

DIGITALIZATION OF HIGHER EDUCATION AND RESPONSE TO COVID-19 PANDEMIC IN LATVIA

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ABSTRACT

The rapid spread of the Covid-19 coronavirus outbreak compelled many university administrators worldwide to take immediate measures to prevent spreading the disease on their campuses. One key measure was to switch from the face-to-face teaching mode to emergency remote teaching through online learning. Even though the swift and unplanned shift to move all courses online has caused several challenges to most Higher Education Institutions (HEIs) in Latvia, such a challenging situation has also created opportunities and opened new perspectives to the understanding of the digitalization of teaching and learning in Latvian HEIs. This paper, therefore, attempted to explore the digitalization process of Latvian HEIs, the response to the Covid-19 crisis by HEIs in Latvia, and the views of students of the Faculty of Education, Psychology and Art, the University of Latvia on the remote learning process they were exposed to during the academic year of 2020/2021 as well as how formal and informal research classes/modules contributed to the students' knowledge and attitudes toward the research process during the Covid-19 crisis. The conclusions of this paper were (1) digitalization and increasing study in the virtual environments are changing students' attitudes towards studies. Therefore, it is expected that HEIs in Latvia will reach their digitalization goals by 2027, (2) it seems that the students and the faculty adapted the remote learning process and strategies were found to support the achievement of study results, learning remotely during the Covid-19 crisis. Even though the students' responses to their self-assessment of their digital skills were high, they sought to acquire more digital skills during the remote learning mode. (3) Although the students take formal research classes/modules, they require more training and an in-depth understanding of research methodologies.

Keywords: Covid-19, digitalization, higher education, Latvia, research

Introduction

The growth of information technology has impacted the digitalization of Higher Education Institutions (HEIs) in terms of the teaching and learning processes in various aspects, such as the adaption of learning management systems (Telukdarie & Munsamy, 2019), the use of digital technologies and

digital learning tools and materials in the teaching and learning processes 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. Moreover, academic staff's digital literacy skills and creativity positively influence the digital transformation of teaching and learning processes (Černochová & Selcuk, 2019).

However, a significant number of HEIs have been somewhat resistant to the widespread digitalization process up until the crisis caused by the COVID-19 for three main reasons: (1) a lack of financing for technologies and technological solutions, (2) a lack of continuous technological support and quality further education for educators, and (3) a negative attitude towards technologies caused by a lack of experience or negative experience using technologies. The COVID-19 crisis overshadowed 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 number 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. The authors acknowledge that the digital transformation of education in these circumstances is somewhat unusual as it is not strategically initiated or led but instead is a desperate attempt to adjust to the state of current affairs (Daniela, Visvizi, 2021; Azorín, 2020; Iivari, Sharma, Ventä-Olkkonen, 2020; Karalis, 2020; Tria, 2020). Nevertheless, providing continued access to education relied extensively on digital technologies and initiated attempts to manage and deal with various structural and cultural changes and barriers obstructing the successful implementation of digital solutions in education (Reimer & Schleiche, 2020).

Due to the unprecedented COVID-19 crisis, like other HEIs in most countries, Latvian HEIs also faced challenges at various levels. One of the initial challenges was the rapid transition from face-to-face education to remote education. The (un)readiness to provide teaching and learning in such a remote format, in which face-to-face contact is gradually limited and denied, has been and continues to be different in Higher Education (HE). Adaptation is intertwined with 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 to choose technologies and technological solutions to achieve pedagogical goals masterfully (Daniela, 2021). Intensive communication in various channels and the development of study materials and tasks in a

considerable amount were necessary to teach study courses in synchronous and asynchronous modes. The students have been significantly challenged by the need to rearrange their time planning and self-organization habits. More emphasis is placed on self-directed learning supported by the lecturers. In general, HEIs have done a great job of strengthening the competence of the whole academic community to work – learn and teach digitally – which is also confirmed by the results of a study by PricewaterhouseCoopers (2020) study, “Evaluation of Digitalization of Higher Education Institutions in Latvia”.

This current paper has three overarching aims: (1) to illustrate the digitalization of HEIs in Latvia, (2) to report the response to the COVID-19 pandemic crisis by HEIs in Latvia and (3) to present the key results of two surveys collected from the students of Faculty of Education, Psychology and Art, University of Latvia (UL). The following three research questions are formulated to address the main aims of the study:

RQ1: How do the students relate to the remote learning process they were exposed to during the academic year of 2020/2021?

RQ2: What is the level of digital skills bachelor students report having?

RQ3: How did exposure to formal and informal research classes/modules contribute to their knowledge and attitudes toward the research process?

Methods

The collected data for this study comprises primary and secondary data sources to illustrate the digitalization of HE in Latvia and present how Latvian HEIs responded to the COVID-19 pandemic crisis with official documents and the findings of two studies (Study I and Study II) collected from the students of the Faculty of Education, Psychology and Art, UL.

Secondary Data

Secondary data gathered from normative documents of Latvia and the UL to present the digitalization of HEIs in Latvia and describe how HEIs in Latvia responded to the Covid-19 crisis.

Study I

For the Study I, 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 only analyzed the questions which show students opinion about remote learning process. UL 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 the university.

The sample group in the study consisted of 726 students (673 female, 51 male) in the fall semester and 716 students (652 female, 59 male and 3 students did not want to indicate their gender) in the spring semester. 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.

Study II

For the Study II, the data gathered from a sample of 125 students enrolled in the Faculty of Education, Psychology and Art, University of Latvia. An online survey was distributed to the students via Google forms in mid-September, and students were asked to fill it in until mid-October 2021. Data were analyzed from mid-October till early November 2021.

The sample group in the study consisted of 125 students studying at the Faculty of Education, Psychology and Art in the University of Latvia. All 125 students' study location was based in Riga. Of the students that responded to the questionnaire, 115 female (92%), 9 male (7.2%), and 1 prefers not to say (0.8%), whose mean age was 28.7 within the range of 19–55. Students' field of study were education ($n = 107$, 85.6%), psychology ($n = 5$, 4%), art ($n = 5$, 4%), and sports ($n = 8$, 6.4%).

Results

Digitalization of Higher Education in Latvia

The strategic goals of HEIs' digitization are defined in two reports (1) **Guidelines for the Development of Education 2021–2027** and (2) **Digital Transformation Guidelines**. The first report states that HEIs actively use digital solutions in studies, research, and internal processes efficiency. The second report, on the other hand, 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, and improve the quality and availability of research data and researchers' digital literacy. The Guidelines for the Development of Education for 2021–2027 "Future skills for the society of the future" identifies digitalization

as a significant 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 the HEIs population, i. e. citizens in the labor market or entrepreneurs who already have one or more HE but no knowledge of recent trends. During the guidelines period, 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 specific 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. The report of PricewaterhouseCoopers (2020), ordered by the Ministry of Education and Science of Latvia, there are identified several strengths of the digitalization of HE:

- 1) Understanding the 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 the use of artificial intelligence in data analyses

In this paper, 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 digital competence for all stakeholders,
- 3) Development of new digital solutions,
- 4) Support for a smart learning environment.

It was concluded that 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 project funding);

- 2) Access to the informational information space facilitates the study course facilities the study course preparation;
- 3) 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.;
- 4) Continuous availability of technical support for digital technologies used in the study process (helpdesks, system administrators, etc.);
- 5) Motivation system to promote the use of digital technologies.

Response to COVID-19 in Higher Education in Latvia

At the national level, the Emergency Situation came into force immediately with the Cabinet Order of March 12 2020 (Order of Cabinet of Ministers No. 103, 2020). The on-site training process was stopped, providing remote learning in all educational institutions as far as possible. Later, the emergency in Latvia was extended to June 11, 2020. The amendment in Education law was accepted where the term “remote learning” is included. It states that remote learning is a part of the full-time educational process in which learners learn, 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). Higher education institutions were free to issue their internal documents to organize internal processes to follow government regulations.

In the fall semester of 2020, the study process began as on-site studies. However, as the number of Covid-19 cases increased, the decision was taken to declare an Emergency Situation (from November 9 2020, to April 6 2021). It came into force immediately with the Cabinet Order No 655 of November 6 2020 (Cabinet of Ministers, 2020). From October 11 2021 to January 11 2022, a new Emergency Situation was declared in Latvia (Cabinet order No 720), and on October 20, there were amendments made in this order with Order No 748. It was declared that there would be a lockdown from October 21 until November 15, and all the educational institutions turned to complete remote learning.

Key Results from the students of Faculty of Education, Psychology and Art

Students' Remote Learning Processes during COVID-19 – 2020/2021 Semester

The below results are drawn from **Study I** (see Methods). The fall semester uses code “I”, and the spring semester uses code “II” to distinguish between two rounds of surveying. Students were asked if they believed that they had achieved all the study results. From the data, it seems that students' study results were improved from the fall to spring semester; for example, 23% of

students answered, “yes, all the results” in the fall semester, and 34,8% of students in the spring semester. It indicates that students and faculty adapted to the remote learning process, and strategies were found to support the achievement of study results. The situation is not perfect, as students believe that they have not reached all the study results. We need to provide a study process that supports the achievement of all the study results during the remote learning process. It is essential to develop pedagogical strategies and provide technological solutions for remote learning (see Figure 1).

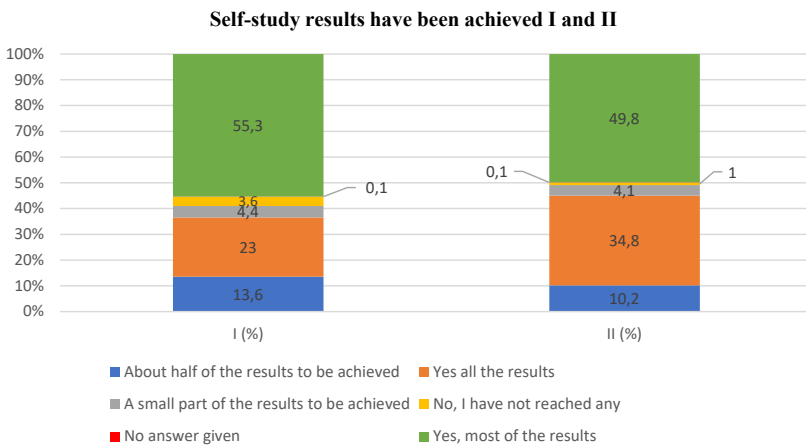


Figure 1. Comparison of self-study results have been achieved – Fall 2020 and Spring 2021 semesters

Students also were asked to express their opinion about the possibility of continuing remote learning after the Covid-19 pandemic. Results indicate that in the fall semester, 49.4% of students and in the spring semester, 65.7% fully agreed that lectures could be organized remotely (see Figure 2).

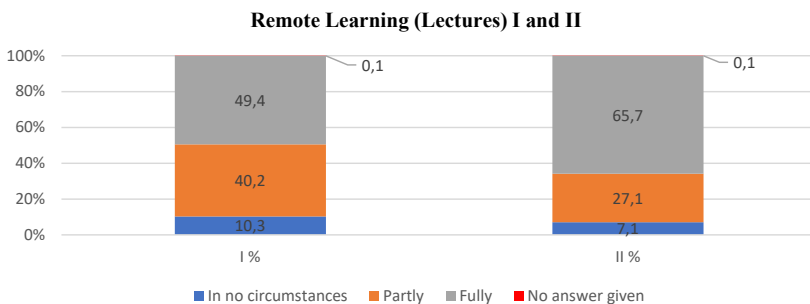


Figure 2. Comparison of remote learning (lectures) – Fall 2020 and Spring 2021 semesters

Also, about seminars, 30.6% of students in the fall semester and 42% of students in the spring semester fully agreed that seminars could be organized remotely. It can be concluded that students have acquired new learning strategies, and faculty have developed better teaching strategies for online learning. It also shows a new direction for organizing the study process in remote mode to allow participants in the study process for those who cannot participate in on-site learning because of their place of living, social situation, or special needs (see Figure 3).

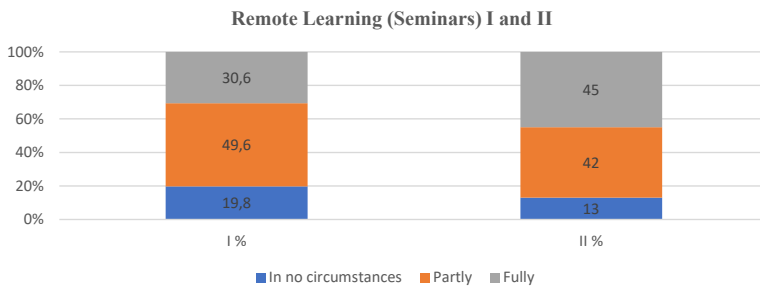


Figure 3. Comparison of remote learning (seminars) – Fall 2020 and Spring 2021 semesters

Another question was about what students were missing during the remote process, and they had to evaluate different aspects of learning. First, they were asked to evaluate if they missed meetings with peers, and results show that in the fall semester, 44.4% of students, and in the spring semester, 30.4% of students missed peers to a considerable extent. In the fall semester answer “do not miss” was given by 11.8% of students, and 19% of students gave such an answer in the spring semester. These results show that students do not miss meetings with other peers, and the number of such students is increasing, which can be quite an alarming signal that students are losing their social contact with their peers, and it can be hard to develop these contacts later (see Figure 4).

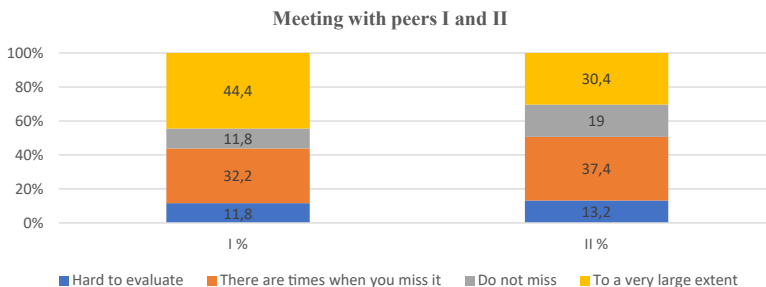


Figure 4. Comparison of meeting with peers – Fall 2020 and Spring 2021 semesters

Students were also asked if they missed meeting with faculty, and in the fall semester, 29.3% of students reported that they missed it, and in the spring semester, 22.4% missed it “to a very large extent”. The answer “do not miss” was given by 11% of students in the fall semester and by 18.6%. These results let us think that remote learning strategies are improved, and faculty members have developed better strategies to work with students remotely (see Figure 5).

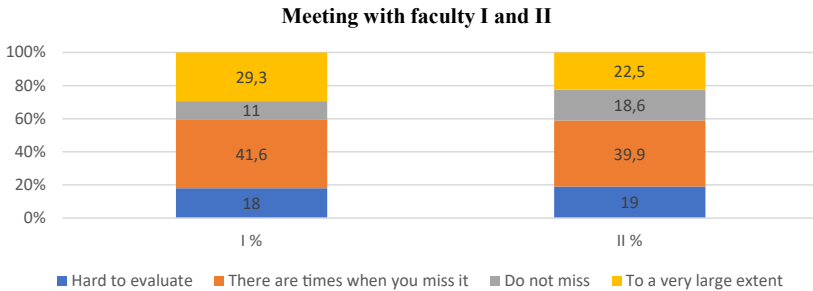


Figure 5. Comparison of meeting with faculty – Fall 2020 and Spring 2021 semesters

For the question, if students miss the possibility to participate in discussions in the fall semester, 37.3% of students missed it “to a very large extent”. In the spring semester, 27.7% of students 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 the study process (see Figure 6).

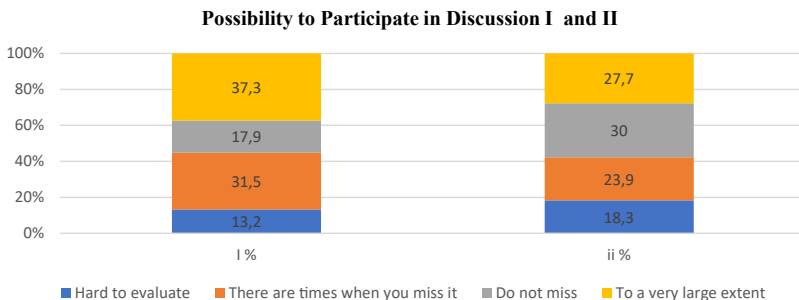


Figure 6. Comparison of possibility to participate in discussion – Fall 2020 and Spring 2021 semesters

Students' self-assessed digital skills

The below results are drawn from **Study II** (see Methods). Students' average responses to all statements in Table 1 is 'agree' (mean = 3.95, *S.D.* = .72).

Table 1. The Distribution of students' self-assessment of their digital skills (*N* = 125)

Item	Strongly disagree	Disagree	Partially agree	Agree	Strongly agree
I know how to manage online files (download, save, upload)	0.8%	3.2%	9.6%	34.4%	52%
I know how to use shortcut keys	3.2%	13.6%	26.4%	31.2%	25%
I know how to open a new tab in my browser	1.6%	2.4%	8%	32.5%	52.8%
I know how to complete online forms	1.6%	2.4%	13.6%	34.4%	48%
I know how to adjust privacy settings	1.6%	10.4%	29.6%	28%	30.4%
I know how to connect to a WIFI network	0	2.4%	5.6%	32%	60%
I know how to connect to an online platform (Zoom, MsTeams, Google classroom etc)	0	4%	11.2%	34.4%	50.4%
I can easily find the information I need on a website	0.8%	4.8%	21.6%	38.4%	34.4%
I can easily navigate through the tools included in different online platforms (Zoom, MsTeams, Google classroom etc)	0.8%	8%	20%	36.8%	34.4%
I know which information I should and shouldn't share online	0	6.4%	14.4%	36.8%	42.4%
I know when I should and shouldn't share information online	1.6%	2.4%	16.8%	35.2%	44%
I am careful about my comments and behaviours while I am online	1.6%	0.8%	13.6%	32%	52%
I know how to create a video	5.6%	10.4%	22.4%	25.6%	36%
I know how to create a infographic	14.4%	19.2%	32%	17.6%	16.8%
I know how to design a website	13.6%	18.4%	32%	20.8%	15.2%
I feel confident putting content I have created online	3.2%	12%	27.2%	34.4%	23.2%

52% of the students responded that they are careful about their comments and behaviours while they are online. Overall, the students' self-assessed digital skills are high ($M = 3.95$, $S.D. = .72$). It can be concluded that most students are digitally literate and have higher digital competencies. Students in the 19-28 years old age group self-assessed the highest than the other three age groups (29–37, 38–46, and 47–55).

Students' involvement with research during COVID-19 crisis

The below results are drawn from Study II (see Methods). Students have reported that they took some formal research classes/modules such as research methodology (e. g., methods, research design, literature review etc.). However, as inferred from the students' responses, their engagement with informal research activities, including class/module/lesson, is not conclusive and generalizable. Most students consider their research competencies as neither competent nor weakly competent (mean = 2.93, $S.D. = .93$). Students who had to conduct and write their diploma theses during the remote learning process seem to have enough self-confidence to undertake independent research study with their supervisors' facilitation and tend to employ qualitative and quantitative methods.

Conclusions

In this study, we attempted to explore what has been done for the digitalization of HEIs in Latvia and how HEIs in Latvia responded to the challenges of the COVID-19 crisis. Furthermore, in the light of the two research studies conducted at the Faculty of Education, Psychology and Art, UL, we aimed to investigate bachelor students' views on the remote learning process they were exposed to during the COVID-19 crisis in the academic year of 2020/2021 as well as examine how formal and informal research classes/modules contributed to the students' knowledge and attitudes toward the research process during the COVID-19 crisis.

The results concerning the digitalization of HEIs in Latvia revealed that HEIs in Latvia are working intensively to reach their digitalization goals which are actively using digital solutions in digital study platforms, technology integration in study content and research and streamlining internal processes, to improve the skills both academics staff and researchers in the use of digital technologies and to transfer new knowledge and new technologies to the population (lifelong learning).

The results associated with the response to the COVID-19 situation indicated some alarming signals about social contact as students miss social contact with their peers less than at the beginning of closures at the start of pandemics. We believe that this phenomenon can influence

future professionals who will have to work in education, psychology, and sport. We have to think about how to support social interaction. 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 incredibly remote learning in their practice. Education professionals have a growing interest 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. However, it is even more essential to provide professional development and the necessary resources for educators to use existing and new technological solutions appropriately. Therefore, we believe that digital transformation in education needs to be continued to ensure a modern and efficient learning process at all levels of education in the future. The experience gained during the COVID-19 pandemic naturally calls for a debate on the driving forces and obstacles to the development. 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.

As to the results of two research studies conducted at the Faculty of Education, Psychology and Art, UL, it can be concluded that even though students encountered several issues with their study processes due to the cause of the pandemic situation, based on their responses, it seems that the students and the faculty adapted the remote learning process and strategies were found to support the achievement of study results, learning remotely during COVID-19. Even though the students' responses for their self-assessment of their digital skills were high, they sought to acquire more digital skills during the remote learning mode. Also, even though the students take formal research classes/modules, they require more training and an in-depth understanding of research methodologies. The students seemed to dedicate less time to research methodologies outside the formal research training during the COVID-19 situation.

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