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EDITORIAL. TECHNOLOGY AS A SUPPORT TO TRADITIONAL ASSESSMENT PRACTICES

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Assessment in education is under pressure to change. Some drivers for change result from new ways of thinking about assessment and its educational purposes. Other drivers are external and are the result of wider changes in society. Technology falls into this second category. This special issue is concerned with change at the intersection of assessment and technology in education.

Those readers who are keeping up with the educational literature, internationally, will be aware that how researchers and practitioners think about assessment is undergoing change. One recurrent theme in that literature is the growing consensus that the purpose of assessment is not, first and foremost, to judge what students know and can do, to measure learning outcomes and to certify achievements (assessment *of* learning). Rather, whatever assessment does, its primary role, many contend, should be to support learning itself, to help students acquire the attitudes, knowledge and skills they are expected to develop while in education and through their studies (assessment *for* learning). More than this, however, it must also prepare students for the variety of tasks and situations they will confront in the rapidly changing and complex environment they will experience beyond graduation (sustainable assessment). Only after addressing these short and long-term learning purposes, can one properly design assessment to serve the purpose of certification.

Alongside changes in the purposes, and hence in practices of assessment sits technological change, which is continuous, rapid and relentless. Digital technologies are challenging the way researchers

and practitioners think about traditional assessment models and are also leading to new perspectives, approaches and environments for assessment. Despite the speed and scale of technological change in education, there are not a large number of research publications that specifically address the relationship between technology and assessment. This is especially true in Italy. The purpose of this special issue is to promote reflection on this technology-assessment relationship as well as to foster debate, discussion and sharing of ideas amongst researchers and practitioners.

The call for papers for this special issue attracted more papers than expected and so the refereeing process was also more demanding. However, it was well worth the effort, as the ten accepted articles offer an overview of current research and also highlight some important emerging themes at the intersection of assessment and technology. Most articles focus on higher education with a few articles presenting research at school level. Three articles are theoretical and/or literature reviews and half present empirical studies.

All the articles illustrate how technology and assessment have mutually influenced each other. Some focus on how technology changes and supports traditional assessment methods, both summative and formative. Others focus on the shifting character of technology, and on how its rapid advance is transforming what is being assessed, how it is assessed, what is worth assessing and what it is possible to assess. So, while some assessments have been redesigned because of the advantages that technology affords others were actually born digital. Assessment analytics is an example of the latter. Given the two different foci of the received papers – technology as support for traditional assessment and technology as assessment transformation - IJET decided to devote one issue to each. Hence this first special issue, focuses on “*how technology is changing traditional assessment instruments and practices*”. It includes five articles.

In the first, the opening article, Tonelli, Grion and Serbati present an overview of the relationship and the mutual influence between assessment and technology and hence they discuss the two perspectives introduced above. The article presents a literature review of the research carried out in schools and in higher education. This review gives specific examples of research where technologies have been integrated within traditional assessment practices – that is the first perspective - as well as some examples of where assessment methods have been transformed by technology – the second perspective. In this way, the efficacy and affordances of digital technologies in assessment processes are illustrated. Also discussed is research on how students perceive such changes in assessment at different educational levels as well as in different subjects.

Pentucci’s contribution is the first of two dedicated to the school context. The author analyses the implementation of the electronic School Logbook in Italian schools. She is critical about the features that the electronic Logbook makes available to support assessment processes and about its rigidity,

also when compared to the traditional paper-based Logbook it replaces. The way it has been designed has resulted in it losing the narrative affordances of the paper-based version and in it only supporting the grading function of assessment. In effect, the Logbook doesn't support teachers who wish to use assessment to support students' learning. Specifically, as there is no option for teachers or students to add comments, it loses its ability to be used as the basis for dialogue with students or with family members, or as a framework within which to document a student's competency development. The author calls for radical change, proposing that a dialogic tool be created that would give students an active role in the assessment processes and that would support other uses beyond grading.

In the third paper, Trincherro reflects on and makes some suggestions about the efficient use of technologies in the school classroom, grounded in an 'assessment as learning' perspective. The author is opposed to the separation of teaching and assessment and proposes an integrated approach. First, he discusses the issues from a theoretical position, framing his analysis in relevant national and international literature. He then exemplifies the concept of assessment as learning from a technology standpoint, by presenting a number of case examples of classroom implementation. For each case, information is provided about what the learning task was and how the students were introduced to it, how the students were debriefed after the task so as to support reflection on their learning, as well as suggestions about how to observe and assess students' engagement in the learning task.

The fourth article of this special issue is about the use of electronic tools to support the management of assessment processes in higher education when class sizes are large. Ranieri and Nardi compare the potentialities and the limitations of Computer-Based Testing (CBT) in comparison with traditional Paper-Based Testing (PBT). The authors aim was to determine whether, and to what extent, an electronic mode of assessment could become a suitable alternative to PBT. Based on the students' answers to a questionnaire canvassing their perceptions, preferences, and level of satisfaction, the results of this study show that the majority of students, who came from different disciplines, were positive about CBT, and especially about the immediate feedback it provided. Especially notable was the BYOD (*Bring Your Own Device*) approach where students were not required to use university systems. This seemed to reduce test anxiety as students were able to use familiar tools to perform unfamiliar practices. Some issues emerged, however, in relation to on-screen reading, pointing out the need for careful design and testing before implementing new technologies.

In the last article of this special issue, Amendola and Miceli describe an innovative on-line learning activity with a group of university students. Specifically, their research focuses on practical simulation exercises in Genomics, including collaborative activities, based on peer assessment of final reports. Using both quantitative and qualitative analysis the authors use their results to make suggestions about how best to implement peer assessment. The first result is that when two peers

jointly assess a peer's work, the grades closely match those that a teacher would assign. However, there is an added advantage when three peers assess, as this leads to a stronger statistical correlation with the teacher's grade. The second result, which is consistent with previous studies, is that students are very positive about the value of peer assessment. They report that they benefit from collaboration during peer assessment as it helps them better understand the course material and encourages them to think more critically about their own work. Peer assessment also seems to lead to improved learning, as shown through grades.