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Scientific commentary

CHALLENGES OF EFFECTIVE ASSESSMENT OF ONLINE LEARNERS

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Abstract. *Educators at all levels are paying attention to ever challenging demands of teaching across distance. One of the most debatable issues in this respect remains assessment. This paper aims to address some challenges of effective assessment of online learners. Some valuable insights will be provided with reference to summative and formative assessment. The article also introduces some important skills to be possessed by learners of the twenty-first century, supported by examples of online assessment activities that support such skills and correspond to the realities of online learning. Continuous reference will be made to students' feedback as a way of assessment in and for learning. Throughout the article assessment is considered as an essential element to support the continuous evolution of online learning.*

Key words: *online, assessment, formative, summative, feedback, peer*

1. INTRODUCTION

Technology has permeated every possible area of our lives: the way people live, work and play has changed and is under constant continuous change. We use communication and information technology for practically everything: to communicate, to handle business, to launch new products, to purchase goods and services, to spread knowledge and foster education, among many other aims. Online teaching and learning also calls for efficient use of technology to complement and aid the teaching and learning process. The aim of this paper is to introduce some evaluations tools and instruments that facilitate the assessment of online learners. We start the paper by distinguishing between formative and summative assessment. We then describe the reality of assessment of online learners and tools and

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instruments that aim at making the assessment more effective and support the skills outlined in the second part of the article. We also refer to self-assessment and student's feedback as ways to complement assessment. We conclude by affirming assessment of online learners as a challenge to be embraced by both learners and instructors in equal terms in order for it to be effective.

2. FORMATIVE AND SUMMATIVE ASSESSMENT IN HIGHER EDUCATION

In this part of the article we will consider the role of assessment (both formative and summative) in the context of higher education. We will also bring arguments to support our view that change is required in order to move towards a learner centered environment that is supportive of the principles of formative assessment and feedback. We will outline below a short summary of the main principles of formative assessment in higher education, as described in detail in *Enhancing Learning through Formative Assessment and Feedback* (2008) by Alastair Irons, a book which provides both lecturers and students with practical and realistic guidance on various aspects of teaching, learning and assessment, accompanied with illustrative examples and case studies. Black and Wiliam (1998, as cited in Irons, 2008, p. 17) suggest that *assessment* refers to all those activities undertaken by teachers (and by their students in assessing themselves), which provide feedback to shape and develop the teaching and learning activities in which both teachers and students are engaged. Some necessary definitions must be introduced in order to differentiate among *summative assessment* (any assessment activity which results in a mark or grade which is subsequently used as a judgement on student performance), *formative assessment* (any task or activity which creates feedback or feedforward for students about their learning), and *formative feedback* (any information, process or activity which affords or accelerates student learning based on comments relating to either formative assessment or summative assessment activities) (Irons, 2008, p. 7). As stated in Irons, *feedback* refers to information which helps a student learn from formative activities, whereas *feedforward* refers to information which will help a student amend or enhance activities in the future (2008, p. 7). Thus, *assessment* becomes 'formative assessment' when the evidence is actually used to adapt the teaching to meet the needs of students or by students themselves to change the way they work at their own learning. Formative assessment is different from summative assessment in what it seeks to achieve: the primary focus of formative assessment (and formative feedback) is to help students understand the level of learning they have achieved and clarify expectations and standards. (Irons, 2008, p. 17). On the differences between *summative* and *formative* assessment see Knight (2001, p. 3-11), also accessible in HE Academy website at www.heacademy.ac.uk/.

Throughout the book, Irons maintains the view that formative assessment and formative feedback should be promoted in higher education with the aim of providing positive student learning opportunities, encouraging dialogue between students and teachers, enhancing student learning experience and providing motivation for students. It is also suggested that there is already too much emphasis in higher education on summative assessment and the 'testing' and judgement culture and, thus, a shift away from summative assessment towards formative assessment would allow students to take responsibility and ownership for their learning and education, and a reconsideration of the objectives, purpose, value and amount of summative assessment currently used (Irons, 2008, p. 8-9). Based on literature review, Irons

outlines a series of functions of summative assessment, among which we cite: to measure student ability and understanding, to give feedback to students, to provide data that infer what students know; to measure the success of learning and teaching; to monitor standards of teaching at individual, institutional, national and international levels; to enable student learning; to motivate students; to prepare students for life and serve as an input to employment or career advancement; and to develop skills such as collaboration and sharing (Irons, 2008, pp. 12-13). Further information about functions of summative assessment can be found in Black, 1999; Pelligrino et al., 2001; Wiliam, 2000; Rowntree, 1987; and Falchikov, 2005.

On the other hand, endorsing formative assessment, Irons enlists some advantages, such as: formative assessment does contribute to student learning through the provision of information about performance, use judgement about the quality of student responses to shape and improve students' competences, decline the inefficiency of trial and error learning, improve quality of student learning, improve standards of learning, involve students into dialogue with teachers and/or their peers and utter their concerns, weaknesses and learning needs, invite students into experimenting and taking risks, increase levels of motivation, enhance the process of independent learning, develop self-assessment practices and skills, contribute to reflective learning, and provide an increased opportunity for peer- and self-assessment. Still, formative assessment is a much more complex concept than it appears, and, as such, there are difficulties in addressing this type of assessment, among which we mention the fact student may fail to recognize formative assessment as a helpful signal or fail to realize that they are getting formative feedback. It is therefore teacher's responsibility to aid students in the process of developing skills to learn from feedback, which should in turn be motivating for students (Irons, 2008, pp. 17-19). More detailed discussion about advantages of formative assessment, is provided in Yorke, 2003; Sadler, 1989; Black and Wiliam, 1998; Torrance and Pryor, 2002; Knight, 2001; black, 1999; Juwah et al., 2004; Hyatt, 2005; Gibbs, 2005; Marshall and Rowland, 1998; Ward, 1999, and Race, 1994. All in all, formative assessment and formative feedback also denotes a culture change in the nature of assessment: moving towards a type of assessment that makes more room for risk-taking, experimentation and discussion, assessment that removes some pressure from students and involve them to reflect on their learning needs. A more balancing approach on the use of both types of assessment has been suggested by George and Cowan (1999) with more emphasis on formative assessment in the early stages of student learning, and a shift of emphasis towards summative assessment as students get closer to the award stage. Irons has also experimented with a novel approach (though faced with resistance and hostility from colleagues, as Iron states) which would be formative the whole year and shift away from summative assessment for first year degree students, level 4 (Irons, 2008, p. 20).

In summary, based on the cited research, we would like to put forward our view that supports a shift of emphasis from summative assessment to formative assessment, by providing therefore students with the opportunity to benefit and learn from assessment by increasing levels of motivation and commitment, rather than be driven by completing summative assessments activities and, consequently, be relieved from the stress, pressure and problems that summative assessment entails. However, putting to practice such a view is quite a challenge because it requires a culture change in the approach towards assessment to be embraced by higher education institutions, academics, and students alike in order for the change to be met with rewards. Furthermore, in the context of online teaching and learning there are some specific challenges that arise with reference to assessment, which

will be discussed below, regarding online assessment tools and students' feedback skill, where formative assessment will be again touched upon. Our next concern in line is getting acquainted with some necessary skills to be possessed in the twenty-first century, in an era of knowledge expansion, and ICT constant evolution, relevant to our primary focus of interest, assessment.

3. SKILLS OF TWENTY-FIRST CENTURY STUDENTS

The rapid pace of development and evolution of technology call for change and adaptation in several areas of life, including, of course, education. Key competencies should be redefined and assessment tasks should be remodeled according to new standards for what students should be able to do in order to acquire skills of the twenty-first century, in accordance with transformation of educational standards to meet with ICT transformation and evolution. In this part of the article we are going to introduce some of the twenty-first-century skills, as presented by M. Binkley et al. in *Defining twenty-first century skills* (Griffin et al., ed.s, 2012, pp. 17-66). The authors illustrate the use of technology to transform assessment systems and learning and, accordingly, propose a model for assessing twenty-first century skills. Based on their analysis of twelve relevant frameworks drawn from a number of countries, they provide a list of such skills and advise educators to make adaptations to the model of assessment in order to design assessment that fit with their own context, schools and students. The ten skills are divided into four groups:

1. Ways of thinking (1. creativity and innovation; 2. critical thinking, problem solving, decision making and 3. learning to learn, metacognition)
2. Ways of working (4. communication; 5. collaboration)
3. Tools for working (6. information literacy; 7. ICT literacy)
4. Living in the world (8. local and global citizenship; 9. life and career; 10. personal and social responsibility, including cultural awareness and competence).

Having stated these skills, the authors discuss about the role of standards and assessment in promoting learning and the nature of quality assessment systems. For the purposes of this study, we find particularly relevant the outlined principles for twenty-first century standards and assessment. According to the authors, twenty-first century standards and assessment should be aligned with the development of significant, twenty-first century goals, incorporate adaptability and unpredictability, be largely performance-based, add value for teaching and learning, make students' thinking visible, be fair, be technically sound, be valid for purpose, generate information that can be acted upon and provides productive and usable feedback for all intended users, provide productive and usable feedback for all intended users, build capacity for educators and students, be part of a comprehensive and well-aligned system of assessments designed to support the improvement of learning at all levels of the educational hierarchy (Binkley et al., as cited in Griffins, 2012, pp. 24-26). While it is now a well-known fact that ICT does have great potential and advantage for large-scale delivery of tests and scoring procedures, giving learners fast feedback on summative assessment, the introduction of ICT has further developed an interest in formative ways of monitoring and assessing student progress (Binkley, as cited in Griffins, 2012, p. 29). Some examples of formative assessment gaining importance are project work and the increased use of digital portfolios (Kozma, 2003; MacFarlane, 2003; as cited in Griffins, 2012, p. 29). Formative assessment has also gained ground due to the use of digital tools that have added the

qualitative component to this type of assessment in activities such as sending files electronically, hypertexts with links to other documents, and multimodality with written text, animations, simulations, moving images, and so on. The process of following students' progress and giving feedback has now been greatly facilitated, while collaboration and self-regulated learning skills are being strengthened. What is needed now in the application of ICT to assessment, the authors emphasize, is to look for new ways of making student attainment visible in a valid and reliable way, making assessment more efficient and more effective in measuring desired skills (Binkley et al., in Griffins, 2012, pp. 29-30). For more information on these matters see also Gipps and Stobart, 2003; Thai school project, and, on critical thinking skills, Rumpagaporn and Darmawan, 2007.

The authors also highlight several areas of interest related to the use of digital media in education, such as development of creative thinking (use of camera and software tools aids students show their work and reflect upon it), support of collaboration in problem solving, creative practices, and communication (computer-based learning environments stimulate student learning and the process of inquiry), encouragement of higher-order thinking skills, etc., all skills necessary for success in today's world of work and school. These skills are supported by online assessment platforms and strategies that focus not only on the individual student, but also on team assessment and peer assessment as well, through the use of innovative assessment methods (Binkley et al., in Griffins, 2012, pp. 31-33). They also mention innovative technological platforms for knowledge assessment such as *Knowledge Forum* (Scardamalia and Bereiter, 2006) aiming to measure students' learning processes that have traditionally been difficult to access and enhancing skills such as collective reasoning and problem-solving building on each other's notes. Such skills embrace life-long learning and are quite necessary to be possessed by students of the twenty-first century and relevant to assessment, especially formative assessment. More information on innovative ways of using ICT in assessment, is found in Bennett et al., 2003; Mercer and Littleton, 2007; Wegerif and Dawes, 2004; Griffin, 2012.

In summary, we can say that some of the most important skills to be possessed by twenty-first century students are: creativity and innovation, critical thinking, decision-making, communication, collaboration, information and ICT literacy, cultural awareness and competence and self-regulated learning skills. Such skills can be supported by several online assessment strategies and tools, some of which will be outlined in the next part of the paper.

4. ONLINE ASSESSMENT ACTIVITIES

Assessment is an essential element in the teaching and learning cycle. Types of assessment and tools of assessment are generally determined after the desired learning objectives, outcomes and competencies have been settled. We do distinguish between objectives (what students will learn, generally at the end of a unit of study), outcomes (what students will be able to know or do, generally at the end of a course), and competencies (how students demonstrate knowledge or skill acquisition, generally at the end of a program of study (Palloff and Pratt, 2009, p. 6). Such an alignment of assessment and activities with competencies, outcomes and learning objectives makes assessment more manageable and increases student satisfaction with the learning process and their understanding of the purpose of the course in the overall program of learning. Based on the principle that a

well-designed online course is learner-centered, student assessment within an online course should also be learner-centered, including the reflective process that accompanies collaborative activities and that give the instructor insight into future similar assignments. Assessment in an online environment cannot and should not replicate assessment in the physical classroom because such a thing would be frustrating to learners. Based on literature review, some principles that should guide student assessment in an online course, according to Palloff and Pratt are: design learner - centered assessments that include self-reflection, design and include grading rubrics for the assessment of contributions to the discussion as well as for assignments, projects, and collaboration itself, include collaborative assessments through public posting of papers, along with comments from student to student, encourage students to develop skills in providing feedback by providing guidelines to good feedback and by modeling what is expected, use assessment techniques that fit the context and align with learning objectives, design assessments that are clear, easy to understand, and likely to work in the online environment, ask for and incorporate student input into how assessment should be conducted (Palloff & Pratt, 2003, as cited in Palloff and Pratt, 2009, p. 30). The authors emphasize that in order to assess effectively students' performance online a variety of assessment techniques should be employed, and they favor in particular authentic assessments such as projects, papers and artifacts that integrate course concepts. Therefore, they encourage the use of self-reflections, peer assessments, and clearly designed rubrics as activities that may align more closely with the objectives of an online course and flow more easily into course content (Palloff and Pratt, 2009, p. 40). Benson and Brack also state that communicating the assessment task to learners is quite important in an online environment and requires clear and complete communication of online assessment requirements, with details of the task and objectives and assessment criteria as well as scheduling and submission arrangements, in order for students to be met with effective assessment (Benson and Brack, 2010, pp. 122-124).

We present below a summary of some necessary techniques for effective online assessment, as described in detail in Palloff and Pratt (2009, pp. 40-45): regular and ongoing communication with and feedback from students, discussion and dynamic interaction through group work and collaboration, shift into projects that require demonstration of skill acquisition and problem-solving ability, use of performance-based assessments, authentic assessments, and the use of e-portfolios, use authentic forms of assessment such as establishing a testing situation that simulates the real – life use of the information, can create a form of authentic assessment. Some examples of such forms of assessment, can be performance assessments (e.g. fishbowl activities, wikis, socially constructed web pages that allow the instructor to observe students skills in action), authentic assessments (e.g. simulation activities and real-world case studies which allow students to work in real-life conditions and use authentic materials of a real-world environment) and portfolio assessments (e.g. presentations, demonstrations, e-portfolios accompanied by discussion whereby the instructor gives a joint assessment of progress or overall learning). For more detailed discussion on these matters, see also Gaytan, 2005; Rasmussen and Northrup, 1999; Major and Taylor, 2003; Angelo and Cross, 1993; Bachman, 2000; Myers & Jones, 1993; Morgan and O' Reilly, 1999. Other online tools include the use of e-mail to provide constant feedback; discussion forums for asynchronous communication and in-depth reflection over time; online small groups with independent tools such as chat, drop box, e-mail and discussion board; chat and instant messaging for synchronous communication; video conferencing and whiteboard for synchronous communication; and the use of blogs and wikis (Dawley, 2009). Pallott and Pratt

also describe some ways that online environment can be used to the advantage of assessment, among which they mention: computer-generated and -scored tests and quizzes, internet-based research projects, peer review and assessment technologies, internet-based case studies, WebQuests, synchronous and asynchronous technologies to facilitate collaboration, etc. Such possibilities, combined with survey tools such as Survey Monkey, Zoomerang, SurveyPro, SurveyGold, Survey Solutions, Key Survey, Survey System, Surveylogix, Infopoll, Statpac, SurveyView, and SurveyCrafte, among others, provide feedback to learners, involve them into critical evaluation of their own work and the work of their peers, promote critical thinking skills, help to create consistency, creativity and objectivity in learners, encourage authentic assessment, promote collaboration, and allow students to brainstorm, share documents and discuss concepts in real time.

It is also necessary to enlist some of the weaknesses and strengths on online assessment tools in order to use them effectively. Some strengths of online assessment tools are: they save time for the instructor, provide instant feedback to the student, they relieve anxiety to a certain extent, they can be programmed to become progressively harder based on correct answer, they can avoid cheating due to programming randomized questions, they can increase motivation by making learning fun, they empower students to take responsibility for their learning, and make students experts on their own topics, opening possibilities to students as global citizens. Nonetheless, constant improvement of online assessment tools is needed in order to avoid certain weaknesses such as extra time and burden on the instructor's workload in order to ensure all steps of online assessment are followed (especially simulations), constant training of learners and instructors, stress to deliver assignments on time and meet with peers' demands for team effort, etc. (Dawley, 2007, pp. 173-176).

As it can be observed, the learners are the main focus of the teaching, learning and assessment cycle. The more learners realize that they are not only the source but also the resource for assessment, the more meaningful and purposeful the online course and the learning experience and the better-equipped they are for the real-world environment. That is why we turn our attention now to learners and the necessity for self-assessment and feedback they provide in learning and assessment.

5. DEVELOPING STUDENTS' FEEDBACK AND SELF-ASSESSMENT SKILLS

The traditional classroom calls for an instructor who assesses learners. There are, however, other factors and actors that contribute to assessment in and for learning and bring new perspectives to the modern classroom. Among these, we turn our attention again to learners and their involvement. Self-assessment encourages students to become active, independent learners and contribute to the generation of feedback for themselves, helping to prepare them for life after university. There are aspects of the online environment that support reflection, including e-portfolios, blogs, and online discussion, that can be very helpful in encouraging self-assessment (Benson and Brack, 2010, pp. 111-112). Palloff and Pratt also assert that collaborative assignments and self-assessments teach learners skills that will move them toward involvement in the assessment process and create a cycle of learning that supports their growth as learners as well as desired learning outcomes such as: an increase sense of community; promotion of self-directed learning, self-efficacy, and discovery; increased problem-solving skills; introduction of the element of choice in assessment; and support of students' skills towards gaining expertise (Palloff and Pratt, 2009, p. 43).

On the other hand, feedback is also part of the learning and assessment cycle. If used appropriately, feedback can enhance teaching and, at the same time, promote a higher quality of student learning (on the role of feedback on enhancement of learning, see also the research from Pellegrino et al., 2001; Hounsell, 2004; Hattie, 1987, Irons, 2008; Sadler, 1989). Feedback can be provided through formative assessment, but it can also be used as a link between summative assessment and formative development, and it can be part of self-assessment and/or peer assessment. In order for the feedback to be effective, it should be based on achievable and valuable goals which are common-shared between instructor and learners. Care should also be taken to communicate feedback in such a way as to enable students use it to achieve learning outcomes or reaching required standards. Feedback should also be encouraging for students and should address learning issues (Irons, 2008, p. 23). An affective technique for formative assessment purposes can also be to provide audio feedback in online asynchronous online courses, found to facilitate online interactions and improve case study reports, and, thus, provide successful assessment (Olesova and de Oliveira, in Koç, S. et al., 2015, pp. 125-141). There are, however, problems associated with feedback, some of which include: no use on the students' behalf of instructor's feedback (students focus only on grades or marks; feedback is not understood by students or it is complex or contradictory; feedback only justifies student's mark; students have no opportunity to discuss their feedback; feedback is used as a power relationship between instructor and learners; difficulty to ensure fairness of feedback; and possibility for feedback to encourage learners to feel better irrespective of the quality of work being assessed (Irons, 2008, pp. 25-26). For more details on the problems associated with feedback, see also Hounsell, 1987; Lea and Street, 1998; MacLellan, 2001; Holmes and Smith, 2003; Pellegrino et al., 2001; as cited in Irons, 2008.

We present below some tips for instructors and students to promote and use student feedback as part of assessment activities, as outlined by Palloff and Pratt (2009, pp. 72-73). They advise instructors to develop course guidelines that include an expectation of students' feedback to one another; promote a sense of collaboration rather than competition through the use of feedback; encourage posting of feedback on the discussion board rather than through e-mail, as this allows instructors to see material not otherwise available; and explain the importance of giving good feedback because it deepens the level of discussion and learning. The authors also encourage the development of good feedback techniques in students by giving them orientation on how to give and receive feedback, by stressing necessary points for feedback such as: feedback should respond to the question in a way that clearly supports a position, begin a new topic, add to the discussion by critically reflecting on what is being discussed, move the discussion in a new direction, and ask a question to stimulate further thinking on the part of the person to whom the feedback is addressed. Some helpful feedback guidelines for students are to plan ahead, figure out how all ideas fit together, make notes to make the feedback well-organized, use short paragraphs to express ideas within a minimum of words, read a message out loud after typing but before sending it, summarize previous messages adequately and then place comment, and, always, plan ahead of writing and posting messages (Palloff & Pratt, 2003, pp. 171-172). We conclude this part of the paper by emphasizing the need to raise awareness in both instructors and learners that they all benefit from a learning and assessment cycle in which they are all involved actively and interactively to make assessment more effective.

6. CONCLUSIONS

To conclude, we support the views outlined by several scholars inside the current paper that online assessment activities and strategies call for involvement of instructors and learners in order for them to be effective. We also encourage the use of assessments that align with a variety of learner-centered activities and assignments, with clear learning objectives and outcomes; all contributing to effective online assessment. We hereby acknowledge the challenges of the latter and thus encourage instructors and learners follow the tips outlined in the paper in order to increase their chances of using feedback and self-assessment each to their advantage. To serve such a purpose, all activities aiming at summative or formative assessment should be part of an integrated process that aims at developing real-life skills for students of the twenty-first century, hopefully to be assessed effectively in online environments through activities such as authentic projects, portfolios, discussion boards and performance assessment activities.

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IZAZOVI EFEKTIVNOG OCENJIVANJA ONLAJN UČENIKA

Nastavnici svih nivoa obrazovanja obraćaju pažnju na uvek izazovne zahteve nastave na daljinu. Jedno od najspornijih pitanja koje se odnosi na realizaciju ove vrste nastave nesporno je ocenjivanje. Ovaj rad ima za cilj da ukaže na neke izazove efektivnog ocenjivanja onlajn učenika. S tim u vezi biće dati neki uvidi u odnosu na sumativno i formativno ocenjivanje. Takođe, daju se neke važne veštine koje treba da poseduju učenici 21. veka i odgovarajući primeri onlajn aktivnosti za ocenjivanje koje podržavaju razvoj takvih veština i odgovaraju realnosti onlajn učenja. U okviru toga, kontinuirano će se ukazivati na povratne informacije koje se dobijaju od učenika kao načina ocenjivanja tokom učenja i za učenje. U svakom delu rada ocenjivanje se razmatra kao suštinski element za podršku kontinuiranoj evoluciji onlajn učenja.

Ključne reči: onlajn učenje, ocenjivanje, formativno, sumativno, povratna informacija, vršnjaci