictions were lifted. For example, the university was allowed to organize limited face-to-face on-site teaching and learning activities in small groups (up to 5 people) to accommodate for the practical elements of all study courses.

According to the changes that were made to the Law of Education in Latvia in 2020, remote learning was declared as part of the full-time educational process in which learners study, including the use of information and communication technologies, without being physically in the same room or place of study as the teacher [3]. This confirms that remote learning is not just a short-term solution but a valuable practice for providing qualitative education in the long term, which allows universities to ensure the sustainability of education itself. In order to ensure sustainability in education, the experience of online teaching should be systematically investigated, particularly the experience of the student from a stakeholder perspective. The remote study process should also be organized in such a way as to ensure sustainable learning—so that learners can independently overcome the present and future challenges involved and continue learning, and use and improve their acquired skills throughout their lives [4]. Remote on-line learning meant that university students' learning environment changed to a virtual one that required access to various internet and communication tools, such as WhatsApp, the Moodle e-learning environment, Microsoft Teams, or Zoom. The UL lecturers had to create synchronous online lectures and seminars to ensure that students could continue learning. Such a situation was unexpected for both the lecturers and students [5]. Rapid changes caused both short- and long-term challenges for the entire higher educational system from both the system and institutional levels (management, social support, teaching, and learning) [1]. Students worldwide experienced several challenges (social, emotional difficulties, lack of resources, technology-related problems, lack of motivation) during the period of remote on-line learning, expressing the need for more significant social and academic support and feedback [6–13].

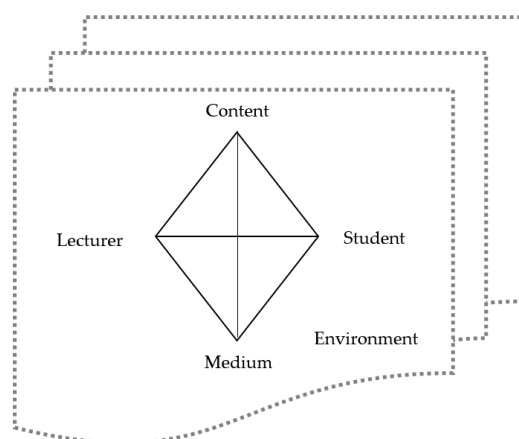
The implementation of digital learning using digital technologies in the study process was a topical issue within higher education practice and research even before the COVID-19 pandemic; however, the sudden transition to a remote mode of learning raised questions on how to use online spaces appropriately and to how best to determine the suitable digital solutions in the organization of the remote on-line study process [14–16]. 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 [6].

Due to the considerable potential of digital technology in the teaching-learning process, it cannot be isolated from didactic considerations of teaching and learning and a broader context of the organization of the study process [14,15]. The pandemic's impact on education has broadened the understanding of the learning environment and enhanced the understanding of terms such as the 'university,' 'campus,' 'classroom,' and 'course' [17]. Additionally, it was generally agreed that well-designed online courses were not compara-

ble to higher education during COVID-19 by the time teaching online was the only viable option. As described, such teaching should be referred to as emergency teaching, which is characterised by a temporary shift of the study process organization to an alternative one that is conducted online as a result of a crisis [18] and occurs without pre-planning and resources [19].

The traditional organization of the study process in higher education includes pre-planning, the teaching-learning process, an assessment of learning outcomes, and evaluation. Emergency teaching has highlighted the importance of several aspects in teaching and learning, including critical learning goals, communication, the supportive role of lecturers, social engagement of students in the study process, the importance of providing feedback to students about their learning progress, and adapted assessments [19].

According to the didactic or Herbert triangle, the study process is based on the collaboration of the lecturer and the student to allow the student to acquire the study content. In a contemporary context, various teaching methods, information, and communication technologies are also important, which we can describe as mediums since they are mediators in teaching and learning that ensure the quality of the study process [14] and the achievement of learning outcomes. Thus, the classical didactic triangle expands, allowing the study environment to act as both a medium and an essential element in and of itself in the organization of the study process (see Figure 1). All these elements of the study process are maintained in the remote study process. However, it is impossible to manage the remote teaching-learning process without digital media and understanding the study environment changes significantly and becomes multidimensional.



**Figure 1.** Organization of the study process.

Currently, research on remote emergency on-line education within Latvian higher education institutions is still at its infancy stage. Since the first COVID-19 period, only a few studies have been conducted in Latvia to explore the impact of COVID-19 on higher education. The focus so far has been on the university lectures' digital competencies in a remote learning situation [20], students' digital communication and collaboration skills during remote learning [21], and the teacher educating student's on entrepreneurial competence in the remote study process [22]. Extensive research on this topic not been carried out in the Baltic context either. Lithuanian colleagues have analyzed the mental health aspects, specifically suicidal ideations, of university students [23].

Consequently, current research continues to explore the COVID-19 phenomenon and its impact on higher education. Firstly, the study contributes to literature on remote on-line teaching and learning in that the students' experiences needs to be considered to develop a more sustainable and equitable learning environment in higher education. Secondly, it provides valuable insights for university lecturers and administration on how to better organize student-centred teaching and learning processes in the future. This exploratory research uses the case of the UL to investigate the study process organization in remote

learning and teaching during two COVID-19 periods. More specifically, research will explore UL students' views on various study organization aspects over one year during the first and second COVID-19 period (Spring 2020 and Spring 2021 semesters), including the lecturer's and student's digital skills, support for students during the study process, planning and implementation of the study process and student's acquisition of the content. The students' perception is an important source for the university's administrative and academic staff to purposefully develop solutions and recommendations for the organization of a remote study process. The researcher's decision to analyze the student's views is based on an idea proclaimed by the Standards and Guidelines for Quality Assurance in the European Higher Education Area, which states that institutions of higher education have a responsibility to create a sustainable culture through the development of certain principles, that focus on student-centred learning, teaching and assessment [24,25]. Students as stakeholders should be regularly involved in the evaluation of the organization of the study process. Students should have the opportunity to express their expectations, needs, and satisfaction concerning the study process in general and for specific courses of study (on study content, teaching methods, study load, assessment methods). Therefore, the evaluation results must be systematically analyzed so that higher education institutions can coordinate improvements regarding the study process in the short term and long term.

The study research questions are:

RQ1: How do students perceive the organization of the study process at UL that is essential to ensure a remote study process?

RQ2: Were there any differences in students' perspectives regarding the remote on-line organization of the study process during the first and second COVID-19 period?

## 2. Materials and Methods

A quantitative research method was used to collect and analyze the data in the current study. The quantitative approach was selected to assess the remote online organization of the study process in UL in a more general way. In Spring 2020, during the first COVID-19 period, an original 24-item questionnaire was designed by the University of Latvia's Study Department to assess the impact of the COVID-19 situation on the study process. The questionnaire was developed alongside lecturers who had their first experience working remotely with students during COVID as well as university study department representatives. The following year, in Spring 2021, another 109-item questionnaire was developed by this paper's authors and approved by the UL Study Department to further explore COVID-19's impact on the study organization process at UL. The number of questionnaire items varies because the first survey was developed primarily for study process administration needs. The second survey was expanded to explore the students' experience in remote studies. Aspects of the organization of the remote study process that were not apparent during the first COVID-19 period were included.

Both questionnaires consisted of three question blocks: demographic questions, questions related to the study organization process in the emergency teaching and learning situation, and open-ended questions. Seven questions from the first questionnaire (distributed in Spring 2020) were included in the second questionnaire in Spring 2021.

Students were asked to assess:

- the lecturer's and student's digital skills ("Lecturers' digital skills are appropriate for remote study organization," "My digital skills are appropriate for participation in the remote study");
- support for students during the study process ("Information on lecturers' consultations is available," "Lecturers are available for consultations");
- planning and implementation of the study process ("Lectures take place according to plan," "Feedback from lecturers is timely");
- acquisition of the study content ("Remote study process fully ensures the planned content acquisition").

Students were asked to rate each question on a Likert scale: (1) completely disagree, (2) mostly disagree, (3) can't say/not applicable, (4) mostly agree, or (5) completely agree. Both questionnaires were placed on the QuestionPro survey platform and distributed in the following three ways: the links to the survey were sent to all student governments of all UL Faculties, as well as to all students in the UL's information system with the help of the administrative departments of the UL, and they were also included in a promoted Facebook post. In the surveys, all ethical research standards required by the General Data Protection Requirements were implemented. Students across 13 faculties in the University of Latvia and from across all study levels (from college up to doctoral level) were invited to express their views of the remote learning process at UL voluntarily and anonymously.

Probability sampling was implemented, as it is the simplest method for collecting data quickly and efficiently so as to provide insight on how students of UL broadly perceived the situation. Out of all students at UL (15250 in 2020, 15260 in 2021), 2248 students completed questionnaires in the Spring 2020 semester (within two weeks from 7 April 2020), and 742 completed questionnaires in the Spring 2021 semester (within two weeks from 8 May 2021).

The responses for both surveys were first downloaded into an IBM SPSS Statistics 28 software file for a reliability check to analyze the data. Next, descriptive statistical analyses were conducted for each reported survey item using Microsoft Excel 2016. A bar chart, which is a graphic method for displaying the breakdown of data into categories, was created, and responses were compared (percentage) from the first to the second questionnaire. Then, a Chi-square test of association was conducted to test the null hypothesis: there are no relationships between UL faculty and student answers. As the p-value was less than or equal to 0.005, we could reject the null hypothesis. Considering the amount of data, we decided to set limits to the current study to continue without conducting a detailed, in-depth analysis in the faculty section. Therefore there are some limitations in the current research. A data analysis indicates common trends, but faculties and study levels did not impart an in-depth analysis of differences in the students' views.

### 3. Results

#### 3.1. The Characteristics of Respondents

In 2020, 2887 students attempted the first questionnaire, but only 2248 questionnaires were fully completed and thus analyzed in the study. In 2021, a total of 742 students attempted and completed the second questionnaire. Students from across all 13 Faculties at UL participated in both surveys (see Table 1). The lowest number of student participants were from the Faculty of Theology, which is also the smallest department with regard to student size. The highest number of respondents were from the Faculty of Education, Psychology, and Art, the largest department with regard to student size.

**Table 1.** Characteristics of respondents by Faculty of UL (%).

Faculty	First Questionnaire	Second Questionnaire
Faculty of Theology	0.53%	0.67%
Faculty of Biology	2.98%	2.43%
Faculty of History and Philosophy	3.20%	2.56%
Faculty of Chemistry	3.43%	3.10%
Faculty of Geography and Earth Sciences	4.00%	3.37%
Faculty of Computer Science	4.27%	4.18%
Faculty of Physics, Mathematics, and Optometry	4.85%	5.53%

**Table 1.** *Cont.*

Faculty	First Questionnaire	Second Questionnaire
Faculty of Medicine	7.38%	5.53%
Social science Faculty	9.07%	9.43%
Faculty of Humanities	9.65%	9.43%
Faculty of Law	10.72%	12.13%
Faculty of Business, Management, and Economics	12.41%	12.94%
Faculty of Education, Psychology, and Art	27.49%	28.71%

The majority of respondents in both surveys were at the bachelor study level (see Table 2), and the lowest number of students were at the doctoral level or were residency students.

**Table 2.** Characteristics of respondents by study level (%).

Study Level	First Questionnaire	Second Questionnaire
Doctoral level (ISCED 8)	0.04%	2.57%
Residency (ISCED 7)	0.40%	0.14%
First level (college) (ISCED 5)	0.58%	6.77%
Second professional level (ISCED 6–7)	6.85%	4.06%
Master level (ISCED 7)	15.03%	19.49%
Bachelor level (ISCED 6)	77.10%	66.98%

Overall, the respondents represented all 13 faculties across all UL study levels, and the percentages generally correlated with the typical student distribution across all faculties and study levels.

### 3.2. Reliability of Surveys

To assess the internal consistency of a questionnaire, Cronbach's alpha was used since all items were responded to through a Likert scale. Tables 3 and 4 display the output of the Reliability Statistics table. Cronbach's alpha should have a score of over 0.7 to provide greater internal consistency. In this case, questionnaire 1  $\alpha$  scored 0.841, and  $\alpha$  was 0.868 for questionnaire 2, which shows that both surveys are reliable.

**Table 3.** Reliability statistics for questionnaire 1.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.841	0.825	24

**Table 4.** Reliability statistics for questionnaire 2.

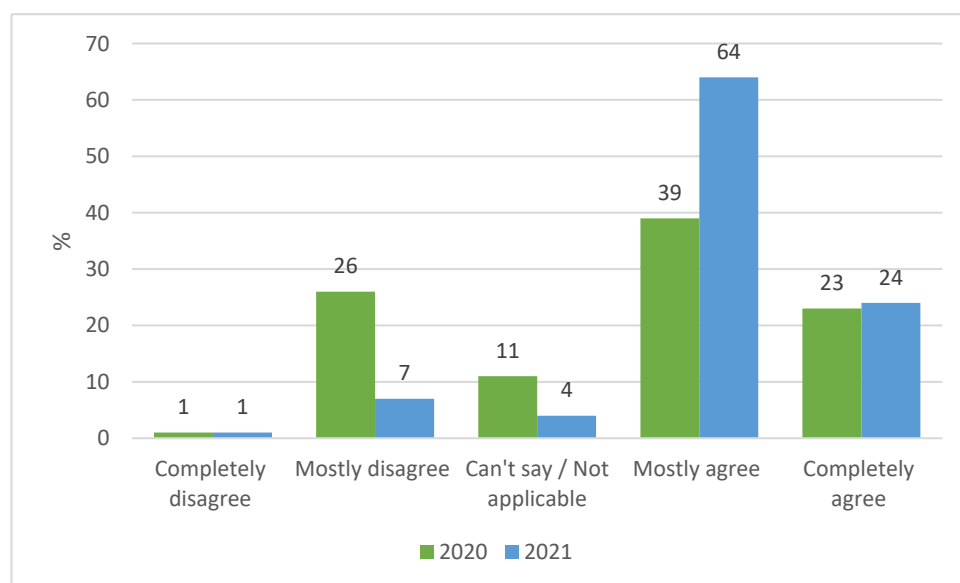
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.868	0.860	109

### 3.3. Description of Results

First, the researchers sought to determine how students perceive the lecturer's and students' digital skills (see Figure 2). The comparison of the statement "Lecturers' digital



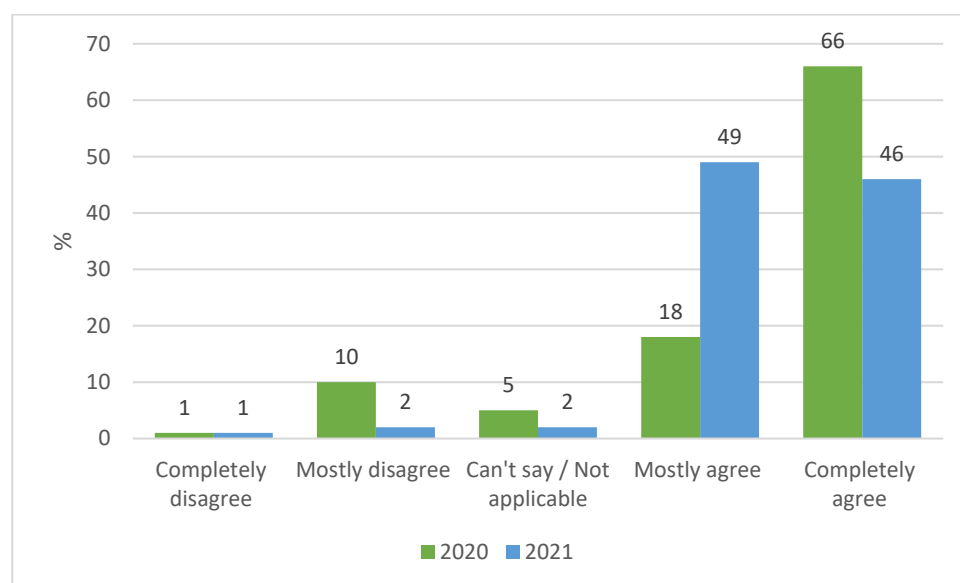
skills are appropriate for remote study organization” from 2020 to 2021 indicates that the students’ assessment of the lecturers’ digital skills changed during the year. In the spring of 2020, 23% of students fully agreed, and 39% mostly agreed that lecturers’ digital skills are appropriate for a remote study organization. In 2021, however, 24% completely agreed, but the percentage of students who mostly agreed that the digital skills of lecturers are suitable for the organization of a remote study process significantly increased from 39% to 64%. Both the number of students who mostly disagreed that the digital skills of lecturers are appropriate to the current remote learning situation and the number of students who chose the answer “can’t say/not applicable” decreased, the former by 19% (from 26% to 7%), and the latter by 7% (from 11% to 4%).



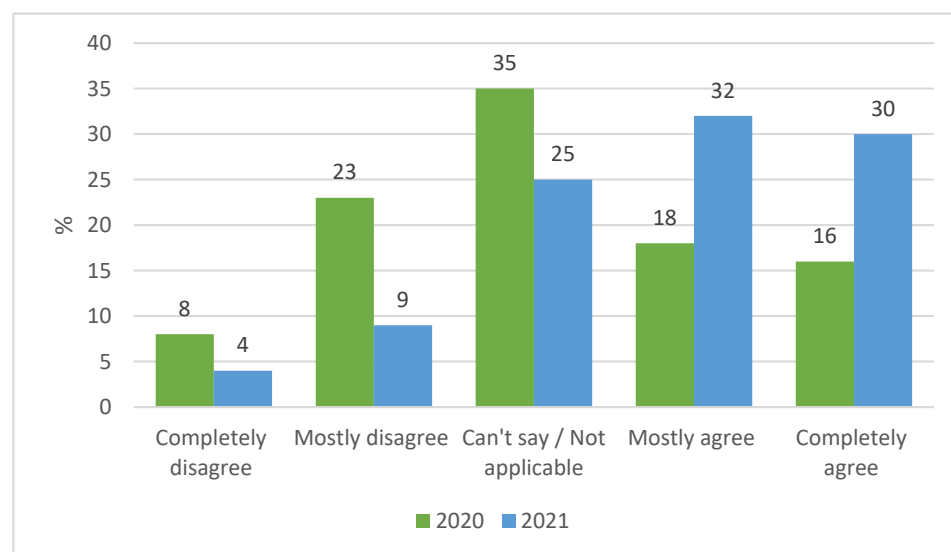
**Figure 2.** Answers on statement “Lecturers’ digital skills are appropriate for remote study organization” (2020 vs. 2021).

By comparing how students assessed their digital skills, it can be concluded that students are less negative overall in their statements in 2021 than in 2020 (see Figure 3). The results reveal that students are more realistic about their digital skills. In response to the statement, “My digital skills are appropriate for participation in the remote study,” 66% of the students who participated in 2020 completely agreed. In 2021, however, students’ self-assessment of their digital skills changed: the percentage of those who completely agreed to the statement decreased by one-fifth, which aligns with their digital skills’ suitability. The number of students who mostly agreed with the statement increased by 31% (18% to 49%).

Secondly, the researchers wanted to determine students’ perceptions regarding support during the study process. In response to the statement, “Information on lecturers’ consultations is available” (see Figure 4), it was concluded that in 2021, students were more positive about the support provided by lecturers. An important aspect of support during remote learning is the availability of information. Respondents were required to assess whether information about lecturers’ consultations was available. In 2020, 35% of respondents chose the answer, “can’t say/not applicable,” 23% mostly disagreed, and 8% strongly disagreed. Only 16% indicated that they strongly agreed, and 18% mostly agreed. In 2021, 30% strongly agreed, and 32% mostly agreed, but only 4% and 9% strongly disagreed and mostly disagreed, respectively.



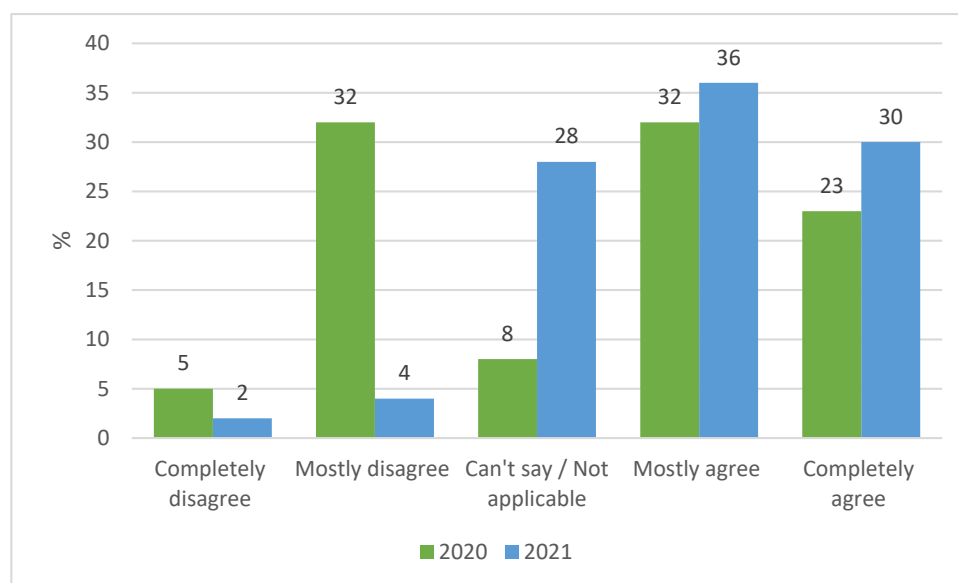
**Figure 3.** Answers to the statement “My digital skills are appropriate for participation in the remote study” (2020 vs. 2021).



**Figure 4.** Answers on the statement, “Information on lecturers’ consultations is available” (2020 vs. 2021).

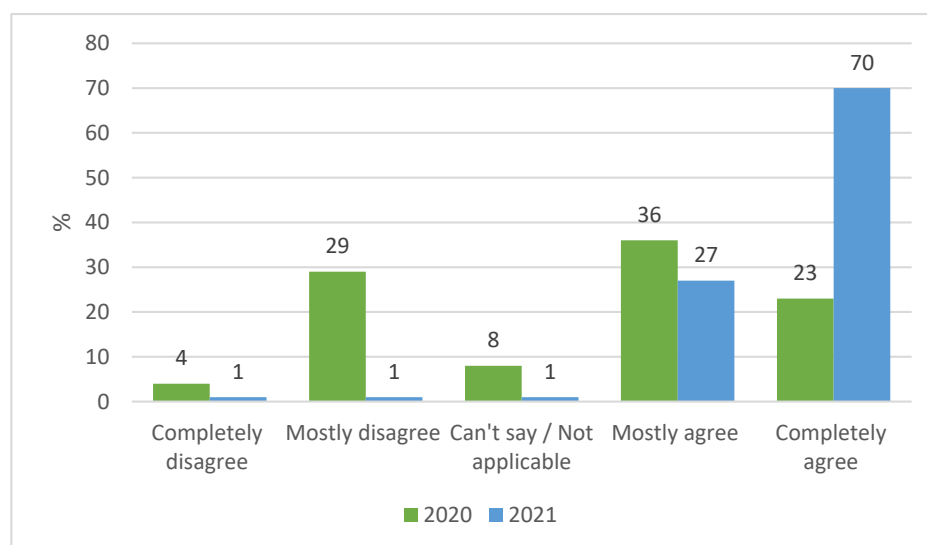
In response to the statement, “Lecturers are available for consultations” (see Figure 5), students were less negative in 2021 than in 2020. With regard to the availability of lecturers for consultations in 2020, students equally selected the mostly agree and mostly disagreed options (both comprised 32% of respondents). Only 23% of students fully agreed that lecturers are available for consultations. In contrast, in 2021, 30% of respondents completely agreed, and 36% mostly agreed that lecturers are available for consultations; only 2% strongly disagreed, and 4% mostly disagreed. However, the number of students who chose the answer “can’t say / not applicable” increased by 20% (from 8% in 2020 to 28% in 2021). This indicates that some students probably do not use the possibilities of consultations in the organization of the remote study process or have not considered it an option.





**Figure 5.** Answers on the statement, “Lecturers are available for consultations” (2020 vs. 2021).

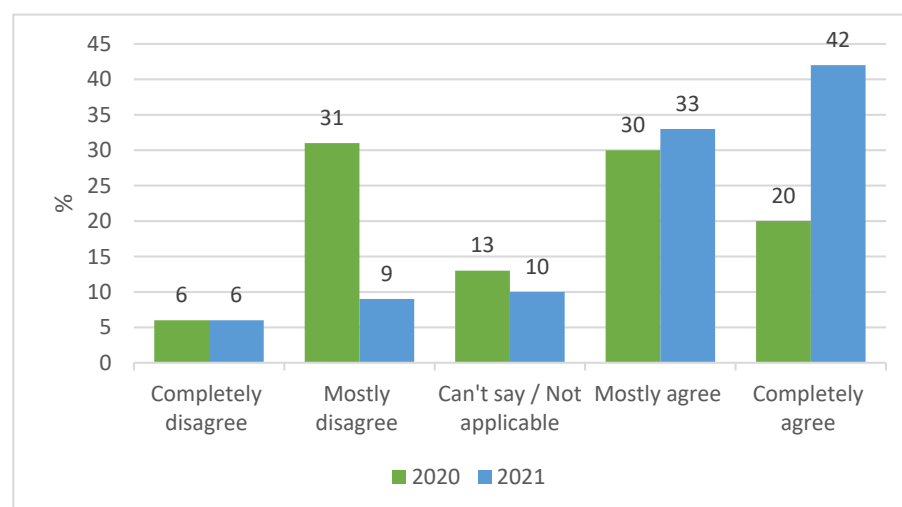
Thirdly, researchers were interested in students’ perceptions of the planning and implementation of the study process. Students were asked to respond to the statement: “Lectures take place according to plan” (see Figure 6).



**Figure 6.** Answers on the statement, “Lectures take place according to plan” (2020 vs. 2021).

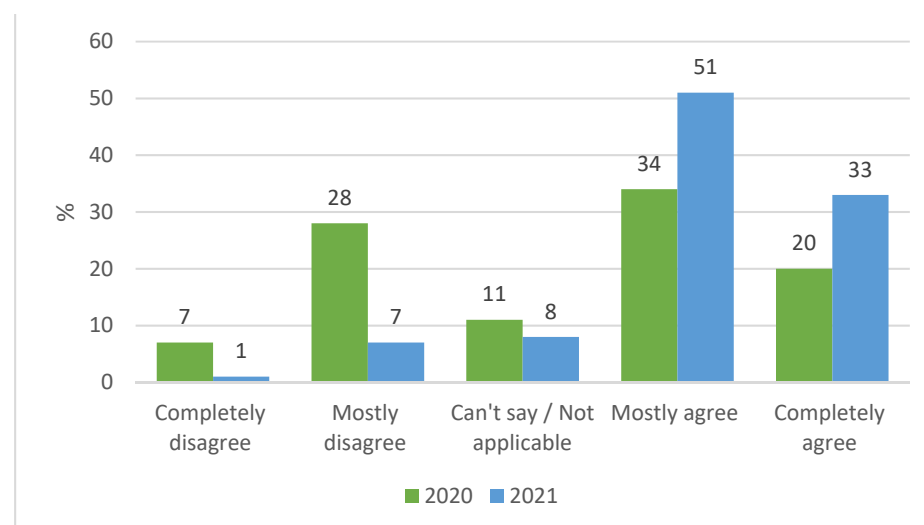
In the spring of 2020, 23% completely agreed, and 36% mostly agreed, but in 2021, 70% admitted that the lessons were going according to plan (completely agreed), and 27% mostly agreed. The percentage of students who chose “can’t say/not applicable” to this question also decreased (from 8% to 1%).

One of the specific features of the organization of the remote study process is that the importance placed on feedback is growing. The students were required to assess the statement, “Feedback from lecturers is timely” (see Figure 7). In the first survey, 20% of respondents completely agreed, and 30% mostly agreed with the statement that feedback from lecturers is timely. In contrast, 42% of respondents completely agreed in the second survey, and 33% mostly agreed. The number of respondents who mostly did not agree that feedback from lecturers is timely decreased (from 31% to 9%), but 6% of respondents did not fully agree in both surveys.



**Figure 7.** Answers on the statement, “Feedback from lecturers is timely” (2020 vs. 2021).

Finally, researchers were interested in how students assess the acquisition of the study content. Students were required to respond to the statement, “Remote study process fully ensures the planned acquisition of content” (see Figure 8). Teaching methods and forms of organization can be different. Still, it is vital that the study process is organized purposefully so that students can achieve the planned learning outcomes.



**Figure 8.** Answers the statement, “Remote study process fully ensures the planned acquisition of content” (2020 vs. 2021).

In the first survey, 20% completely agreed with the statement that the remote study process fully ensures the planned acquisition of content, and 34% mostly agreed. In the second survey, both evaluations increased to 33% and 51%, respectively. The percentage distribution of students (from 28% to 7%) who mostly disagreed that it is possible to obtain the planned content in remote learning decreased, but the percentage distribution of respondents who completely agreed with the statement increased (from 20% to 33%).

#### 4. Discussion

In terms of RQ1, the analysis of results indicates that there are positive tendencies in several study organization aspects related to emergency remote online learning in one year from students’ perspectives. It can thus be assumed that the university community is adjusting very well to the new circumstances and is continuing to improve its methods.

One could hypothesize that UL has shown certain resilience to unexpected circumstances. Even before the COVID-19 pandemic, higher education in Latvia and specifically UL has faced challenges with promoting digital learning in the university. The sustainable organization of the study process requires a reasonable and purposeful use of digital technologies, not only in separate lessons or study courses but in studies in general. The organization of the study process must be viewed holistically [14]. The results of the current research led us to believe that remote on-line learning is not just a short-term solution but could become a viable method for providing qualitative education in the long term. It presented an opportunity to rethink current practices so as to create a university with the potential to become stronger by providing higher quality and more accessible avenues to students. Although the COVID-19 pandemic interrupted routine business procedures in higher education around the globe, it simultaneously presented new educational opportunities [26].

With regard to RQ2, it was concluded that students perceived visible improvements in almost all the investigated aspects of the organization of the remote study process over a year.

Based on their remote learning experiences, students indicated that their own digital skills and those of their lecturers have improved during the year. Although there has been a significant (31% of respondents) increase in the number of students who mostly agreed that their digital skills are appropriate for participation in the remote study process, it should be noted that the percentage of students who completely agreed that their digital skills are appropriate for participation in the remote study process has decreased by 20%. These results are rather interesting. It should be noted that another study [21] concluded that overall, students who were taking courses during the first COVID-19 period determined their digital skills to be at a high level and that they felt well adapted to the remote study process. Our results agree with results in other studies where higher education students indicate that they are ready for digital learning [27,28] and have a high digital competency. Based on the results, our study could hypothesize that students, over one year, have gained a better understanding of the meaning of digital skills and have become more realistic about their digital skills; therefore, they do not perceive their current skills as completely appropriate. This could also be explained by the fact that students are more aware that simply working with a computer on a daily basis does not mean that their digital skills are sufficient for a remote study process. Although students generally value their digital competence, those who indicate insufficient skills should not be overlooked.

The digital competence of lecturers should also be seen in the context of pedagogical goals and the implementation of the remote study process. So-called mass attempts for all personnel in HE [19] to work via the distance learning mode led to lecturers' pedagogical digital skills becoming greatly improved over the year of the pandemic. It should be emphasized that this depends on the quality culture of the higher education institution and its support for its academic staff [20].

Concerning support for students during the study process, it can be concluded that, from the perspective of the respondents, aspects of the process (as demonstrated by statements such as "Information on lecturers' consultations is available" and "Lecturers are available for consultations") seem to have improved; however, around one-third of the students who responded "can't say/not applicable" should not be overlooked. It is necessary to investigate further where such problems originate (whether students do not use consultations, the workload of lecturers and the consultation times available to students, etc.).

The number of students who completely agreed to the statement that lectures take place has increased more significantly than any other statement (from 23% in 2020 to 70% in 2021). This implies that there was confusion among all stakeholders regarding the organization of the study process at the beginning of the first wave of COVID-19. During the year, however, intensive learning occurred due to greater experience and through adaptations to the new situation. The simultaneous occurrence of lectures and seminars has become more normalized for UL lecturers and students.

Progress was also made in terms of students' assessment of the statement, "Feedback from lecturers is timely." However, attention should be directed towards a further analysis because around one-quarter of students still do not agree with this statement or cannot assess it. As we know from the research, it is a crucial aspect of remote emergency learning [19]; therefore, lecturers should consider promoting a culture of feedback as an integral part of the remote study process, taking into account the different learning needs of students and using a variety of teaching methods.

The results show that the number of students who indicated that they had acquired the content of the studies increased over one year. In 2021, 84% of respondents (compared to 54% in 2020) believed that they fully acquired study content and have achieved the learning outcomes through the remote study process at UL. Although the results are promising, there is a need to explore the results more rigorously in the future. What do students mean when they say that they have fully acquired the study content? Do they mean theoretical knowledge, skills, and competences? It would also be valuable to analyze the results in depth with regard to their respective faculties and study levels, considering the specific aspects of the study organization within different fields.

The positive outcomes discovered in our research reflect the UL's initiative to support UL lecturers in a remote emergency by organizing professional development courses to improve the digital skills for academic staff at the beginning of the 2020/2021 academic year. It is also common for lecturers to form self-organized informal groups in which they collegially share experiences pertaining to the organization of the remote study process. In future research, the experience of the academic staff should also be considered to determine how the lecturers adapt to the new conditions. Furthermore, evaluations of stakeholders should be consolidated for further organization of the study process and to help garner better targeted and differentiated support for both the students and academic staff at UL.

## 5. Conclusions

Firstly, the research has successfully provided a holistic overview of the organizational aspects of the remote study process in UL.

Secondly, it provides a good foundation for further analysis and for applying better targeted and appropriate support mechanisms for academic staff and students at the University of Latvia (methodological materials, specific digital skills development courses, etc.). In general, the research indicates that students perceive positive improvements within one year in almost all the studied aspects of the organization of the remote study process (the lecturer's digital skills, support for students during the study process, planning and implementation of the study process, acquisition of the study content). However, the results indicate that students have become more realistic in assessing their digital skills. Although the results generally reveal a certain positive trend, which could indicate that some support was provided and students and lecturers at the University of Latvia were able to adapt to the current situation, in some aspects of the organization of the study process, more targeted and individualized support is still necessary. For example, there is a need for future examination analysing why a sufficient proportion of the students could 'not indicate' whether they receive support from lecturers. At the same time, the research results provide us with much-needed assurance that students and lecturers at universities are prepared for new sustainable higher education study organization solutions in the future. The pressure of COVID-19 has required higher education institutions to adapt much faster to unique circumstances, to seek solutions in emergency teaching and learning circumstances in COVID conditions, to develop long-term solutions that are satisfactory to all higher education stakeholders, that are sustainable and to act responsibly in a global context.

Finally, the current study provides new research avenues and raises new research questions. In future research, the sample should be expanded to analyze the in-depth experiences of students, differentiating by faculties and study levels. We agree with other

researchers [19] that there is a clear need for longitudinal studies to examine the future developments of study organizations in remote higher education teaching and learning.

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**Informed Consent Statement:** All the respondents were informed about the use of research data and the statement “By filling this questionnaire you agree that the information provided will be anonymously used in the research”.

**Data Availability Statement:** The data presented in this study can be available on request from the corresponding author in accordance with the interests of the University of Latvia.

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