DIGITAL ASSESSMENT STRATEGIES IN ONLINE TEACHER EDUCATION

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Abstract

The emergence of e-learning as a vehicle for teaching and learning is presently unquestionable. This research aims to address the following issues related to this topic: (i) which modes and strategies of assessment to use in teacher education virtual learning environments; (ii) how to define the authenticity of the assessment strategies; (iii) which indicators to use in order to warrant the validity of digital assessment strategies; and (iv) how to reflect on the relationship between the certification of competences and the use of alternative assessment strategies in teacher education virtual environments. The findings illustrate the participants' recognition of the formative character of the proposed assessment design, and particularly for the open-ended e-folio. Suggestions are offered for the improvement of the proposed assessment design, so as to better promote the formative character of assessment.

The Challenge of e-Assessment

Within Higher Education, the preparation of graduates to take their professional place in society demands benchmarks through which student entry, progress, qualification and graduation is recorded. It is commonly recognized that the mechanism through which such certification operates is that of assessment. Moreover, as Maclellan (2004) clearly makes explicit, "If alternative assessment is providing the data that inform educational policy, the extent to which alternative assessment is valid has to be of central concern"(p.313). Assessment is currently recognized as one of the most powerful strategies to drive learning (Schwartz & Webb, 2002). This is true, not only, for traditional face-to-face settings, but also for virtual learning environments (MacDonald, 2004). A significant body of research supports the view that the design of assessment is critical in determining the direction of student effort, and that assessment is vital in providing a channel of communication between students and their mentors (Black & William, 1998). This role for assessment is increasingly important for campus-based universities, as well as in a traditional distance-learning context. Several authors (Birenbaum et al., 2006) state that current assessment practices in European countries fail to address learners' needs because they tend to focus on assessment of learning instead of on assessment for learning, are limited in scope, promote teaching for assessment instead of teaching for learning, and ignore individual differences.

We make no claim here that assessing e-learning is really radically different from assessing learning: the same principles apply in face-to-face or distant learning contexts (MacDonald, 2004). Basically, the key to supporting e-learning development lies in an understanding of the complexity of the processes which students are asked to undertake. E-learning courses that adopt a constructivist philosophy may impose new and unfamiliar demands on the students who study them (Oliveira, Tinoca, & Pereira, 2011). E-learning involves a complex mix of basic transferable skills and literacies, many of which are embedded within an understanding of a discipline. E-learning courses may expose students to a more demanding approach to study, requiring greater self-direction and a critical approach to study than has been the norm in the early undergraduate years (Macdonald, 2004).

Universidade Aberta, the Portuguese Open University, adopted in 2007 a fully virtual pedagogical model for online education (Pereira, Mendes, Morgado, Amante, & Bidarra, 2007), aligned with the most recent developments in education theory with a particular focus on e-learning. Simultaneously, in Europe, the Bologna Process (European Commission, 2008), challenged Higher Education to promote learning environments that are centered in the development of competences. This challenge requires not only a shift in the perceived goals of Higher Education, but also in the selection of the methodologies to be used, as well as a drastic change in the assessment strategies to implement in order to foster a competence based curriculum. Within this setting, at Universidade Aberta, we were confronted with the need to reflect on this issue, taking into account the latest developments in the field of competence assessment with an edumetric framework, particularly in the case of e-assessment in online environments.

To answer this challenge we have developed a new conceptual framework for e-assessment (Tinoca, Oliveira & Pereira, 2013), composed of four dimensions identified as especially relevant for online contexts, and further operationalized into fifteen criteria (see Figure 1). The four proposed dimensions for e-assessment to be considered in the definition of competence based e-assessment strategies are: authenticity, consistency, transparency, and practicability. The authenticity domain emphasizes the need to warrant that online assessment tasks are complex, related to real life context, and recognized as significant by students, teachers and employers. Consistency stresses the importance of aligning the competences being assessed with the e-assessment strategies being used and the assessment criteria, as well as the need to use a variety of indicators. The transparency dimension promotes student engagement in online tasks through the democratization and visibility of the e-assessment strategies being used. Finally, practicability is particularly important in online contexts given their specificities considering resources, time and training costs, as well as their efficiency and sustainability.

It is also important to notice that these dimensions are articulated, representing several degrees of reciprocal interdependence (Tinoca, Oliveira, & Pereira, 2013). The dimension of practicability, for example, frequently neglected, may have a decisive influence in the level of implementation of the remaining dimensions. The criteria included in each dimension are important not only as

contributors to the characterization of each of the dimensions, but also to illustrate their degree of implementation.

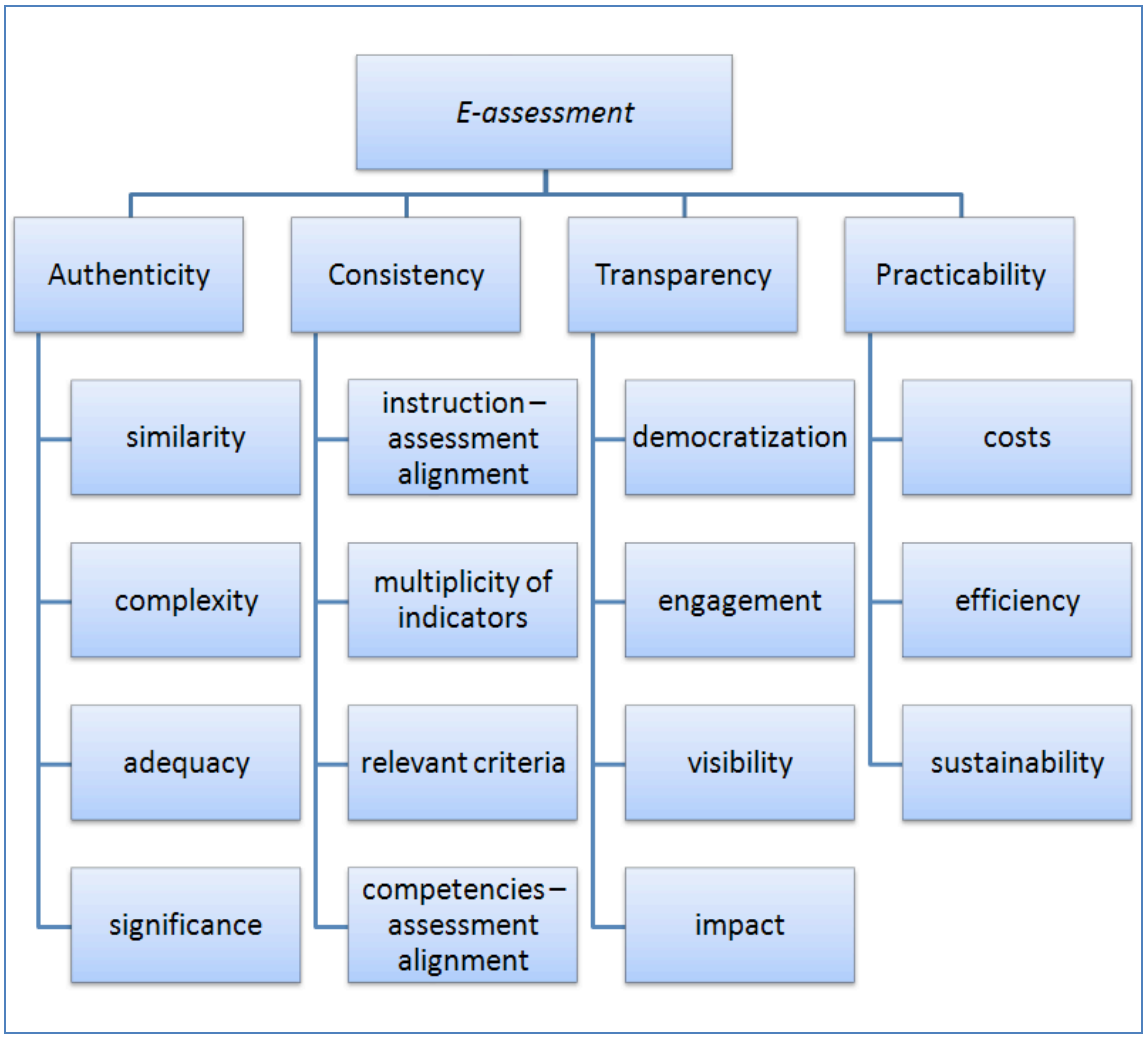

Figure 1. A conceptual framework for e-assessment.

Using this framework for e-assessment, we developed a research project that focused on the problem of competence assessment in higher education virtual environments (both e-learning and blended or hybrid learning). Our research questions were as follows:

1. Which methods and strategies of assessment are most appropriate for competence assessment in higher education virtual learning environments?
2. How can we evaluate the authenticity of competence assessment strategies used in higher education virtual learning environments?
3. How is the validity of competence assessment strategies established in higher education virtual learning environments?
4. What is the relationship between the certification of competences and the use of alternative competence assessment strategies in higher education virtual environments?

Methodology

Given the proposed problem, challenges, and research questions, we adopted a mixed-methods methodology, that will simultaneously allow us to embrace the diversity of the assessment strategies in use in higher education virtual environments (in all Portuguese public universities) and, also, to perform a comprehensive analysis of the specificities of the cases identified as relevant. Even more, with this project we expect to contribute to the evolution of the state of the art in this field, namely to promote the validation of alternative assessment in higher education virtual environments, taking into account the requirement to conceptualize assessment as authentic and centred on the need for certification of the competences developed by the students. This methodology was implemented through large-scale questionnaires applied at all Portuguese higher education institutions and the development of 15 case studies of specific scenarios of particularly innovative assessment experiences in virtual environments.

In this paper we present part of this analysis, focused on one of the 15 undertaken case studies, developed in a 100% online context program for teachers' professional development lasting 15 weeks. There were 25 participating teachers in the selected case study. Data was collected from several triangulated sources including written artifacts of student work; a large scale anonymous online survey, to be completed at the end of the semester; the participating teachers' critical comments of the assessment strategies used; and the teachers' productions throughout the semester. Triangulation was also achieved through the cross comparison of the developed categories by the two main researchers.

Results and Discussion

In the next session we present the six emerging themes from the analysis of the selected case study: the problematization of what is digital assessment; the promotion of assessment strategies as drivers for learning; the importance of self and peer-assessment strategies; the relevance of instructor feedback; and the e-folio tool.

Digital Assessment

According to the Joint Information Systems Committee (JISC, 2010), "E-Assessment is sometimes used to refer solely to on-screen assessment but, in its broadest sense, can refer to all technology-enabled assessment activities" (p. 1). For our participants, digital assessment refers to a process taking place in a digital context, enabling the regulation of a formative process, where the clarification of the assessment strategies, methods and tools to be used are cornerstone. For them, assessment in a virtual environment should be a dynamic process, where cooperation, interactivity and flexibility are encouraged. Moreover, online assessment should be a transparent, fair, credible and authentic process, allowing not only the development of knowledge, but also the transference of competences to a real context.

Within this framework (Tinoca, Oliveira, & Pereira, 2013) our participants' perceptions seem to be aligned with Castillo's (2006) four main principles for assessment: credibility, validity, objectivity and authenticity.

Assessment Strategies as Drivers for Learning

According to Immig (2002), assessment should be planed as a function of the proposed learning goals, and activities should be organized in order to promote their development. From our participants' interview responses it emerged as consensual that the proposed digital assessment strategies influenced their learning process, in so far as they promoted a, "progressive learning approach" (E3), the "consolidation of their learning" (E2), and to "truly regulate the evolution of their learning" (E1). Moreover, 95% of the participants strongly agreed with the variety of the proposed assessment strategies.

Dorrego (2006) supports the diversity of assessment methods with the need for encompassing diverse capacities, vocations and learning styles. Therefore, it is fundamental to promote an open, continuous, collaborative and formative assessment environment where all participants are engaged with the development of their learning, requiring from the instructor flexibility and willingness to change (Versuti, 2004).

Considering the participants' perceptions of the proposed assessment strategies, it was clear that they recognized the adopted methods as adequate given the goals of this particular course, taking into account the competences needed for their professional practice. For approximately 94% of the participants the proposed methods were able to assess their learning, and the assessment tasks were focused on the competences being developed throughout the course. In addition, participants stated that they recognized that the learning activities developed during the semester prepared them for the assessment tasks. When asked to comment on the adequacy of the proposed assessment strategies to drive their learning, the participants clearly identified the three main e-folios as cornerstones in their learning process.

Self- and Peer-Assessment

According to Sluijsmans, Dochy, and Moerkerke (1998) it is crucial to encourage students to assess their work as well as their peers' work. Even more, McConnell (2006) insists particularly on the relevance of these assessment practices in digital contexts.

In our case, where the participants were also K-12 teachers, it was very encouraging to find out that 84% disagreed that the instructor should be solely responsible for the assessment process. Also, 79% of them recognized that peer assessment promotes interaction and motivates learners to further engage with their learning because it involves peer evaluation. However, 17% of the participants did not agree with this viewpoint.

From the interviews it was also clear that even though the participants recognized the importance of self and peer -assessment, they still viewed it as a difficult process to implement; questioning their peers' fairness and ability to correctly judge their work as not easy.

Instructor Feedback

The large majority of participants (89% to 95%) identified instructor feedback as crucial to the learning process. They recognized its valuable contribution to regulate their learning process and to transform wrong answers into learning opportunities.

These perceptions were also aligned with Castillo's (2006) work--when students recognize the value of feedback they are challenged to reflect about their learning and are also invited to suggest alternative solutions or methods to overcome any learning barriers. Our participants recognized feedback as a motivator for learning that offered them the opportunity to gauge their progress and guide their learning process (Beltrán, A., Martínez, R., Jaén, J., & Tapia, S., 2006).

E-folios

The participants clearly recognized the e-folio as an assessment tool that facilitated their learning. The main advantages identified in this tool were its ability to regulate their learning, scaffolding their interactions with their peers and the instructor, and organize their learning.

When asked which of the three e-folios better contributed to their learning (see Figure 2), the participants chose e-folios B and C, with e-folio A clearly as the least favorite one.

E-folio A was an individual, closed task, were the participants were required to answer a set of 10 questions, in a similar format of a traditional test. Interestingly, even though this format was initially recognized by the participants as very important for the learning process, at the end of the semester it was clearly the least favorable one for a very large majority.

E-folio B was presented as a group task and recognized by the participating teachers as a very successful strategy and favored by 32% of the teachers; this e-folio promoted their student-to-student interactions and sharing of their learning experiences.

Finally, E-folio C, a week long open task where the participants were challenged to develop the planning of a curricular unit for one of their courses and integrate what they had learned throughout the semester, was clearly the most appreciated one. In the words of one of the participating teachers, it was the one where "we were presented with a complex challenge, relevant for our own classrooms, requiring us to integrate most of what had been learned during the course" (E2).

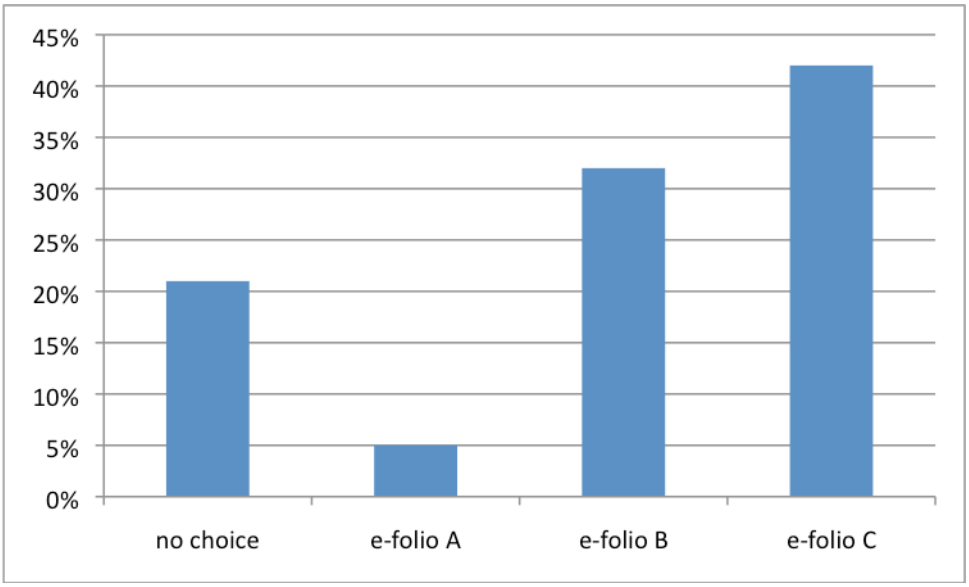

Figure 2. E-folios contributions for learning.

Conclusion

This case study illustrates how the suggested dimensions are present in the development and implementation of the proposed online assessment strategies, varying their emphasis in accordance with the context and proposed activities. While some activities clearly present a stronger emphasis on one of the model dimensions than others, there are also others that adopt a more holistic approach. Moreover, the participating teachers clearly recognized the formative characteristics of the proposed assessment strategies, emphasizing both their diversity and the relevance of the provided feedback as a crucial facilitator for learning.

However, we must recognize the limitations associated with the presented case study where presented data is centered in the participating teachers' subjective perceptions of the assessment methods used by the course instructor and how those methods, in their view, connected to their learning. For a more complete illustration of this framework it will be necessary to attain the cross comparison the multiple case studies.

Nevertheless, the results of this study illustrate the application of the proposed framework in an e-learning context and support the proposed assessment design's capacity to enhance in-service teachers' professional development, contributing to the emergence of critical reflection centered on their professional practice. This is partially promoted, as Carter (2005) argues, by the opportunities given to the teachers to share and discuss, in the online forums, their tacit knowledge with their colleagues, coming from a variety of geographical locations throughout the country and with a very diverse set of professional experiences.

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