



L-Università ta' Malta
Faculty of Engineering



Erasmus +: BLISS

Blended Learning Implementation for reSilient,
acceSsible and efficient higher education

Project 2021-1-SE01-KA220-HED-000023166

Project Result 1 - Deliverable 1.3.1

Database of answers to the survey



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Document heading

Project title: Blended Learning Implementation for reSilient, acceSsible and efficient higher education

Project result: **1**

Leading org.: University of Malta

Output title: Mapping of the Covid-19 impact on the adoption of blended learning strategies

Authors: University of Malta with input from the entire consortium

Project Result 1 Summary

The Covid-19 pandemic forced Higher Education Institutions (HEIs) worldwide to rapidly rethink their learning strategies. This sudden acceleration in the integration of online tools into teaching, particularly in digital technologies, has created a unique global experiment in the implementation of blended learning strategies.

The BLISS consortium comprises universities from different parts of Europe, each experiencing varying degrees of pandemic severity and government responses. For example, Bergamo, Italy, was one of the hardest-hit locations in Europe, while Sweden and Malta implemented comparatively less restrictive measures. While the education system successfully adapted to maintain continuity, the diverse responses across institutions led to different learning strategies at various stages of the pandemic. Each participating university has conducted an independent analysis of its response to Covid-19 responses, generating a valuable dataset for assessing blended learning implementation in HEIs. This provides an opportunity to examine its potential, identify challenges, and establish best practices for more effective adoption.

Although the BLISS consortium primarily focused on engineering curricula, the findings are expected to have broad significance for the entire higher education community.

List of Overall Tasks

Task 1.1 – Analysis of Institutional Reports

- Collect and review documents from all partner institutions regarding their Covid-19 response.
- Identify best practices and gaps in information.
- Compile a standardized dataset.

Task 1.2 – Development of the Survey Questionnaire

- Design a questionnaire based on insights from **Task 1.1**.
- Include both quantitative (e.g., multiple-choice, scaled questions) and qualitative (e.g., open-ended) sections.
- Establish the best methodology for data collection.

Task 1.3 – Conducting the Survey

- Distribute the questionnaire to educators in **engineering education** at partner institutions.
- Gather responses and build a database for analysis.

Task 1.4 – Data Analysis & Conclusions

- Analyze survey data to identify **patterns and trends** in pandemic responses.
- Evaluate the effectiveness of different blended learning approaches.
- Synthesize findings into a research paper.

Project Result Implementation

Division of work

Activity Leadership and Planning The University of Malta led this activity and organized the related work as planned.

The University of Malta (UM) lead this initiative, with active participation from all partner institutions. Each institution has already, to varying degrees, assessed the impact of Covid-19 on its academic activities. This activity benchmarked existing evaluation approaches and enhanced the analysis through a structured survey. The joint evaluation of different institutional experiences will serve as a foundation for further development.

Task 1.3 – Conducting the Survey

The next task of this result involved conducting the survey with the academic members from each institution. The questionnaire developed in Task 1.2 was utilised to conduct a qualitative survey amongst the partners and collect the responses from the different Universities to understand their performance and approach to the different phases of the COVID-19 pandemic.

Deliverables:

- **(1.3)** Database of responses to the survey

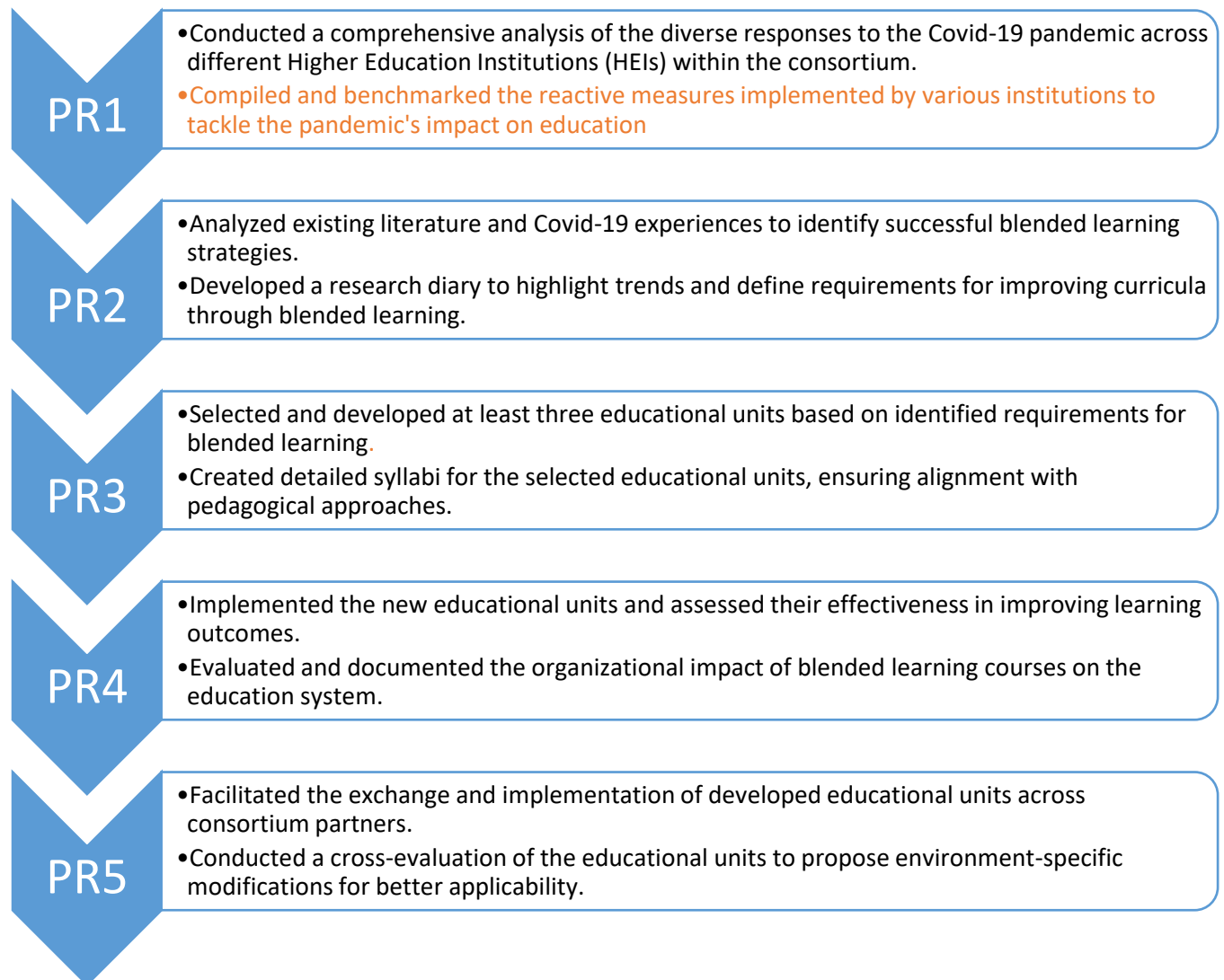
The University of Malta was mainly responsible for Task 1.3, by coordinating all the partner responses for the survey the database of responses to the survey was compiled. All project partners compiled their respective responses to the survey.

Project Deviation

The duration of the activity was extended and conducted concurrently with PR2, since after discussions during the kick off meeting the BLISS consortium decided that there was a lack of necessity to complete PR1 prior to the initiation of PR2. This decision to prolong the timeline proved to be beneficial, as it allowed for a more thorough and detailed examination of the documentation provided by the participating universities. Initially, the documents were found to be inconsistent across institutions, which presented challenges in standardizing the data. The additional time granted the research team the opportunity to review and analyze these materials more carefully, ensuring that all relevant information was captured and assessed effectively.

In addition to the extended timeline, a questionnaire was developed and distributed to enhance the data collection process. The extended timeframe allowed for a longer data collection period, enabling the team to gather more comprehensive and diverse data from the various institutions. This, in turn, contributed to a more accurate and robust dataset. The combined effect of both the prolonged activity and extended data collection period allowed for a more complete and detailed analysis. This ultimately resulted in higher-quality findings, offering deeper insights into the impact of Covid-19 on the higher education landscape, particularly in the context of engineering education.

Project Result 1 in the context of the Project



Introduction to report

This report, titled Task 1.3: Survey on the COVID-19 Impact, represents a continuation of the work initiated in Task 1.2, where the questionnaire format was first introduced. Building upon that foundation, the present deliverable (1.3.1) focuses on a detailed analysis of the primary outcomes derived from the survey responses. It is important to note that not all tables mention the whole six participating universities, that is, the full BLISS consortium. This omission reflects the nature of the data collected, that is qualitative insights which were obtained through interviews when formal documentation was not available. In cases where relevant documentation existed, these entries were excluded from this report, as they were not specifically addressed during the interviews.

This structured approach ensures that the report highlights both documented data and firsthand insights, providing a comprehensive understanding of COVID-19's impact across the surveyed institutions.

2019 – 2020 (The beginning of Covid-19)

1.1. Task force and other special groups

The responses varied significantly across the surveyed universities, reflecting differences in institutional structures, decision-making processes, and levels of centralisation. While some universities established formal task forces or committees, others relied on existing administrative bodies or decentralised approaches to manage the crisis. This is articulated further in Table 1.

Table 1 - Compilation of the main outcomes from the partner surveys - Task Force and other Special Groups.

University	Information extracted from the partner surveys
POLITO	<p>POLITO adopted a formalised and structured approach without fundamentally altering its organisational framework. Although no dedicated COVID-19 task force was created initially, the university mandated that all face-to-face meetings be replaced with virtual meetings exclusively via Microsoft Teams, the institution's official platform.</p> <p>To manage the pandemic's technical and organisational aspects, a COVID contact person was appointed from the administrative staff, serving until March 31, 2022. Furthermore, POLITO established a University COVID Committee responsible for developing internal protocols to manage the pandemic.</p> <p>This committee included high-level stakeholders such as the Rector, the Director General, the workers' safety representatives, the Comitato Unico di Garanzia (CUG), the competent medical officer, and the University COVID contact person. The committee's initiatives were supported by a specialised working group comprising members from various university structures, ensuring comprehensive management provisions were implemented.</p>
UNIBG	<p>In contrast to POLITO, UNIBG adopted a straightforward approach by establishing a dedicated COVID-19 task force. While specific details regarding the structure or functioning of this task force were not provided, its existence indicates a proactive stance in addressing pandemic-related challenges.</p>

UNILJ	UNILJ opted for a more decentralised approach, assigning COVID-19 response responsibilities to Deans and Vice-Deans at the faculty level. Although recommendations were issued at the university level, each faculty had the autonomy to adapt these guidelines as deemed appropriate. This model allowed for flexibility in addressing faculty-specific challenges but may have resulted in variations in implementation across the institution.
UNIRI	UNIRI's response reflected a hybrid model, balancing centralised coordination with faculty-level autonomy. While individual faculties initially responded independently to the pandemic, a university-wide task force was later established to harmonise efforts and develop standardised guidelines applicable across all faculties. This approach ensured consistency in pandemic management while respecting the unique needs of each faculty.

1.2. Impact on document sharing

The COVID-19 pandemic accelerated the adoption and evolution of digital platforms across higher education institutions worldwide. Universities were compelled to reassess their existing infrastructure, leading to either the reinforcement of current systems or the rapid deployment of new tools for document sharing and online communication. The responses from the surveyed universities, Table 2, highlight varying degrees of adaptation, influenced by pre-existing digital practices and institutional flexibility.

Table 2 - Compilation of the main outcomes from the partner surveys – Impact on document sharing.

University	Information extracted from the partner surveys
POLITO	POLITO maintained continuity in its document-sharing practices during the pandemic. The university continued to utilise its intranet system, <i>Portale della Didattica</i> , for disseminating documents and internal communication. As this platform had been effectively supporting academic operations prior to COVID-19, no significant changes or software updates were deemed necessary. This stability indicates that POLITO's digital infrastructure was robust enough to accommodate the sudden shift to remote operations without additional tools or modifications.
UNIBG	UNIBG demonstrated a dynamic adaptation to the pandemic's challenges by integrating multiple platforms for both document sharing and online communication. Prior to COVID-19, Moodle served as the primary platform for sharing academic materials. In 2020, with the onset of the pandemic, Microsoft Teams was introduced to facilitate online conferencing and virtual meetings.

	<p>Initially, Moodle remained the preferred tool for material distribution, while Teams was dedicated to synchronous interactions. However, by late 2020, the university consolidated its digital operations under Microsoft Teams, with each class assigned a specific "team" for lectures and document sharing. Moodle was subsequently relegated to exam-related activities, reflecting a strategic shift towards a more integrated platform for both teaching and resource dissemination.</p>
KTH	<p>KTH's response to COVID-19 primarily focused on physical campus adjustments rather than significant changes in document-sharing platforms. The university enforced strict mask mandates and reduced room capacities by 50% to comply with health guidelines. While campus activities were limited to essential functions, other events transitioned to online formats. However, no specific information was provided regarding the introduction of new platforms or software updates for document sharing.</p> <p>This suggests that either existing systems sufficed for digital resource management or that KTH prioritised health and safety measures over digital infrastructure modifications. KTH's response focused more on physical campus modifications—such as reduced room capacities and mask mandates—rather than overhauling its digital document-sharing infrastructure. This contrasts with other institutions that prioritised digital transformation to ensure academic continuity.</p>
UNILJ	<p>UNILJ underwent multiple transitions in its choice of online communication platforms during the pandemic. Initially using <i>GoToMeeting</i>, the university shifted to <i>Cisco Webex</i> and eventually settled on <i>Zoom</i>, which remains the primary platform for virtual interactions. In terms of document sharing, <i>e-Classrooms</i> and <i>Moodle</i> were utilised for uploading academic materials.</p> <p>However, there remains ambiguity regarding whether these platforms were introduced specifically in response to the pandemic or were part of a pre-existing plan for digital enhancement. Regardless, the adoption of these tools facilitated the continuity of academic operations during remote learning phases.</p>

1.3. Technical Failures

The rapid transition to remote learning and online assessments during the COVID-19 pandemic exposed the strengths and vulnerabilities of universities' digital infrastructures. While some institutions faced significant technical challenges, others encountered minor issues, reflecting differences in preparedness, resources, and the scalability of their digital

ecosystems. Table 3 compares the technical failures experienced by the surveyed universities, highlighting the nature and severity of these issues.

Table 3 - Compilation of the main outcomes from the partner surveys – Technical Failures.

University	Information extracted from the partner surveys
KTH	<p>KTH faced considerable technical challenges, particularly during online examination sessions. The primary issue stemmed from insufficient bandwidth, which struggled to support the large number of students participating in simultaneous, synchronous exams via <i>Zoom</i>. This strain on the digital infrastructure led to delays and, in some cases, necessitated the postponement of exam deadlines to accommodate connectivity failures.</p> <p>In addition to bandwidth issues, KTH engaged in internal discussions regarding the appropriateness and feasibility of supervising students via webcams during online exams. These debates reflect broader concerns about academic integrity, privacy, and the technological capacity to manage large-scale remote proctoring effectively.</p>
UNILJ	<p>UNILJ experienced relatively minor technical issues during its transition to online operations. The most frequently reported problems were related to connectivity disruptions and microphone malfunctions during virtual sessions. However, these issues were not pervasive or severe enough to significantly hinder academic continuity.</p> <p>The limited nature of these technical failures suggests that UNILJ either had robust infrastructure in place or managed to implement effective solutions quickly to mitigate more extensive disruptions.</p>

2020-2021 The management of the emergency

1.4. Outreach Activities to Support the National System

Universities played a pivotal role in supporting national health systems during the COVID-19 pandemic through innovative research, technological contributions, and public health initiatives as exhibited in Table 4. The extent and nature of these outreach activities varied across institutions, reflecting their specific resources, expertise, and alignment with national healthcare priorities.

Table 4 - Compilation of the main outcomes from the partner surveys – Outreach Activities.

University	Information extracted from the partner surveys
KTH	KTH actively contributed to the national sanitary system through multiple innovative projects. One of the most notable initiatives was the large-scale 3D printing of face shields to address the shortage of personal protective equipment. Additionally, a collaborative project involving <i>SciLifeLab</i> , <i>SEED</i> , and the <i>Chemical Engineering Departments</i> at KTH began in May 2020, focusing on analysing wastewater from <i>Stockholm Vatten och Avfall</i> and <i>Värmdö municipality</i> . The detection of COVID-19 traces in wastewater proved instrumental in monitoring the pandemic's progression and identifying outbreak trends. Furthermore, in March 2020, <i>Professor Sophia Hober</i> (later awarded <i>KTH Alum of the Year 2022</i>) developed a rapid antibody test at <i>SciLifeLab</i> , significantly enhancing the ability to assess immune responses in the population.
UNIRI	UNIRI's contributions to the national sanitary system were primarily focused on administrative and preventive measures. The university implemented anti-epidemic protocols that aligned with national healthcare guidelines, particularly in the context of online teaching. While not as research-driven as KTH's initiatives, these measures contributed to the broader public health effort by ensuring a safe academic environment and minimising the potential for outbreaks within the university community.

1.5. Additional webinar from faculties regarding the pandemic

The sudden shift to online education necessitated new training and knowledge-sharing initiatives for faculty members across universities. Webinars became a crucial tool to facilitate this transition, offering guidance on digital teaching tools, pedagogical strategies, and effective online engagement. The scope and focus of these webinars varied across institutions, reflecting differences in institutional priorities and technological adaptation. Details are provided in Table 5.

Table 5 - Compilation of the main outcomes from the partner surveys – Webinars

University	Information extracted from the partner surveys
POLITO	POLITO organised a series of targeted webinars to support faculty in adapting to remote teaching. Notable sessions included " <i>A lezione di DaD - Esperienze al Politecnico di Torino</i> " (Distance Learning Experiences at POLITO) held on February 12, 2021, and " <i>Didattica Online - Sincrona o Asincrona</i> " (Online Teaching - Synchronous vs Asynchronous), which provided recommendations and practical tips for managing online learning environments. These webinars focused on sharing institutional experiences and best practices for both synchronous and asynchronous teaching models.
UNIBG	UNIBG offered practical webinars specifically designed to assist lecturers in transitioning to online teaching. The sessions emphasised strategies for effectively interacting with students in a virtual setting, addressing both technical aspects and pedagogical approaches. These webinars played a key role in enhancing faculty confidence and competence in delivering high-quality online education.
KTH	KTH introduced the " <i>Lunch 'n' Learn</i> " webinar series as part of its broader e-learning support framework. These sessions covered a wide range of topics related to digital teaching tools and methodologies. Key subjects included "Design Choices in Educational Videos" and "How to Moderate in Zoom - What Does It Entail, Why Is It Important, and How Does It Work." This initiative provided faculty with practical insights into optimising online teaching methods and fostering interactive virtual classrooms.
UNIMA	UNIMA organised a series of webinars at the onset of the pandemic to guide lecturers in using online platforms such as <i>Zoom</i> for virtual classes and assessments. Initial sessions focused on leveraging the <i>Moodle</i> platform, while subsequent training introduced the <i>Wiseflow</i> system for examinations. These webinars were essential in ensuring that faculty members were equipped with the technical skills needed to maintain academic continuity during the shift to remote learning.

1.6. Online event for socialisation of student (E-buddy)

The COVID-19 pandemic significantly disrupted traditional student socialisation, prompting universities to explore virtual platforms and initiatives to maintain a sense of community. While some institutions took structured approaches to online socialisation, others relied on student-led efforts or did not prioritise this aspect during the pandemic.

Table 6 - Compilation of the main outcomes from the partner surveys – Online Events for Socialisation

University	Information extracted from the partner surveys
POLITO	POLITO launched <i>POLITodaTE</i> , an initiative designed to maintain the university's social, scientific, and entertainment engagement in a remote format. While not strictly an E-Buddy system, <i>POLITodaTE</i> served as a virtual hub for students to access diverse polytechnic content, which was regularly published in the university's weekly newsletter. This initiative aimed to sustain a sense of community and intellectual stimulation during periods of isolation.
UNIBG	Similar to UNIMA, UNIBG did not organise formal online socialisation activities during the pandemic. The lack of dedicated platforms for student interaction could have contributed to feelings of isolation among students.
KTH	At KTH, student unions took the lead in organising online social activities, reflecting a decentralised approach where faculties did not directly manage such initiatives. These student-led events focused on fostering social engagement, providing students with opportunities to connect outside of academic contexts.
UNIMA	UNIMA did not implement any specific online socialisation activities or E-Buddy programs during the pandemic. The absence of such initiatives may have affected students' ability to maintain peer connections in a remote learning environment.
UNIRI	While UNIRI did not establish a formal E-Buddy program, certain faculties organised online events aimed at maintaining student engagement and offering support. These events, held approximately twice a year, provided students with information, gathered feedback, and monitored their well-being during the pandemic. This approach combined elements of social interaction with institutional feedback mechanisms.

1.7. Rescheduling of research activities and impact on research students

The pandemic's restrictions significantly disrupted research activities, particularly those requiring laboratory access. Universities adopted varied strategies such as those in Table 7, to mitigate these disruptions, ranging from offering academic extensions to altering research methodologies.

Table 7 - Compilation of the main outcomes from the partner surveys – Rescheduling of activities

University	Information extracted from the partner surveys
KTH	<p>KTH adopted a more proactive approach by allowing supervisors to estimate project delays caused by the pandemic. The university then provided compensatory extensions based on these assessments, ensuring that research students, particularly those working on theses, were not academically disadvantaged by circumstances beyond their control. This method acknowledged the individualised nature of research timelines while offering institutional support.</p>
UNIMA	<p>UNIMA experienced substantial disruptions due to lab closures from March to June 2020. To address the impact on research activities and students, the university offered two solutions:</p> <ul style="list-style-type: none"> a) Students could suspend their studies for up to six months to compensate for the forced halt. b) Students were encouraged to modify their research methodologies to avoid laboratory dependence. <p>This dual approach provided flexibility, though it also underscored the challenges faced by students conducting lab-based research.</p>

1.8. Active Learning strategy in Zoom

The shift to online learning during the pandemic required universities to adopt active learning strategies to maintain student engagement. The extent to which these strategies were implemented often depended on institutional policies and individual lecturer preferences, as elaborated in Table 8.

Table 8 - Compilation of the main outcomes from the partner surveys – Active learning strategy in Zoom

University	Information extracted from the partner surveys
POLITO	At POLITO, the use of active learning strategies in <i>Zoom</i> was largely left to the discretion of individual lecturers. While interaction and screen-sharing were common, there was no standardised approach. Initially, <i>BigBlueButton (BBB)</i> was used, but due to technical issues, the university transitioned to <i>Zoom</i> . The flexibility allowed lecturers to tailor their teaching methods based on their familiarity with digital tools.
UNIMA	UNIMA lecturers used interrogation techniques to foster engagement, asking students specific questions to enhance interaction. However, the overall structure of lectures remained largely unchanged, with the primary shift being the move to <i>Zoom</i> . The reliance on lecturer preference suggests a decentralised approach to active learning.
UNIBG	UNIBG utilised <i>Microsoft Teams</i> instead of <i>Zoom</i> , though the functionalities were similar. Active learning techniques, such as one-minute questions and polling, were employed to gather immediate feedback from students. As with other universities, the degree to which these tools were used depended on individual lecturers' expertise and preferences.
KTH	KTH encouraged lecturers to fully utilise <i>Zoom's</i> features, though their application varied by individual. While there was no strict enforcement of active learning strategies, instructors were motivated to leverage digital tools to enhance student engagement.
UNIRI	UNIRI actively utilised <i>Zoom's</i> interactive features, particularly the one-minute question function, which was widely adopted for both formative assessments and mid-term exams. Lecturers also used the polling feature to gauge students' understanding during lectures. The interrogation method, involving randomly selecting students to answer questions, was used sparingly due to time constraints. This

	structured use of <i>Zoom's</i> features suggests a more uniform approach to active learning compared to other institutions.
UNILJ	Similar to KTH, UNILJ allowed lecturers to decide how extensively they used <i>Zoom's</i> interactive features. The decentralised approach resulted in varied experiences across faculties, with some instructors fully embracing digital tools while others maintained more traditional teaching methods.

1.9. Webinars

A hundred percent agreement rate was brought up through this enquiry. All universities addressed how webinars played a critical role in knowledge building throughout the entirety of the pandemic, especially when imparting knowledge regarding use of software platforms such as Zoom. Having said that, the webinars were not solely held to show how the software is to be used but were also carried out in attempt to help ease the lecturers into making the leap from physical to remote teaching. This was mainly achieved by suggesting ways on how lecturers could exploit the platforms for multiple purposes (for instance, using Zoom to host lectures, thesis meetings, examinations, quizzes, presentations and more), but also to recommend ways of how lecturers could efficiently communicate with students online (even in terms of the approaches adopted and how to care for students without the possibility of being in-person).

2021-2025 Planning the new normality

1.10. Implementation of Blended Learning

Each university was asked to elaborate on its proposed plans in line with blended learning. Table 9 elaborates on each university's approach.

Table 9 - Strengthening the level of Blended Learning post Covid-19

University	Information extracted from the partner surveys
POLITO	POLITO allows the lecturers to voluntarily choose depending on whether they prefer remote lectures as opposed to in-person; so in this case, physical lectures would be conducted with the possibility of streaming. However, the majority of the professors are leaning towards the in-person approach and it is but a small minority that would like to exploit the benefits of blended learning.
KTH	KTH will offer a mix of digital and physical presence. Leif Kari, vice President for Education notes that this will include "digitally recorded lectures that are followed by meetings with teachers for questions and discussions". The same concept will apply for the doctoral thesis "where opponents, grading committees, and larger audiences can participate digitally, while others can be on place at campus."
UNIBG	<p>37.8% of students claimed that e-learning for the future would be only partially integrated, 22.7% voted "no" and 39.5% "yes" to having full integration.</p> <p>Amongst the most frequent comments, opportunities with blended learning were also addressed - records of lectures could be made that cover "institutional" content that students could watch at home and then dedicate face-to-face lectures to groupwork.</p> <p>As at 2021/ 2022 scholastic year, lessons were given in "dual mode", didactic activity in presence and streaming via Teams; which will also allow recording of lessons + accessible for a few days (15)</p> <p>UNIBG is currently looking into a centre that shall support and promote blended learning - this is still being debated and hence it remains a possibility (as at October 2022)</p>

UNIMA	<p>Monday 14th Feb 2022 - a new semester - implemented strategy where all day-programs would follow in-person teaching whilst a "hybrid" approach would ensue (in-person and remote) for part-time evening programs and day programs that involve an overwhelming number of students.</p> <p>This blended approach was labelled as the "P-R" mode (Physical - Remote), where large numbers of students were segregated into manageable smaller sub-groups so that groups can alternate between physical and remote learning on a weekly basis.</p> <p>Part-time courses were held at a 50%-50% P-R method. UM also proceeded to upgrade venues into "fully-equipped Zoom lecture rooms" to allow for interactive sessions between lecturer and the student . Conducted a pilot project in Semester 2.</p>
UNILJ	<p>Currently all lectures are held at UNILJ. A study reform was held which emphasised on allowing the students to pick which of the different modalities would be deemed best - the only issue with the latter is the possible clashes that occur due to timetables of different subjects.</p> <p>Also, since some students could not make it to the physical lectures, recorded lectures and additional matter on the E-Classrooms is an option. Some exams are also still going to be held via E-Classrooms.</p> <p>Classes can be held remotely even to cater for reasons that are not Covid related.</p>
UNIRI	<p>Hybrid delivery of classes (2029 / 2020) adopted as a pilot project at the University of Reijka.</p> <p>For the scholastic year 2020/2021, each component adopted plans in line with the Teaching Performance Model to deliver up to 40% of classes online through "e-college".</p>

1.11. Assessment to Covid (Phase 3)

Despite having undergone a two-year period of having to shift everything online, it is worth looking at the silver lining, that is the ability to view the traditional methods of teaching in a different light and assessing the decisions taken to reap the benefits gained. For instance, some of the BLISS members universities are implementing guidelines for the upcoming academic year, whereas others are taking it up a notch and reshuffling their syllabi in accordance to taxonomies such as Bloom's taxonomy; Table 10.

Table 10 - Assessing the way forward

	KTH	POLIT O	UNILJ	UNIRI	UNIMA	UNIBG
Provision of guidelines / strategy for the upcoming period	✓	✓			✓	
Way forward not yet clearly defined			✓	✓		
Evaluation of current courses and updating syllabi (example: following Bloom's Verb Taxonomy)						✓

Report Conclusion

This report has provided a comprehensive analysis of the varied responses and adaptations of six universities—POLITO, UNIBG, UNIRI, UNILJ, KTH, and UNIMA—to the challenges posed by the COVID-19 pandemic. A key outcome of this survey is the recognition that universities with centralised coordination structures, such as POLITO and UNIRI, were able to implement uniform protocols and guidelines more effectively. POLITO, for instance, established a dedicated COVID Committee and contact person, ensuring a structured and consistent institutional response. Similarly, UNIRI's task force created common guidelines applicable across faculties, fostering a cohesive approach. In contrast, universities like UNILJ and KTH, where faculties or student unions had more autonomy, exhibited more decentralised responses, allowing for flexibility but also leading to varied practices within the same institution.

In terms of technological adaptation, KTH and UNIBG stood out for their proactive shift to comprehensive digital platforms. KTH's swift integration of Microsoft Teams and robust webinar initiatives such as *Lunch 'n' Learn* demonstrated an institutional commitment to enhancing digital literacy among faculty and students. UNIBG's transition from Moodle to Microsoft Teams for lectures highlighted a similar willingness to streamline digital operations. Conversely, POLITO and UNILJ largely continued using pre-existing platforms with minimal changes, suggesting that their pre-pandemic infrastructure was sufficiently robust to meet the demands of remote learning.

When it comes to technical challenges, bandwidth limitations and online exam supervision emerged as common issues, particularly at KTH, where synchronous exams on Zoom strained the university's digital infrastructure. UNILJ faced more minor issues related to connectivity and hardware, indicating a relatively smooth technological transition. These experiences underscore the importance of robust IT infrastructure and preparedness in supporting large-scale remote education.

The universities also played pivotal roles in supporting national health systems. KTH distinguished itself with innovative outreach activities, including 3D printing face shields, wastewater analysis to monitor virus spread, and developing rapid antibody tests. Such initiatives not only exemplified the university's research capabilities but also its commitment to societal impact. UNIRI contributed through anti-epidemic measures supporting the hospital system, demonstrating a direct link between academic institutions and public health efforts.

Regarding student socialisation and engagement, responses were more varied. POLITO's *POLITODA TE* initiative exemplified creative efforts to maintain social connections, while KTH relied on student unions to organize social activities, reflecting a student-driven approach. However, universities like UNIMA and UNIBG did not implement formal online socialization initiatives, which may have affected students' sense of community during isolation.

In the domain of research continuity, KTH adopted a flexible model, allowing supervisors to estimate delays and offering compensatory extensions, ensuring minimal disruption to academic progress. UNIMA faced more significant challenges due to lab closures, necessitating either research redesign or temporary study suspensions. These contrasts highlight the varying levels of institutional support provided to research students during the pandemic.

Finally, in terms of active learning strategies, UNIRI and UNIBG leveraged tools like Zoom's polling and one-minute question features to foster interactive learning, while other institutions such as POLITO and KTH left the adoption of these tools to individual lecturer preferences. This reflects differing levels of institutional encouragement for pedagogical innovation.

In conclusion, while the COVID-19 pandemic posed unprecedented challenges to higher education institutions globally, the universities surveyed demonstrated resilience, adaptability, and innovation in their responses. The lessons learned from their experiences provide valuable insights for future crisis management and the ongoing evolution of higher education in a post-pandemic world.

Suggested Readings

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