L-Università ta' Malta
Faculty of Engineering

BLISS

Erasmus +: BLISS

Blended Learning Implementation for reSilient, acceSsible and efficient higher education

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

Project Result 1 – Deliverable 1.2.1 –

Questionnaire for the Covid-19 impact survey.

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Contents

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 1.2 – Development of the Survey Questionnaire

The second task of the BLISS project involved the definition of a questionnaire to collect the information from different institutions. Based on the requirements identified in the previous task, the research team, headed by the University of Malta, produced a questionnaire that will then be used for further analysis.

Deliverables:

- **(1.2)** Survey Questionnaire

The University of Malta was mainly responsible for Task 1.2, by drafting the survey questionnaire and setting up on google forms. All project partners provided feedback on the survey questionnaire contents.

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

PR1

- Conducted a comprehensive analysis of the diverse responses to the Covid-19 pandemic across different Higher Education Institutions (HEIs) within the consortium.
- Compiled and benchmarked the reactive measures implemented by various institutions to tackle the pandemic's impact on education

PR2

- Analyzed existing literature and Covid-19 experiences to identify successful blended learning strategies.
- Developed a research diary to highlight trends and define requirements for improving curricula through blended learning.

PR3

- Selected and developed at least three educational units based on identified requirements for blended learning.
- Created detailed syllabi for the selected educational units, ensuring alignment with pedagogical approaches.

PR4

- Implemented the new educational units and assessed their effectiveness in improving learning outcomes.
- Evaluated and documented the organizational impact of blended learning courses on the education system.

PR5

- Facilitated the exchange and implementation of developed educational units across consortium partners.
- Conducted a cross-evaluation of the educational units to propose environment-specific modifications for better applicability.

Introduction to Report

This report outlines the structure and purpose of an Excel template designed for six European Higher Educational Institutions (HEIs) to document their experiences and responses during the COVID-19 pandemic in the form of a survey. The template is systematically organised to capture the evolution of institutional strategies and actions across three distinct phases of the pandemic, with a focus on various critical aspects, including technical, psychological, and academic domains.

Structure of the Template

The template is divided into three primary timeframes, each representing a significant phase in the COVID-19 timeline. These phases are:

1. **2019-2020: At the Beginning of the Pandemic**
2. **2020-2021: Management of the Emergency**
3. **2021-2025: Planning the New Normality**

Each timeframe is designed to gather detailed information on relevant dimensions and specific actions taken by each university. The columns are organised to reflect these timeframes and include specific prompts to guide the documentation process.

2019-2020: At the Beginning

This section focuses on the initial response of universities at the onset of the COVID-19 pandemic. It includes a multitude of categories as explicated in

Table 1 - Categories pertaining to the first category of Covid-19 (2019-2020) and brief description.

Category	Description of Expected Information
Time frame for <university X>	Specify the exact timeline for how the university experienced and responded to the pandemic during 2019-2020, including key dates for transitions and decisions.
Initial full closure of activities	Detail when and how the university implemented its first full closure of campus activities, including academic, administrative, and extracurricular functions.
Task force or other special groups? (when? Who? What?)	Indicate if any task forces or special committees were formed to manage the crisis. Include the dates of formation, the individuals or departments involved, and their roles or objectives.
Beginning of online class (when? Highlighting how long after closure)	Report the start date of online classes, highlighting the duration between the campus closure and the transition to online teaching.
Live lecture/vs recorded	Clarify whether classes were conducted live (in real-time) or pre-recorded for later access, or if a combination of both methods was used.
Synchronous/Asynchronous	Indicate whether classes followed a synchronous format (real-time interaction) or an asynchronous format (students accessing materials on their own schedule).
Support for online teaching available?	Describe the support provided to faculty and staff for transitioning to online teaching, such as training, IT support, or resources.
Platform used (Zoom/Teams, etc.)	Specify the primary platforms used for online teaching and communication, such as Zoom, Microsoft Teams, Google Meet, etc.

Learning curve of the new technical solution (Students/teachers).	Explain the ease or difficulty experienced by staff and students in adapting to the new online platforms. Mention any initial disruptions or delays in scheduled courses.
Technical failures?	List any major technical issues or failures encountered during the transition to online learning, such as platform outages, connectivity problems, or software glitches.
Necessary software updates	Mention any software updates or new software installations required to support online learning and teaching activities.
Impact on document sharing: new platform required?	Explain if the university had to adopt new platforms or tools for document sharing and collaboration, and specify which ones (e.g., Microsoft 365, Google Docs).
Teaching activities not possible to be transferred online: i.e. labs, training, internships	Identify teaching activities that could not be conducted online, such as laboratory work, hands-on training, or internships, and describe how these were managed or postponed.
Study rooms and other university buildings	Describe the status of study rooms and other university facilities (e.g., libraries, cafeterias) during the closure period—whether they were fully closed, partially open, or adapted for limited use.
International students mobility?	Discuss the impact of the pandemic on international student mobility, including travel restrictions, exchange programs, and support provided to international students.
Examination	Provide details on how examinations were conducted during the pandemic, such as the shift to online exams, changes in format, or any postponements and challenges faced.

2020-2021: Management of the Emergency

This section captures the adaptive measures and strategies employed during the height of the pandemic. The categories included in this second phase of Covid-19 are presented in Table 2.

Table 2 - Categories pertaining to the second category of Covid-19 (2020 - 2021) and brief description.

Category	Description of Expected Information
Time frame for <university X>	Indicate the timeline for key decisions and adaptations during the 2020-2021 academic year, including changes in policies, reopening phases, or hybrid learning implementations.
Examination (How? What?)	Describe how examinations were managed during this phase, including any new formats (e.g., open-book exams, proctored online exams), tools used, and adjustments in grading or assessment criteria.
Communication with the students?	Detail the methods and frequency of communication with students, such as newsletters, virtual town halls, email updates, or student portals. Highlight any strategies used to maintain transparency and engagement.
- Teachers	Explain how communication with faculty was handled, including updates on teaching protocols, health measures, or pedagogical support during the pandemic.
- Support staff	Describe how the university communicated with administrative and support staff regarding operational changes, health guidelines, or remote work protocols.

IT support	Provide details about the IT support offered during this stage, such as troubleshooting services, help desks, or additional resources provided to address ongoing technical challenges.
Outreach activity to support the national sanitary system	Highlight any contributions made by the university to support the national health system, such as producing PPE, offering university facilities for medical purposes, or volunteer initiatives by staff and students.
Psychological support	Describe the psychological or mental health services provided to students and staff, such as counseling sessions, hotlines, or workshops focused on coping strategies.
Additional webinars from faculties regarding the pandemic	Mention any additional educational webinars or informational sessions organized by the faculties to address topics related to COVID-19, such as public health information, scientific findings, or policy discussions.
Online event for socialization of students (E-buddy)	Detail online initiatives designed to promote student socialization and community building, such as virtual buddy programs, online meet-ups, or peer support groups.
Rescheduling of research activities and impact on research students (thesis)	Explain how research activities were rescheduled due to pandemic restrictions and the resulting impact on research students, particularly those working on theses or lab-based projects. Include information on extensions, remote research alternatives, or support provided.
Active Learning strategy in Zoom:	Describe how active learning techniques were adapted to online platforms like Zoom to maintain engagement and participation. Include specific methods below.
- One minute question	Explain the use of quick, reflective questions during online sessions to gauge student understanding or encourage critical thinking.
- Polling	Describe the implementation of live polls during virtual classes to engage students, check comprehension, or gather feedback.
- Interrogating	Discuss how questioning techniques were adapted for online settings to foster discussion and deeper learning.
- Punchlines	Describe the use of key takeaways or punchlines to emphasize important concepts during virtual lectures, helping to retain student focus.
Assessment of the reaction to Covid	Provide an evaluation of how the university's overall response to the pandemic was managed, including what worked well, challenges faced, and lessons learned for future crisis management.

2021-2025: Planning the New Normality

This final section addresses the transition to post-pandemic operations and the integration of new norms into the institutional framework, as focused on in Table 3.

Table 3 - Categories pertaining to the final category of Covid-19 (2021-2025) and brief description.

Category	Description of Expected Information
Time frame for <university X>	Specify the timeline for post-pandemic recovery and the transition to the "new normal." Include key dates when universities resumed in-person activities, introduced hybrid models, or lifted restrictions. Highlight milestones in policy shifts, infrastructure upgrades, or changes in academic calendars.
Implementation of Blended Learning	Describe how the university implemented a blended learning model, targeting 30% of courses or activities conducted online. Include details

Strategy towards the 30%	about the structure of blended learning, integration of digital tools, training for faculty, and how this shift affected both teaching and student engagement. Highlight whether this was a temporary adaptation or became a permanent feature of the academic approach.
Assessment of the Management of the Emergency	Provide a comprehensive evaluation of how the university managed the entire COVID-19 crisis from 2019 onwards. This should include reflections on what strategies were successful, areas that required improvement, and lessons learned. Discuss how this assessment informed future policies, emergency preparedness, and institutional resilience.

Conclusion

The Excel template serves as a comprehensive tool for HEIs to systematically document their experiences and responses throughout different stages of the COVID-19 pandemic. By capturing detailed information across technical, psychological, and academic aspects, the template facilitates a thorough analysis and comparison of institutional strategies, contributing to the broader understanding of higher education's resilience and adaptability in the face of global crises.

Suggested Readings

1. Bonello, Amberlynn; Francalanza, Emmanuel; Zammit, Joseph Paul; Pirola, Maffei, Antonio; et al. “Beyond the pandemic: How has Covid-19 shaped the capability to adopt an Agile Blended Learning in HEI?”, 5th International Conference on Higher Education Learning Methodologies and Technologies Online - Book of Abstracts. Foggia, Italy.
2. Bonello, Amberlynn; Francalanza, Emmanuel; Zammit, Joseph; Maffei, Antonio; et al. “Development of an Agile Blended Learning Framework for Engineering Higher Educational Instutions post Covid-19.” Proceedings of the 33rd International Electrotechnical and Computer Science Conference. IEEE Slovenia, 2024. str. 644-647.
3. Antonelli, Dario, et al. "Tiphys: an open networked platform for higher education on industry 4.0." *Procedia CIRP* 79 (2019): 706-711.
4. Maffei, Antonio, et al. "CONALI ontology. a framework for design and evaluation of constructively aligned courses in higher education: putting in focus the educational goal verbs." *Procedia CIRP* 50 (2016): 765-772.
5. Maffei, Antonio, et al. "On the design of constructively aligned educational unit." *Education sciences* 12.7 (2022): 438.
6. Sala, Roberto, et al. "Blended learning in the engineering field: A systematic literature review." *Computer applications in engineering education* 32.3 (2024): e22712.
7. Maffei, Antonio, and Fredrik Enoksson. "What is the optimal blended learning strategy throughout engineering curricula? Lesson learned during Covid-19 pandemic." *2023 IEEE Global Engineering Education Conference (EDUCON)*. IEEE, 2023.
8. Sala, Roberto, et al. "Examining the implementation of Blended Learning in the Engineering field." *5th International Conference on Higher Education Learning Methodologies and Technologies Online*. 2023.