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The Design of Curriculum, Assessment and Evaluation in Higher Education with Constructive Alignment

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Abstract

In higher education, the principle of constructive alignment for devising teaching, learning activities and assessment tasks is the underpinning concept in curriculum design and development to achieve intended learning outcomes. Student's deep learning is critical and it is the responsibility of the curriculum developer to make sure that synergy between formative and summative assessment is achieved. Also, the needs for special education must be addressed and diversity must be achieved through multiple channels throughout the process of learning, teaching and assessment. Constructive alignment is considered as a key element in education design. However, this requires time and effort in designing teaching and assessment. Due to the importance of constructive alignment, the research in this paper discusses issues relevant to the process of curriculum design and development with the emphasis on students with special needs. Conclusion is drawn based on the literature review.

Contents

1. Introduction

The idea of designing an ideal curriculum using a constructive alignment approach is an important constituent in Higher Education. The initiative of constructive alignment is essentially originated from the theory of *constructivism* which is based on observation and the scientific study of how people learn. It further suggests that learners actively construct their own knowledge and understanding. Inside the constructivist hypothesis substantial emphasis is given to meaning, reflection and context, and teaching is about the provision of a context. This provision allows the facilitation of desirable learning outcomes in Higher Education.

This idea was initially recommended almost 30 years ago and not a new one in Higher Education. The fundamental idea was presented by John Biggs in his text entitled *"Teaching for Quality Learning at University"* (1999) and was revised in 2003 which is now accepted as an essential hypothesis in Higher Education (Biggs, 1999c).

Constructive Alignment is the key principle behind the current requirements for programme specification, statement of future learning outcomes and assessment criteria.

There are two main streams of constructive alignment:

- Constructive alignment from the perspective of students implies what they do to learn
- Constructive alignment from the perspective of teachers implies the synchronization of teacher's planning of learning activities with learning outcomes.

2. Constructivism and Intended Learning Outcomes

The fundamental principle of the entire system is that curriculum is designed in such a way that the learning activities and assessment tasks are aligned with the intended learning outcomes (ILOs), what the students should be able to do or demonstrate.

Figure-1. Intended Learning Outcomes

Source: Biggs (1999c)

In constructive alignment teachers must have a clear idea of what students intend to and be able to do at the end of their module/unit. The learning outcomes should be communicated to students at the start of the course where they can share in the responsibility of achieving the intended learning outcomes as alignment is about student's realization to take full participation in the responsibility of their own learning. The intended learning outcome should then be verifiable by the assessment tasks.

The purpose of assessment is to provide a comprehensive structure for contribution educational intentions with students and for scoring their improvement and progress. The student's assessment can produce feedback information and can be utilize by learners to improve their learning and achievements. This feedback information can also help teachers re-align their teaching in response to learners' needs (Nicol, 2004).

Furthermore, the learning activities, assessment criterion and intended learning outcomes must be aligned or realigned keeping in view of the feedback which students have provided.

Many constructivist psychologists propounded the idea of constructive alignment for example Piaget who believed to be the first in bringing forward the idea this approach. Constructivism, as the word suggests, the philosophical belief that people construct their own understanding of reality (Oxford, 1997).

In more simplistic terms, instead of transmitting a body of knowledge, constructivists argue in favour of construction of meaning based upon our interactions with our surrounding.

Basically the constructive alignment theory contended by three fundamental beliefs:

1. a framework of curriculum design in which intended learning outcomes, teaching methods, assessment and evaluation are all interdependent and only by truly integrating these components together, do we get efficient student learning.
2. staff involved in teaching must develop a Reflective Practitioner approach to their work and be prepared to learn from their mistakes and successes
3. Meaning is not imposed or transmitted by direct instruction - it is created by the **student's own learning activities** (Biggs, 1999b).

According to Biggs (1999) *"The fundamental principle of constructive alignment is that a good teaching system aligns teaching method and assessment to the learning activities stated in the objectives so that all aspects of this system are in accord in supporting appropriate student learning"*.

In the above context Biggs argue for a curriculum which can make sure the aims of the program, Intended learning outcomes (ILOs), the teaching methods and assessment strategies are aligned and take into account all relevant factors. The result can be achieved in the form of effective and deep learning for students with surface learning.

3. Assessments – are Being Assessed?

As discussed above, assessment provides a structure for distributing and sharing educational intentions with students and for scorching their progress. The assessment also stimulates feedback information. This information can be used by students to amplify learning and achievement. This feedback information can also help teachers realign their teaching in response to learner's needs (Nicol, 2004). If the learners are from different age, culture and ethnicity then importance of feedback become more important. When assessment serves the purpose of facilitating learning through the provision of feedback it is called 'formative assessment'. The formative assessment, also known as assessment for learning, tend to test learners on regular basis to determine the problems and difficulties in achieving set target, learning and construction of knowledge. This approach requires offering of regular feedback in order to ascertain the constructive alignment and to provide flow of information to students so that they can realize their weaknesses and ways to overcome them. Below is the conceptual model of formative learning which illustrates the flow of feedback processes which also encompass self-regulated learning pattern.
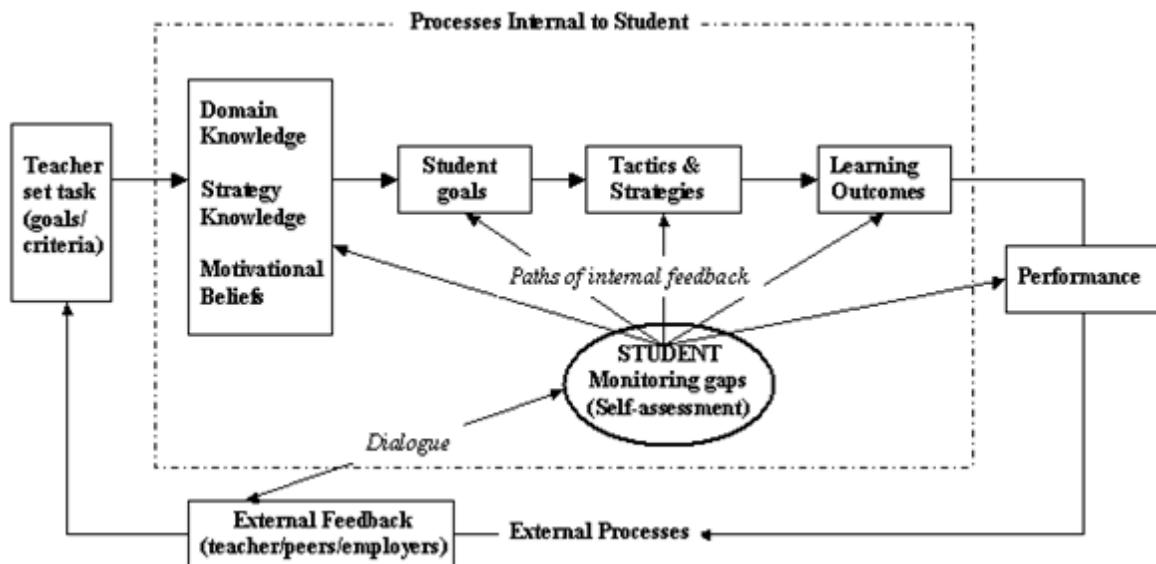

Figure-2. A Model of the Formative Assessment and Feedback

Source: Nicol (2004)

The above model, Figure 2, depicts the learning activity drawn by the teacher; this could have been in the form of verbally oriented questions and answers or as an assignment which can then act as a starting point for the feedback cycle.

4. Feedback and Constructive Alignment

The student's engagement with different tasks requires that they draw on previous learning and knowledge and develop a personal understanding of the learning requirements and belongings of the desired tasks. At the beginning based is the restructuring of their own milestones and not necessary in line with the teachers assigned tasks. These activities employ students with the actions to accomplish these goals by applying strategies that produce the learning outcomes. Observation of these flows of communication with the tasks and the outcomes that are being cumulatively produced generates internal feedback.

This feedback can be obtained from different channels of the existing improvement against internal aims or values. Areas can be identified between the improvements and aims and additional activities can be conducted to fill the gaps in those areas (Sadler, 1989).

This self-created feedback information may direct to re- analysis of the existing tasks. It also can be the techniques for alteration of inner aims. Students can even revise and improve their field knowledge that influenced their succeeding process of self-regulation. 'If external feedback is provided, this additional information might augment, concur or conflict with the student's interpretation of the task and the path of learning' (Butler and Winne, 1995).

The school, college, university or any other academic institution must have diversity in terms of ethnic, culture and age which will make the institution a great diverse place of learning. Synergy must be there in terms of formative and summative assessments. Formative assessment feedback to ensure that whatever is delivered by the teachers is in align with the learning activities. As described above, when assessment serves the purposes of facilitating learning through the provision of feedback it is called 'formative assessment'. In order to counter the challenges being faced by modern higher education institutions, one could argue that formative assessment should be an integral part of teaching and learning in higher education and that curriculum practices should harness the feedback methodically.

Historically universities have developed a sophisticated and significant variety of assessment methods. The challenge is always that of choosing a method which most effectively assesses the objectives of the module of study (Dunn, 2002). Additionally the assessment techniques should take into account the significance of overall programs' objectives which include and not restricted to the cognitive disciplinary skills development like critical evaluation or problem solving.

The information obtained from feedback of formative assessment reimbursement learners and facilitators as a result which supports further learning activities as it provides an opportunity to facilitator to further align the intended activities.

In class or during student's projects providing good feedback on student's performance enables them to reorganize their understanding and skills which helps to develop more influential ideas and capabilities. Formative

assessment also enables teachers to obtain information about where students are experiencing difficulties and where to focus their teaching efforts.

A teacher would have to be responsive not only of the precise requirements of a particular module but of the broader terms of the entire module. This is necessary to allow for assessment to contribute to the accomplishment of the learning outcomes. Universities are likely to squeeze precise ideas in their assessment approach which address wider educational and shared issues. This perception presents value to selected assessment which should be constructive not only to the learning requirements of the precise module or the precise learning outcomes it assesses, but planning to construct and additionally augment those merits like employability and nurture the graduating student as a person to play vigorous responsibility in real world.

5. Formative Assessment

Formative assessment can enhance teacher communication goals to students and provide an opportunity for the real time feedback to students about their progress, collect diagnostic hints about student's particular needs/requirements and foster the Meta cognitive skills, planning skills on how to approach a learning task by using appropriate strategies to resolve issues relevant to learning, by the students.

Generally in literature there are two innermost points of view on the subject of assessment and mainly regarding formative type of assessment. These are

- • That formative assessment and feedback should be used to empower students as self-regulated learners and
- • That more recognition should be given to the role of feedback on learners' motivational beliefs Nicol (2004).

Also Nicol (2004) believe that Approaches to feedback have, until recently, remained obstinately focused on simple 'transmission' perspectives. Teachers 'transmit' feedback messages to students about strengths and weaknesses in their work assuming that these messages are easily decoded and turned into action Nicol (2004). However, given the elements of barriers like effective comprehension to understand the message due to the lack of knowledge, this has created doubts in properly infusing the intended message. Students are believed to raise enthusiastically their own understanding of feedback messages from their tutors (Juwah *et al.*, 2004). Again this is expected in the realm of intrinsic motivation, working to attain mastery and learning orientation.

In learning and teaching in higher education institutions, the major issue arising is how constructive alignment can be accomplished? Also, the major challenge faced by the academics in realizing the constructive assessment is to ensure that the learning outcomes are in line with learning and teaching activities and assessment in a way that student has managed to construct the meaning of the information and whether that information has been transformed into knowledge by engaging in the appropriate learning activities. The other facet is then, which in fact come first is to design the course element keeping in view the cognitive strength of the student which is subject to various elements i.e. socio cultural, special needs, retention power and motivation. These elements are interrelated in way that if student is lacking in motivation, that is mainly due to the intrinsic element of either not able to decode the content being delivered which in turn could be due to number of reason described above.

6. Special Needs and Life Long Learning

As per the experience of the author of this research, educational institutions barely ever think about developing different types of assessment for different types of students and a range of abilities. It may possible that this is because of they have entered the higher education through alternative routes to the traditional one or may be because they have some disabilities and requires some special needs. As an alternative a provisions are made for providing technological support like in computing there are alternative and adaptive devices which can be used to overcome the problem of e-Accessibility, a person's ability to use a Website over Internet, for students with disabilities (Ali *et al.*, 2008). Information and Communication Technology (ICT) can help students with special needs to improve education and lifelong learning. Although the provision of alternative devices for students with different disabilities is there but in today's world of equal opportunities, training is vital to everything from social inclusion to economic competitiveness. Proper training to e-Accessibility approach provides flexible learning solution to students with disabilities. Assistive and adaptive technologies help students with special needs and peoples to overcome the problem of e-Accessibility like screen readers which can be used by a blind person to translate each and every item on Website. Similarly Braille can be used to input information by a visually impaired student (Ali *et al.*, 2007). Other technologies are there too such as screen magnifiers for students with visual impairments, electronic pointing device and many more that can help students with special needs. Students should be properly trained to use all these technologies to communicate with computer system to collect information and achieve the highest level of e-Accessibility. Proper training to these technologies can make students with special needs more independent in their life.

In some cases provisions are made of extra time for students with special needs. This tendency although provide relief or kind of self-satisfaction that something has been done to improve the potential of students with disabilities but in fact these alternative ways or facilities are insufficient and very far from the main issue of constructivism of meaning.

One of the important issues is that we barely ever regard employability as an issue. The fact that the lack of employability related skills of students can highly be affected by the type of assessment enforced by universities on students. The assessment methods provided by the universities are almost just to pass the exam and curriculum. The universities hardly consider the requirement of skills for the real-world environment. As a result most of the students are unemployed or working in other fields of life. The form of assessment of a particular module can dictate the approach of learning and consequently develop the students pragmatically more as an employable entities. Therefore, any learning outcome model, where possible should be able to reasonably have room for the adjustment to meet the requirement which would arise following feedback.

7. Sub Standards in Assessment Task

The lack of feedback and superficial alignment tend to deviate students from infusing the content and pose the question of what we can do to equip students to enable them to make them lifelong learners. Well, the challenges to achieve the goal are substantial. Among many things, there is a need to shift the focus to consider the ways in which current assessment practices either assist or inhibit students in developing skills for lifelong learning. The alignment of assessment is necessitated in order to fulfil the short term learning outcome, but also achieve the longer term. The need to align assessment is not only with short-term learning outcomes, but also to achieve longer term objectives. Regrettably, many traditional assessment practices inadvertently make student without intended skill. Students and teachers are more interested on the immediate task of passing examinations or completing tasks and distract students from the more vital task of learning how to assess them which in contrast to the MESA (Managing Effective Student Assessment). This is a very common practice and contributing in the manufacturing of less skilled and under achievers learners.

One of the main features "Thinking critically and making judgments" of Dunn (2002) does gives us the main core of learning. Dunn comments that it is interesting and possibly alarming that there are eight broad categories of learning outcomes expected of any graduating learner from a higher education programme, until now when selecting items for assessment, we normally adopt the old 'tried and true methods'. This is because it was the way we were assessed as undergraduates ourselves. However, we know that students learn through different approaches, depending on the subject areas and academic tasks, and both ways learning and deep learning are commonly used Ramsden (1992); Biggs (1994) and Presser and Trigwell (1999).

It is obvious that rote learning, although essential, is not sufficient for the mere reason that it tends to superficially prepare student in line with obtaining of grades and passing of exam, but does not adhere to the focus which should be given to promoting deep learning.

The ancient Chinese teachers believed that good students should be able to have the capacity to accept all that was taught to them and should be able to absorb all knowledge, rehearse what was learnt and reapply in other fields to achieve the highest level of learning. In today's modern age it is the responsibility of a teacher to make sure that teaching and learning activities support all levels of achievements (Wee, 2004). Constructive alignment which is an important principle in developing teaching is one of the ways to achieve significant and successful teaching and learning activities (Biggs, 1996). The instructional design is vital to relate curriculum and learning outcomes.

Adopting a traditional and rather conservative approach to assessment results in almost every module offered in the majority of the undergraduate and postgraduate programmes to be assessed by examination. Although tried and tested an examination offers little or no feedback to the student. This unavailability of feedback does not provide students with the areas of improvements and most importantly, students failed to delve which tends to deviate students from thinking critically and making sound judgments. Thus the learning process is not complete because the student misses the opportunity to receive comments as to how complete their learning has been judged to be. They do not get their weaknesses identified and even worse they do not get an opportunity to build upon the feedback to improve on those weaknesses. In this way the employability of graduates suffers, and the aims of widening participation are undermined as the assessment regime favours recent school leavers. Furthermore the perspective of the provider of the learning resources must also be considered. Higher education —being non-profit and in the business of teaching and learning — still often expect to pay less than commercial enterprises for training resources. The inadequacy in the remuneration also caused impediments whereby the teacher is just rely on the tried and tested and not very enthusiastic about the constructivism in the students in terms of subject matter. Also the costs of developing training for higher education information technology professionals is not less than the costs of providing training for other IT professionals.

Most of the higher education institutes in UK follow the assessment guidelines as laid down by the SENLEF, which are and not restricted to have to be consistent, demanding, manageable, fair and impartial and ensure the timely and incremental.

Hypothetically, undeniably the above guidelines permit generous opportunity for upgrading and creativity in assessment of students and consequently may provide feedback if in line with the alignment. But in reality these could be hard to observe due the lack of intense workload of academics that permits very small opportunity for innovative developments and forces the comfort of sustaining the tried and tested.

Assessment should be made throughout the course of semester in university. The assessment and marking criteria must be properly aligned across all subjects.

The development and change in Information Technology can also obstruct the feedback which is also an important issue in universities. Meeting the demands of changing technologies in ICT requires continuous change in curriculum and also in assessment.

An important issue to be considered is that not every innovative assessment though is beneficial and helpful for students and staff. If the progression and improvement is not helping to commence an innovative state of mind and approach to learning, then no one can promise that the execution of these innovative assessments will cater the desired intended learning outcomes. If most people think that a form of assessment is new then we would probably feel quite justified in calling it innovative (McDowell, 2004). The thing which makes assessment innovative is that the assessment is trying to do something new to achieve the intended learning outcomes.

8. Equal Opportunities and Complications in Assessments

The requirements for alternative assessment methods for students with special needs is important to be considered in higher educations.

The Special Education Needs and Disability Act 2004 (SENDA) has now become Part IV of the Disability Discrimination Act (SENDA, 2001) extending the DDA to include education (DDA, 1995). Part IV of the Act currently requires schools, local education authorities, colleges and universities to provide information on access to education for disabled pupils and students (DDA, 2002).

This is become more vital since the comprehension of students with special needs and learning capability as compare to student without any disability require more efforts in terms of teaching, learning and assessment.

Therefore, in order to make student more engaged, the targeted academic activities need to plan in a way that they should become an event that engages students on both conscious and subconscious levels. However, given the range of learning styles and cultures represented in numerous course materials, compromise the traditional lecture format which may fail to meet the needs of many students. Research from the European institutions supports the belief that students react in different ways to the same learning environment and that differences in variability of deep and surface learning could be partially related to differences in the perceptions of the learning environment. In particular, international students and students with disabilities may struggle for the reason given in preceding discussion.

For those students whose first language is not the same as that used in delivery of the lecture may have problems with oral delivery and research at Leeds Met University suggests that some students with dyslexia may "have difficulty in processing sequential symbolic information" given the diversity present among the students it is extremely hard to identify similarities (Powell *et al.*, 2004).

With the ever increasing multi lingual, cultural, ethnicity and learning capabilities in the student population and the rising expectations of students practiced in processing multiple messages and multiple media simultaneously it can be argued that it is the course design should be able to provide benefit to all the students by utilizing available multiple channels. As have been said above, a well-designed course aligns the learning and teaching methods and assessment to the stated learning outcomes. In the perspective of Equal Opportunities and Diversity, this means that providing achievement of the learning outcomes can be demonstrated, teaching and assessment methods should be as flexible as possible to best meet the individual learning needs of the student. Different types of assessment, therefore, should be considered and flexibility should be introduced with the element of precise feedback. Reasonable adjustments must be made to the all phases of teaching.

Assessment of students should be constructively aligned with the learning outcomes, content and learning activities in a module. As described by Biggs (1999) a process called backwash – arguing that assessment determines students' learning more than the actual curriculum. If students focus their learning effort on their assignments then, we should design these to genuinely capture the types of learning we want to see happening.

To observe assessing students with special needs there is a need to think different types of assessment and identify where there is scope to be flexible (McCarthy and Hurst, 2001). According to the Special Educational Needs and Disability Act (SENDA, 2001) requires that students with disability are assessed in such a way as not to disadvantage them, and equally, in a way that does not give them an advantage over other students.

It is no longer acceptable to simply react to the needs of students with special needs; it is now necessary to ascertain, establish and recognize their needs when designing the assessment strategy for a programme. These changes are reflected in the QAA Code of Practice on Students with Disabilities which states: "Assessment and examination policies, practices and procedures should provide disabled students with the same opportunity as their peers to demonstrate the achievement of learning outcomes" (QAA, 1995).

As have been discussed above, that assessment strategies can be difficult to apply due to the students with disabilities, no matter what the disability they have. Having said that, we now face with the following questions:

1.   To what extent the accessibility has been granted in the curriculum for the students with the various or one impairment?
2.   What methods have been devised to implement them to improve the set of courses?
3.   What are the impediments to achieving the changes identified and how they could be address to adjust with the requirements?
4.   What are the best ways by which the accessibility is ensured for students with disabilities and whether these ways are acceptable in the assessment in line with the SENDA guidelines?

9. Conclusion

The above discussion yielded that constructive alignment can be regarded as making sure that ILO (intended learning outcomes) combine with effectiveness and evident in students achievement of the outcomes, with applied appropriate assessment criteria to assess students achievement of the outcomes and permitting students to take delivery of direct and constructive, functional and practical feedback on the degree to which they have revealed their achievement of the outcomes.

An important feature of constructive alignment is to make well-informed and knowledgeable decisions about which teaching and learning developments are most significant to permit student to move towards achieving the learning outcomes and demonstrating that achievement in suitable framework.

Furthermore constructive alignment is about ensuring that assessment, teaching, learning and feedback should be in synchronous with each other, and that feedback links well to students evidence of demonstrating their achievement of the intended learning outcomes.

References

Ali, L., J. Hamid and J. Hossein, 2008. E-accessibility of higher education websites. In The 7th European Conference on e-Learning: [hosted by the University of Cyprus]; Grecian Bay Hotel, Agia Napia, Cyprus, 6-7 November 2008. Academic Conferences Limited. p: 8.

Ali, L., H. Jahankhani and H. Jahankhani, 2007. eAccessibility of the UK & USA universities websites. In C. Montgomerie & J. Seale (Eds.), Proceedings of EdMedia: World Conference on Educational Media and Technology 2007. Association for the Advancement of Computing in Education (AACE). © 2007 AACE. pp: 4061-4068.

Biggs, J., 1994. Aligning teaching for constructing learning. Higher Education Academy: 1-4.

Biggs, J., 1996. Enhancing teaching through constructive alignment. Higher Education Academy, 32(3): 347–364. *View at Google Scholar | View at Publisher*

Biggs, J., 1999. Teaching for quality learning at university. Buckingham: SRHE/OU Press.

Biggs, J., 1999b. What the student does: Teaching for enhanced learning. Higher Education Research & Development, 18(1): 57-75. *View at Google Scholar | View at Publisher*

Biggs, J., 1999c. Teaching for quality learning at university. Buckingham: SRHE and Open University Press.

Butler, D.L. and P.H. Winne, 1995. Feedback and self-regulated learning: A theoretical synthesis. Review of Educational Research, 65(3): 245-281. *View at Google Scholar | View at Publisher*

DDA, 1995. Disability discrimination act. Centre for Accessible Environments V3.0. Retrieved from http://www.legislation.gov.uk/ukpga/1995/50.

DDA, 2002. Disability discrimination act, code of practice, rights of goods, facilities, services and premises London

Dunn, L., 2002. Selecting methods of assessment: Thinking critically and making judgements. Oxford Centre for Staff and Learning Development, Oxford Brookes University, Wheatley Campus, Wheatley, Oxford OX33 1HX, UK. Retrieved from https://www.brookes.ac.uk/services/ocsld/resources/methods.html.

Juwah, C., D. M-Dick, B. Matthew, D. Nicol, D. Ross and B. Smith, 2004. Enhancing student learning through effective formative feedback. The Higher Education Academy, The Network Centre 4 Innovation Close York Science Park York YO10 5ZF.

McCarthy, D. and A. Hurst, 2001. A briefing on assessing disabled students. Assessment Series No.8, LTSN Generic Centre, Learning and Teaching Support Network.

McDowell, L., 2004. Students and innovative assessment. The Higher Education Academy.

Nicol, D., 2004. Rethinking formative assessment in HE: A theoretical model and seven principles of good feedback practice. United Kingdom: University of Strathclyde Debra Macfarlane-Dick, University of Glasgow

Oxford, R., 1997. Constructivism: Shape-shifting, substance, and teacher education. Peabody Journal of Education 72(1): 35-66. *View at Google Scholar | View at Publisher*

Powell, N.J., D. Moore, G. J., J. Finlay and J. Reaney, 2004. Dyslexia and learning computer programming. Innovations in Teaching and Learning in Information and Computer Science (ITALICS): 1-12.

Presser, M. and K. Trigwell, 1999. Understanding learning and teaching: The experience in higher education. UK: McGraw-Hill Education.

QAA, 1995. Code of practice for the assurance of academic quality and standards in higher education, Section 3: Students with Disabilities.

Ramsden, P., 1992. Learning to teach in higher education, levels of thinking about learning and teaching, engineering subject centre. The Higher Education Academy

Sadler, R., 1989. Formative assessment and the design of instructional systems. Instructional Science, 18(2): 119-144. *View at Google Scholar | View at Publisher*

SENDA, 2001. The special education needs and disability act, Chapter 10 United Kingdom Version 3.0. Retrieved from http://www.legislation.gov.uk/ukpga/2001/10.

Wee, Y., 2004. Constructive alignment of learning outcomes: A case study. Monash University Malaysia