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Sustainable assessment has been proposed as an idea that focused on the contribution of assessment to learning beyond the timescale of a given course. It was identified as an assessment that meets the needs of the present in terms of the demands of formative and summative assessment, but which also prepares students to meet their own future learning needs. This paper reviews the value of such a notion for assessment; how it has been taken up over the past 15 years in higher education and why it might still be needed. It identifies how it has been a successful intervention in assessment discourse. It explores what more is needed to locate assessment as an intervention to focus on learning for the longer term. It shows how sustainable assessment can help bridge the gap between assessment and learning, and link to ideas such as self-regulation, students making judgements about their own work and course-wide assessment.

**K**  **s:** sustainable assessment; assessment for learning; self-assessment; student judgements; purposes of assessment

## Introduction

As the focus in education moves inevitably from what teachers do to what students learn, and from what is provided by way of resources and materials to what effects are produced, how we view educational events must necessarily change. Education comes increasingly to be judged not on what it delivers now but on what it produces in the world beyond the present: its outcomes and consequences. The view of what is sustainable shifts from being able to retain what has previously been delivered, to what is needed to sustain effective learning now and in the future.

Sustainability in education may be interpreted as a feature of educational systems. It is not just about sustainability of the physical environment, but also about the sustainability of educational practices, some of which may be too resource-intensive to survive in a constrained financial environment (Beck, Skinner, and Schwabrow 2013). That is, promoting teaching, learning and assessment practices that involve less face-to-face but perhaps more effective contact between teachers and students. However, such a view of education is too narrow and provision-centred. What is more important for the longer term is to look at the notion of sustainability from the perspective of learning. What educational practices are needed now in order to form and sustain learners who will be able to operate effectively in a complex society?

From such a viewpoint, sustainability becomes transformed into a question of whether educational provision equips learners effectively, not just for immediate

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designed to influence educators, the pragmatic focus was on the assessment task as the unit of analysis. That is, what were suitable assessment tasks, including associated activities to equip students for learning beyond the end of the course. It included specific action required of students along with the activities that surrounded it. The features that framed the website's focus were:

the need for sustainable assessment, the requirement that assessment foster students' ability to make judgements, the desire to construct students as reflexive learners and the goal that assessment helps form dispositions for practice. Types of task were arranged around the themes of: engaging students, authentic activities, students designing assessments, integrative tasks, learning and judgement, modelling and practice, working with peers and giving and receiving feedback. (Boud 2010, 253-254)

More recently, the role of feedback in developing students' capacities to learn has been taken up enthusiastically (Boud and Molloy 2013a; Carless et al. 2011; Hounsell 2007; Nicol 2010; Sadler 2010). Although the importance of feedback has been the subject of discussion in the literature for many years, the focus in this more recent work is on the contribution of others to learning through assessment, and repositioning the notion of feedback not as an act of information giving to students, but as a co-productive process in which both students and others have key roles to play. Learning cannot be sustainable in any sense if it requires continuing

assessment criteria, long-term learning abilities, habits of mind and metacognitive skills to contribute to the emergence of judgements in students.

An important strategy for the implementation of assessment practices is through information and communications technologies (ICT). Williams (2008) suggests that technological tools available can be used to achieve sustainable assessment, as they can provide students with authentic contexts through simulations and virtual worlds (403), and include the formative benefits of student performance within relevant professional contexts (450). He proposes that the use of context-based tasks enables students to develop as effective lifelong assessors. Similarly, Nicol (2007) focuses on how ICT supports formative assessment and feedback in order to focus students learning through practices that will help them develop the skills needed to monitor, judge and manage their own learning.

A focus on the development of assessment through online learning environments is also seen in Van Gog et al. (2010). In their adoption of sustainable assessment, they design formative assessment tasks to develop assessment for learning focusing on professional situations. They recognise that:

in complex domains, defining assessment criteria and standards is diffi



learning processes. Nicol (2009) links this with the wider notion of the promotion of self-regulation (students actively and consciously controlling their own learning) that he sees as a fundamental requisite of any educational programme. In his example there:

were many opportunities for learner self-regulation ... Firstly, the online tasks were designed to promote learning through peer dialogue and feedback ... Peer discussion around learning tasks also helps attenuate the teacher's voice and lets the students voice be heard ... Secondly, as well as being actively encouraged to give each other feedback during learning, a key component of the feedback strategy was the use of model answers ... Thirdly, the course leader provided general feedback to the class-wide discussion board. (Nicol 2009, 341)

To help students achieve sustainable assessment Jones (2010) proposes the development of portfolios in order for students to develop a reflective practice. The introduction in teaching-learning processes of portfolios and projects can reinforce reliability (Jones 2010) and therefore trust (Carless 2009). Jones suggests that:

the degree to which a portfolio fulfils the requirements of sustainable assessment will depend upon its design ... a portfolio in which students are required to select and annotate evidence from practice, and reflect on the evidence, is a powerful tool for the development of reflective practice. (701, 708)

He goes on to point out that only if students continue these practices could a portfolio be considered to have met the requirement for sustainable assessment.

### Positioning assessment as part of learning activities

Other authors address the importance of the pursuit of long-term learning outcomes when dealing with sustainable assessment:

Long-term learning abilities do not refer exclusively to content knowledge but rather concern habits of mind and metacognitive skills that embody cognitive and social cognitive abilities that are useful in improving students' learning skills. We selected for study long-term learning skills that enable students to learn on their own, approach problems from multiple perspectives, and work with complex issues. (Beck, Skinner, and Schwabrow 2013, 326)

Beck and his colleagues see sustainable assessment as part of a constructive alignment between the teaching system and assessment tasks in which the latter are part of teaching and learning (2), where

the most significant new features in sustainable assessment theory that distinguish it from formative assessment would be, in principle, to develop in students the ability to be sustainable assessors of their own long-term learning skills and to develop assessment devices for student self-monitoring. (3)

Assessment practices are normally well entrenched in institutional and disciplinary cultures and take a long time to change. As Lindberg-Sand and Olsson (2008) highlight, trust in assessment practices is dif

a series of boundary encounters, linked together only by the assessment system ...



One approach is to return to the original features proposed for sustainable assessment and build on them, while also incorporating features subsequently identified as important. If we deconstruct the elements of assessment as a pedagogical process, we can identify the following categories of interest and consider how sustainable assessment can appear within each.

### Purposes

Clearly, the purpose of sustainable assessment, to equip students for their learning beyond the course, is the foundation for development. While assessment normally has to do double-duty (Boud 2000) in meeting more than one purpose at a time, the goal to prepare students for future learning must remain central. As part of this orientation to assessment, seeing it as developing the ability to make informed judgements about one's own work is a key indicator of the presence of sustainable assessment in any particular context.

It might reasonably be thought that developing informed judgement has the character of a graduate attribute (Hughes and Barrie 2010). It would however be inappropriate simply to add it as an additional attribute to existing lists. Brown and Harris (2014) have identified student self-assessment as a core competency, and have strongly linked it to the development of capacity for self-regulation. The development of informed judgement encompasses self-assessment and the same argument can be applied to establish it as a feature that undergirds all specific learning outcomes and enables them to be met.

### Assessment tasks

Assessment tasks represent what students are to produce as an outcome of their study. They can be the most direct way of influencing students, as students are likely to take required tasks seriously if they want to be successful. Tasks normally specify

they spend their time. They represent the orientation of the student towards study and the kinds of activities with which they are confronted, particularly assessment tasks. While such tasks can influence students powerfully when they are positively oriented towards study, tasks themselves have a limited influence over student dispositions. These are built up during a course, and prior to it. The development of suitable dispositions precedes specific assessment events and is a key element of pedagogy.

Courses that adopt sustainable assessment need to review the circumstances that

formal assessment and grading of any task creates situations in which students may feel under surveillance and dare not take the kinds of risks needed to be secure in their understanding.

A particular aspect of course design is how feedback processes are incorporated into student work. Are explicit feedback loops incorporated into the course to enable students not only to receive useful information about their work, but also to act on this information and demonstrate that such information has an effect? Feedback considerations are discussed at length in Boud and Molloy (2013b).

We should note though that, while assessment design is of great importance, the strictures of Lindberg-Sand and Olsson (2008) should also be taken into account. How students respond to learning opportunities and assessment tasks is not just a feature of the activities themselves, which can be carefully designed. They depend also on the ways in which they are perceived and the ways students take them up, which cannot be controlled in advance. While many features of teaching, learning and assessment can be designed, there are also emergent practices independent of the dynamics of the context, and players involved that can never be fully determined.

## **Conclusions**

In conclusion, we have identified sustainable assessment as an appealing idea that has shifted attention in assessment discourse and is giving rise to a range of interesting educational interventions. It provides a compelling rationale for assessment reforms, but is yet to have widespread impact on assessment discussions. Where follow-through to practice has occurred it has focused on a limited number of features of the original idea. It has been extended to encompass the development of informed judge-

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