Authentic Assessment: creating a blueprint for course design

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Authentic assessment: creating a blueprint for course design

Authenticity has been identified as a key characteristic of assessment design which promotes learning. authentic assessment aims to replicate the tasks and performance standards typically found in the world of work and has been found to have a positive impact on student learning, solve problems skills, autonomy, motivation, self-regulation and metacognition; abilities highly related with employability. Despite these benefits, there are significant barriers to the introduction of authentic assessment, particularly where there is a tradition of 'testing' decontextualised subject knowledge. One barrier may be the lack of conceptualisation of the term authentic assessment sufficient to inform assessment design at the individual course level. This article tackles that omission by a systematic review of literature from 1988 to 2015. Thirteen consistent characteristics of authentic assessment are identified leading to the classification of three conceptual dimensions: Realism, Cognitive Challenge and Evaluative Judgement. These dimensions are elaborated and used to propose a step-based model for designing and operating authentic assessment in individual higher education subjects (courses).

Keywords: Authentic assessment; Higher Education; Workplace

Introduction

Whilst there are different national traditions in assessment practices, we are witnessing a paradigm change (Baeten, Struvyen & Dochy, 2013) involving a transformation from

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a culture of objective and standardised tests that are focused on measuring portions of atomised knowledge, towards a more complex and comprehensive assessment of knowledge and higher-order skills (Birenbaum, 2003; Shepard, 2000). This change in assessment relates to the emergence of the Assessment for Learning (AFL) movement, where all assessment contributes to helping students learn (Sambell, McDowell & Montgomery, 2013). AFL allows teachers to gather information to adjust their teaching and helps students to regulate their own learning (Wiliam, 2007; Wiliam et al., 2004).

From this perspective, assessment, teaching and learning are closely related, with each one being part of the pedagogical process and where feedback is used to adjust the learning cycle. Within this paradigm, authenticity has been identified as a key characteristic of assessment design which promotes learning and employability (Sambell, McDowell & Montgomery, 2013; Bloxham, 2015). Authentic assessment is the focus of this article.

What is authentic assessment?

Authenticity is understood as realism, contextualisation and problematisation when teaching and assessing curricular content (Benner et al., 2009; Raymond et al., 2013). *Realism* involves linking knowledge with everyday life and work, *contextualisation* characterises situations where knowledge can be applied in an analytical and thoughtful way, and *problematisation* invokes a sense that what is learned can be used to solve a problem or meet a need. Thereby authentic assessment aims to integrate what happens in the classroom with employment, replicating the tasks and performance standards

typically faced by professionals in the world of work (Wiggins, 1990).

Benefits of authentic assessment

Studies indicate that authentic assessment has an impact on the quality and depth of learning achieved by the student (Dochy & McDowell, 1997, Wiggins, 1993) and the development of higher-order cognitive skills (Ashford-Rowe, Herrington, & Brown, 2014). Moreover, it improves autonomy (Raymond et al., 2013), commitment and motivation for learning (Nicol, Thompson & Breslin, 2014), self-regulation capacity (Pintrich, 2000), metacognition and self-reflection (Vanaki & Memarian, 2009).

Furthermore, authentic assessment is a response to criticisms of higher education. Students have difficulty applying the knowledge acquired in different academic contexts (Andrews & Higson, 2014). They feel unprepared for employment (Ellström & Ellström, 2014) and insecure when they begin working (Ken & Chean, 2012).

Employers are dissatisfied with the performance of recent graduates, who they consider rigid, unable to adapt to the demands of working life (Plump, 2010) and lacking basic skills such as problem solving, critical thinking, communication skills and teamwork (Singh, Thambusamy & Ramly, 2014).

In this context, authentic assessment appears as a model that can enhance employability because it promote abilities needed in the workplace, like problems solving skills (Wu, Heng & Wang, 2015), autonomy (Swaffield, 2011), motivation (Gulikers, Bastiaens, Kirschner & Kester, 2008), self-regulation and metacognition (Wu, Heng & Wang,

2015). Thus, provides the opportunity for students to practice skills and competences that are valued in work. In undertaking the assessment they have to deploy skills, and complete tasks that simulate the activities they will have to conduct in their future jobs. This consolidates capabilities that are part of employability such as: coping with uncertainty, working under pressure, planning and thinking strategically, communicating and interacting with others (Andrews & Higson, 2008), as well as better command of disciplinary content knowledge and skills, workplace awareness, experience and generic skills (Dacre Pool & Sewell, 2007).

Barriers to implementing authentic assessment

This research was carried out in Chile where there is a strong culture of testing as the principal form of summative assessment, particularly in lower level courses. This is common in many higher education systems worldwide, where a focus on testing risks encouraging   superficial approaches to learning (Beyaztas, & Senemoglu, 2015; Endedijk & Vermunt, 2013) and measuring decontextualised memorization and understanding of content, and not the integration or application of knowledge (Biggs, & Tang, 2011) indicated by authentic assessment. Such learning is unlikely to be useful beyond the classroom (Vanaki & Memarian, 2009; Wiggins, 1990). Teachers may use multiple-choice tests with adequate validity and reliability indexes, but not question the relevance and significance of the assessment. In such a culture, there is a reluctance to use methods that evaluate the construction of knowledge, critical thinking or problem solving (McCabe, & O'Connor, 2014).

Teachers are more willing to make changes where the assessment is of work place and

practical skills rather than subject knowledge (Biggs, & Tang, 2011; Watkins, Dahlin & Ekholm, 2005). Teachers are reluctant to change formal assessments, such as exams, because changing these practices makes great demands on time, energy, and intellectual resources (Brush & Saye, 2008). They can also be perceived as risky (Deeley and Bovil, 2017). In addition, teachers must have deep disciplinary knowledge as well as great cognitive flexibility to monitor, challenge, and guide learners toward problem solutions that have disciplinary rigor (Saye, 2013).

Finally, whilst many professions have well-developed approaches to assessing practice-based learning, the authentic assessment of university-based learning presents more of a challenge. Although the literature provides a broad understanding of its purposes and value, change may be hindered by a lack of conceptualisation of authenticity and authentic assessment (Kreber et al., 2007), sufficient to inform individual course design.

In answer to this challenge, this article draws on a review of authentic assessment literature to determine the essential design dimensions required to bring authenticity to the assessment of classroom (as opposed to work-based) learning. It aims to advance authentic and situated learning that encourages students to develop relevant competencies for their working lives (Segers, Dochy & Cascallar, 2003).   It concludes by proposing a new 4 step model to implement authentic assessment derived from the authors' analysis of the existing literature.

Method

A systematic review of authentic assessment literature was carried out with the purpose

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of integrating, analysing and identifying central themes, following Randolph (2009). We analysed 112 articles that focused on the subject and were published between1988 and 2015. The articles were identified in the Scielo, Scopus and Web of Science indexes, and all of them were published in English language journals. The search keywords were: authentic assessment, Authentic Intellectual work, Authentic Instruction. 35.7% of articles referred to higher education whereas 64.3% were based in other education sectors.

The analysis sought to identify the core concepts of this construct. A first read of the articles explored the main characteristics of the construct and generated 13 central characteristics. In an iterative process, a second read sought to deepen the analysis and elaborate preliminary dimensions of the concept reflected by these characteristics. This generated 3 dimensions. These preliminary ideas were tested in a third reading by two research assistants who completed a template for each article. This format permitted the researchers to indicate which characteristics from the list and which dimensions appeared in each article.

The assistants worked independently and in parallel, completing the template for each article. The concordance between the evaluators was analysed through the Cohen Kappa coefficient. This generated a value of 0.82, showing a high level of agreement between them. The characteristics most frequently related to authentic assessment were identified, the dimensions that make it up were determined, and finally, a tentative model was developed to underpin authentic assessments in higher education. This model was used in a research project, funded by the Chilean Ministry of Education.

The results

The characteristics of authentic assessment

Thirteen characteristics of authentic assessment found in the literature were identified as set out in Table 1. The following text draws on indicative examples of those texts to illustrate the role of these characteristics in the development of the overall construct. The 13 characteristics are highlighted in bold.

Archbald & Newmann coined the first formal use of the term "authentic" in the context of learning and assessment in 1988. At first, these authors used the term **authentic performance**, which was associated with production of knowledge, deep understanding, integration of knowledge, and use of prior knowledge and relevant performance beyond assessment. It has also been associated with **Practical Use**, alluding to the purpose, utility or ultimate goal of learning, especially in primary school (Meisels, Wen & Beady-Quick, 2010; Moon, Brighton, Callahan & Robinson, 2005).

Later, emphasis was placed on its relationship with **higher-order thinking** (Avery, Freeman & Carmichael, 2012; Bosco & Ferns, 2014;), the **ability to solve problems** (Elliot & Higgins, 2005; Newmann, King & Carmichael, 2007; Wu, Heng & Wang, 2015) and **decision making** (Newmann, Bryk & Nagaoka, 2001; O'haja, Dunlea & Muldoon, 2013).

Wiggins (1993) and Torrance (1995) introduced the concept of relevance in assessment. Authentic assessment engages students with problems or important questions, which **have worth beyond the classroom.** The tasks are replicas or analogies of the types of problems that are faced in working life. The idea is that students use knowledge to show

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Table 1. Dimensions of the Authentic Assessment (AA)

AA Dimensions	N° and % of articles in the dimension	Concepts and ideas associated with AA, with the N° and %of articles
Realism	79 (70.5%)	-Problems contextualised to everyday life (55/ 49%).
		-Relevance beyond the classroom (54/ 48%).
		-Authentic performance (48/ 43%).
		-Competencies for work performance (32/ 29%).
		-Similar tasks to the real/working world (28/ 25%).
		-Practical value (5/ 5%).
Cognitive Challenge	62 (55.35%)	-Higher order thought (54/ 48%).
		-Ability to solve problems (52/ 46%).
		-Ability to make decisions (20/ 18%).
Evaluative Judgement	42 (37.5%)	-Feedback (45/ 40%).
		-Formative sense (51/ 46%).
		-Assessment criteria known a priori (20/ 18%).

effective and creative performances (Saye, 2013; Wiggins & McTighe, 2006).

In this way, researchers began to talk about authentic assessment as a strategy to relate learning and work, creating a correspondence between what is assessed in the university and what students need to do in the workplace (Gulikers, Bastiaens, Kirschner, 2004). This methodology introduces **similar tasks to those faced in real life or work** (Brown, 2005; Raymond et al., 2013). However, the literature does not provide much detail about these real-world elements and how this kind of assessment is properly implemented (Cummings & Maxwell, 1999). Some refer to **problems contextualised to everyday life** (Ashford-Rowe, Herrington & Brown, 2014). Benner et al. (2009) consider that authentic assessment consists of asking students to tackle cases, accompanied by a rubric for its assessment. The case must be a real-life situation, where students are asked to apply their knowledge and make decisions to solve the problem.

Frey, Schmitt, & Allen (2012) went further in emphasising that the context of assessment should be realistic and cognitively complex. The task should involve performance and play a **formative role** (a characteristic noted in multiple articles). From this perspective, authenticity became a crucial element for assessing **relevant skills for successful job performance** (Gielen, Dochy, & Dierick, 2003; Segers, Dochy & Cascallar, 2003). Assessment should be similar to what happens and what is evaluated in the professional field including **collaborative** or peer-to-peer work (Ashford- Rowe, Herrington & Brown, 2014; Raymond, et al., 2013).

Wiggins (1990) amongst other articles highlighted that the structure and expectations of authentic assessment ought to be transparent: the **assessment criteria should be known**

in advance. In this regard, **feedback** to students was central and they could repeat the same assessment more than once, since the aim was that students learn and improve their performance effectively (Swan & Hofer, 2013). Swaffield (2011) notes that wrong answers are an opportunity to diagnose what needs to be improved. Error must be worked on through mechanisms of self- and peer-assessment, using formative assessment as a means of feedback (Boud & Walter, 1990; Frey, Schmitt & Allen, 2012; Wu, Heng & Wang, 2015).

Table 1 sets out the central characteristics associated with authentic assessment methodology found in the existing literature. It reveals that many of these are reflected in a high proportion of research articles with the most frequent seven featuring in over 40%.

However, it is interesting to see that some characteristics with low frequency such as ability to make decisions and teamwork/ collaborative work do not feature strongly in the authentic assessment literature despite the reoccurring stress on these 'soft skills' for employers (Archer & Davison, 2008, National Association of Colleges and Employers, 2016). This may be a consequence of the individualised nature of most assessment methods but it suggests that authentic assessment approaches which do not foster these skills will have less of a potential impact on students' learning for employability.

Components of authentic assessment: Realism, Cognitive Challenge and Feedback

The second reading distinguished three dimensions that represent the essence of authentic assessment. These overarching dimensions are: 1) realism, 2) cognitive challenge and 3) evaluative judgement and they are present in all theoretical formulations of the concept. Table 1 also lists the dimensions and their component characteristics according to the frequency of articles that refer to them as an inseparable part of the authentic assessment.

1.- **Realism**. Realism can come in two forms: on the one hand, the presence of a *"real context"* that describes and delivers a frame for the problem to be solved (Bosco & Ferns, 2014). On the other hand, a task to be solved that is *'similar'* to what is faced in real and/or professional life (Saye, 2013).

In authentic assessment, the context is realistic when information about the described situation-problem comes from real and/or professional life, involving pertinent and relevant questions to solve (Swan & Hofer, 2013), applicable to realistic situations (Wiggins & McTighe, 2006). This transfer is possible when ideas relate to facts and skills to experiences, applying previous knowledge to new situations and tasks (Ashford-Rowe, Herrington & Brown, 2014). This realistic context can be present in exams and written tasks when items are prepared such as case analyses, problem solving, and short or extensive essay questions, which act as a *proxy* of the real world.

The second way to create realism is through *performance-based tasks,* where students produce work or demonstrate knowledge, understanding and skills in activities that are close to the profession (Palmer, 2004). Wiggins & McTighe (2006) designated, as

authentic assessment, requirements that demand a true representation of performance in that field of employment. Teachers must know what are the typical tasks and functions that employment demands, and design assessments that are authentic simulations of real professional tasks.

2.- **Cognitive Challenge**. In authentic assessment, the task involves building knowledge, and using higher-order cognitive skills, such as those proposed in Bloom and Anderson´s taxonomies (Avery & Freeman, 2002; Wiggins, 1993). Through the encouragement of assessment, it aims to generate processes of problem solving, application of knowledge and decision-making which correspond to the development of cognitive and metacognitive skills (Elliot & Higgins, 2005; Newmann, King & Carmichael, 2007).

This type of assessment intends that students go beyond the textual reproduction of fragmented and low order content and move towards understanding, establishing relationships between new ideas and previous knowledge, linking theoretical concepts with everyday experience, deriving conclusions from the analysis of data, allowing them to examine both the logic of the arguments present in the theory, as well as its practical scope (Gulikers, Bastiaens, Kirschner, 2004; O'haja, Dunlea & Muldoon, 2013). Students should not only respond well to a question, but also demonstrate performances (such as critical and reflective analysis) and concrete products (such as a diagnostic report), exhibiting genuine mastery of content (Avery, Freeman & Carmichael, 2012).

Different research has compared short, medium, and long-term performances in tests

that measure memory skills in closed-response items and in tests involving cognitive performances, measuring higher-order cognitive abilities using open answer items. The results show that the stability in students' performance is greater in items that measure complex cognitive abilities (Rawson, Dunlosky & Sciartellli, 2013) suggesting that assessing higher-order cognitive performance generates a level of learning that lasts over time.

Transfer of knowledge is promoted by such assessments, since they stimulate skills that can be used in contexts other than academic ones that are required and valued in the world beyond the university. This is reaffirmed by Bloxham & Boyd (2007), who argue that being able to reproduce knowledge in a decontextualised examination does not guarantee that knowledge can be used in a real-life environment. Students need to practice these applications and knowledge transfer skills to solve real problems.

3.- **Evaluative Judgement.** One of the aims of authentic assessment is for students to develop criteria and standards about what a good performance means in order that they can judge their own performance and regulate their own learning; we are referring to this as 'evaluative judgement', a term which is emerging in the literature to describe these capabilities (Tai et al., 2016). Evaluative Judgement is a recognition that the assessment of student achievement involves both standards (for example in rubrics) and the practice of judgement (Wyatt-Smith and Klenowski, 2012). Developing the skills of evaluative judgement is also considered beneficial to effective learning. Boud & Molloy (2013) argue that in order to learn, students need to build a precise judgement about the quality of their work, and calibrate these judgements in the light of evidence. Thus, students can identify areas that need improvement and see changes over time,

developing a growing understanding of acceptable standards of performance (Boud & Falchikov, 2006; Sadler, 1989; 2005).

A chief component of developing evaluative judgement is formative assessment. Students need to be exposed to a variety of tasks with diverse performance requirements, and have the experience of learning about quality, judging quality and seeking and receiving feedback. As part of this, revealing assessment criteria to students has been shown to help them compare their efforts with the desired standard and plan their work (Pandero & Romero, 2014) although there is growing recognition of the limitations of published criteria alone in conveying requirements. Furthermore, recent developments in feedback research stress its potential to nurture students' capacity for independent judgement as well as problem-solving, self-appraisal and reflection (Carless & Yang 2013). Studies increasingly emphasise the use of feedback dialogues to engage students with disciplinary problems and to develop their self-regulation. They posit students as active agents, inducted into their role in creating and using feedback to help them improve their understanding of quality and to self -regulate their own work accordingly (Carless & Yang, 2013; Boud & Molloy, 2013, Sadler 1989). Thus, when evaluative judgement is incorporated into the assessment process, it adds to the authenticity by, firstly, helping students understand the concept of teacher "quality" and what it means for a task to be "of excellence" (Nicol & Macfarlane-Dick, 2006; Sadler, 2010) and, secondly, developing the lifelong capability to assess and regulate their learning and performance.

Turning dimensions into design

These three dimensions of authentic assessment clarify the construct in a way that holds sufficient consistency across the articles to invite adoption by the sector; but the way to implement this methodology is not sufficiently described in the literature. Of all the reviewed articles, only 10.7% have an authentic assessment model that involves practical conditions or principles to follow. One example is that of Gulikers, Bastiaens & Kirschner (2006), who propose that authentic assessment has 5 practical requirements. Ashford-Rowe, Herrington & Brown (2014) identified 8 relevant aspects to consider in designing authentic assessment. The USEM model (Yorke, 2010) is probably the most respected model in this field (Andrews & Higson, 2008; Brown, 2005) and is an acronym for four interrelated components of employability: Understanding, Skills, Efficacy beliefs and Metacognition.

However, these examples do not entirely reflect the dimensions found in our review of literature and remain largely at the level of required characteristics rather than a stage-based model for planning implementation of authentic assessment by teachers and programmes. Consequently, this paper concludes by drawing on the three dimensions and their component characteristics to propose a tentative 4 step model for building authentic assessments in higher education. The model has been developed by considering how the three dimensions should influence curriculum design. The model uses constructive alignment (Biggs & Tang, 2011) where the assessment is designed to support the student in constructing relevant learning through alignment between the learning outcomes, the teaching methods and the assessment. Deriving the learning outcomes directly from the complexity of 'Graduation Profiles' and 'Work Requirements' provides the potential for both realism and cognitive challenge (Step 1).

Furthermore, the model draws on evidence relating assessment design to high quality learning (Bloxham & Boyd, 2007) and leads to creating a rich context, worthwhile tasks and use of higher order skills (Step 2). Finally, the model draws on the curriculum design features associated with supporting evaluative judgement particularly in steps three and four.

These 4 steps develop in different levels of abstraction, complexity, and application of teaching practices. Step 1 takes a macro perspective linked with the relationship between undergraduate programs and the working world, considering how the curriculum can nourish a connection with the workplace. Step 2 advances to the planning and design of assessment. Steps 3 and 4 have a micro perspective focusing on what happens in the classroom. They identify concrete pedagogical strategies designed to give students a more active role in their learning process and help them grasp standards, practice judgement- making and receive feedback. This model has been successfully implemented in a pilot study in two Chilean universities, involving 30 teachers from 6 undergraduate programs who had previously been trained in its use.

Proposal: a model to build authentic assessments in the university (see figure 1)

Step 1: Considering the Workplace Context.

1a.- <u>Graduation profile</u>**.** The first condition is that the teacher knows and understands the graduation profile of the programme that their course contributes to (often outlined as programme learning outcomes). This profile represents the learning that all graduates must deploy once they finish their studies and enter the labour market (often formulated

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as a list of professional standards or competences). This will allow them to determine how their course will contribute to the graduation profile and ensure, through assessment, that students achieve the expected learning goals (Hart et al., 2011). For this step, the teacher should ask: *How does my subject connect and contribute to achieving the competences of the graduation profile that this programme is committed to develop in students?*

1b.- <u>Work requirements</u>. It is necessary to nurture students' skills for employment. This may be specific professional skills but also transferable skills demanded by the world of work and relevant whether the programme is vocational or non-vocational (Yorke & Knight, 2004). The development of these skills must be part of the subjects that make up the curriculum. In this way, it can be ensured that once graduated, professionals can successfully face the typical problems of the workplace (Maxwell, 2012).

To respond to this stage, the teacher should ask: *How is the knowledge and skills learned in my subject related to the typical problems faced by professionals in the world of work?*

Step 2: Designing authentic assessment

To accomplish the second step, teachers´ pedagogical decisions regarding the assessment process must reflect the challenges that professionals of this discipline face in work. This can be seen in three areas: a) decisions about the conditions in which the assessment is taken (for example, individual or group, access to reading and information, time available), b) decisions about the assessment formats (for example, online or in the classroom, open or closed construction answer, development of

disciplinary knowledge or deployment of professional performance), c) decisions about the kind of problem to which students will apply knowledge (for example, derived from employers, former students or students´ experience in professional placements). In relation to c, professional problems derived from contemporary work places assist courses in keeping their assessment problems up to date with the demands of the working world for that profession.

2a.- <u>Drafting rich context</u>**.** The first dimension that distinguishes an authentic assessment is its realism (Bosco & Ferns, 2014; Saye, 2013). It refers to a simulation of real-work or real-world situations that function as a proxy for professional performance. In creating a problem situation, we place the student in a *real context* that urges them to make decisions about what they need to do. In this way, it is not a matter of the student reproducing course content but of discriminating what areas of their learning are needed to answer the question.

The inclusion of context in the question can also be used to bring authenticity to traditional written tests, in problem-solving items, brief and extended development questions, case analyses and even multiple-choice questions. This is done by the construction of realistic and problematising contexts that must be analysed in order to answer.

2b.- <u>Creating a worthwhile task</u>. One challenge of authentic assessment is to make sure that the methods go beyond academic formats and become useful for third parties (in addition to the teacher and the student). The idea is that the teacher, when designing an assessment strategy, thinks: *"to whom would it be important that my students learn this*

knowledge?". Based on this question, the assessment design may consider the participation of third parties in the form of clients, employers, colleagues from the same or from another profession, and/or external teachers that review and evaluate the performance of the students. Moreover, another possible role for "third parties" is as beneficiaries of students' knowledge. For example, receiving treatment, intervention or advice (Andrews, & Higson, 2008; Brown, 2005). This strategy gives a **_purpose_** to student learning, making it meaningful.

2c.- <u>Requiring higher order skills</u>. authentic assessment is designed to promote the use of *higher order cognitive skills* related to using, modifying, or rebuilding knowledge into something new. This is based on the higher levels of cognitive skills identified in Bloom's taxonomy (Bloom, Masia, & Krathwohl, 1964) and its later formulations (Marzano, & Kendall, 2008, Kennedy, 2007). Authentic assessment, thus, privileges the judgement of students' cognitive ability to judge, decide, criticise, suggest, design, innovate, propose or to invent.

To meet the guidelines of his second step, teachers must design assessments that test knowledge construction and application in contextualized and realistic questions. For example, assessment of intelligence theories in psychology might use, as context, a dialogue between two primary teachers. They discuss why some of their students' don´t learn as expected and posit different reasons, using different theories of intelligence. The questions can ask their students to infer: a) the theory of intelligence used by each teacher, b) possible critiques that each teacher would make of the other's reasoning, c) possible teaching practices that each primary teacher must use. The aim is to ask students to use their knowledge to identify, analyze, apply, transfer, conclude and decide

in a real situation that has an impact on others (in this case, school students).

Step 3: Learning and applying standards for judgement

Steps three and four of the model are necessarily integrated as a cyclical process of guidance and feedback loops (Hounsell et al., 2008) which enable students to both improve their learning and develop evaluative judgement. They are set out separately here to emphasise the importance of the different steps. Section three focuses on helping students grasp standards and practice evaluative judgement whereas section four outlines the specific stages of feedback.

3a.- <u>Assessment criteria and rubrics.</u> Rubrics typically combine assessment criteria with the standards required to achieve different grades and are challenging to write when assessment tasks require complex and divergent responses. A key characteristic of authentic assessment is that such information is known to students in order that they can gradually develop the ability to evaluatively judge their own work and that of others on the journey to becoming autonomous students and, eventually, professionals. Therefore, consideration should be given to criteria and standards and how to make these available to the student. These include not only published criteria ('explicit') but also the 'latent' and 'meta' criteria used in the act of judgement (Wyatt-Smith and Klenowski 2012). The latter two are not readily communicated because of their tacit nature and require engagement in judgement as in 3c. Explicit criteria are, therefore, only a first stage in a continuum of processes to help students acquire knowledge of assessment expectations (O'Donovan, Price & Rust, 2004).

3b.- <u>Engage students with criteria.</u> Assessment is a 'social and cultural practice' (Wyatt-

Smith & Klenowski, 2012: 37) where teachers acquire tacit knowledge of standards and judgement through participation, observation, imitation, and dialogue (Rust, Price & O'Donovan 2003). Therefore communicating the tacit aspects of assessment criteria to students requires similar approaches. For example, actively engaging students in marking using assessment criteria and exemplar assignments can significantly improve their performance (O'Donovan, Price & Rust, 2008). Alternatively, the act of co-creating assessment criteria with students assists them in developing evaluative judgement (Fraile, Pandero & Pardo 2016) as it provides a clear opportunity for detailed dialogue about standards.

3c.- Judgement-making practice. A complementary process to engaging students with criteria is providing them with the opportunity for self and peer assessment using those criteria. Evidence suggests there is formative benefit from judgement activities, providing students with feedback both as a peer reviewer and as a receiver of peer review (Dawson et al., 2017). These activities can help to clarify the assessment criteria and better understand what is expected of student's performance level (Nicol & Macfarlane-Dick, 2006). Dawson et al. (2017) stress the value of self-assessment in helping students identify criteria to use in judging their own assignments and Tai et al. (2016) found explicit benefits of peer observation and feedback in developing students' evaluative judgement. Opportunities for judgement can also be provided by engaging students with exemplars; that is anonymised examples of student work (Handley & Williams, 2011: 103). Exemplars, involving different levels of accomplishment, can be marked and discussed by the students to help them discover the criteria used through concrete expressions of different levels of achievement.

Step 4: Giving Feedback

Feedback research is increasingly emphasising a change from a traditional approach which generally positions students as passive recipients (Carless et al., 2011). Recent work advocates 'Feedback mark 2' (Boud & Molloy 2013) where feedback is part of an assessment cycle involving students as active in gathering and responding to feedback. In this model, feedback to foster evaluative judgement involves dialogue with and between students with a view to helping them clarify appropriate criteria, make increasingly accurate judgements about their own performance and decide what changes they need to make.

In this fourth step, teachers must provide formative instances, in which students assume an active role in identifying and understanding the gap between their performance and the one expected, and also analyze what action to take, discovering strategies to reduce that gap.

4a – <u>Formative feedback</u>. There is a tendency to think about feedback as information provided to students in response to a completed assignment. However, the emphasis on evaluative judgement in creating authentic assessment means that students need access to feedback throughout their studies. There are numerous ways to help students acquire and consider formative feedback including peer review, practice tasks, group test taking, observations of work colleagues and feedback on draft assignments.

4b.- <u>Summative feedback.</u> Summative feedback is often important for quality assurance purposes as teachers are held to account for the quality of their information to students explaining marking decisions. However, the impact of such feedback is often limited.

Such feedback must provide information to students about their performance in a way that helps them understand the strengths and weaknesses of their work (Panadero, Brown & Strijbos, 2016).

4c.- <u>Sustainable feedback.</u> Sustainable Assessment, coined by Boud (2010), is intrinsically linked with the concept of evaluative judgement. It was defined as assessment that meets students' present needs and prepares them to meet their own future learning needs. The intention is that students gradually become able to make judgements about their own performance, a crucial element of professional work. Therefore, it is important that students learn how to gather, recognise and use feedback in the absence of a teacher.

Conclusion

The literature identifies multiple benefits to students (and to employers) from the use of authentic assessment. However, devising authentic assessment, particularly in systems with strong traditions of 'testing', is not easy as we lack a robust concept on which to base guidance for assessment design and operation. This article has attempted to contribute to the debate by clarifying three key dimensions of authentic agssessment. These dimensions provide guidance for teachers seeking more authentic assessment, including assessment-related teaching practices which develop 'authentic' capabilities for employment. The breadth of the dimensions and their reflection in the proposed four step model encourages the integration of discipline-specific skills and knowledge with application in the workplace but also, importantly, with the generic capacity to

evaluate and improve performance. They also highlight the complexity of learning for authentic practice and the potential of assessment to create a richer learning environment and build capability for higher order and lifelong learning.

Arguably, the step-based model guides those reluctant to adopt authentic assessment by providing concrete stages that can be applied to traditional testing methods, for example by describing a rich context for, and demanding problem-solving and decision-making in, individual questions. We recognize that comprehensive knowledge of a 'graduation profile' may be beyond most teachers. However, clarification of 'programme outcomes' reflecting the 'graduation profile' can provide the basis for a mapping exercise for individual courses, identifying how their course/s contributes to teaching and assessing the programme outcomes. This approach reflects growing efforts to encourage a programme approach to assessment design and its capacity to improve the student learning experience.

The next stage is to further test, evaluate and refine the model and consider its acceptability with those most reluctant to adopt authentic methods in assessing classroom learning. We welcome feedback from others who are interested in implementing authentic assessment, particularly in higher education systems with strong traditions of testing.

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