Chapter 3  Assessment: Assisting Students to Learn as Well as Certifying their Achievements

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Introduction

Globally, higher education has experienced large-scale change in recent decades, with the result that large numbers of students from a range of backgrounds are currently studying in higher education institutions. One outcome of these changes has been that institutions now need to focus on students and their learning, rather than mainly on teaching processes and syllabi. Within this context, it is now understood that the assessment of student learning through formative feedback means plays a powerful role in focussing students’ approaches to their study. Not only is assessment a means through which students can be guided as to appropriate study approaches that position them for academic success, some commentators have gone so far as to state that it “drives” student learning.

However, as well as the formative, the other major role of assessment is the summative, which indicates the level of students’ achievements in their studies. The view presented in this paper is that the summative role is important and, in today’s world, may be seen as necessary. Summative assessment in the form of the grades and standards achieved by students in their studies certifies officially students’ achievements. It is also one means through which higher education institutions can demonstrate their accountability and their credibility, which has implications for the institution’s reputation and hence their sustainability (Crosling 2012). For instance, employers may be sceptical of institutions where students achieve high grades but seem to lack competence. However, summative assessment on its own and as the major way for students to gain feedback on their academic performance is inadequate. It needs to be combined with strong and effective formative feedback to assist students to develop understanding and be able to meet academic expectations, thus operating to maximise students’ academic experience and achievement, as seen in their grades in summative assessment.

Importantly, the quality and usefulness of the assessment of student learning cannot be separated from the quality of the educational programme in which it is situated. It has long been established that educational programmes do not operate in a vacuum, devoid of understandings of the students and their current and future needs (Schwab 1973). As well as the degree to which the programme acknowledges and responds to the nature of the student body, a major determinant of quality is the degree to which the programme prepares students for their lives and professions in the world following graduation. Assessment practices also need to be integral to the educational programme, and part of a coherent scheme for student learning. At the same time, there is little doubt that assessment standards should be rigorous to ensure the maintenance of academic standards to be valid and test what was set out to be tested, and fair to all students, recognising the nature of the student cohort.
In addressing these issues, this paper discusses the characteristics of quality in educational programmes, the major role of assessment in teaching and student learning, the importance of sound design for assessment in educational programmes, and ways that assessment can be structured to recognise student diversity and prepare students for the world of the twenty-first century. The paper concludes with examples of formative feedback to assist student learning and assessment tasks that encompass skills for the twenty-first century.

Quality Student Learning for the Twenty-First Century

The Educational Programme

An initial point for sound assessment approaches is the quality of the educational programme in which they are positioned. A quality educational programme has clear outcomes for student learning that address the needs of the twenty-first century, with the programme preparing students accordingly. This means that very often, educational programmes and the inherent assessment processes cannot remain as they were in the past but require review to retain their currency and relevance, and therefore their quality. As the great educationalist John Dewey has been quoted as saying in relation to teaching that “If we teach today as we taught yesterday, we rob our children of tomorrow”. Consequently academic staff in higher education institutions has a responsibility to keep their academic programmes current and to look for the best teaching approaches to prepare students for society and their future lives. In the same way, the “shape” of the educational programme has major implications for what can be considered appropriate assessment approaches. Assessment of student learning, being integral to the educational programme, is also not a static process that can be repeated in the same form over time. That is, as well as grasping subject content which, in itself is evolving and developing, students in higher education today need to be prepared for the changing world.

The world of today and the future in which graduates will operate and to which the educational programme and forms of assessment need to be aligned is the globalised and interconnected knowledge society. Requiring personnel who are able to devise new solutions to emerging issues that arise in the rapidly changing and technologically-charged world, the knowledge society enables immediate information sharing and learning internationally, and is the outcome of “complex technical, social, economic and human factors” (Tuomi 2005, 4). Through finding solutions to problems, the knowledge society enables nations to create economic and social capital (Crosling, Nair and Vaithilingam 2014), leading to their increased competitiveness and sustained economic development. In the widening, deepening and speeding up of worldwide interconnectedness in all aspects of contemporary social life (Held, McGrew, Goldblatt and Perraton 1998), old or traditional solutions to problems may no longer be suitable for the emerging scenarios. To participate effectively in the knowledge society, nations require populations that are capable of developing new solutions.

The knowledge society is built on constant improvement, to keep pace with rapid changes, and populations in nations need to be prepared as lifelong learners who are empowered workers, and equipped to rapidly transform information into responses. In the previous era of the Information society, the emphasis was on collecting and collating data and information (European Foundation for the Improvement of Living and Working Conditions 2005), and so assessment approaches that focused on description of information may have been appropriate. However, it is well established that in the knowledge society, transforming information, knowledge and data into
usefulness to solve problems is key. Education, particularly higher education, has a vital role to play in preparing graduates to operate accordingly. For example, in Malaysia, education policies ensure that the educational programmes meet Malaysia's needs as it moves from a production-based to an innovation-intensive economy (Nair 2011). Also, many developed countries continue to cite education highly in national development plans to promote national competitiveness (Crosling, Nair and Vaithilingam 2014). For example, the recent Australian review of higher education (Bradley, Noonan, Nugent and Scales 2008) emphasised the importance of quality higher education as contributing to a workforce that will enable Australia to compete effectively in the new global economy (Crosling, Nair and Vaithilingam 2014: 2).

In having the capacity to respond to new situations for which past responses are no longer adequate, graduates thus need to be equipped with skills that will enable them to be flexible and creative in their thinking. As Henderson (2008) points out, success in the evolving global economy is premised on creativity, ingenuity and innovation, and preparation of people for work and life in the twenty-first century requires educators to foster students' creativity (Henderson 2008). Emphasising this point, Henderson (2008) writes that the workers with creative capacity is the most rapidly growing job area on which emerging industries rely (Henderson 2008). Concurrently, as the interconnected world impacts the national level, universities need to produce graduates who, in the borderless and changing global context, are able to live, work and contribute productively (Hudzik 2011).

**Student Diversity**

The globalised and interconnected world has an impact on the higher education system worldwide, resulting in greatly increased student diversity over the past few decades. This has implications for educational processes, as well as the entwined assessment processes. In the last few decades, the system has undergone massification (Trow 1973), resulting in a change in the backgrounds of attending students. Previously in the “elite” higher education system, only a small proportion of national populations participated (Trow 1973). As nations have required more educated populaces in the knowledge society, a much greater percentage of populations have attended. For instance in Malaysia, the percentage of the relevant age population attending higher education in 2009 was 38 per cent (Tham 2011: 8), compared with an extremely small percentage at the time of independence from Great Britain in 1957 (Crosling, Cheng and Lopes, forthcoming). The aim is for the percentage to reach 53 per cent by the year 2025 as laid out by the Malaysian government Ministry for Education, the *Malaysian Education Blueprint 2015 – 2025 (Higher Education)*.

At the same time, the increasingly interconnected, globalised and internationalised world has meant that there is large scale movement of students and academic programmes across national borders. For instance, in Malaysia currently, about 10 per cent of the student population is international or foreign students (The Sun Daily 2015), who bring to their studies a range of educational and cultural backgrounds and expectations of study which may not be in line with the expectations of higher education institutions.

In addition, such students bring richness to the educational processes as they have the capacity to contribute to the studies with varying perspectives. The outcome of these large scale changes has been diversity in the backgrounds, experiences and academic expectations of students in higher education institutions. The diversity includes students who are international, from non-English speaking background, mature aged, women and men in non-traditional disciplines and students
with disabilities. Generational change of students is evident and needs to be acknowledged in educational programmes and hence assessment. Current students of the Gen X and Gen Y hold values and expectations that differ from the previous generations of students. For instance, students today are technological natives, with technology imbuing all aspects of their lives, they multitask, and like to work with other people (2016). In order to assess as accurately as possible students’ levels of development of the learning outcomes, students’ preferred modes of communication need to be considered.

Implications for educational programmes including assessment are that students from diverse backgrounds may be unfamiliar with academic processes, requirements and expectations. Formative assessment assists students to understand requirements and how they are performing in relation to these.

Assessment, Quality Educational Programmes and Student Learning: In and for the Twenty-First Century

Assessment plays a powerful role in student learning and has been seen as a major driver to change the way students study and to focus them on appropriate ways to go about their study (Gibbs 2010). This view is reiterated in the definition of assessment by Huba and Freed (2000, 8), which also encapsulates assessment’s dual roles as discussed earlier. Assessment is:

... the process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know, understand, and can do with their knowledge as a result of their educational experiences; the process culminates when assessment results are used to improve subsequent learning (Huba and Freed 2000, 8).

In line with the view from Gibbs (2010) discussed above, while assessment is concerned with indicating students’ skill and competence attainment, it is clearly more than only ascribing grades, and is also the key in improving and enhancing student learning. This is a formative role for assessment. These dual roles of assessments are succinctly indicated in the following view of assessment: Assessment of learning identifies a student’s level of performance, most likely in marks or grades, and assessment for learning supports and facilitates (Sambell, McDowell and Montgomery 2012).

A quality educational programme is well designed in terms of assessment in relation to the programmes’ learning outcomes and the teaching and learning approaches in place (Biggs 2000). The alignment concerns all major components in the teaching system: the curriculum, the learning outcomes expected, and the teaching and learning activities to achieve the expected desired learning outcomes. Biggs notes that a poor system has unintegrated components, and does not support high-level learning, while a good system demonstrates the alignment of all aspects of teaching and assessment, encouraging students to use higher-order learning processes. These include those processes appropriate for creativity and flexibility as required for the twenty-first century. Thus, students develop understandings through their own learning activities, rather than through transmission from the teacher to the learner. In Biggs’ understanding (2000), teaching is a stimulus for learning.
It is thus apparent that an educational programme in which quality student assessment is situated requires a focus and learning outcomes that are relevant, and which is underpinned by sound design. Integral to the design is alignment between the learning outcomes, and the assessment are teaching and learning activities that are structured to achieve the desired learning outcomes. A quality educational approach may be classified as student-centred, where the focus is on students being active rather than passive in their learning so as to develop higher order skills and understandings as relevant for the twenty-first century. The student-centred approach is not new and can be traced back to Socrates and the enquiry-based approach, and more recently, to Rogers’ (1969) client-based approach. With both constructivist and social constructivist theoretical underpinnings (Svinicki 1999), it reflects active learner control which is motivational, and from the social perspective, social and active bases of learning. Subject matter is integrated, with the teacher functioning as a guide to the students who operate with independence and autonomy in learning, by using discovery techniques, outside the classroom as well as within.

Both cognitive and affective learning domains are valued, as well as the process (Brandes and Ginnis 1986).

Students’ ability to be flexible and creative in their thinking and to solve problems as suitable for the twenty-first century is facilitated by students actively engaging in their studies (Crosling, Thomas and Haggney 2008). Such an approach may be classified as student-centred, where the focus is on students doing the learning, rather than the teachers telling the students what they should learn, and the assessment checking their learning in a rote type of manner. In contrast to this, the teacher-centred approach sees the teacher as the distributor of knowledge to students who are somewhat passive and rely on the teacher, with the emphasis on memory, practice and rote learning (Brandes and Ginnis 1986). In line with a student-centred educational approach and constructive alignment of the curriculum for learning that addresses the twenty-first century skills, formative assessment is highly relevant and integral, especially in the context of student diversity where students bring to their studies varying cultural and educational backgrounds when compared with the more homogenous student cohorts of earlier times (Crosling 2012).

Students may initially hold varying expectations of higher education studies, including the nature of knowledge and its development. Formative assessment is premised on the notions that students can learn though assessment, that all students can succeed with appropriate guidance, and that their beliefs about themselves as learners affect their achievement (Huba and Freed 2000). It provides interactive and timely feedback, encourages reflective assessment with peers, and aims to position students to be able to appreciate what is quality learning in higher education, and the aspects of their work and understandings that are aligned with academic expectations that underpin success in learning, and those that are not. It assists students to be able to adjust inaccurate assumptions and their work vis-a-vis academic requirements. The ultimate aim of formative feedback is to develop in students the tools and understanding so that they can self-assess their own work in relation to expectations and prepares them for the world where there are no correct solutions to emerging problems. Summative assessment, on the other hand, certifies and provides feedback to students only through summarised reports of academic achievement as reflected in grades, and is separate from the act of teaching (Huba and Freed 2000).
There are implications for teachers and students with formative assessment and for their relationship, as outlined by Nicol and MacFarlane-Dick (2006). For students, they take more responsibility for their own learning, while the teacher relinquishes some control of students’ learning, and shares learning outcomes and success criteria with students. Importantly, formative assessment provides information about their students’ learning that can be used in the ongoing teaching programme, and encourages teacher and peer dialogue around teaching and overall, recognises the profound impact of assessment on students and their learning (Huba and Freed 2000).

Examples of Assessment: Formative and for Twenty-first Century Skills

Formative Assessment

This section of the paper provides some practical suggestions of how formative assessment can be integrated in practice in higher education to enhance student learning, particularly in the context of student diversity. The discussion draws on the points outlined previously regarding the need for quality educational programmes for the twenty-first century, the scenario of student diversity, and the significance of sound programme design.

For effective formative assessment that impacts on students’ academic performance, it is vital that the learning outcomes are clarified at the programme planning stage, as outlined earlier in this paper. These outcomes are then filtered down from the programme level to the individual subject level, with relevant adjustment for the particular subject. The result of determining the outcomes for both students and teachers is that there is coherence in the learning and teaching programme, and discussion among teachers and students about the purpose of the studies can take place. Students’ control over their learning and hence their motivation is enhanced through their increased awareness about academic directions.

It is then important to ensure that the learning outcomes for both the programme and the particular subject are shared by the teachers with their students. This action will assist students to develop a clear and relevant focus for their thinking and their study approaches. It also provides the opportunity for dialogue between students and teachers to be opened as mentioned above, so that misconceptions can be clarified. Interestingly, the dialogue provides the opportunity to teachers to appreciate the varying perceptions that students may hold of the stated outcomes, given their diverse backgrounds and study expectations. The effect is that continual quality improvement can take place as teachers understand areas of confusion and amend the outcomes, leading to less ambiguity for the next student cohort. Furthermore, understanding students’ perceptions provides valuable data that can be drawn on in the ensuing teaching programme, so as to broaden students’ perceptions of varying cultural settings.

Sharing these outcomes with students needs to take place frequently throughout the semester, rather than only at the beginning when students may be overwhelmed with the large amount of information they are receiving. Furthermore, the learning outcomes should take on additional dimensions as students’ understanding of the subject increases, and in discussion with students, serves as a way for teachers to guide students to deeper and higher order levels of thinking, which are the hallmarks of higher education studies.
Not only is it important to state the learning outcomes, it is also very useful for student learning, for the teacher to probe students' understanding of these as the semester progresses. This can be achieved by the teacher asking students appropriate and relevant questions about the outcomes of their learning vis-a-vis the desired learning outcomes. This process also demonstrates to students the varying notions that may be held of concepts and provides an ideal opportunity to assist students to appreciate the evolving nature of knowledge that underpins higher education studies.

In presenting assessment tasks to students, it is useful for the teacher to draw students' attention to the assessment criteria, and to relate the criteria generally to the subject and programme learning outcomes. This practice will assist students to appreciate the purpose of the task in their learning, encouraging their motivation and deep approaches to the task. Providing examples of the meaning of assessment criteria helps students to develop a practical understanding of their realisation in student work.

In providing feedback in class to students' oral responses and on their written work, it is useful for teachers to focus on comments on the desired learning outcomes for the subject, as well as those for the particular task. In so doing, providing explicit suggestions for improvement through action points helps students to narrow the gap between their own and the expected academic performance. The emphasis in responding to students' efforts should be on improvement, and what students need to do in their thinking and study approaches, rather than solely on the reasons why responses are not suitable.

Feedback on assessment tasks can be done in the class setting, as well as at the individual level. Common misconceptions that are evident across the class in completing the task appropriately can be discussed, and examples of expected and excellent responses can be provided. Explanation of aspects of the task that were handled well can be provided, and suggestions for improvement of the less well-handled aspects again guide students' understanding of good performance.

Following the completion and assessment of tasks, teachers should strive to adjust their teaching to provide emphasis on areas for improvement and where there is lack of understanding. To develop students' ability to self-assess, students can be asked to gauge their current learning against the learning outcomes for the subject. Peer assessment is valuable, and can be drawn on, for instance, by asking students in class to review the feedback they have received on assessment tasks, and to discuss this with their classmates, and how their work and understandings can be improved. The following suggestions may be useful to assist students to self-assess their learning as the teaching programme evolves across the semester. It can also help to provide information on students' learning at various stages that can then be used to adjust the teaching programme to better address students' learning needs.

At the end of lectures, students can be invited to place comments and questions about the topic, the subject material and their learning in a box. These comments and questions, which can be addressed in ensuing classes, require students to synthesise their learning, encouraging them to develop control over it. Students can be asked to discuss with their classmates their developing understandings of the content of their study, and how it relates to the learning outcomes for the subject and the programme.
At the end of a class or lecture, students' reflection on their learning can be encouraged by asking students what they have learnt from the class, or what they thought was the most important point. These individual responses can be shared with a partner in the class or lecture, with perhaps one or two student responses surveyed and commented on by the teacher.

During class, students can use their mobile devices to text questions or comments to the teacher. The teacher can, at an appropriate stage in the class or lecture, review these and comment for the class. If the question or comment requires more than a quick response, it can be addressed by the teacher in the next class. Alternatively, the teacher can pass the question or comment over to the students, who can then take a short amount of time in the class to discuss it with a classmate.

An online discussion forum for students' comments and interactions about certain points or questions is very useful in the context of student diversity, where some students may lack confidence in their language skills and understanding. It enables students to interact without drawing attention to themselves personally, build their confidence, and importantly, provides a venue to clarify understandings. The teacher can moderate these discussions and address common concerns online and/or in class.

**Twenty-first Century Skills**

Following the next section are some assessment approaches that have been implemented in higher education institutions in the United Kingdom (Attwood 2009) that address the development and assessment of skills, and these encompass skills for the twenty first century. The assessment tasks require students to think flexibly, to self-reflect, solve problems and use creativity. In requiring students to utilise these skills to meet the task requirements and therefore achieve good grades, students are directed to appreciate the focus of the subject, and have the opportunity to develop and apply them. In this way, the tasks are using assessment to assist student learning, as well as making judgements about the levels of students' learning in a summative sense. As mentioned earlier, it is important that there is alignment between the learning outcomes, the assessment and the educational approach. Thus, students need to have had the opportunity to practise the above-named skills through their class and study activities before they are assessed on them in the assessment task. Formative feedback in class and through peer interaction also helps students to gain a clearer conception of the required skills.

The student-centred nature of assessment tasks such as those discussed below requires students to be active in their learning, developing students' independence in their learning, rather than teacher dependence. Independence underpins students' ability to solve problems and to think flexibly and creatively. The following examples have been classified as approaches that turn students into active partners in their learning (Attwood 2009).

Students taking a subject on conflict simulation at King's College London can study war board games. Rather than writing conventional essays analysing the genre, the students must absorb its principles and design a fully-fledged simulation game of their own (cited in Attwood 2009).

The task above asks students to apply theory to a practical situation, synthesise information, and then use it in a creative way to develop their own war game. They are solving a problem when they design their own game.
At the University of Plymouth, second-year marine biology students must devise and present research proposals to third-year students who assume the role of members of the Natural Environment Research Council. The first-year students, in the role of “taxpayers”, also have their say as to how the money should be spent (cited in Attwood 2009).

In this task above, drawing on peer interaction, students are required to flexibly adjust their thinking through assuming another identity. Creativity is emphasised as students devise research proposals which by their very nature require examination about what is known in the discipline, and what is a justifiable research task.

Business students at the University of Gloucestershire are given a marketing plan for a company in advance of their exam. In the examination, they are presented with a series of changes that have taken place to which they are asked to respond (cited in Attwood 2009).

The task above requires business students to imagine an alternative scenario, and with the use of mental flexibility, analyse and discuss resultant changes.

Those enrolled on Masters in creative writing at the University of Salford can choose the form in which they submit their work via CD-Rom, a website, an installation or a performance (cited in Attwood 2009).

Creativity in thinking through devising an alternative presentation form is emphasised in the above task.

Students studying mental health at Leeds Metropolitan University collate a scrapbook of reflections arising from recovery stories, and work collaboratively online to develop the assessment criteria for the exercise (cited in Attwood 2009).

Peer interaction and teamwork are encouraged in the above example, and self-assessment is inherent to working successfully in a group.

In the module “Web research for historians”, students at the University of Leeds learn how to evaluate online sources with a critical eye, before creating their own website on a history topic. Marking criteria take into consideration whether material has been suitably adapted for the web (cited in Attwood 2009).

The ability to think critically and to apply it in their own work is emphasised in the task above. Critical thinking is a necessary precondition in thinking creatively as creativity in itself requires an approach that differs from those already available.

Multimedia students at the University of Gloucestershire upload their graphic work into an interactive virtual gallery. The work is anonymous except to the tutor, who can add online feedback. Students can view all the work and comment in small-group situations (cited in Attwood 2009).
Peer assessment underpinning the ability to self-assess is integral to the above task.

Students in the final year of a creative writing degree at Bath Spa University take on a creative enterprise project that tests both their academic and entrepreneurial abilities. In negotiation with tutors, students decide which outcomes will be assessed and how (cited in Attwood 2009).

Students’ control over their own learning and the motivation derived from this are evident in the task above where students devise the assessment task for their response with their tutors. Creative thinking is required in devising their own entrepreneurial task.

In the University of Cambridge’s School of Clinical Medicine, students are tested on their communication skills in a dedicated exam. Trainee doctors are presented with different situations, in which the patients are played by actors, such as having to break bad news to family members and explaining the next stage of treatment to a patient (cited in Attwood 2009).

Teamwork requires students in the task above to develop skills in peer and self-assessment as they negotiate with their teammates. They must also develop and demonstrate flexibility in thinking by placing themselves in the positions of others as they shape communication so that it is appropriate and effective.

Conclusion

Assessment of student learning is integral to higher education studies. It is important in today’s world that students’ achievements are certified by assessment. Assessment however, does not operate in a vacuum and to be effective, needs to be positioned in educational programmes that are of quality and prepare students for the world on graduation. Effective assessment tests much more than students’ grasp of subject matter and takes students out of the textbook and out of the classroom.

Skills for the twenty-first century mean that students need to be able to think flexibly and develop creative responses to new and emerging issues. This aspect needs to be built into the educational programme and hence assessment, and the assessment needs to be coherently embedded in the education programme, aligned with the key aspects of learning outcomes, and teaching and learning approaches.

Thus, assessment should support learning and is a core part of teaching and learning. Formative feedback is vital in assisting students from diverse backgrounds to appreciate educational expectations and to shape their current approaches to achieve these. It is always constructive in form, and provides guidance for improvement. Finally, assessment needs to foster students’ independence in learning and their ability to self-assess as underpinning the ability to respond appropriately to new and emerging situations and issues.
References


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