

remote.



Empower teachers for  
remote online assessments  
in higher education

# Guidance for Deciding and Implementing Online Assessment(s)

Report on IO3

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<https://remote-edu.ili.eu>

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The work presented here relies heavily on elements of the remote.EDU project and feedback from the remote.EDU Consortium.

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This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Project Number: 2020-1-DE01-KA226-HE-005782.



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DOI 10.5281/zenodo.7817359

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## 1. Introduction

The current situation in European higher education institutions is characterised by institutional and individual uncertainty on how to conduct online assessment in higher education, not only due to legislative and pedagogical questions, but also technical ones. The latter can hardly be influenced through individual faculty and therefore require general concepts and procedures that are applicable to different contexts.

In this context, for the third intellectual output (IO3) of the Erasmus+ funded project *remote.EDU - Empower teachers for remote online assessments in higher education*, the aim was to develop an interactive Q&A-tool that responds to the needs of Higher Education Instructors. It proposes and defines best suited online assessment methods.

The final result of IO3 consists of three main elements: (1) an interactive self-guidance tool for online assessments that guides instructors through the decision-making process when considering which technical concepts match their pedagogical intention and setting. In total, the tool covers 13 online assessment methods, including less commonly used methods such as simulation, case study and E-portfolio as well as possibilities for student empowerment (self- and peer-assessment). Furthermore (2), the recommended assessment methods that result from answering the questions in the tool are defined, and a detailed overview of each online assessment method is provided (including suggestions for implementation, handling fraud and practice examples). Finally, (3) a comprehensive Checklist was developed that can be used as general guidance for the organisational and technical implementation of the selected online assessment method(s). The Checklist addresses overarching issues that may be considered before and during the implementation and differentiates between formative and summative online assessment (remote and/or on campus).

The innovativeness of this IO lies in its combination of giving orientation and support when choosing a suitable online assessment method as well as in providing general guidance when implementing the online assessment methods. Another strength of the self-guidance tool and the Checklist is in their easy transferability to other educational contexts. Under CC BY SA 4.0 international licence, all elements can be freely shared, translated and adapted, and thus can be quite helpful across different domains.

This report provides a short introduction to the development process and main features of the self-guidance tool. The report also presents in detail the developed content of IO3, namely the assessment methods recommended at the end of the tool and the Checklist that has been created for implementing them.

To establish a common ground, a clarification of the main terms used in this report is needed:

**What is meant by online assessment?** In the remote.EDU project, this term refers to teaching that uses digital technology to support learning progress and to assess acquired competences. This includes formative and summative assessments, synchronously or asynchronously, in any educational modality (face-to-face, blended or remote).

**What is meant by assessment method?** Assessment methods refer to the specific combination of pedagogical techniques and tools that are selected based on the learning goals, the content being assessed and/or the specific context. Examples include peer assessment, papers, reports, ...

## Development process

The development of the tool and Checklist contained several stages (see Figure 1) taking place between July 2022 and April 2023. Each step was accompanied by feedback loops within the remote.EDU project consortium.

**Figure 1.** Phases of IO3.



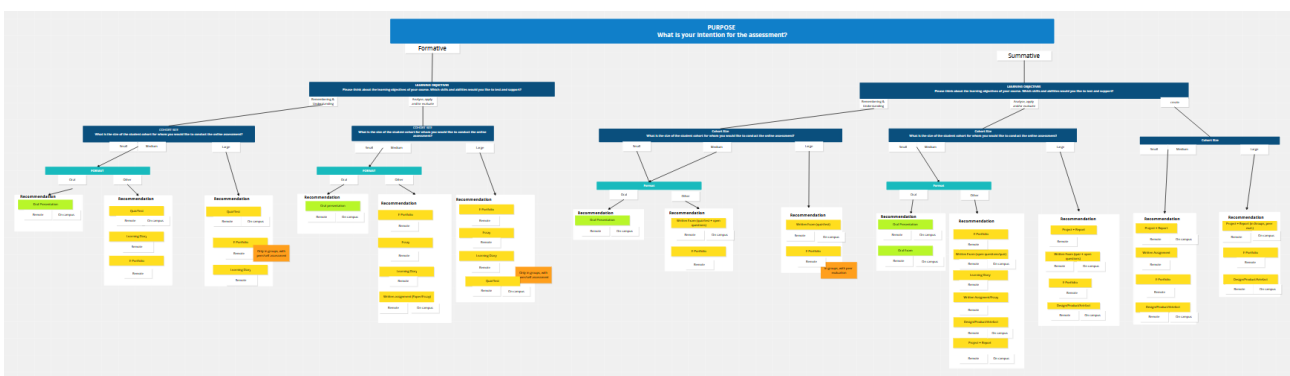
## Selection of online assessment methods

The selection of the online assessment methods is primarily based on the results of the remote.EDU literature review of Intellectual Output 1 (Kondakci et al., 2022<sup>1</sup>) and the evaluation study of Intellectual Output 2 (Marín et al., 2022<sup>2</sup>). In IO1, 89 peer reviewed journals in English, Dutch, Spanish, Turkish and German were reviewed and a survey on stakeholders' perspectives on the process and components of online assessment was conducted. As a follow up, IO2's evaluation study explored perceptions of a total of 257 instructors, students, and administrators (stakeholders) of online assessment from the four partner institutions (Belgium, Turkey, Spain, Germany).

The results of IO1 and IO2 indicate that closed book written exams, quizzes, presentations and projects were the most commonly used online assessment method, "while alternative methods (e.g., portfolio, project, peer assessment) were rarely used" (Marín et al., 2002, p.22). For the development of the self-guidance tool, these results were taken as basis and to justify the inclusion of "common" online assessment methods as well as to introduce alternative or lesser known methods. Additionally, existing materials from the project partners' institution (e.g., FAU StudOn-Exam support for instructors and students; KU Leuven Learning Lab<sup>3</sup>), content-related literature (e.g., García-Peñalvo et al., 2020; Persike, 2021; Una Europa Guidebook on Online assessment, 2022; Schmees & Horn, 2014) and the assessment toolbox from Bern University<sup>4</sup> were used to support the final choice of the online assessment methods, the relevant questions of the decision-path and the content.

Finally, all project partners were actively involved in providing practical examples for the online assessment result pages and contributed to designing both the tool and the checklist. In order to reach a final decision on the assessment methods to be included in the tool, the decision-making process and the recommendations were first modelled on a so-called conceptboard<sup>5</sup> (see Figure 2). This visualisation facilitated discussion and selection of the recommendations among all project partners.

**Figure 2.** Decision-making path modelled on conceptboard.



The resulting 13 online assessment methods are displayed in Figure 3.

<sup>1</sup> Report on IO1, zenodo: <https://doi.org/10.5281/zenodo.7009967>

<sup>2</sup> Report on IO2, zenodo: <https://zenodo.org/record/7010091>

<sup>3</sup> <https://www.kuleuven.be/english/education/leuvenlearninglab/support/assessment-feedback/assessment>

<sup>4</sup> <https://www.assessment.unibe.ch/>

<sup>5</sup> <https://conceptboard.com>

**Figure 3.** Overview of all 13 online assessment methods covered by the self-guidance tool.



### Quality assurance

Integral to development, quality assurance measures ensured that the content of all IO3 elements was appropriate and useful for the target group. The self-guidance tool, the result pages and the Implementation Checklist(s)<sup>6</sup> were tested during the pilot of the remote.EDU Open Online Course (IO5) “Mastering Online Assessment? A practical into the first steps” (01. - 31. March 2023). During this pilot run, in total 41 participants (instructors, administrative staff, educational designers and support) from different European and non-European countries (Spain, Germany, Belgium, Netherlands, Sweden, Switzerland, Turkey, Colombia and Brazil) attended. Among those, 21 participants gave explicit feedback on the IO3 elements. The participants were asked questions concerning the usefulness of all IO3 elements for their online assessment practice, the accuracy and completeness of the given information and missing aspects. Answers were collected with a Likert scale (1 strongly agree - 4 strongly disagree) and through open text format.

Overall, the participants were very satisfied with the combination of the self-guidance tool, the overview of assessment methods and the Checklist(s) and evaluated all IO3 elements as very useful for their online assessment practice. Detailed results from the pilot can be obtained from FAU upon reasonable request. Reported technical problems with the tool (e.g., one decision-path lead to a wrong result) were subsequently checked and corrected after the pilot run. Furthermore, participants preferred having one main checklist (instead of four separate ones) for their online assessment practice in which the differences between summative and formative online assessment were immediately visible. In response to this feedback, the four checklists were merged to one main checklist to optimise manageability (more information on p.29). In addition to the pilot run, the concepts and tools were presented in different dissemination events, and they were validated together with experts/target groups from the partner institutions. Overall, the development process was accompanied by continuous internal feedback processes within the remote.EDU consortium.

The feedback retrieved from the pilot run and the community has been integrated and contributed to finalising all elements.

<sup>6</sup> For the pilot phase, four separate Checklists were tested. After the pilot run, these Checklists were merged to one major Checklist.

## Consideration of advantages and limitations

With an explorative approach, the self-guidance tool aims at giving higher education instructors a first orientation for choosing best suitable assessment methods depending on their pedagogical approach and setting. The recommended assessment methods are neither binding nor exhaustive, and the tool is not intended to fulfil this claim due to international, cross-institutional, and interdisciplinary applicability. Rather, the recommendations are thought to inspire instructors and to offer them the opportunity to explore the diversity of online assessment methods. This aspect is particularly valuable since the results of the IO2 evaluation study demonstrate that it is mainly the classic online assessment methods (e.g., quiz/test, written assignment, written exam) that are being implemented by instructors in most cases (Marín et al., 2022, p.13f). Especially useful for less experienced instructors, the tool may stimulate fruitful discussions and collaborative work among different parties within the local institutional setting (e.g., senior colleagues, technical units).

Even though the decision process in the tool is mapped linearly, the actual final choice of a particular online assessment method ultimately depends on the instructors themselves as well as on country- and institution-specific factors on a macro-, meso- and micro-level. These are, for example, the available infrastructure, legal basis and the national level assessment culture (macro-level factors), institutional policies and practices (meso-level factors) as well as individual characteristics pertaining to students and/or instructors that play a role in the selection and effective implementation of an online assessment method (micro-level factors, e.g., workload, teaching experience, and digital competences) (Kondakci et al., 2022). Most of these factors cannot be taken into account by the tool as it would become excessively complex. Instead, specific hints in the instant feedback texts and disclaimer give related information (e.g., regarding legal aspects). On the other hand, different meso- and micro-level factors are covered in memo question style within the Implementation Checklist. It should be noted at this point that all IO3 elements focus on orientation and guidance, but do not name, for example, precise digital tools or measures. This would appear inappropriate since juridical regulations concerning digital tools vary greatly between countries. Also, recommended tools could quickly become obsolete in the near future, for example, due to ongoing technical innovations in the corresponding business models.

Finally, all IO3 results do not distinguish between different disciplines. For this purpose, it is up to the instructor to determine the applicability of the recommended online assessment method to their own discipline and, if needed, to start conversation with colleagues in the field.

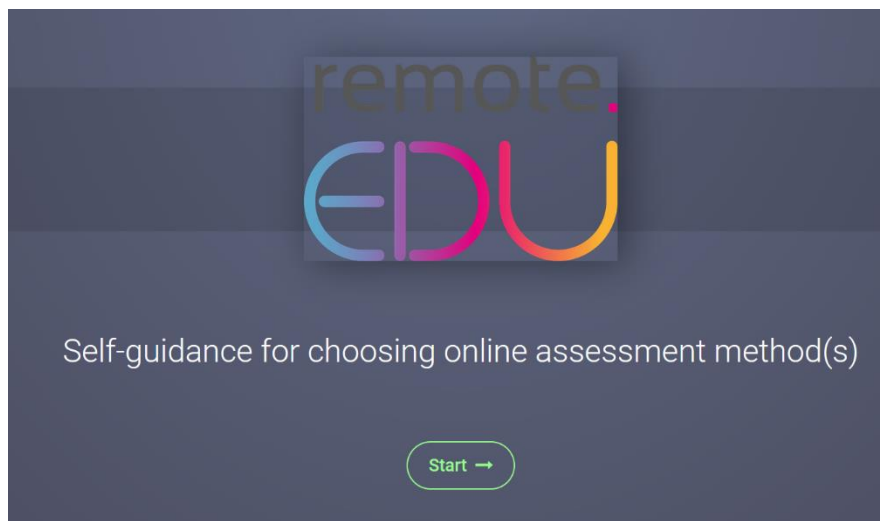
## 2. Results

### Self-Guidance tool for choosing online assessment method(s)

The interactive self-guidance tool for choosing online assessment method(s) (short version: self-guidance tool; see Figure 4) steers respondents through their decision-making process on the way to suitable online assessment method(s). The language of the tool is English. A Spanish version is also available.



**Figure 4.** Self-guidance tool. Landing Page.



The self-guidance tool (English and Spanish version) can be accessed via the remote.EDU webpage in the result section (IO3; <https://remote-edu.ili.eu>). Moreover, the tool is part of the remote.EDU Open Online Course “Mastering online assessment? A practical guide for the first steps” (Module 2, Unit 5)<sup>7</sup>.

## Technical implementation

Once the final version of the decision tree modelled in Conceptboard (p.7) was approved by all project partners, the self-guidance tool was implemented using the H5P branching scenario (see Figure 5). H5P is a free open-source software application for creating interactive web content<sup>8</sup>. The branching scenario is a flexible, HTML5 based content type that enables authors to present a variety of rich interactive content and choices.

**Figure 5.** H5P Branching Scenario.



<sup>7</sup> Link to the online course: [https://mooc.ili.eu/goto.php?target=crs\\_463](https://mooc.ili.eu/goto.php?target=crs_463)

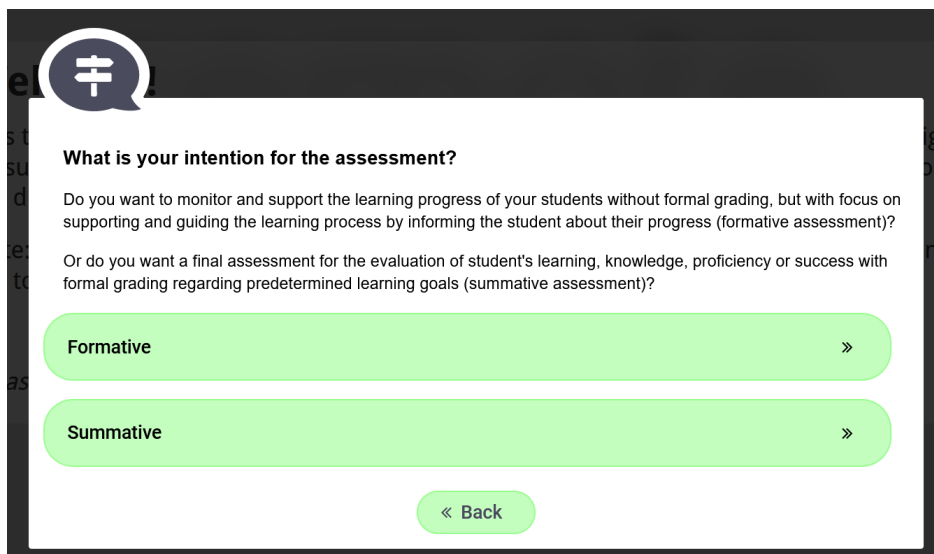
<sup>8</sup> <https://h5p.org>

The decision tree was set up first. Subsequently, the feedback texts were included and the result pages designed. The following chapter shortly demonstrates this skipping-logic and introduces the decision tree and corresponding questions.

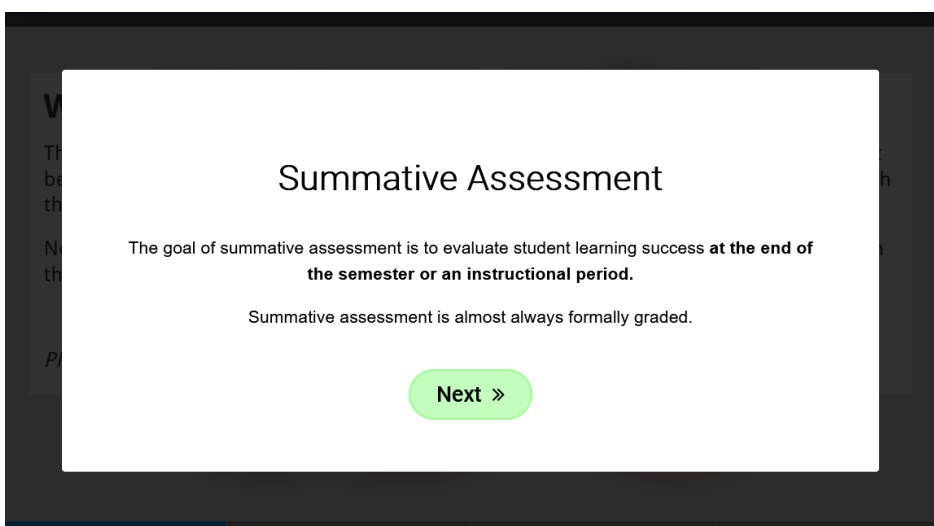
### Demonstration of the decision-making path

A skip-logic with questions and different available choices guides the user and responds to their needs and instructional setting (see Figure 6). Instant feedback texts provide additional information (see Figure 7).

**Figure 6.** Skip-logic of the self-guidance tool.

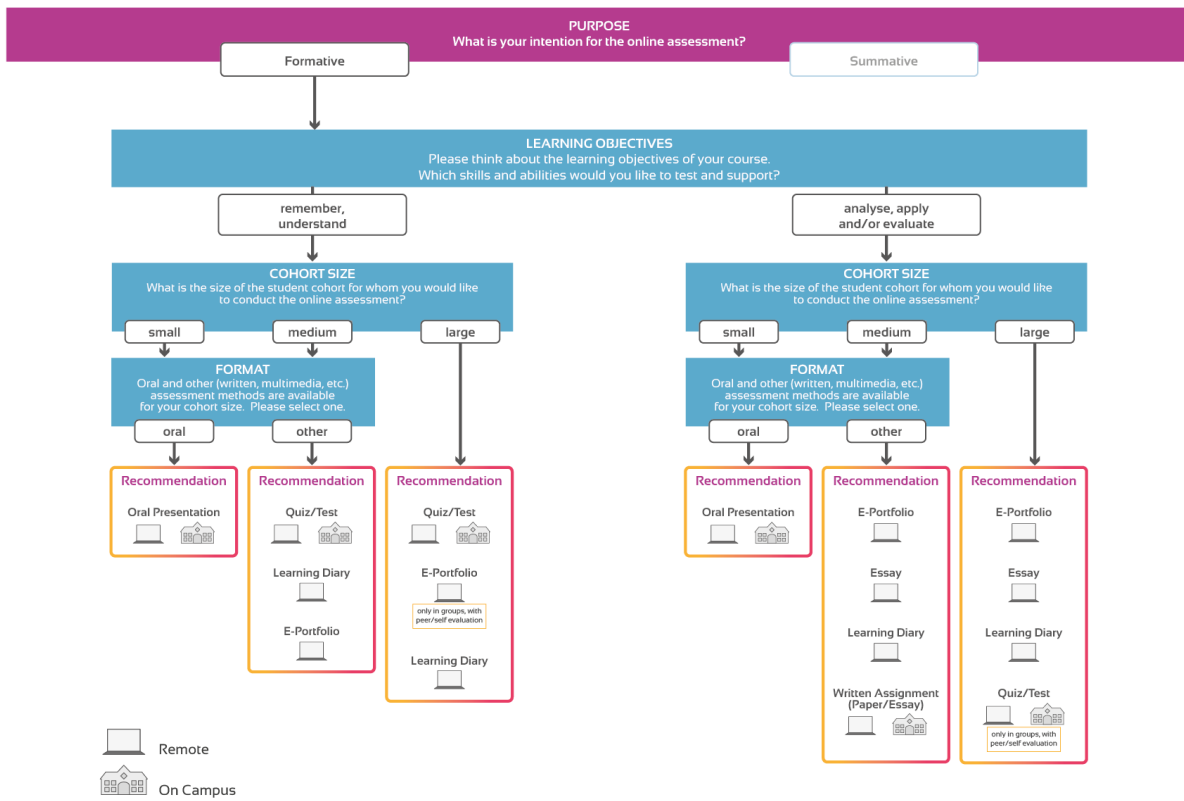


**Figure 7.** Instant feedback example of the self-guidance tool.

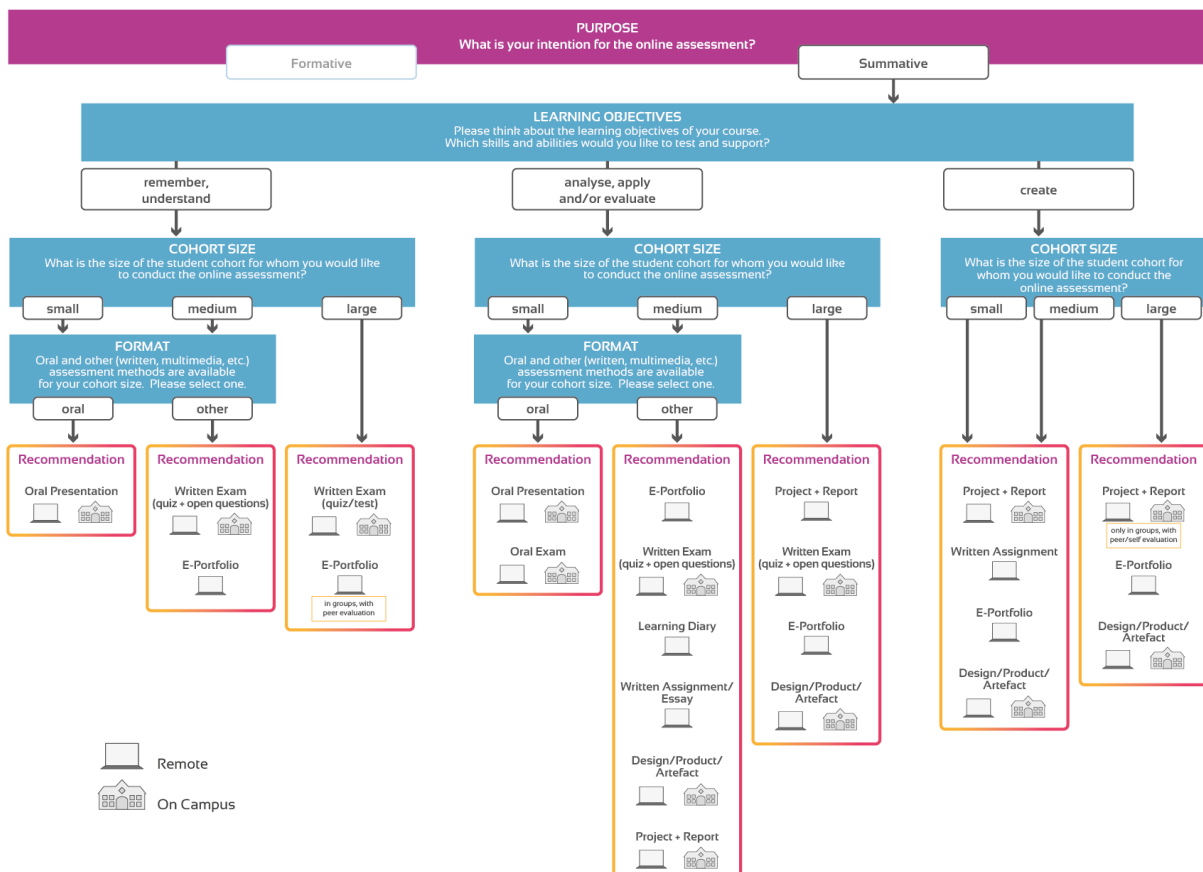


The skip-logic includes questions regarding the purpose of the online assessment, targeted learning objectives, the size of the student cohort and the assessment format. The full decision-tree for formative and summative online assessment, including the questions and recommendations for online assessment methods, is presented (see Figure 8 and 9) and explained on the following pages.

**Figure 8.** Decision-tree for formative online assessment.



**Figure 9.** Decision-tree for summative online assessment.



## **Legal notice**

Before the decision-path starts, a legal notice points out that the implementation of online assessment needs to comply with the national Higher Education Act and institutional regulations. One basic prerequisite for online assessment is that it is legally possible to conduct online assessment at the instructors' higher education institution. It is highlighted that this prerequisite should be met before continuing with the decision and implementation process.

## **Question 1: Purpose of the assessment**

Assessments can be integrated into the learning process at different points in time, each serving a different purpose. Each assessment provides both the instructor and the learner with various insights that can and should influence subsequent procedure. Therefore, the first question of the self-guiding tool addresses the purpose of the online assessment. It distinguishes between the modalities of formative and summative assessment.

*Formative assessment* means assessment for learning. It is helpful for students to identify strengths and weaknesses as well as areas of improvement. It is also important for instructors to provide ongoing feedback where students are struggling and in need of immediate support. Formative assessment is usually non-graded and applied during the duration of the course.

*Summative assessment* means assessment of learning. The goal of summative assessment is to evaluate student learning success at the end of the semester or an instructional period. Summative assessment is almost always formally graded.

## **Question 2: Learning objectives**

According to the pedagogical model of constructive alignment, the assessment method should be aligned with the learning objectives, and the teaching and learning methods (Biggs & Tang, 2007). After having decided on the assessment modality, the decision path therefore continues with the learning objectives that should be evaluated (summative assessment) or tested and supported (formative assessment). The available categories derive from Bloom's Taxonomy for Teaching, Learning, and Assessment (Bloom, 1956, revised 2001<sup>9</sup>) that provides a dynamic classification of different learning objectives and competences. The taxonomy is divided in six categories with 'action words' that display different cognitive processes. For the self-guidance tool, those taxonomy levels have been clustered into three groups:

- **Remember/understand:** recall facts and basic concepts, explain ideas or concepts (e.g., describe, memorise, explain, identify, etc.)
- **Apply/analyse/evaluate:** use information in new situations, draw connections among ideas, justify a standpoint or decision (e.g., execute, interpret, differentiate, argue, ...)
- **Create:** produce new or original work (e.g., design, construct, investigate)

In the tool, the taxonomy level "create" can only be selected when choosing summative assessment. In favour of a improved manageability and the reduction of complexity, the tool does not assess learning objectives on different levels. However, the result pages of each online assessment method

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<sup>9</sup> [https://catalog.library.vanderbilt.edu/permalink/01VAN\\_INST/11nigse/cdi\\_proquest\\_reports\\_199579418](https://catalog.library.vanderbilt.edu/permalink/01VAN_INST/11nigse/cdi_proquest_reports_199579418)

show to which learning objectives (and thus also a combination of these) the chosen method may be applied.

### ***Question 3: Size of the student cohort***

Online assessment practices may substantially differ when having 10 students or 100. The choice of the online assessment method strongly depends on the size of the student cohort because the number of students influences in particular examination supervision, the assessment task and the possible feedback processes (automated, manual). For example, a large cohort size allows a variety of online assessment methods if instructors have enough staff capacity to assist in the feedback process. Automated feedback, group work and self- or peer-assessment are recommended as options.

With the question “What is the size of the student cohort for whom you would like to conduct the online assessment?”, the self-guidance tool offers three cohort size categories that were determined according to the project partners’ institutions’ class sizes.

- **Small Cohort:** <25 students
- **Medium:** 25-100 students
- **Large:** 100+ students

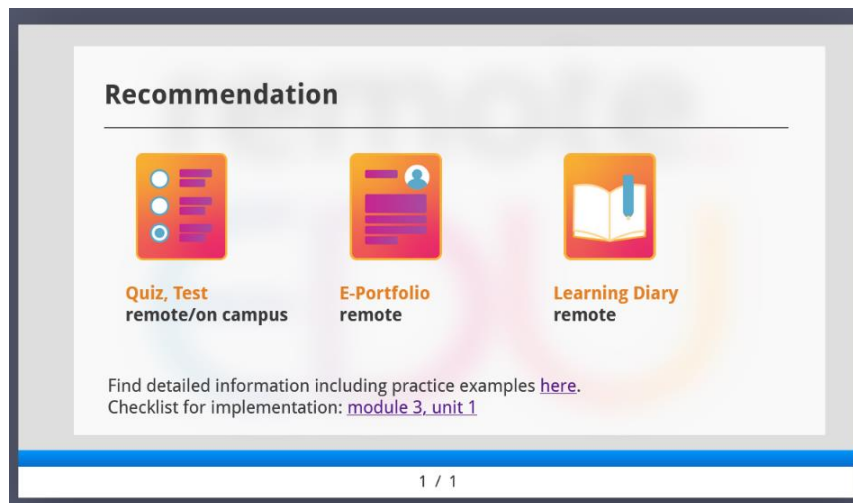
### ***Question 4: Type of the assessment***

The last question in the self-guidance tool is only displayed if oral assessment methods are available based on the user’s answers to the previous questions. Question 4 mainly serves the purpose to supporting the user’s final selection process by reducing the number of recommended assessment methods on the result page that follows. Here, the user can select between oral and other (written, multimedia, etc.) types of assessment. A hint is given that the user can return to this page and explore the other options if feeling unsure.

### ***Recommendation page***

Once all three or four questions have been worked through, the result page appears recommending online assessment methods most suitable to the user (see Figure 10 on p.14). In addition, a recommendation is given whether these online assessment methods are suitable for remote and/or on-campus implementation.

**Figure 10.** Recommendation page.



As already mentioned in the introduction to this report, choosing the right online assessment method and its implementation (on campus, remotely) ultimately depends on several factors. These are, for example, the legal situation at the higher education institution, technical possibilities, personnel resources, and room facilities (e.g., the bigger the cohort size, the better infrastructure and resources are needed). Additionally, students with special needs or international students might require different considerations. Lastly, students from a cohort may also be doing an Erasmus+ exchange semester or be on a similar mobility scheme and thus might be already abroad during the assessment time.



At this point, it is highly recommended to get in touch with senior colleagues, the institution's support services and/or technical units.

## Result pages | Online assessment methods

The result pages of the following assessment methods recommended in the tool are displayed on the following pages. They cover, among others, a description of the assessment method, suggestions for handling fraud, suggestions for implementation and practical examples/literature on the respective method. Explore the different online assessment methods on the following pages:

1. Quiz/Test
2. Written Exam
3. Oral Exam
4. Oral Presentation
5. E-Portfolio
6. Written Assignment
7. Learning Diary
8. Project + Report
9. Design/Product/Artefact
10. Simulation
11. Case Study
12. Self-Assessment
13. Peer-Assessment

## I. Test/Quiz

# Test/Quiz



## Description

Quiz/Tests (e.g. single choice, multiple choice) can be used to assess basic and complex knowledge. Since students can respond to questions swiftly, you may evaluate their understanding of several topics in a short test. Although questions are hard to prepare, the scoring is simple and fair.

## Taxonomy level

Create

Apply/analyse/evaluate ✓

Remember/understand ✓

## Cohort size

Quiz/Tests are suitable, particularly for large groups but can be used with small groups.



## Suggestions for handling fraud

- invigilate if e.g. online proctoring is not possible
- randomise the order of questions and answers
- prepare alternative versions of the test/quiz
- hide correct answers until the test is closed
- request a justification for students' response in the form of a brief written essay or even a voice recording

## Suggestions for implementation

- Use item banks in preparing questions
- Refer to the effective item writing guidelines (e.g., avoiding negative stems, using plausible distractors, keeping options at a similar length, avoiding hints)
- Use an ungraded test with similar test item designs and feedback choices to help learners feel less anxious when taking online tests.

## Practice examples / literature

- Semester quiz series using ILIAS tests (Bremen University, GER): <https://www.uni-bremen.de/en/center-for-multimedia-in-higher-education/zmml/areas-of-competence/e-assessment/eassessment-types/semester-quiz-series>
- Haladyna et al. (2002). A Review of Multiple-Choice Item-Writing Guidelines for Classroom Assessment.
- Haladyna, T.M. (2018). Developing test items for course examinations. IDEA Paper 70.

## II. Written Exam (with open questions)

# Written Exam Open Questions



## Description

Written exam with open questions requires learners to demonstrate their knowledge, show critical thinking, analysis, and synthesis abilities, and organize ideas and information. It can also be given in the form of a take-home (open-book) exam. Although open questions are created easier than multiple-choice questions, ensuring consistency and objectivity in scoring in such exams is harder and more costly in terms of time.

## Cohort size

Written exam with open questions is suitable for small, medium, and large cohorts. However, for medium to large cohorts, assistant support would be needed for scoring.



## Suggestions for implementation

- Use open questions to assess higher order thinking skills
- Use a scoring rubric in grading and make it open to learners. Refer to effective item writing guidelines
- Return exams and your feedback as soon as possible

## Taxonomy level

Create ✓

Apply/analyse/evaluate ✓

Remember/understand ✓

## Suggestions for handling fraud

- Communicate exam rules and procedures with learners
- Use a tool for cheating prevention (e.g., video, proctoring)
- Use a safe exam browser and limit access to different websites
- Verify the IDs of learners

## Practice examples / literature

- Open-book exams (Georg-August-Universität Göttingen): <https://www.uni-goettingen.de/en/626427.html#info-2>
- Davis (2009). Tools for Teaching.
- Boye, A. (2019). Writing Better Essay Exams. IDEA paper #76.



# Oral Exam



## Description

Oral exam is the assessment of students' learning based on the dialogue or spoken word and directed by pre-determined questions based on learning objectives.

## Taxonomy level

Create ✓

Apply/analyse/evaluate ✓

Remember/understand ✓

## Cohort size

This type of assessment is more suitable for small and medium size cohorts.



## Suggestions for handling fraud

- Use video recording
- It is a direct way of providing evidence for the work and ideas belonging to students so that cheating and fraud are hardly possible.

## Suggestions for implementation

- Use a rubric to be reliable and consistent
- Use of second evaluators to increase the reliability
- Start with simple questions

## Practice examples / literature

- Oral Exams using web conferencing systems (Bremen University, GER): <https://www.uni-bremen.de/en/center-for-multimedia-in-higher-education-zmml/areas-of-competence/e-assessment/eassessment-types/oral-e-exam>
- Joughin, G. (2010). A short guide to oral assessment.

## IV. Oral Presentation

# Oral Presentation



## Description

Oral presentation is used to deliver particular content to the audience, which enables follow-up questions and immediate feedback. It requires learners to search and synthesise relevant information to present it in a logical order and coherent and engaging way. It allows for flexibility in terms of format (individual or group presentations) and time of delivery (live or recorded) and can be combined with other assessment modes (e.g., project).

## Cohort size

Oral presentations are suitable for small, medium, and large cohorts. Group formats can be selected for relatively larger cohorts.



## Suggestions for implementation

- Inform learners about the assessment criteria and use a rubric
- For group presentation, decide what you will assess and how you will grade members
- Establish some ground rules for the roles of peers during the presentations
- Create alternatives for learners with different disadvantages (e.g., non-native learners or learners with speech disabilities) and offer assistance when needed
- Ensure that cultural and gender differences are respected in presentations
- If live evaluation is not feasible, upload the audio and video recordings to the learning management system

## Taxonomy level

Create

Apply/analyse/evaluate ✓

Remember/understand ✓

## Suggestions for handling fraud

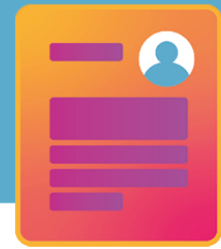
- If written materials are demanded as part of the assessment, offer guidance to learners for avoiding plagiarism and properly crediting the sources.
- Use precise rubrics to recognize good academic integrity behavior.

## Practice examples / literature

- Oral Communication VALUE Rubric (Association of American Colleges and Universities): <https://drive.google.com/file/d/1MDJRFjFrPXOw8TvFxq8RHF7tMB02hOOo/view>

## V. E-Portfolio

# E-Portfolio



## Description

E-portfolio is a purposeful collection of student products that compile several works in a digital setting, including reflections, demonstrations, artifacts, presentations, and multimedia materials such as recordings (e.g., interviews) completed throughout a period by students. E-portfolio is an effective assessment tool to support students' autonomy, enable students to reflect on their learning and skills, and eventually demonstrate students' progress, growth, and performance.

## Taxonomy level

Create ✓

Apply/analyse/evaluate ✓

Remember/understand ✓

## Cohort size

This assessment mode is especially appropriate for small-size groups. If there are support staff, this can be used with medium-scale cohort groups.



## Suggestions for handling fraud

- Verify the authenticity of the e-portfolio and ask for an ownership declaration
- Ask students for screenshots or concrete evidence while work is in progress
- Personalise the assessment process by asking for a reflection based on students' individual experiences
- Use plagiarism-checking software

## Suggestions for implementation

- Make sure that tasks required align with course objectives
- Define the scope of the portfolio clearly
- Provide rubric, standards, and template that will guide students
- Integrate e-portfolio with self-assessment, peer-assessment, and feedback mode of tools
- Consider that creating e-portfolio needs digital literacy skills
- Consider the privacy issues (secure the anonymity and safety of students' data)

## Practice examples / literature

- E-Portfolio in Teaching ILIAS (Göttingen University, GER): <https://www.uni-goettingen.de/en/573045.html>
- Semester quiz series using ILIAS tests (Bremen University, GER): <https://www.uni-bremen.de/en/center-for-multimedia-in-higher-educationzmm/areas-of-competence/e-assessment/eassessment-types/semester-quiz-series>
- E-Portfolio best practice guidelines for instructors (University of Waterloo, CAN): <https://uwaterloo.ca/centre-for-teaching-excellence/resources/integrative-learning/eportfolios>
- Bair et al. (2019). Implementing e-portfolio tools within curricula: A guide for faculty.

## VI. Written Assignment

# Written Assignment



## Description

A written assignment is a text written by students to demonstrate their perspectives, learning process, and writing skills. There are several types of written assignments, such as essays, lab reports, literature reviews, and research proposals.

## Taxonomy level

Create ✓

Apply/analyse/evaluate ✓

Remember/understand ✓

## Cohort size

Written assignment is suitable, particularly for small groups but shorter written assignments can be used in large groups.



## Suggestions for handling fraud

- Use precise scoring rubrics to recognize good academic integrity behavior.
- Ask students to produce originality reports for their submissions.
- Give students the assignment of creating an annotated bibliography of the works they want to use as sources for their research and writing as a preliminary task

## Suggestions for implementation

- Provide scaffolding for assignments so that learners can submit smaller pieces of their work and receive feedback along the way, building up to a final output
- Be transparent about your expectations
- Use a well-defined scoring rubric
- Provide an exemplar to students
- Specify the genre of the written assignment (e.g., essay, letter, report)
- Specify the approximate length and format
- Provide some tips for writing (e.g., commonly made grammatical mistakes)
- Provide feedback verbally, in writing, or via audio or video.

## Practice examples / literature

- Davis (2009). Tools for Teaching

## VII. Learning Diary

# Learning Diary



## Description

A learning diary is a collection of students' reflections and self-involvement in their learning process. A learning diary ensures reflective practice and critical thinking by integrating existing knowledge, learning, theory, and practice.

## Taxonomy level

Create

Apply/analyse/evaluate ✓

Remember/understand ✓

## Cohort size

Learning diary is suitable for small groups, as giving feedback to larger groups might be challenging.



## Suggestions for handling fraud

- The potential for academic misconduct is low.

## Suggestions for implementation

- Provide good and bad examples of learning diaries, including format, style, and structure
- Support learning diary with group discussions to help students gain critical thinking
- Prepare general criteria for assessing the learning diary (i.e. degree of self-awareness, evidence of critical thinking and reflection, presentation, the inclusion of different materials)

## Practice examples / literature



- Learning Journals and Logs Guide (University College Dublin):  
[https://www.ucd.ie/teaching/t4media/learning\\_journals\\_logs.pdf](https://www.ucd.ie/teaching/t4media/learning_journals_logs.pdf)

## VIII. Project + Report

# Project + Report



## Description

The project and reports created as end products are used for a single student, peer, or group to demonstrate specific learning outcomes using web-based tools, graphics, videos, and many other online materials to build knowledge creatively.

## Taxonomy level

Create ✓

Apply/analyse/evaluate ✓

Remember/understand ✓

## Cohort size

Projects and report assessment is suitable, particularly for small groups but can be used with large cohort size by creating groups



## Suggestions for handling fraud

- Allow learners to use diverse strategies of showing their progress and learning
- Use precise scoring guidelines and rubrics to recognise good academic integrity behavior.
- Ask students to provide evidence for the development of the project
- Ask students to reflect on their learning process

## Suggestions for implementation

- Provide scaffolding for the project so that learners can submit smaller pieces of their work and receive feedback along the way
- Make sure that there is an alignment between the project content and learning outcomes
- Provide clear guidelines for students to follow
- Use other assessment modes (i.e., group work) to create collaborative practice during the process
- Ask students to use at least three various learning materials to enliven their learning process and eventually their projects and report
- Provide examples for students to clarify the scope, length, and format

## Practice examples / literature

- Media competences for digital citizenship – Preservice teacher education (Erasmus + project: D-EVA): <https://d-eva.eu/wp-content/uploads/2022/07/D-EvaBank-IO1.pdf> (pp. 43-48)
- Conrad and Openo (2018). Assessment strategies for online learning.

# Design/Product/Artefact



## Description

Artefacts are the digital products of a student's activity to demonstrate their certain problem-solving skills and competencies and include digital content creation, composition, and representation by using software. Online artifact assessment can be based either on a product or the process of development the product. Artefacts can include any digital material, such as videos, posters, online presentations, voices, or cartoons and they can also be a part of an e-portfolio.

## Cohort size

This assessment mode is especially appropriate for small-size groups. If there are support staff, this can be used with medium-size cohort groups.



## Suggestions for implementation

- Provide a description of the artefact before the evaluation
- Ask students to describe the reasons for choosing specific style or format
- Remind students to give reference to the materials they benefit from

## Taxonomy level

Create ✓

Apply/analyse/evaluate ✓

Remember/understand ✓

## Suggestions for handling fraud

- Ask for process evidence for the designed product
- Test the digital skills of the students

## Practice examples / literature

- Rubric for grading art: <http://www.zimmerworks.com/rubric.htm>
- Ehlers, U-D. (2020). Making Open Educational Practices real. The case of "The Grand Challenge 2020" (Baden-Württemberg Cooperative State University).
- Pearson, J. (2020). Digital artefacts as assessment in law.

# Simulation



## Description

An authentic assessment method is a simulation. It mostly includes a role-play component. Learners' roles may vary, assuming a character or personality profile. Through simulations, learners can practice making decisions or taking actions without running the risk of being negatively affected by poor choices.

## Taxonomy level

Create ✓

Apply/analyse/evaluate ✓

Remember/understand

## Cohort size

Simulations are suitable for small groups, as giving feedback to larger groups might be challenging.



## Suggestions for handling fraud

- Design as an iterative or continuous assessment, where the various stages of the simulation (such as preparatory draft, meetings, and other drafts) are being regularly reviewed
- Change the important elements every year.

## Suggestions for implementation

- Develop an authentic problem.
- Give learners concrete instructions about your expectations.
- By dividing the work into small pieces, you may scaffold the learning process.
- Use well-defined scoring rubrics and discuss them with learners at the beginning

## Practice examples / literature

- Integration of an online simulation game (Universidad de Zaragoza, ES) [https://catbs-unizares.translate.google.com/listado-de-buenas-practicas/entry/29? x\\_tr\\_sl=auto& x\\_tr\\_tl=en& x\\_tr\\_hl=de& x\\_tr\\_pto=wapp](https://catbs-unizares.translate.google.com/listado-de-buenas-practicas/entry/29? x_tr_sl=auto& x_tr_tl=en& x_tr_hl=de& x_tr_pto=wapp)
- Simulation of a teaching staff meeting at school (Erasmus+ project D-EVA): <https://d-eva.eu/wpcontent/uploads/2022/07/D-EvaBank-IO1.pdf> (pp. 19-22)



## XI. Case Study

# Case Study



## Description

A case study is an assessment method in which the case is a situation or a realistic simulation based on a problem. Students are expected to analyse and criticise as well as demonstrate and apply their theoretical knowledge to the case through provided questions and principles.

## Taxonomy level

Create ✓

Apply/analyse/evaluate ✓

Remember/understand ✓

## Cohort size

Case study assessment is suitable, particularly for small groups but can be used with large cohort size by creating groups.



## Suggestions for handling fraud

- Ask students to explain the case both in written and oral form
- Assess the work at several points during the assessment process

## Practice examples / literature

- Case study on Master's courses in Finance (London School of Economics, GB): <https://info.lse.ac.uk/staff/divisions/Teaching-and-Learning-Centre/Assets/Documents/Case-studies/Case-Study-10-Finance-Case-Studies-FINAL.pdf>

## Suggestions for implementation

- Provide discussion questions with the case
- Provide concrete steps for case analysis (i.e., identification of a problem, creation of the hypothesis)
- Use for complex situations
- Assess case study through group discussion
- Create or choose a case relevant to the subject

## XII. Self-Assessment

# Self-Assessment



## Description

Self-assessment is the engagement of learners in the evaluation of their works against a set of standards and reaching a judgment on the extent to meet them. When managed well, self-assessment also contributes to the ability to assess learning, reflect, and think critically and develops autonomy.

## Taxonomy level

Create

Apply/analyse/evaluate ✓

Remember/understand ✓

## Cohort size

Self-assessment is suitable for small, medium, and large cohorts.



## Suggestions for handling fraud

- The potential for academic misconduct is low

## Suggestions for implementation

- Set clear guidelines, criteria, and standards, and share them with learners
- Prepare learners for self-assessment and communicate the purpose and procedures
- Be available for support and feedback and give enough time to learners
- Use self-assessment together with other instructor-driven formal assessment practices

## Practice examples / literature

- Introduction to Student Assessment, Guidelines for self-assessment (Commonwealth Education Trust): <https://www.coursera.org/lecture/learning-assessment/good-self-assessment-practices-oG13V>
- Orsmond, P. (2004). Self and Peer Assessment. Guidance on practice in the Biosciences (Centre for Bioscience, the Higher Education Academy, Leeds): [https://www.ucl.ac.uk/teaching-learning/sites/teaching-learning/files/self\\_and\\_peer\\_assessment.pdf](https://www.ucl.ac.uk/teaching-learning/sites/teaching-learning/files/self_and_peer_assessment.pdf)

## XIII. Peer-Assessment

# Peer-Assessment



## Description

Learners evaluate each other's work and/or provide feedback on it. Group work, oral presentations, essays, and reports are a few examples where this method can be applied. It is beneficial to engage learners in assessment in order to better grasp assessment criteria and academic standards.

## Taxonomy level

Create ✓

Apply/analyse/evaluate ✓

Remember/understand ✓

## Cohort size

Peer assessment is suitable, both for large groups and small groups.



## Suggestions for handling fraud

- The potential for academic misconduct is low.

## Suggestions for implementation

- Introduce peer assessment to learners by explaining the benefits for learners
- Train the learners on how to assess their peer's work fairly and how to give effective feedback
- Discuss sample work online to better understand the criteria for assessment and use those samples as a practice run, particularly if learners lack much experience
- Prepare a feedback form to guide learners
- If possible, make sure the tasks are submitted and graded anonymously

## Practice examples / literature

- Successful peer review (University of Michigan, USA): <https://onlineteaching.umich.edu/successful-peer-review>
- Orsmond, P. (2004). Self and Peer Assessment. Guidance on practice in the Biosciences (Centre for Bioscience, the Higher Education Academy, Leeds): [https://www.ucl.ac.uk/teaching-learning/sites/teaching-learning/files/self\\_and\\_peer\\_assessment.pdf](https://www.ucl.ac.uk/teaching-learning/sites/teaching-learning/files/self_and_peer_assessment.pdf)

## Implementation Checklist

In the remote.EDU literature review of Intellectual Output 1, the following conclusion was drawn: “The second pillar of the climate of online assessment is systematic organizational level support, which covers both didactic aspects and technical aspects” (Kondakci et al., 2022, p. 23). In addition to the self-guidance tool, the last result of IO3 aims at providing this support on a technical and organisational level. Therefore, the Checklist created can be used by instructors as general guidance for the implementation of the chosen online assessment.

The questions in the Checklist represent overarching organisational and technical issues on a meta-level that can be considered before implementing a summative or formative online assessment (remote and on campus). The matrix style enables instructors to immediately see the differences between the assessment modalities and may facilitate the management by the user if, for example, an online assessment method is intended to be implemented both for formative and summative purposes. Furthermore, to ensure the quality criteria fairness and transparency, the aspects of inclusion and communication with students are included, too.

Find the Checklist on the following pages, divided into:

- Organisational aspects
- Technical aspects
- Communication with students (“Have I informed students about ...?”)

## Checklist Matrix

# Guidance for Implementing an Online Assessment

You can use this checklist as general guidance for the implementation of your online assessment. The questions below represent overarching issues that you may consider before implementing a summative or formative online assessment remote and on campus. If you are unsure which online assessment method is appropriate to your purpose, click through the remote.EDU self-guidance tool on online assessment.

Hint: The checklist applies under the condition that the necessary (digital) infrastructure is available and does not distinguish between oral, written and other assessment formats.

Organisational aspects	Summative		Formative	
	remote	on campus	remote	on campus
<input type="checkbox"/> Have I defined when and how often the assessment should be carried out in the course/instructional unit? (e.g. at the end of / in between an instructional unit, distributed throughout several semesters)	✓	✓	✓	✓
<input type="checkbox"/> Have I decided whether auxiliary materials are allowed? (e.g., literature, slides)  <i>For summative online assessment:</i> If YES: Open Book format (recommended) If NO: Closed Book format (recommended)  <i>For formative online assessment:</i> Auxiliary materials are usually less important in formative assessment. Nevertheless, you can use them to support the student's learning progress, e.g., by giving suggestions to students what (not) to use or encourage students to re-read the content of the course when they are unsure about some questions.	✓	✓	✓	✓
<input type="checkbox"/> Have I arranged a room with the necessary infrastructure and adequate supplies for the number of students?		✓		✓
<input type="checkbox"/> Have I checked if students with special needs are participating in the assessment? (e.g. disability, visual or mental impairment)  If YES: it is important to provide equal opportunities for all students (e.g. use Universal Design for Learning) → please contact your support service or institutions' accessibility specialist.	✓	✓	✓	✓
<input type="checkbox"/> Have I taken into account whether international students are taking part in the assessment? (e.g. time difference for international students, mobility aspect consideration of virtual mobility skills)	✓	✓	✓	✓
<input type="checkbox"/> Have I considered options how students can participate in the assessment process? (e.g. submission of questions, peer-review, self-assessment)	✓	✓	✓	✓

Have I prepared how to communicate the learning objectives and method of the online assessment to the students?

✓	✓	✓	✓
---	---	---	---

Have I developed and shared rules/a code of conduct with the students?<sup>10</sup>

✓	✓	✓	✓
---	---	---	---

Have I prepared instructions that are presented to the students on the day of the assessment?  
(e.g. explain about plagiarism the day of the assessment)

✓	✓		
---	---	--	--

Have I considered how the assessment will be corrected and how feedback should be given (automated, manual)?

✓	✓	✓	✓
---	---	---	---

If AUTOMATED → check “technical aspects” on page 3.  
If MANUAL → check if a larger number of staff is required and available (especially for medium to large cohort sizes)

Did I consider time issues/select a deadline for the assessment?  
(e.g., to finalise the assessment, to include students with special needs, to prevent cheating (summative))

✓	✓	✓	✓
---	---	---	---

Have I considered how the supervision of the assessment should be done?  
(e.g., with supervisory tools, e.g. Video, proctoring; and/or with supervisory staff).

✓	✓		
---	---	--	--

If SUPERVISORY TOOLS:

Have I enquired if a declaration of consent is needed from my students to use those tools?  
(recommended especially for Closed Book, Country specific)  
→ please ask your support service for legal advice

If SUPERVISORY STAFF:

Have I organised enough supervisory staff to support in the assessment?

Have I specified the channels of communication between the examiners and the supervisory team?  
(e.g., exchange of telephone numbers and email addresses, use of a joint group chat)

✓			
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<sup>10</sup> It is recommended to create a code of conduct or rules together with the students “rather than a ‘check to accept this text or video” (Parikka et al., 2022 p.7).

Technical Aspects	Summative		Formative	
	remote	on campus	remote	on campus
<input type="checkbox"/> Am I informed about available technical possibilities and digital tools at my institution? <i>(e.g., licences, video repository, proctoring tool, LMS environment) → please ask your support service for advice</i>	✓	✓	✓	✓
<input type="checkbox"/> Have I chosen suitable online tools for my assessment method? → please ask your support/IT service for advice	✓	✓	✓	✓
<input type="checkbox"/> Have I considered whether the students should bring their own laptop/tablet?  If YES: <input type="checkbox"/> Have I considered software that may need to be downloaded?		✓		✓
<input type="checkbox"/> Have I enquired whether the students are equipped with the necessary technical equipment to be able to take the assessment?	✓	( ✓ )	✓	( ✓ )
<input type="checkbox"/> Have I tested the online assessment for its functionality? <i>(e.g., student role in LMS)</i>	✓	✓	✓	✓
<input type="checkbox"/> Have I prepared a mock assessment/briefing for students and instructors/supervisory staff? <i>(e.g., create an assessment practice; go through the learning platform or test the video supervision with the students to prepare them for the actual assessment date)<sup>1</sup></i>	✓	✓		
<input type="checkbox"/> Am I prepared in case a technical malfunction occurs? <i>(e.g., emergency phone number, behaviour advice for students)</i>	✓	✓		
<input type="checkbox"/> Did I ensure that the virtual assessment room is available exclusively to the examinee(s)? <i>(e.g., protected with a password)</i>	✓			
<input type="checkbox"/> Have I planned a procedure for securing the identity of the students during the assessment? <i>(e.g., with video, ID-check with sequencing entering admission from the waiting room)</i>	✓			

Have I informed students about ...	Summative		Formative	
	remote	on campus	remote	on campus
<input type="checkbox"/> Participation possibilities? (e.g., self-/peer-assessment, submission of questions)	✓	✓	✓	✓
<input type="checkbox"/> The time frame of the assessment? (e.g., when should they be logged in to the assessment platform at the latest) → hint: keep ID check and questions in mind!	✓	✓	✓	✓
<input type="checkbox"/> Technical devices and requirements? (e.g., browser, configurations, microphone → recommendation: use computers or laptops rather than mobile devices)	✓	( ✓ )	✓	( ✓ )
<input type="checkbox"/> Auxiliary materials that are (not) allowed?	✓	✓	( ✓ )	( ✓ )
<input type="checkbox"/> Identification process and requirements? (e.g., ID, student card)	✓	✓		
<input type="checkbox"/> Access to assessment tool? (e.g., browser, link sent, log-in procedure) → needed if student's device is used for online assessment.	✓	( ✓ )	✓	✓
<input type="checkbox"/> Access procedure? (e.g., waiting room, "traffic jam" <sup>11</sup> in the LMS)	✓	✓		
<input type="checkbox"/> Data protection, rights and obligations?	✓	✓	✓	✓
<input type="checkbox"/> Emergency phone number in case of technical defects?	✓			
<input type="checkbox"/> Behaviour in case of technical issues? (e.g., internet connection cut off while working on/submitting the assessment)	✓	✓		

<sup>11</sup> Parikka et al., 2022 (p.7).



### 3. Concluding remarks

Online assessment continues to be a complex undertaking for higher education instructors. Whilst online assessment can in part be modeled generically by specifying appropriate parameters, e.g. type and nature of the assessment, legislation and regulation within specific higher education institutions can only be modeled to a certain degree. However, in order to provide guidance for instructors, this document gathers information on various aspects to consider when choosing and implementing online assessments.

The results of IO3 of the remote.EDU project (self-guidance tool for choosing an appropriate online assessment, the recommended online assessment methods and the Checklist for implementation) were developed to offer instructors inspiration and a first orientation for finding suitable online assessment methods, as well as their implementation. Attention is paid at pedagogical as well as technical preconditions and affordances, leading instructors to define the settings for their intended online assessment method. Overall, all results have the potential to stimulate collaborative discussions with different parties within the local institutional setting (e.g., among senior colleagues, technical units).

Lastly, the IO3 elements were developed with regard to international, cross-institutional, and interdisciplinary applicability due to its open license (CC BY SA 4.0 international). For more information, please get in touch with the project consortium via the remote.EDU webpage <https://remote-edu.ili.eu>.

## References

- Anderson, L., Krathwohl, D., & Bloom, B. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives: Complete Edition*, 16(3).  
[https://catalog.library.vanderbilt.edu/permalink/01VAN\\_INST/11nigse/cdi\\_proquest\\_reports\\_199579418](https://catalog.library.vanderbilt.edu/permalink/01VAN_INST/11nigse/cdi_proquest_reports_199579418)
- Biggs, J. & Tang, C. (2007). *Teaching for Quality Learning at University. What the Student Does*. (3rd edition).
- García-Peñalvo, F. J., Corell, A., Abella-García, V., & Grande, M. (2020). La evaluación online en la educación superior en tiempos de la COVID-19. *Education in the Knowledge Societ (EKS)*, 21, 26y 21, article 12. <https://doi.org/10.14201/eks.23086>
- Kondakci, Y., Capa-Aydin, Y., Zayim-Kurtay, M., & Kaya-Kasikci, S. (2022). *Framework and taxonomy development of online assessment. Report on IO1*. Zenodo. <https://doi.org/10.5281/zenodo.7009967>
- Marín, V. I., Brescó, E., Carrera, X., Coiduras, J., & Alfonso, G. (2022). *Evaluation Study of Stakeholder Perspectives on Online Assessment. Report on IO2*. Zenodo. <https://doi.org/10.5281/zenodo.7010091>
- Parikka, S., Czerska-Shaw, K., Duraz, A., Gallo, A., von Köckritz, K., Matveinen, K., Tzortzi, A., Van Eylen, K., Wyzykowski, W., & Sorrentino, L. (2022). *Online assessment. Una Europa Guidebook*. Unpublished internal document.
- Persike, M. (2021). Digitales Prüfen: Didaktik, Umsetzung und Evidenz für die neue Prüfungsnormalität an Hochschulen. In Neiske, I., Osthusenrich, J., Schaper, N., Trier, U. & N. Vöing (Eds.), *Hochschule auf Abstand: Ein multiperspektivischer Zugang zur digitalen Lehre* (pp. 327-354).  
<https://doi.org/10.1515/9783839456903-021>
- Schmees, M. & Horn, J. (2014). *E-Assessments an Hochschulen. Ein Überblick. Szenarien. Praxis. E-Klausuren-Recht*.