digital HEIghts

Learning Toolkit

for sustainable assessment
through digital technologies

DigComp Edu framework

EIfI
TECH

European Institute for Innovation
– Technology e.V. (EIfI-Tech)

SYNTHESIS
CENTER FOR RESEARCH AND EDUCATION

SYNTHESIS Center for
Research and Education

University of Turin

ART+DESIGN
elearning lab ● ● ▲ ● ●

Cyprus University of Technology

FH | JOANNEUM
University of Applied Sciences

FH Joanneum

universidade
de aveiro

University of Aveiro

Table of
Contents

Preface

The objective of the DigitalHEIghts project is to promote a sustainable pathway for transforming assessment in Higher Education (HE) through the development of digital readiness, resilience and capacity and to support the digital capabilities of the HE sector by making use of the DigComp Edu framework. More specifically, the intention is to enhance educators' pedagogic competencies in assessment through digital means in the following areas identified in the DigCompEdu framework:

	A) ASSESSMENT STRATEGIES:	To use digital technologies for formative and summative assessment and to enhance the diversity and suitability of assessment formats and approaches.
	B) ANALYSING EVIDENCE:	To use digital technologies to generate, select, critically analyse and interpret digital evidence on learner activity, performance and progress and to use this digital evidence to inform teaching and learning.
	C) FEEDBACK AND PLANNING:	To use digital technologies to generate, select, critically analyse and interpret digital evidence on learner activity, performance and progress and to use this digital evidence to inform teaching and learning.

This learning toolkit is divided into three sections corresponding with the above areas. Each section draws from the learning activities for educators provided by the DigCompEdu framework. These learning activities provide the blueprint for the learning scenarios developed and presented in this toolkit. In addition, the learning scenarios include suggestions on how to promote sustainability in assessment. Educators should adopt a scaffolding approach for each section and progress their skills in digital assessment from the level of 'Newcomer' to that of a 'Pioneer'.

For the definition of sustainable assessment, the authors of this guide relied upon the description developed by Boud and Soler (2016, Sustainable assessment revisited. Assessment & Evaluation in Higher Education, 41(3), 400-413). In brief, sustainable assessment strategies entail fostering, cultivating and promoting learners' ability to develop their own approaches for self-assessment after they graduate and in the context of lifelong learning. The ability of learners to independently undertake assessment activities will help them meet their own future learning needs.

The DigitalHEIghts transnational consortium comprises Elfi-TECH European Institute for Innovation – Technology e.V. (Germany), SYNTHESIS Center for Research and Education (Cyprus), University of Turin (Italy), Art + Design: elearning lab - design for social change (Cyprus), FH Joanneum University of Applied Sciences (Austria) and
University of Aveiro (Portugal).

European Institute for Innovation – Technology e.V. (ElfI-Tech), Hungary
SYNTHESIS Center for Research and Education, Cyprus
University of Turin, Italy
Art+Design: elearning lab, Cyprus University of Technology, Cyprus
FH Joanneum, University of Applied Sciences, Austria
University of Aveiro, Portugal
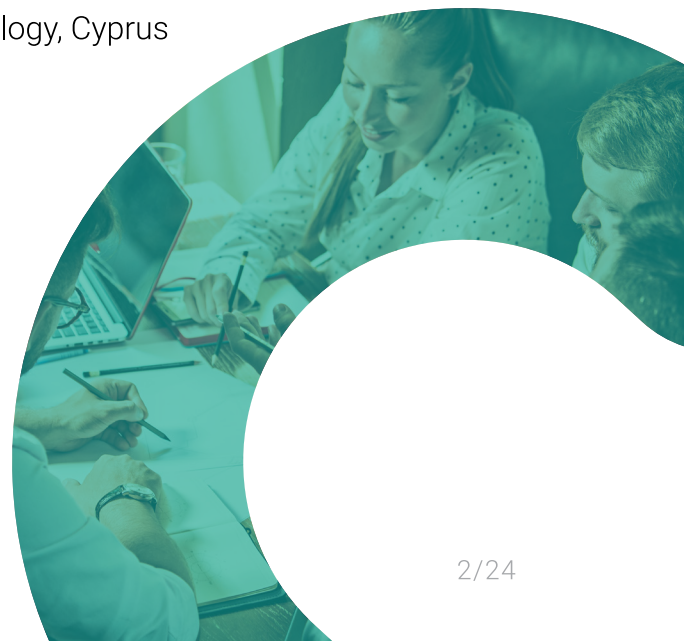
Assessment strategies

A) Objectives:

01

To use digital technologies for formative and summative assessment.

02

To enhance the diversity and suitability of assessment formats and approaches.

To advance your knowledge of assessment strategies and digital tools, complete the learning scenarios from Learning activity 1 (Newcomer) to Learning activity 6 (Pioneer). Start witha learning activity suitable for your level of expertise and continue to advance your knowledge and skills by progressing through all the learning activities on digital assessment strategies. The learning activities are as follows:

Use digital assessment tools to monitor the learning process and obtain information on learners' progress.

1

2

Use digital technologies to enhance formative assessment strategies, e.g. using classroom response systems, quizzes and games.

3

Use digital technologies to enhance summative assessment in tests, e.g. through computer-based tests, implementing audio or video (e.g. in language learning), using simulations or subject-specific digital technologies as test environments.

4

Use digital technologies to scaffold learners' assignments and their assessment, e.g. through ePortfolios.

Use a variety of digital and non-digital assessment formats and be aware of their benefits and drawbacks.

5

6

Critically reflect on the appropriateness of digital assessment approaches and adapt strategies accordingly.

In terms of disciplinary differences, please note that the needs analysis (https://tinyurl.com/48824v9k) indicates that for assessment strategies, the soft applied disciplines in comparison to hard applied and soft pure disciplines require more emphasis in fostering the three more advanced levels of assessment strategies.

Sustainable assessment strategies entail fostering, cultivating and promoting learners' ability to develop their own approaches for self-assessment after they graduate and in the context of lifelong learning.The ability of learners to independently undertake assessment activities will help them meet their own future learning needs. In the learning scenarios below, we indicate where it is possible to encourage learners to reflect on the development of assessment strategies.
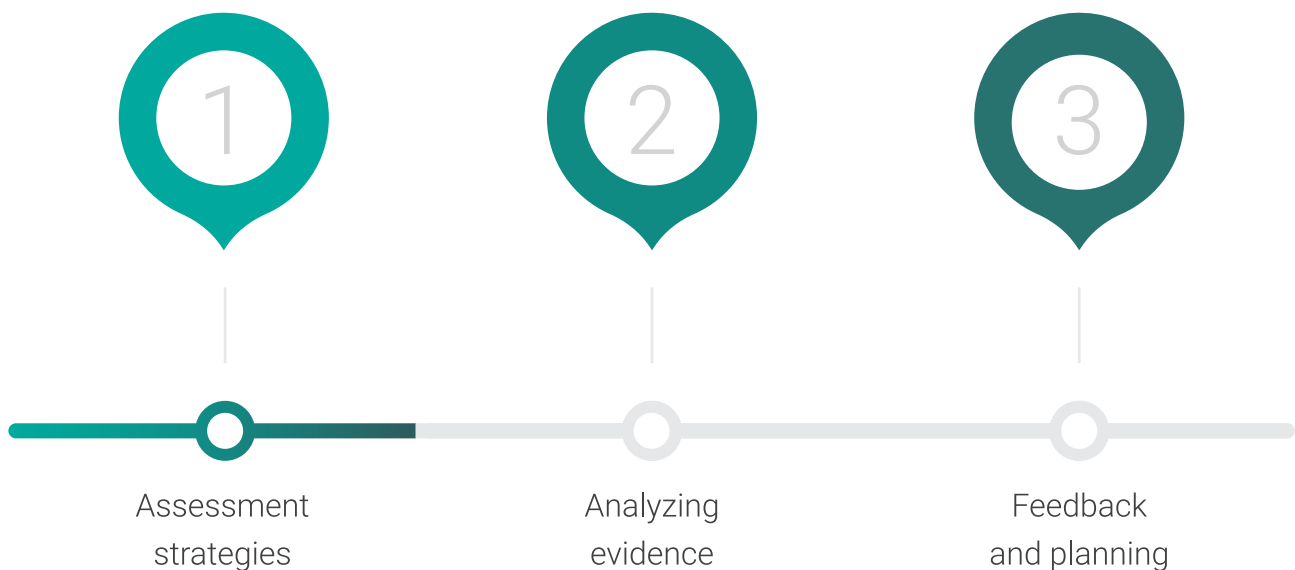
1	2	3
Assessment strategies	Analyzing evidence	Feedback and planning

LEARNING ACTIVITY 1

Level of progression -Newcomer: Making little use of digital technologies for assessment.
Use Google Forms to set up aformative assessment for a class of learners you already have. This can comprise a short questionnaire to assess if learners are familiar with the content of previous lessons. Share the outcome of this formative assessment with the learners.

RESOURCES:

Google forms, Survey Monkey (www.surveymonkey.com).

SUSTAINABILITY TIP:

Start a discussion in the class on formative assessment and ask learners to comment on how it can improve.

LEARNING ACTIVITY 2

Level of progression - Explorer: Integrating digital technologies into traditional assessment strategies.
In a module/subject you already deliver that includes a formative/summative assessment strategy, incorporate into this strategy a part that includes a digital assessment to be delivered using digital tools.
Determine what a fair allocation of grade percentage for this digital assessmentis.
Use Google Forms or any other platform you can access to set up a summative assessment for a class of learners you already have.
OR:
Incorporate an element of digital self-assessment for an assignment that will count towards the final grade in the course/subject.

RESOURCES:

Google forms, Survey Monkey (www.surveymonkey.com).

SUSTAINABILITY TIP:
Ask learners to comment on the integration of digital technologies into traditional assessment strategies and consider potential helpful comments to improve this assessment process.

LEARNING ACTIVITY 3

Level of progression - Integrator: Employing and modifying existing digital assessment tools and formats.
If they exist for your discipline, identify relevant material online (simulations, digital tests, subject-specific digital resources, YouTube, other online resources, etc.) and ask the learners to evaluate, critique and assess the information presented to them through the digital resource used. Determine what a fair allocation of grade percentage for this assessmentis. Embed this activity in your summative assessment strategy for the subject/module.

Example: https://type.method.ac

If you cannot find a simulation exercise or some form of online testing suitable for your module/subject, identify a video/audio that describes a relevant concept or idea and ask the learners to critique it or assess the information presented to them.

RESOURCES:
YouTube, TED Talks.

LEARNING ACTIVITY 4

Level of progression - Expert: Strategically using a range of digital assessment formats.

1. Use your university's online/elearning platform (such as Moodle, WISEflow or other) to create a minimum of two different formative assessments (multiple choice, quiz, open questions, etc.) that learners can use both in synchronous and asynchronous mode.

2. For your summative assessment in a module/subject, match your stated learning out comes to an appropriate method of digital assessment. For example, if you have a learning outcome that relates to knowledge acquisition of a concept, set up a digital assessment that captures the learner's knowledge about this concept. If you have a learning outcome on critical thinking, set up a digital assessment that captures critical thinking. Knowledge construction occurs when learners generate ideas and understanding that are new to them, through interpretation, analysis, synthesis or evaluation.

Example: You can ask learners to set up an ePortfolio that highlights their thinking on the concept to be assessed. Here is an online example: https://www.designforsocialchange.org/student_projects/
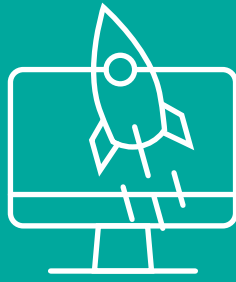
RESOURCES:

How to create an ePortfolio for free
(https://www.adobe.com/express/create/website-page)

LEARNING ACTIVITY 5

Level of progression- Leader: Comprehensively and critically selecting, creating and adapting digital assessment formats.
Determine what will be assessed in a module/subject,and then think of two to three traditional (non-digital) and another two to three digital assessment strategies. Determine the positives and negatives for each one of these two categories depending on your learning context, and then critically select one of each, having considered the drawbacks and benefits of each one. Reflect on your use of digital technologies forassessment and adapt your strategies accordingly.

LEARNING ACTIVITY 6

Level of progression - Pioneer: Developing innovative assessment formats, using digital technologies.
The focus of this new assessment strategy is to foster learners'transversal skills in addition to discipline-specific learning outcomes. Consider and research a digital assessment strategy that you have not implemented previously and that combines the evaluation of transversal skills and discipline-specific knowledge. Reflect on this information, adapt your instructional approach accordingly and develop anew and innovative assessment method using digital tools.

OPTIONAL:
Devise/envision new assessment formats/strategies that consider the use of AI technologies (creative writing tools).

Example: https://www.designforsocialchange.org/student_projects

RESOURCES:

https://www.adobe.com/express/create/website-page, http://chat.openai.com, http://perplexity.ai

Analyzing evidence

A) Objectives:

01
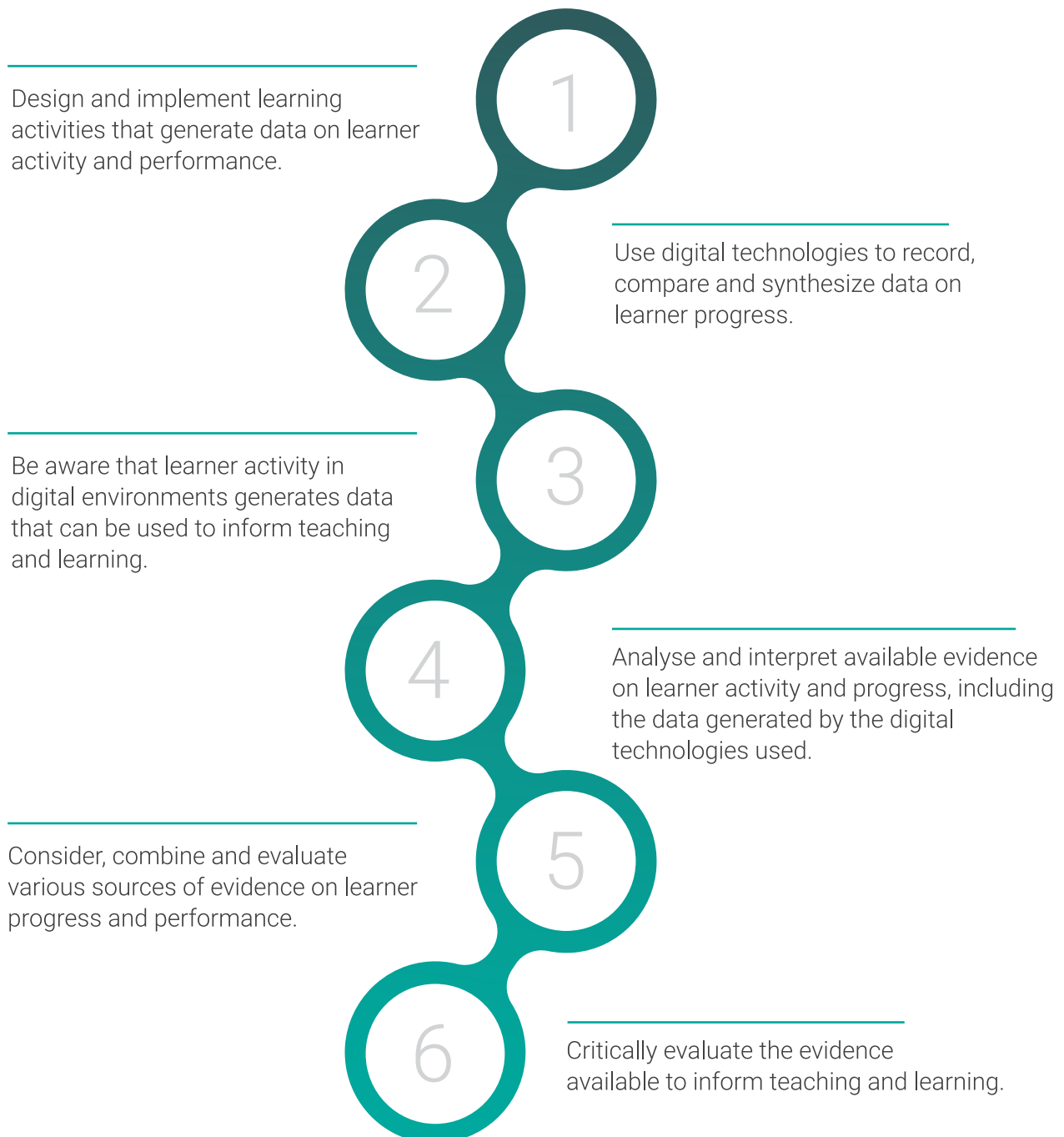
To use digital technologies to generate, select, critically analyse and interpret digital evidence on learner activity, performance and progress.

02

To use this digital evidence to inform teaching and learning.

To advance your knowledge of analysing evidence generated by digital technologies and tools, complete the learning scenarios from Learning activity 1 (Newcomer) to Learning activity 6 (Pioneer). Start witha learning activity suitable for your level of expertise and continue to advance your knowledge and skills by progressing through all the learning activities on analysing evidence of assessment. The learning activities are as follows:

Design and implement learning activities that generate data on learner activity and performance.

1

2

Use digital technologies to record, compare and synthesize data on learner progress.

Be aware that learner activity in digital environments generates data that can be used to inform teaching and learning.

3

4

Analyse and interpret available evidence on learner activity and progress, including the data generated by the digital technologies used.

Consider, combine and evaluate various sources of evidence on learner progress and performance.

5

6

Critically evaluate the evidence available to inform teaching and learning.

In terms of disciplinary differences, please note that the needs analysis (https://tinyurl.com/48824v9k) indicates that for analysing evidence drawn from assessment strategies, there are no significant differences between high and low paradigmatic disciplines.

Sustainable assessment strategies entail fostering, cultivating and promoting the ability of learners to develop their own approaches for self-assessment after they graduate and in the context of lifelong learning. The ability of learners to analyse evidencethat relates to their self-assessment activities will help them meet their own future learning needs. In the learning scenarios below, we indicate where it is possible to encourage learners to gather assessment information and reflect on it so that they can evaluate their learning needs.
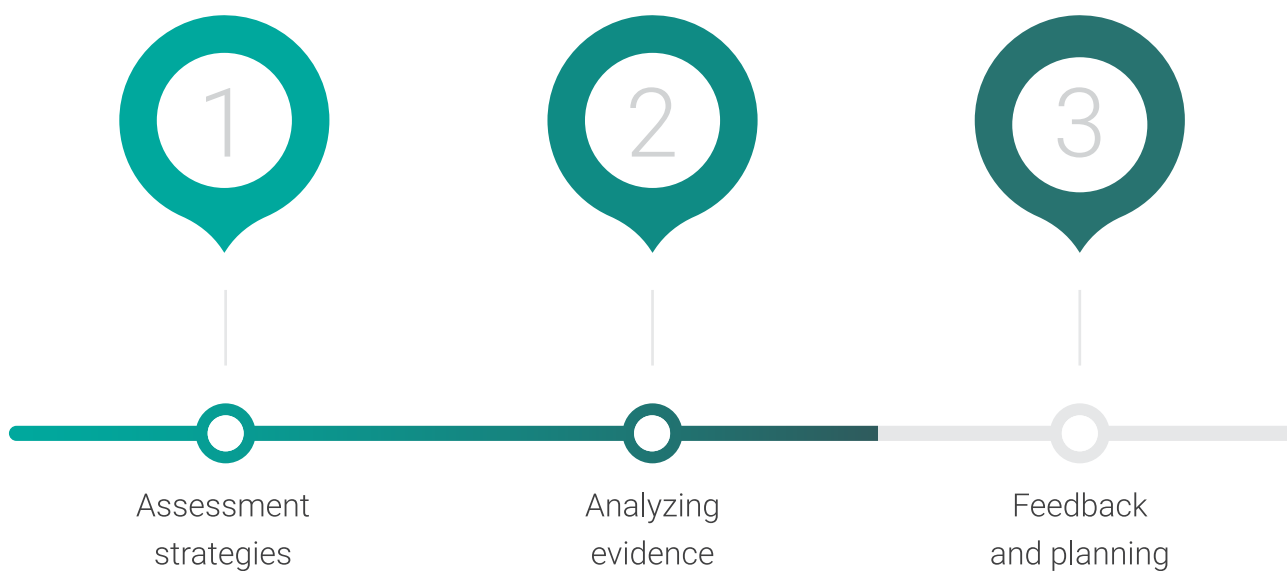
1	2	3
Assessment strategies	Analyzing evidence	Feedback and planning

LEARNING ACTIVITY 1

Level of progression -Newcomer: Making little use of digitally recorded data to understand where my students stand.
Use an online tool of your choice to create a register/attendance list for your lesson and ask students to record their presence each time they attend this class.
OR:
Use an online tool of your choice to record individual learner grades for summative assessments and identify individual learning performances.

RESOURCES:

Google forms, institutional online platform, Google documents, any other digital tool that allows you to create an online class registration system.

LEARNING ACTIVITY 2

Level of progression - Explorer: Evaluating basic data on learner activity and performance.
a) Use the digital register of any class you deliver to compare individual attendance records with the academic performance of students.
b) Use an online tool of your choice to record individual learner grades for summative assessments and identify learning patterns (e.g. grade range, class average).
c) Create with digital tools an assessment exercise (e.g. quizzes, voting systems) for a specific concept or idea you deliver, and use it within the teaching process to provide timely feedback (formative assessment) of individual learner performance.

RESOURCES:

Kahoot, Google forms, institutional platform, Excel.

SUSTAINABILITY TIP:
Ask learners to start and maintain a feedback log, a digital file (Microsoft Word) where they record – as they progress through the lessons – all their grades for assignments.

LEARNING ACTIVITY 3

Level of progression -Integrator: Evaluating a range of digital data to inform teaching.
a) Generate/capture at least two different forms of digital data, for example, an attendance record and the outcome of an online quiz to assess potential student knowledge gaps.
OR:
b) Create and run an online survey/test/quiz to evaluate learner satisfaction with teaching and learning before completion of the course. Make the answers for this online survey/test/quiz available online so learners can view the results. Compare the outcomes of this survey with digital information onattendance or learning patterns (e.g. grade range, class average).
OPTIONAL:
Where possible and periodically, use pie charts or other data visualization techniques to communicate class trends (e.g. attendance, progress).

RESOURCES:

Kahoot, Google forms, institutional platform, Excel.

LEARNING ACTIVITY 4

Level of progression - Expert: Analysing and interpreting available evidence/data on learner activity and progress, including the datagenerated by the digital technologies used.
Create individual digital files or records for each learner that can include any of the following information: attendance record, outcomes of formative assessments, feedback provided, learner satisfaction with teaching and learning and summative assessments. Analyse and interpret this evidence to consider learner performance and progress.
OPTIONAL:
Create an online forum that allows learners to discuss and interpret their feedback with you and/or their peers.

RESOURCES:

Google Sheets, institutional platform.

LEARNING ACTIVITY 5

Level of progression - Leader: Considering, combining and evaluating various sources of evidence/data on learner progress and performance.
Plan and consistently record for all sessions of a subject/lesson a variety of digital information on learner performance (e.g. attendance record, outcomes of formative assessments, feedback provided, learner satisfaction with teaching and learning and/or summative assessments of submitted work, etc.). Reflect on this nformation and adjust accordingly the effectiveness and suitability of different teaching strategies and learning activities. Based on this information, devise instructional interventions to cater for individual learner challenges.

LEARNING ACTIVITY 6

Level of progression - Pioneer: Critically evaluating the evidence available to inform teaching and learning.

Plan and consistently record for different subjects a variety of digital information on learner performance (e.g. attendance record, outcomes of formative assessments, feedback provided, learner satisfaction with teaching and learning and summative assessments, etc.).

Create digital learner profiles based on information gathered through these different types of information. Next, reflect on the data collection sources and rank them in terms of importance, appropriateness and value to refine and further improve your data collection and analysis.

Feedback and planning

A) Objectives:

01

To use digital technologies to provide targeted and timely feedback to learners.

02

To adapt teaching strategies and to provide targeted support based on the evidence generated by the digital technologies used.

03

To enable learners and parents to understand the evidence provided by digital technologies and use it for decision-making.

To advance your knowledge of feedback and planningusing digital technologies and tools, complete the learning scenarios from Learning activity 1 (Newcomer) to Learning activity 6 (Pioneer). Start with a learning activity suitable for your level of expertise and continue to advance your knowledge and skills by progressing through all the learning activities on feedback and planning of assessment. The learning activities are as follows:
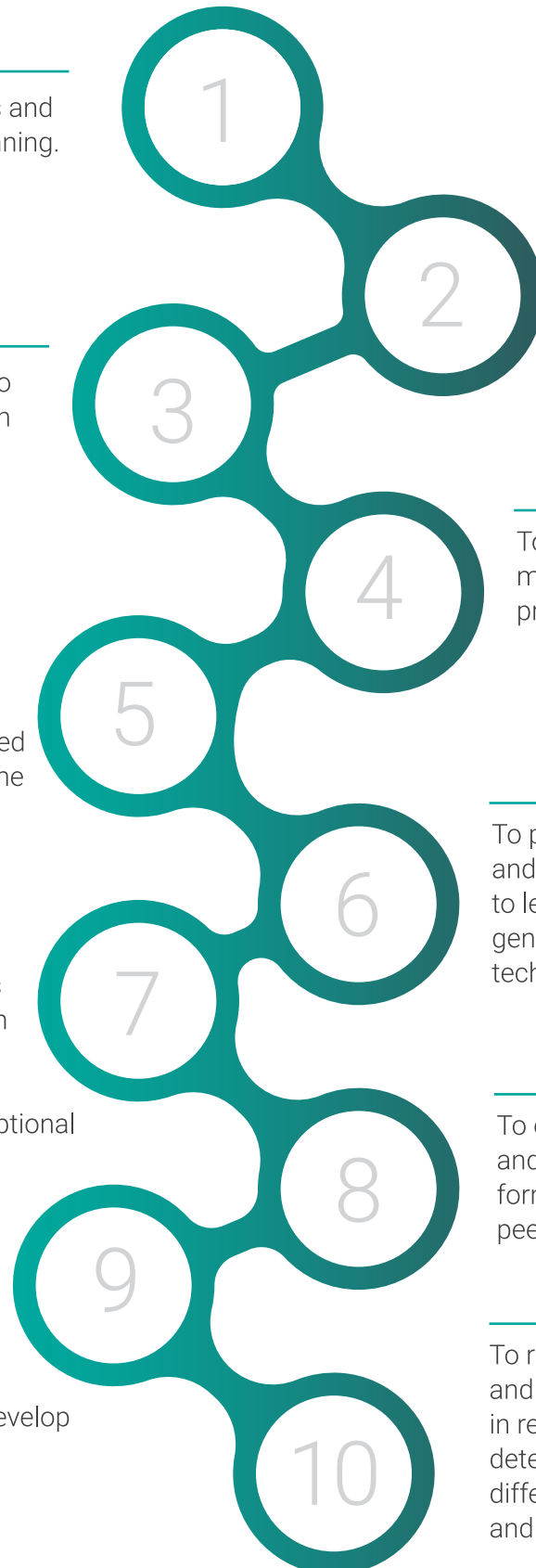
1 To use digital technologies and data for feedback and planning.

2 To use assessment management systems to enhance the effectiveness of feedback provision.

3 To use digital technology to grade and give feedback on electronically submitted assignments.

4 To use digital technologies to monitor learner progress and provide support when needed.

5 To adapt teaching and assessment practices based on the data generated by the digital technologies used.

6 To provide personal feedback and offer differentiated support to learners based on the data generated by the digital technologies used.

7 To use digital technologies o enable learners to remain updated on progress and make informed choices on future learning priorities, optional subjects or future studies.

8 To enable learners to evaluate and interpret the results of formative, summative, selfand peer assessments.

9 To assist learners in identifying areas for improvement and jointly develop learning plans to address these areas.

10 To reflect on, discuss, re-design and innovate teaching strategies in response to digital data to determine the effectiveness of different teachinginterventions and learning formats.

In terms of disciplinary differences, please note that the needs analysis (https://tinyurl.com/48824v9k) indicates that for feedback and planning on assessment,low paradigmatic disciplines are likely to display a higher level of engagement with the top competencies of this category.

Sustainable assessment strategies entail fostering, cultivating and promoting learners' ability to develop their own approaches for self-assessment after they graduate and in the context of lifelong learning. The ability of learners to independently develop personal assessment plans about their future learning will help them meet their lifelong learning needs. In the learning scenarios below, we indicate where it is possible to encourage learners to use feedback to plan their individualassessment approaches.

1	2	3
Assessment strategies	Analyzing evidence	Feedback and planning
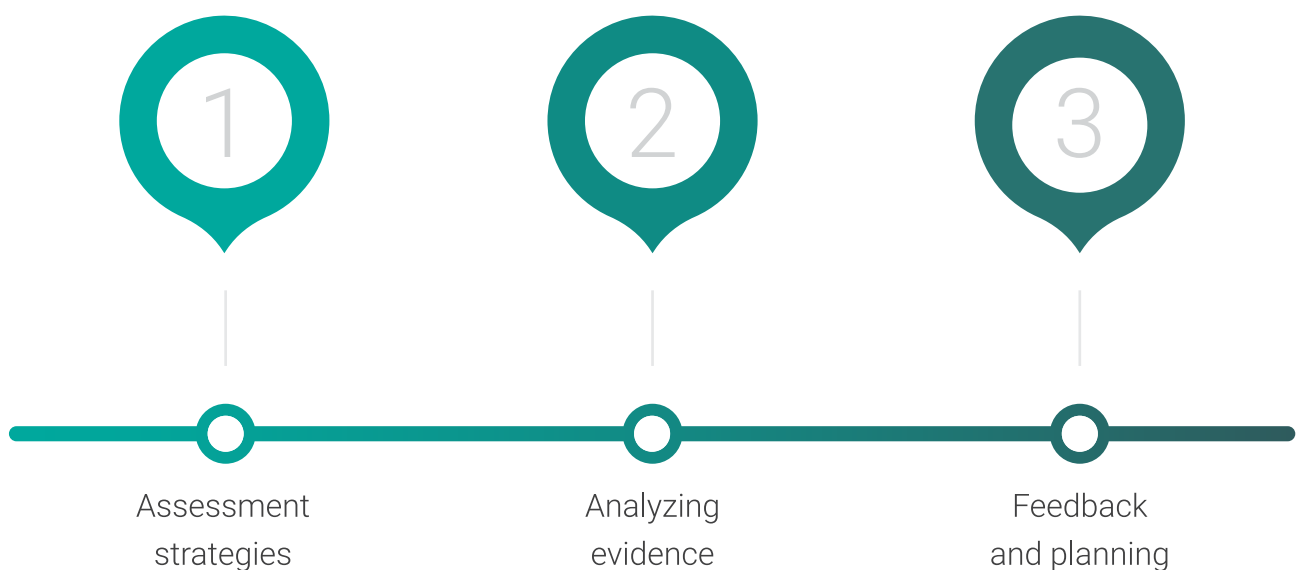
LEARNING SCENARIOS

LEARNING ACTIVITY 1

Level of progression - Newcomer: Using digital technologies and data for feedback and planning.
Select/choose an assignment that your learners can submit electronically. The submission of the assignment can be through the online platform of your institution or any other means. Then, grade/evaluate the assignment using digital means. For example, you may wish to comment on the submitted file (pdf, jpg, png, docx, odt and/or other), or you may wish to create an Excel file and collect the grades in a spreadsheet.

RESOURCES:

Microsoft Office or any other digital means that allow you to provide digital feedback, collect grades or comment digitally on the submitted work.

LEARNING ACTIVITY 2

Level of progression - Explorer: Using assessment management systems to enhance theeffectiveness of feedback provision.
Create an assessment rubric that comprises the evaluation criteria for the assignment(Appendix). Then, use this rubric to assess/evaluate the assignments in a timely, valid and accurate mannerthrough your institutional platform.

RESOURCES:

Institutional platform.

LEARNING ACTIVITY 3

Level of progression - Integrator: Using digital technology to grade and give feedback on electronically submitted assignments.
Use digital tools/means to facilitate learner access to electronically/digitally available evaluations and feedback.

RESOURCES:

Institutional platform or any other digital means that allow learners to access their evaluations and feedback, for example, email and/or Google Drive.

LEARNING ACTIVITY 4

Level of progression - Expert: Using digital technologies and the data generated to monitor learner progressand provide personal feedback and differentiated support when needed (formative).
First, ensure that both the instructor/educator and the learners share the same online platform, online group and/or community. Second, ask the learners to regularly use this online platform, online group and/or community to share their work under development. Lastly, provide individual feedback (formative) to the learner by uploading it to this online platform, online group and/or community.

RESOURCES:

Institutional platform or any other digital means that allow learners to access their evaluations and feedback, for example, email and/or Google Drive and/or social media.

LEARNING ACTIVITY 5

Level of progression - Expert: Adapting teaching and assessment practices based on the data generated by the digital technologies used.
First, organise and deliver a mid-term formative assessment through digital means. Then, collect all individual learner grades and feedback provided to themthrough digital means,and finally reflect on this information to identify 2-3 areas of potential improvements in your assessment strategies.

RESOURCES:

Institutional platform or any other digital means that allow learners to access their evaluations and feedback, for example, email and/or Google Drive
and/or social media.

LEARNING ACTIVITY 6

Level of progression - Expert:Using digital technologies to enable learners to remain updated on progress and make informed choices on future learning priorities, optional subjects or future studies.
After completion of a module/unit/lesson at the end of a semester, ask your learnersto access their institutional platform or any other digital means that allow them to have an overview of their evaluations and feedback before making informed choices on their learning priorities, optional subjects or future studies.

LEARNING ACTIVITY 7

Level of progression - Leader: Enabling learners to evaluate and interpret the results of formative, summative, self-and peerassessments.
Create an assessment matrix/rubric for your module/unit/lesson and make it available through digital means so that your learners can easily access it during the term/semester. Encourage your learners to use this matrix/rubric after each time they are assessed/evaluated to interpret the results of the assessment.

RESOURCES:

A sample matrix/rubric (Appendix).

LEARNING ACTIVITY 8

Level of progression - Leader: Assisting learners to identify areas for improvement and jointly developing learning plansto address these areas.
This builds on learning activity 7. Once learners have interpreted the results of their assessment using the matrix/rubric, ask them to identify areas of improvement based on the matrix/rubric. What do they need to work towards to improve their performance according to the matrix/rubric? How do they progress to the next level?

RESOURCES:

A sample matrix/rubric (Appendix).

SUSTAINABILITY TIP:
Use an online forum/channel that allows learners to discuss and interpret their feedback with you and/or their peers. Learners who completed the subject/lesson can remain members of this forum/channel even after graduation – a community of practice.

LEARNING ACTIVITY 9

Level of progression - Pioneer: Reflecting on, discussing, re-designing and innovating teaching strategies in response to digital data to determine the effectiveness of different teaching interventions and learning formats.
Consider the data collected through all the above learning activities and in particular activities 1, 4 and 5. Share and discuss your findings with peers/colleagues. Then,reflecton how you could revise/refine your instructional strategies and how you could address potential weak points.
Experiment with digital resources/tools to re-design your teaching including assessment strategies and introduce innovative approaches that you will implement and evaluate/test with learners.

SUSTAINABILITY TIP:
Ask learners to develop a personal learning development plan for the first 2-3 years after their graduation. This plan should include a) skills and knowledge that need to be kept uptodate, b) how learning needs will be addressed (further studies, conferences, seminars etc. and c) a timeline for personal development.

Appendix

Upon successful completion of this subject, it is expected that the learners will be able to:

describe the significant historical events associated with the evolution of typography, including the evolution of letterforms (demonstration of understanding through written summation and use of examples in digital portfolio);

recognise and use the basic principles of good typography (demonstration of competencies through practical exercises and use of examples incorporated in a digital portfolio);
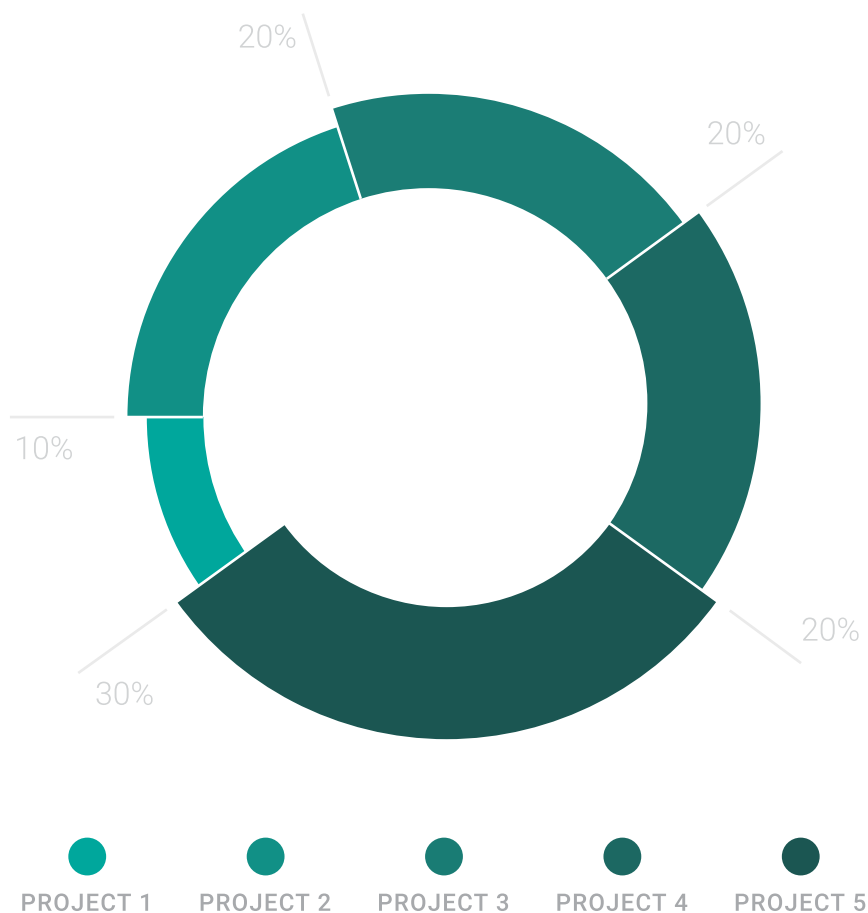
use digital tools (software) to apply appropriate typographic principles (demonstration of skills through practical exercises and use of examples incorporated in a digital portfolio); and

design typographic outputs that combine typographic principles and demonstrate creativity(demonstration of competencies through typographic applications and use of examples incorporated in a digital portfolio).

ASSIGNMENTS	LEARNING OUTCOMES	GRADES
Project 1: 10%	Learning outcomes: b, c	Between 0 to 100%
Project 2: 20%	Learning outcomes: b, c	Between 0 to 100%
Project 3: 20%	Learning outcomes: b, c	Between 0 to 100%
Project 4: 20%	Learning outcomes: b, c, d	Between 0 to 100%
Project 5: Adobe Express website (Final work) 30%	Learning outcomes: a, b, c, d	Between 0 to 100%

20% 20% 20% 10% 30%

● PROJECT 1   ● PROJECT 2   ● PROJECT 3   ● PROJECT 4   ● PROJECT 5

The assignments/projects will be evaluated according to the following criteria:

GRADE

90 – 100

/100

The work demonstrates a very good and thorough understanding of the expressive possibilities of the materials and processes required. The work is based on extensive and intensive research and experimentation. The student shows how they selected and manipulated materials and processes that are most suitable for the expression of ideas. The work shows exceptional ability and skills in relation to the learning outcomes as stated for the subject.

GRADE

80 – 85

/100

The work demonstrates a well-developed understanding of the expressive possibilities of materials and processes and displays a better than average performance for exploration and experimentation. The student demonstrates with a good rationale how they selected and handled the materials and completed the procedures appropriate for the expression of their ideas. The work shows skill and ability in relation to the learning outcomes as stated for the subject.

GRADE

70 – 75

/100

The work demonstrates some understanding of the expressive possibilities of materials and processes and displays integrated effort for exploration and experimentation. The student demonstrates some ideas on how to choose and processes suitable for the expression of ideas. Overall, the work demonstrates some skills and abilities in relation to the learning outcomes as stated for the subject.

GRADE

60 – 65

/100

The work demonstrates a limited understanding of the expressive possibilities of materials and processes required and displays a limited effort for exploration and experimentation. The student simply shows how they selected and handled the materials and processes suitable for the expression of ideas, but they did so in a less than satisfactory manner in relation to the learning outcomes stated for the subject.

GRADE

50 – 55

/100

The work demonstrates very little understanding of the materials and processes required and displays a minimum effort for exploration and experimentation. The student displays through their work that they have a minimum understanding of the materials and processes suitable for the expression of ideas. The work shows that skills and abilities are minimal in relation to the learning outcomes stated for the subject.

GRADE LESS THAN

50

/100

The work demonstrates inability or unwillingness to develop any understanding of the materials and processes required, and there is no effort for exploration and experimentation. The student has not shown that they selected and handled the materials and processes in a suitable way for the expression of ideas. The work shows that learning outcomes have not been achieved.

Learning Toolkit

for sustainable assessment through digital technologies
DigComp Edu framework