Modernization and internationalization of Iranian HEIs via collaboration in TEL-based curriculum development in engineering and STEM

UNITEL E-COURSE

LECTURE NOTES

MODULE 5: Assessment and feedback as a part of teaching and learning

Unit 5-2 A framework for digital assessment

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Introduction

This topic will present a framework for digital assessment and has the following objectives:

Objective 1: To characterize the new culture of assessment, differentiating it from the traditional assessment culture

Objective 2: To identify the main dimensions and parameters of the PrACT framework for digital assessment

Objective 3: Analyze the concept of regulated learning and its relationship with Peer and Self-Assessment in Higher Education

Objective 4: To distinguish digital tools, instruments and means of assessment

Objective 5: To design a Digital Assessment Plan

1. A new assessment culture

The current learning scenarios in which digital technologies are increasingly present have made imperative the need to rethinking the teaching and learning process and the assessment itself (Garrisson & Anderson, 2003; McConnell, 2006; Mateo & Sangrà, 2007; Pereira et al., 2009; Anderson & Dron, 2011).

The traditional assessment culture in Higher Education main targets are the measurement, classification, and certification of learning (understood as acquisition of knowledge). Most of the time it is summative, quantitative, standardized, not contextualized and full responsibility of the teacher. It is mainly **a test culture**.

However, the traditional perspective of "measuring" learning at certain moments of the formative journey has been proving to be inadequate, and it is more and more necessary to consider the assessment intrinsically linked to the learning process and that the assessment tasks proposed are authentic, allowing the application and demonstration of the competencies required by those situations which should, as much as possible, be close to real contexts. The concept of competency is a key concept in this new approach. Competency goes beyond the mere reproduction of knowledge, it is active in performance, and expresses the resources an individual mobilizes in response to an activity. These resources include both knowledge and skills, abilities, attitudes and values and constitute the prerequisites that an individual has and mobilizes to respond to a specific problem in a given situation (Pereira et al., 2015).

So, the new assessment culture focuses more on the formative than the summative function, the evaluation of learning competencies in authentic tasks is more qualitative than just quantitative, can be performed by various actors (inclusive students). In fact, the student starts having a more active and leading participation and is invited to reflect on his own learning process. The assessment takes on more plural and diversified outlines, and uses a variety of modes (self-, hetero, and co-evaluation), strategies and evaluation instruments.

In addition, assessment making use of tasks that are closer to real life demands and it focuses more on the process rather than just on the product of learning.

The following table summarizes the main changes that take place when moving from a traditional assessment perspective towards the assessment culture perspective.

From	Towards
Assessment to certify	Assessment to promote learning
Academic disciplines	Professional competencies
Written examinations	Diversity of assessment techniques
Implicit criteria	Explicit criteria
Exclusive teacher-led assessment	Co-responsibility of students in assessment
Competition	Collaboration
Contents	Competencies
Final assessment	Continuous assessment

From Test Culture to Assessment Culture

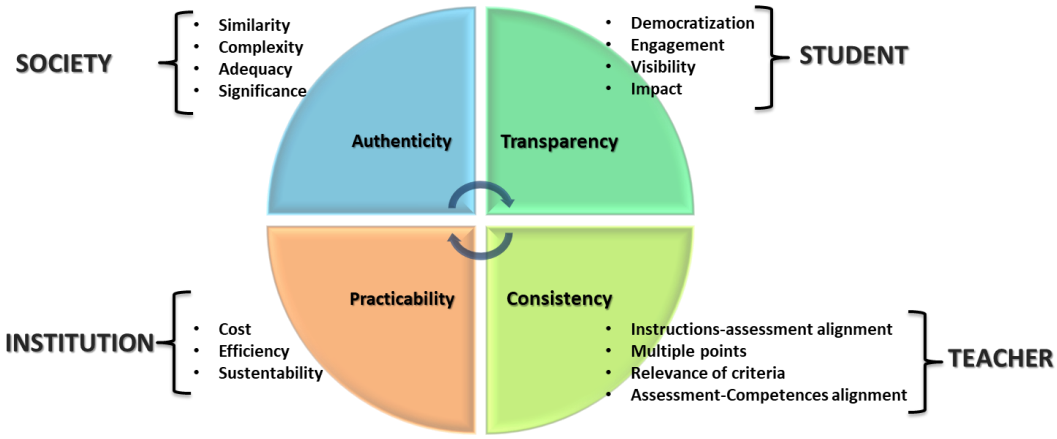
It is an **assessment culture**, directed to promote learning, it more as an **assessment for learning** then an assessment of learning.

2. The PrACT framework for digital assessment

The Project "Evaluation and E-learning in Higher Education" (Project @ssess.he), at the Laboratory of Distance Education and Elearning (LE@D) of the Universidade Aberta of Portugal, developed a conceptual framework aiming to take in account the challenges posed by the digital society with regard to the development of competencies in particular in higher education, as well as the new roles required of teachers and students (Pereira et al. 2015).

The conceptual matrix proposed was conceived from the observation of the challenges presented by the current society and from the perception of the evaluation process in a holistic perspective in technologically enhanced contexts. From this conceptual framework comes the so-called **PrACT Model** (Amante, Pereira & Oliveira, 2017) which has four dimensions namely, **Practicability**, **Authenticity**, **Consistency** and **Transparency**, each having

its own parameters and being specially connected to the demands of a determined actor or agency (Practicability-Institution, Authenticity-Society, Consistency-Faculty and Transparency-Student).



PrACT Model: Dimensions of Alternative Digital Assessment

AUTHENTICITY deals with the need to assess competencies. It seeks to ensure that online evaluation tasks are complex, relate to real-life contexts and are recognized as significant by process actors. It includes the following parameters:

1. *Similarity:* to what extent are the competencies assessed by evaluation strategies like ones needed in the context (physical and social) of real/professional life.
2. *Complexity*: to what extent are tasks complex as in real/professional life (often unstructured and with several possible solutions).
3. *Adequacy*: to what extent are the conditions assured for performing the tasks in terms of time, resources, degree of complexity, equity and equal access to resources, etc..
4. *Significance*: to what extent are the tasks perceived as significant, and appropriate to the learning needs, by the actors of the process.

CONSISTENCY relates to the teaching-learning process. It focuses on the need to align the competencies to be evaluated with the tasks, strategies and evaluation criteria used, as well as safeguard the multiplicity and variety of indicators. It includes the following parameters:

1. *Digital instruction-evaluation alignment*: to what extent are digital assessment scenarios and tasks corresponding to the learning path provided.
2. *Multiplicity of indicators*: to what extent are methods, contexts, moments, and varied evaluators used.
3. *Adequacy of criteria*: to what extent are the evaluation criteria appropriate to the competences to be assessed.
4. *Alignment of competencies-evaluation*: to what extent is the evaluation system consistent with the competencies to be assessed.

TRANSPARENCY regards the involvement of the student in the teaching-learning process. It concerns the student's involvement in the process through democratization and visibility of the assessment modes used and its impact on learning.

1. *Democratization*: to what extent students participate in the definition of evaluation criteria, have early knowledge of the objectives and who the evaluators will be.
2. *Involvement*: to what extent is available the possibility of participation of students in the definition of learning goals and conditions of accomplishment of the proposed tasks.
3. *Visibility*: to what extent are learning processes and products shared with other actors.
4. *Impact*: to what extent has the evaluation strategy a positive impact on learning processes.

PRACTICABILITY relates to the conditions and constraints of teaching and evaluation activities. It refers to costs in terms of time, efficiency of evaluation strategies and their sustainability.

1. *Costs*: to what extent are the costs in terms of time (for evaluator and evaluated) and resources (including training) needed to implement the evaluation strategy affordable.
2. *Efficiency*: to what extent is the cost-benefit ratio of the valuation strategy adjusted.
3. *Sustainability*: to what extent is it possible to implement the evaluation strategy, considering student profiles and contextual constraints (organization, evaluators).

3. Regulated Learning: Peer and Self-Assessment in Higher Education

The students' involvement in assessment for learning, foreseen in the PrACT Model, aligns with the theories of self-regulated learning. In fact, as Hadji (2011) reminds us, "teaching is not inculcating or transmitting, it is making learners learn" (p. 5). To make students learn it is necessary that they assume an active role in the process and not that of mere receiver.

In this context, it is important to consider the **concept of regulation**. The term regulation takes us back to the idea of adjustment, control, correction in a continuous, dynamic perspective that aims at optimizing the functioning of something, in this case the learning process.

The regulation of the learning process is made by the teacher, but it can also be made by peers or by the didactic situation itself and it is indispensable for the student to be able to carry out self-evaluation. Self-assessment is, in turn, the first stage of self-regulation, which is the true driving force of learning. By being able to self-regulate, the student integrates the external regulations (Hadji, 2011).

Peer and self-assessment are usually distrusted by teachers. Among the main reasons for this distrust are the fact that they may be prone to subjectivity and partiality, and the eventual lack of capacity to evaluate, a traditional role of the teacher. Peer and self-assessment are practically only used as formative assessment, as feedback to further learning along the course. Although these are issues that must be dealt with, a major factor pushing this distrust is the traditional assessment culture, that sees learning as acquisition of knowledge and assessment as a summative procedure, performed by the teacher, to certificate if, and to what degree, the knowledge has been acquired by the students. If we analyze Peer and Self-Assessment through the PrACT framework lens, we see they have a place in the new assessment culture. In terms of CONSISTENCY, they combine well with other indicators, enabling to strengthen the *Multiplicity of indicators* parameter, making the assessment more trustworthy. And self-assessment is unvaluable to enable self-regulation of learning being, thus a good representative of what may be assessment for learning. As underline by Panadero et al. (2016), the issue of the distrust on the students' capacity to assess may be tackled by

making sure they know and understand the evaluation criteria and training them previously on how to use them (parameters of the TRANSPARENCY dimension). There is undoubtedly a toll that peer-assessment implies (PRACTICALITY dimension): it takes more time to prepare the students to perform assessment. But these are balanced by the gains in terms of reducing the teacher assessment workload and the benefits it provides to student learning the appropriation of assessment criteria and their application.

In a nutshell, the value of sharing assessment task with the students depends on the function we want peer and self-assessment to have in the Assessment/Evaluation Plan and the care we take to safeguard that the assessment criteria are understood and well applied by the evaluators, in this case the students. And, of course, how we understand what assessment means.

3.1. Good practices to use Peer and Self-Evaluation as part of learning

Some authors (Panadero et al., 2016; Panadero, et al., 2019) have developed studies specifically in this field and propose several strategies to successfully develop peer evaluation, as well as self-evaluation itself:

- Clarify the objective, functioning and expectations
- Involve students in the definition of criteria of assessment
- Pairing students in a productive way different levels of student learning need to be considered)
- Determining the format and mode of interaction (Anonymous assessment? How do they communicate? At what points does it occur?)
- Modelling, examples, opportunity for practice and feedback
- To construct rubrics, guidelines, etc.
- Specify activities and time schedule
- Monitor the process and train students

In addition to these specific practices, it is important, however, that assessment be thought of as assessment for learning and that this perspective be valued institutionally, insofar as it is oriented towards the acquisition of competences (and not contents) and fosters self-regulation of learning. In that sense, it is also institutionally important to invest in the training of teachers and the students themselves, encouraging and training their self-regulation capacities.

4. Digital tools, instruments and means of assessment

There is a multiple vocabulary used to talk about assessment, and words are not always used unambiguously. We will distinguish here digital tools, instruments and means of assessment.

A **digital assessment tool** is a digital device, either independent, or part of a Learning Management System, that manages and performs digital assessments. As examples of tools, we have Socrative or Quiz (Moodle).

An **assessment instrument** is a way of registering the performance of a student, in the scope of acompetence, by making explicit the respective assessment criteria. As examples of assessment instruments, we have Rubrics, or Checklists.

A **mean of assessment** is a way to enable students demonstrate a certain performance. As examples of means of assessment, we the test, the essay, or the report.

5. Designing a Digital Assessment Plan

What are the components of a Digital Assessment Plan? A Digital Assessment Plan must include information about what to assess, how to assess, who does the assessment, with what norms to perform the assessment, how to communicate the assessment results.

Here is a Template with the Digital Assessment Plan topics.

When will the assessment occur?	What do you want to access?	How will you perform the assessment?	Who will you perform the assessment?	What norms will you use to perform the assessment?	How will the assessment results be communicated to students?
	Competencies	Tools, instruments, and means of assessment	Teacher, students	Assessment criteria	Public, private, when

When will the assessment occur?

It is important to define when the assessment takes place. At set times? Throughout the whole learning process?

What do you want to assess?

Define the competences to be developed, bearing in mind that their wording should reflect what the student is expected to achieve in an observable way.

How will you perform the assessment?

The assessment activities should give rise to the development of the competences defined, providing ways of demonstrating them. Besides the teacher, the students' co-responsibility for the learning process requires their participation in the assessment process, namely through self-assessment. This stimulates self-regulation of learning, which allows awareness

of the process and develops metacognitive competencies. Therefore, as much as possible, students should be involved in the assessment.

In certain contexts, it is also possible to promote other forms of assessment, namely peer assessment and co-evaluation.

The development of competences is manifested through products, actions, tasks (multimedia products, podcast, critical essay, critical reflection, description of a practice, problem solving, report (field or experimental), concept map; e-portfolio, wiki, ...)

What norms will you use to perform the assessment?

Evaluation standards may be of different kinds. The classification standards, which refer us to quantitative criteria, generally associated with the distribution of quotations for the different components of an evaluation activity, and the assessment criteria, which focus on the quality requirements to be considered in the performance of the activity.

When defining the criteria, it is essential to ensure consistency between them and the competencies; they should be public, transparent and explained prior to the assessment, facilitating information on the levels achieved in the learning outcomes. Some authors organize these criteria in rubrics.

How will the assessment results be communicated to students?

Communicating results implies providing feedback, a fundamental component of learning in the reflective construction of knowledge that supports the teacher and the student in the teaching and learning process.

Feedback refers to inputs that allow the student to confirm, add, rewrite, articulate or restructure information in memory, and these inputs may include knowledge of the area in question, metacognitive knowledge, beliefs about oneself, attitudes and tasks, or cognitive strategies. Feedback can be evaluative or descriptive (Gipps, 1999). Evaluative feedback relies mainly on a value judgement, descriptive feedback focuses on student achievement and the proposed task, specifying progress and constructing the way forward.

6. Conclusion

The assessment of learning focused on the development of competences and the growing use of technologies as a means of assessing and evidencing those competences has enhanced the concern of educational professionals with the promotion of increasingly appropriate assessment processes that actively involve both, teachers and students, in order to positively influence the process of learning regulation and self-regulation.

In this module we intended to show the importance of considering a new assessment culture, which is at the service of learning, integrating itself as part of this process. For this, we presented a theoretical framework (PrACT model) that aims to help in these reflections and in the planning of assessment activities in an online context, which aims to assess competencies. In addition, we briefly discuss regulated learning and how self and peer-assessment processes can help it and we outlined the main elements to consider in a digital assessment plan design.

We hope to have contributed to a perspective on the assessment that is primarily concerned with student learning.

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