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Formative Assessment Practices in Built Environment Higher Education Programmes and the Enhancement of the Student Learning Experience

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FORMATIVE ASSESSMENT PRACTICES IN BUILT ENVIRONMENT HIGHER EDUCATION PROGRAMMES AND THE ENHANCEMENT OF THE STUDENT LEARNING EXPERIENCE.

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Abstract

It is widely accepted across Higher Education (HE) that assessment has a strong link with learning and a key factor in this link is formative assessment. Formative assessment is generally defined as an activity taking place during a programme or unit of learning with the express purpose of improving and enhancing student learning. However, there is still considerable disagreement over the roles of lecturers and students in this process. It is therefore very important to understand how lecturers in built environment (BE) undergraduate education perceive their own roles and the role of their students in using assessment strategy to deliver deep learning. An investigation into lecturers' perceptions of their roles and their conceptions related to the assessment process of students in BE programmes is reported. An on-line survey was conducted with over 130 Irish BE academics involved with the delivery of undergraduate programmes in the areas of Architecture, Architectural Technology, Quantity Surveying and Construction Management. Additional data were also obtained and analysed from their associated programme documentation. Discussion is focused on a critical evaluation of the findings of the study with the current literature on the roles of BE academics in the formative assessment process. As a result recommendations are made on how lecturers may better formulate appropriate assessments for their students that will encourage deep learning and thus create enhanced HE learning experiences.

Keywords: Built environment, formative assessment, academic practice, undergraduate.

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INTRODUCTION

As part of the research area it is apt to reflect on the ideals of HE, on the purposes of learners investing commitment, time, emotion and money in attending HE and on the role of academics in providing the necessary and appropriate experiences and space. Importantly, what role should HE play in the modern society, how should it contribute to informed citizenry and democratic values and ideals? Aligned to this is what should students learn and be assessed on whilst in pursuit of an undergraduate degree? While this is not the main focus of the research enquiry it is important to attempt to highlight and discuss the tensions between education for self versus education for society and the economy. Drawing on the work of Barnett who proffers that the university has 'come to form a set of universal aspirations, principally turning on the sense of the institution that embodies and promotes a life of reason' (2003:1). The drivers of change in HE are numerous and the pressures for that change are occurring globally. Higher education in Ireland has not been ignored on this front and it is furthermore influenced by current fiscal pressures.

In HE assessment practices and processes have been the topic of wide ranging conversation over the last fifteen years (Bryan and Clegg, 2006). Discourse about the current state of assessment often refers to unease as to its suitability for the twenty-first century and the need for it to be 'fit for purpose' (Brown, 2004). Knight (2002) posits the view of 'practices in disarray' where assessment has become a site of conflict, even a power struggle, founded on the unequal relationship between the two parties (student and institution). This disarray does not only pertain to HE in Ireland and the UK; such discourse has also taken place in the US. It is argued that an in-built lack of clarity in the methods of assessment used to convey judgement on performance is an underlying factor. Assessment in the discipline of the BE, like other disciplines, is required to fulfil a multiplicity of purposes and play many different and often conflicting roles. The provision and embedding of opportunities for assessment to aid learners in more formative ways has been highlighted as currently failing students (Struyven, Dochy & Janssens, 2005). In the context of BE undergraduate programmes, this paper discusses the need for a project to research formative assessment in the context of the changing HE educational environment. A mixed methodology approach to research and signpost improvements in the quality of student learning in BE undergraduate programmes through the assessment process are proposed. This paper reports on the study so far, where seminal literature is explored in order to identify, inform and shape the assessment practices of academics. The results of the final phase of the research are presented with an in-depth analysis of the findings of the already completed fourth phase. An analysis is offered of the emerging views and preferences of academics teaching on the identified undergraduate programmes which will help inform the development of a model for the formative assessment of Built Environment undergraduates where the enhancement of student learning will underpin the evaluative process.

ASSESSMENT AND LEARNING

The literature on assessment makes it quite clear that assessment shapes and drives learning in powerful, though not always helpful, ways (Ramsden, 1997, Bloxham and Boyd 2007). If students perceive a need to understand material in order to negotiate the assessment task successfully, they will engage in deep learning, however, if they perceive the assessment instrument to require regurgitation of information, they will be unlikely to engage with the higher level outcomes which may well have been intended by the programme of study.

Research into formative assessment techniques has pointed to feedback as an essential mechanism in the learning process (Gibbs, 2004). Ramaprasad (1983) defined feedback as information about the gap between actual performance level and the reference level, which is subsequently used to alter that gap. Feedback, therefore, needs to be meaningful, understood and correctly acted upon. Lecturers/ teachers not only need to provide formative assessment; they should really evaluate how effective any feedback has been in enhancing learning and more particularly addressing the gaps in learning. In practice, formative assessment that allows students to receive meaningful feedback should make a difference in student learning (Black and Wiliam, 1998). However, Higgins et al. (2002) raise doubts as to what extent this is reality in the case of higher education today. They argue that students may recognise the central importance of formative feedback for their educational development, but how they do use feedback is not clear. A further difficulty highlighted by Lea and Street (2000) is that in fully modular systems students often did not receive feedback on assessed written work until after they had completed the module.

It is clear from student responses to questions asked during the early phase of this research that summative feedback (i.e. feedback following examinations) can have a formative role. On this issue Sadler's definition of formative feedback, 'to shape and improve the students' competence by short-circuiting the randomness and inefficiency of trial and error learning' is appropriate (Sadler, 1989, p 120). Indeed, Sadler (1998, p 78) suggests that the role of the lecturer could broadly be described as 'working to reduce the rate of error production in trial and error learning and thereby to make learning more efficient'. In order to do this the lecturer/ teacher needs to have an understanding of (a) subject and skill based knowledge and (b) the needs of the learner (Black and Wiliam, 1998). This study encompasses a key issue confronting lecturers/ teacher in HE today i.e. how to bridge these two factors such that students can be given meaningful feedback to enhance their learning. This is important as it, in part, defines good teaching (Trigwell, 2001).

A difficulty in constructing a meaningful bridge may be found in the diversity of uses employed by students of the feedback they receive. Their diversity of approaches (ranging from reflective to mechanistic) may pose problems for lecturers in their desire to enhance individual student learning. Today, by their actions, it would appear that students are more focused in the time they allocate to their learning and they approach assessment with a better understanding of what is involved in order to successfully complete their required assessments. Bloxham and Boyd (2007) refer to students as "being cue conscious concentrating on passing an assessment". This is not necessarily a positive aspect, however, as academics we must be aware of the

approach students are taking and set assessments that engage students in meaningful and deep learning.

Furthermore, Lea and Street (2000) have reported difficulties with institutional procedures like modularity. This research supports those findings concerning students who were unable to benefit from receiving feedback as they found the comments related only related to a specific piece of work or module. Also, lecturers/teachers have indicated that the semesterised approach has posed problems in terms of providing feedback in a timely fashion.

Understanding the difference between formative and summative assessment has been an area that academics have identified as problematic. As referred to earlier the essence of formative assessment is that undertaking the assessment constitutes a learning experience in its own right. If the writing of an essay or undertaking a class presentation, for example, can be valuable formative activities as a means of enhancing substantive knowledge as well as for developing research, communication, intellectual and organisational skills. Formative assessment is not often included in the formal grading of work, and it has been proposed that it should not be.

Summative assessment is traditionally not regarded as having any intrinsic learning value. It is usually undertaken at the end of a period of learning in order to generate a grade that reflects the student's performance. The traditional unseen end of module examination is often presented as a typical form of summative assessment. Two important points arise from this differentiation; Firstly, there is no compelling reason why only summative assessment should be included in any formal grading of student performance. It is perfectly appropriate to have elements of formative assessment as part, or even all, of the final grade. Secondly, the distinction between formative and summative assessment may be a false one. Whilst some elements of assessment may generate a greater formative learning experience than others, it can be argued that all forms of assessment have some formative element. Students undertaking a degree course where assessment consists only of end of module unseen examinations will over the period of the course improve their examination technique. This is a formative learning experience as indicated by some students. This was suggested by students interviewed as part of the research. There is a clear need to have some appropriate level of discourse in BE education as to the position of formative assessment in regard to the learning experience of students.

With the importance of life-long learning beginning to permeate HE, and the impact of the National Frameworks of Qualifications in Ireland, a greater, more explicit emphasis is being placed on learning outcomes and competencies. A student-centred learning framework puts the learner at the centre of the learning process, in which assessment plays an important part. It is widely accepted that assessment has a direct impact on students' learning (Askham, 1997; Black and Wiliam, 1998; Stiggins, 2002; Biggs, 2007). We are all familiar with the term that assessment drives learning; this is true in many instances, where the learner looks at what has to be learned in terms of what he or she needs to do to get a good grade in the assessment. Research indicates that what students focus on during the course of their studies is hugely influenced by the assessment methods employed to measure the learning experienced (Ramsden, 1992). It is important to recognise the work of Ramsden and those of more recent times, the importance of taking cognisance of assessment for learning as well as assessment of learning must be recognised by lecturers in the design of their assessment strategies.

Assessment for learning acknowledges that assessment should occur as a regular part of teaching and learning and the information gained from assessment activities can be

used to shape the teaching and learning processes. It can, most importantly, also be used by the learner to enhance learning and achievement. Gibbs and Simpson (2004) have developed a model that promotes eleven conditions under which assessment supports learning, as outlined in table 1 below. Seven of the eleven conditions refer to feedback. The underlying principle and theory of this model forms the rationale for the survey of the lecturers on Built Environment programmes.

Table 1: Gibbs and Simpson (2004) promoting 11 conditions under which assessment supports learning

1. Sufficient assessed tasks are provided for students to capture study time
2. These tasks are engaged with by students, orienting them to allocate appropriate amounts of time and effort to the most important aspects of the course
3. Tackling the assessed task engages the students in productive learning activity of an appropriate kind
4. Assessment communicates clear and high expectations
5. Sufficient feedback is provided, both often enough and with sufficient detail
6. The feedback focuses on students' performance, on their learning and on actions under the students' control, rather than on the students themselves and on their characteristics
7. The feedback is timely in that it is received by students while it still matters to them and in time for them to pay attention to further learning or receive further assistance
8. Feedback is appropriate to the purpose of the assignment and to its criteria for success
9. Feedback is appropriate to students' understanding of what they are supposed to be doing
10. Feedback is received and attended to
11. Feedback is acted upon by the student

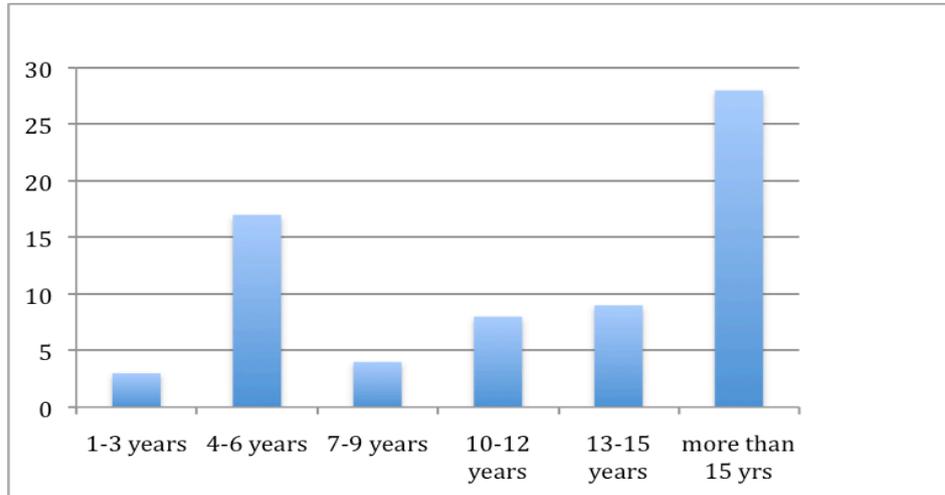
METHODOLOGY AND ANALYSIS

This research is the final phase of an overall research enquiry investigating the conceptions, attitudes and position of academics in BE in Ireland in regard to assessment practices. It involved an online survey of some one hundred and thirty academics in the field of BE from the main providers of Architecture, Architectural Technology, Construction Management and Construction Economics (Quantity Surveying) programmes on the island of Ireland.

The online survey was circulated, having been piloted, reviewed and amended, in March 2010 with a closing date end of April 2010. A response rate of some sixty nine academics from a survey population of 130 from academics teaching on undergraduate programs in Architecture, Architectural Technology, Quantity Surveying and Construction Management. This reflected an overall response rate of fifty three% breaking down to a 72.5% male response relative to a 27.5% female. The high difference reflects the male/female proportions teaching on BE programmes. Thirty of the respondents came from the construction management discipline equating to forty three% of the respondents. The level of lecturing experience varied among

those participants with only three indicating they had less than three years experience. Fig. 1 below provides the breakdown where seventy one% indicated they had seven or more year's lecturing experience.

Figure 1 Teaching experience of respondents in years



Sixty six per cent of respondents have 10 years or more experience in teaching undergraduate students. Overall it would be reasonable to say that respondents have a high level of experience and exposure to the assessment of students. It would be expected that they would be in a position respond to questions on assessment in an informed way.

Figure 2 Breakdown in areas within BE that respondents have taught

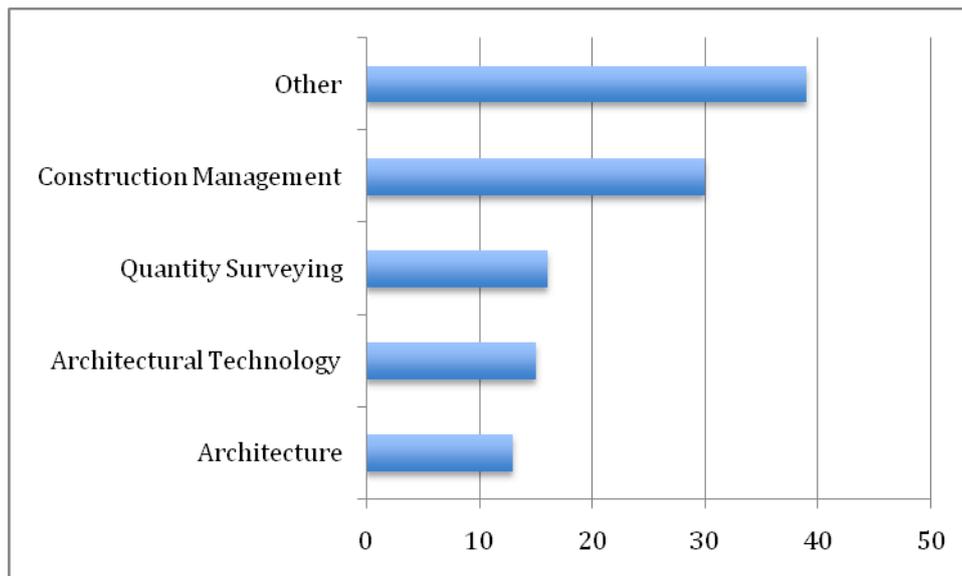


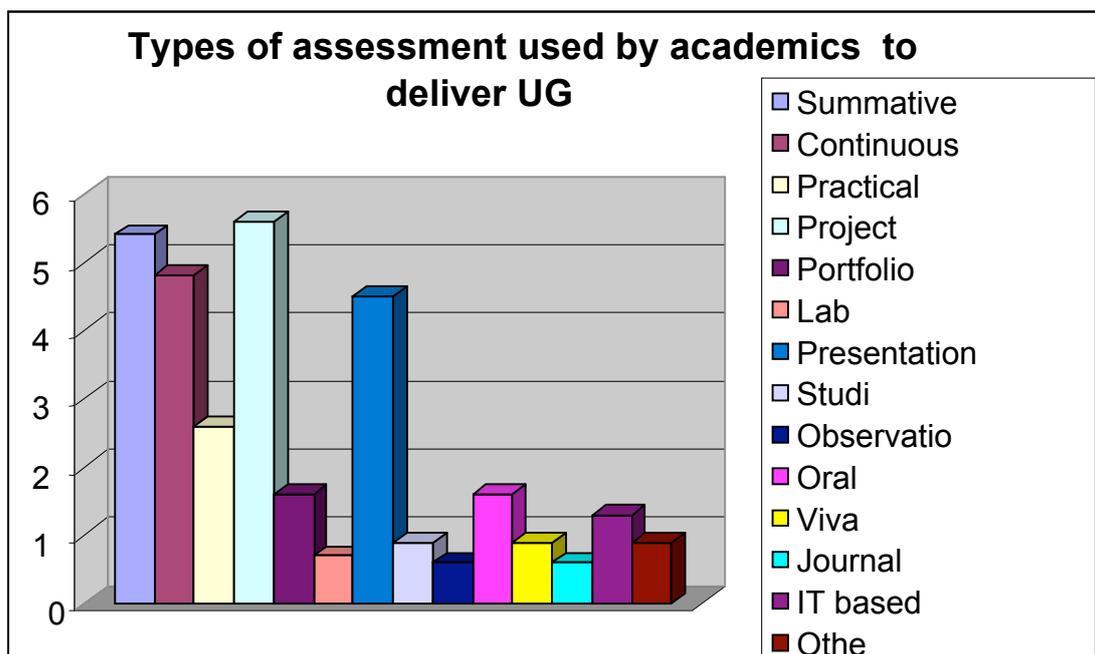
Figure 2 represents the fields within the BE that respondents have taught in. Those who indicated 'others' also indicated that they taught on academics programmes in the

areas of Architecture, Architectural Technology, Construction Management and Quantity Surveying. In some of those instances respondents teach across all BE programmes and were based in those Departments but had a qualification in a different discipline.

Fifty four per cent had completed a formal qualification in learning and teaching: Masters Degree in Learning and Teaching, Diploma in Learning and Teaching, Bachelor of Technology in Wood and Building Technology or Engineering and Higher Diploma in teaching were identified as the types gained. In a number of cases those qualifications were pursued after appointment. Of those who responded as having no formal qualification in education twenty one (66%) indicated that they would be interested in pursuing this area at some stage. Sixty eight per cent of all respondents indicated they had attended a workshop related to learning, teaching and assessment in the last two years. This would indicate a high level of engagement in professional development in assessment, learning and teaching was taking place. Some of the workshops attended include, using problem based learning, modern approaches to learning and teaching and use of technology in teaching.

The variety of assessments in use by the respondents ranged from summative examination to observations and figure 3 below identifies the different types.

Figure 3 Types of assessment used by academics to deliver UG modules



Projects, summative assessment, continuous assessment and presentations are offered as the preferred methods of assessment. Compared to other disciplines, as indicated in the relevant literature, the responses correlate highly.

Table 2: Q7 response to questions on the function of assessment

	Strongly agree	Agree	NA or D	Dis agree	Strongly disagree
a. To identify students' understanding of skills, knowledge or competence in learning activity.	1	1	1	23	42
b. To provide comment/direction to the student about their learning.	1	5	4	30	29
c. To provide motivation for students to learn.	1	8	9	28	23
d. To provide feedback to students on their learning.	1	8	10	28	22
e. To provide a measure of students' performance.	1	4	5	36	23
f. To develop students' ability to learn independently.	2	2	18	20	27
g. To provide a measure of students' improvement.	2	6	15	20	26
h. To rank students.	7	23	22	11	6
i. To monitor lecturers' performance in teaching.	11	18	20	16	4
j. To ensure standards are maintained in a programme of study.	1	13	11	30	14
k. To encourage students to apply and demonstrate their understanding.	3	2	5	33	36
l. To develop students' skills, knowledge and/or competence for professional practice.	3	1	8	34	23
m. To measure the extent to which a student has attained the required standard for a qualification.	1	3	7	32	26
n. To provide an opportunity for students to assess each other.	4	22	31	11	1
o. To identify any problems students may have encountered in learning module content.	3	7	17	30	12

Table 2 above shows the responses to the questions posed in respect of the function of assessment. One interesting point from the analysis of the function of assessment is that eighty six % of respondents agreed or strongly agreed that assessment should provide feedback to students on their learning, yet it would appear that in practice they seem to focus on the measuring of learning rather than more formative approaches. A similar response rate relates to both questions on providing comment/direction to the student about their learning and to encourage students to apply and demonstrate their understanding. It is very much the case that academics work with and want to work with their students and that what might be an issue is 'the

need for more time' and/or the lack of educational theory as a foundation to their planning. When questioned about the issues that surrounded assessment the respondents identified the following as impacting negatively on their engagement with students:

- Time management (more particularly time available)
- Large classes
- Work load
- Academic regulations
- Academic research out put
- Plagiarism

Other issues in regard to providing feedback to students include; transparency, the time factor associated with marking, institutional policy, student engagement - the lack of student attendance and student attitudes. Many cited student indifference as a matter for concern.

Based on the analysis of the online survey the emerging findings indicate there is a clear emphasis of the need for a framework that supports academics in their approach to aiding learners in today's complex constructivist environment in which we engage today. The expectations from all stakeholders is a desire for a framework that allows for meaningful learning, teaching and assessment to take place. A model as outlined in figure 4 below provides such a supportive structure. It is developed around the need to consider the programme in a holistic way where the learner is considered with reference to their development through the programme of study. The required support or scaffolding should be provided in the more formative years of study and as they develop more autonomy and peer support is advocated. Part of an approach such as this requires investment in the necessary early stage induction. The Formative Assessment for Built Environment Learning Support (FABELS) model provides for a constructivist learner centred approach developing autonomous self reflective individuals.

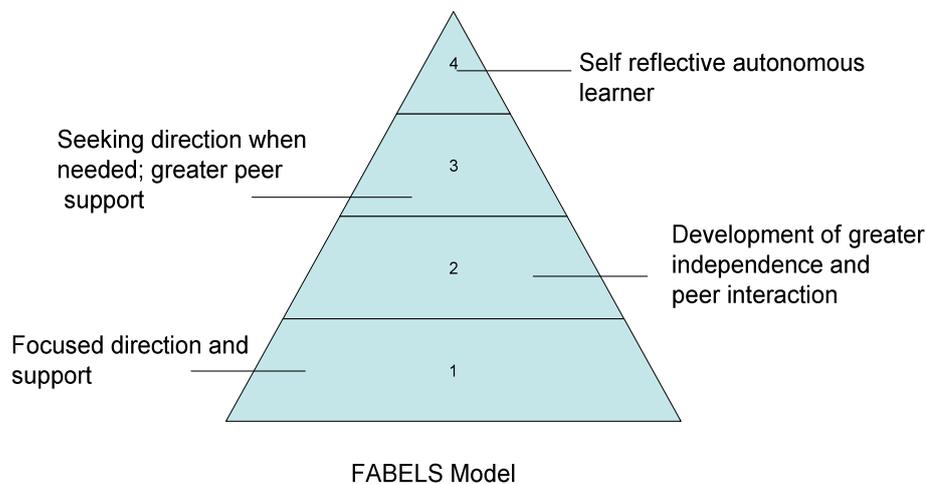


Figure 4 The FABELS model addresses the four stages in an undergraduate programme of study

CONCLUSIONS

Assessment is of central importance in HE and the more one researches the field the more there seems a ‘lack of commonality’ (Taras, 2005) across the disciplines with the BE. There is a growing interest in the quality of the student learning experience but how enable change to take place requires a readiness to share the responsibility for the management of an assessment system in a way that allow learning to flourish. We must as Boud (2010) proffers ‘build capacity for judgment’ and move away from our conservative approaches to assessing our students. A move to developing and implementing appropriate assessment strategies that use the most appropriate means of developing reflexive learners is what is required.

Reflecting on the literature on assessment in HE and linking this to the views expressed by academics in the BE in Ireland what is identifiable is that a conceptual framework for assessment should be based on the following key assumptions:

1. Assessment should contribute positively to students’ learning
2. It should focus on what is to be learned (learning outcomes) and how that learning might contribute to both the programme of study and beyond
3. It must develop students' ability to make judgments about what constitutes good work
4. It should be student centred and place the learner as ‘active’ in the learning process
5. Assessment must engage students in the process of seeing themselves as people who will contribute to practice, whatever that practice might be.

Therefore we can state that key the conceptual features of assessment are:

1. A conception of assessment as part of the learning process should be form part of the learning process
2. Assessment should be developmental and sustainable
3. Assessment should develop informed judgement
4. Assessment should construct reflexive learners
5. Assessment needs to form the becoming practitioner.

It is important that opportunities to include assessment for learning should be embedded in programmes and this learning should receive the necessary credit. Striking a better balance between assessment 'of' and 'for' is key to enhancing the learning experience of students at undergraduate level in the BE. The evidence indicates that there is a willingness to effect change in the approach to supporting student learning through sustainable and authentic assessment strategies. The means to achieving this presents some serious challenges and are not without the need for some serious efforts by all!

Assessment should not be fixed!

REFERENCES

- Adelman, C. (2008). Learning accountability from Bologna: A higher education policy primer. Washington, DC: Institute for Higher Education Policy.
- Askham, P. (1997) An instrumental response to the instrumental student: Assessment for learning, *Studies in Educational Evaluation* 23(4), 299-317.
- Australian Universities Quality Agency (AUQA). (2009). Setting and monitoring academic standards for Australian higher education: A discussion paper. Melbourne, Australia.
- Banta, T. W., Griffin, M., Flateby, T. L., & Kahn, S. (2009). Three promising alternatives for assessing college students' knowledge and skills. National Institute for Learning Outcomes Assessment.
- Barnett, R. (2003) *Beyond All Reason: Living With Ideology in the University*. Buckingham, UK: Society for Research into Higher Education and the Open University Press
- Biggs, J. (2007) *Teaching for Quality Learning in University*(3rd edition), SRHE-Open University Press.
- Black, P. and Wiliam, D. (1998) Assessment and classroom learning, *Assessment in Education*, 5(1) pp. 7-74.
- Bloxham, S., Boyd, P. (2007) *Developing Effective Assessment in Higher Education*, Open University

Boud, D. et al (2010) *Assessment 2020: Seven propositions for assessment reform in higher education*, Sydney: Australian Learning and Teaching Council.

Brown, S. (2004), *Assessing Reflective Learners in Higher Education*. London: Kogan Page.

Bryan, C. and Clegg, K. (2006) *Innovative Assessment in Higher Education* London, Routledge.

Gibbs, P., Angelides, P. and Michaelides, P. (2004), 'Preliminary thoughts on a praxis of higher education teaching', *Teaching in Higher Education*, 9, pp. 183-194.

Gibbs, G. and Simpson, C. (2004) Conditions under which assessment supports student learning. *Learning and Teaching in Higher Education* 1(1), pp3-3.

Higgins, R., Hartley, P. and Skelton, A. (2001) Getting the message across: the problem of communicating assessment feedback, *Teaching in Higher Education*, 6(2) pp. 269-274.

Higgins, R., Hartley, P. and Skelton, A. (2002) The conscientious consumer reconsidering the role of assessment feedback in student learning, *Studies in Higher Education*, 27(1) pp.53-64.

Knight, P. (2002) Summative Assessment in Higher Education: practices in disarray *Studies in Higher Education*, vol 27, 275-286

Lea, M. and Street, B. V. (2000) Student Writing and Staff Feedback in Higher Education: An Academic Literacies Approach. *Studies in Higher Education* 23(2):157-72

Nusche, D. (2008) Assessment of Learning Outcomes in Higher Education: A comparative review of selected practices, OECD Working paper No. 15. OECD

Ramsden, P. (1992) *Learning to Teach*, London: Routledge.

Ramsden, P., (1997) The context of learning in academic departments. In Marton, F., Hounsell, D., and Entwistle, N. (eds.), *The Experience of Learning*, Scottish Academics Universities Press

Ramaprasad, A. (1983) On the definition of feedback, *Behavioural Sciences*, 28, pp. 4-13.

Sadler, R. (1989) Formative assessment and the design of instructional systems, *Instructional Sciences*, 18, pp. 119-144.

Sadler, R. (1998) Formative Assessment: revisiting the territory, *Assessment in Education*, 5(1), pp 77-84.

Stiggins, S. (2002) Assessment crisis: the absence of assessment for learning *Phi Delta Kappan*, 83:10, pp 758-765.

Struyven, K., Dochy, F., Janssens, S. (2005) Students' perceptions about evaluation and assessment in higher education: a review, *Assessment & Evaluation in Higher Education* Vol 30, No4 pp331-347.

Taras , M. (2005) Assessment – Summative and Formative – Some Theoretical Reflections *British Journal of Educational Studies*, 53: 466–478

Trigwell, K. (2001) Judging university teaching, *The International Journal for Academic Development*, 6(1) pp. 65-73.