



Aligning teaching, learning and assessment to curriculum objectives

¹ Dr. Shaikh Haroon Moinoddin, ² Hussein Ahmed Rajhy

¹ Govt. College of Education, Nanded, Maharashtra, India

² Ph. D. Researcher, Dept. of Education, Dr. B.A.M. University, Aurangabad, Maharashtra, India

Abstract

Teaching and learning take place in a whole system, which embraces classroom, department and institutional levels. In a 'good' system, all aspects of teaching and assessment are tuned to support high-level learning, so that all students are encouraged to use higher-order learning processes. Biggs, J. (2003) Education mainly involves teaching, learning and assessment. Teaching is the foundation; learning is the guarantee; testing is the intermediary. The three aspects are indispensable, linked to each other and dialectical unity.

The present research discusses the concept of constructive alignment theory (Biggs, 1996) with focusing the learning outcomes, teaching methodologies and assessment procedure as they are interrelated in the whole educational system.

Through the perspectives in the literature reviewed on the alignment theory, it is observed that making effective examination reform can strengthen the system of instruction. Examination reform helps us to understand the importance, purpose and function of the examination, and can change the teachers' and students' concept on examination. An important concept of modern education assessment is that evaluation is not to prove but to improve. Zhang, T., Liu, M. and Zang, Z.W. (2014).

Keywords: constructive alignment, curriculum objectives, learning outcomes, assessment for learning, surface and deep learning

Introduction

'Constructive alignment' has two aspects. The 'constructive' aspect refers to the idea that students construct meaning through relevant learning activities. That is, meaning is not something imparted or transmitted from teacher to learner, but is something learners have to create for themselves. Teaching is simply a catalyst for learning: 'If students are to learn desired outcomes in a reasonably effective manner, then the teacher's fundamental task is to get students to engage in learning activities that are likely to result in their achieving those outcomes. It is helpful to remember that what the student does is actually more important in determining what is learned than what the teacher does.' Biggs, J. (2003) [2].

If students are to learn desired outcomes in a reasonably effective manner, then the teacher's fundamental task is to get students to engage in learning activities that are likely to result in their achieving those outcomes ...It is helpful to remember that what the student does is actually more important in determining what is learned than what the teacher does.

The 'alignment' aspect refers to what the teacher does, which is to set up a learning environment that supports the learning activities appropriate to achieving the desired learning outcomes. The key is that the components in the teaching system, especially the teaching methods used and the assessment tasks, are aligned with the learning activities assumed in the intended outcomes. The learner is in a sense 'trapped', and finds it difficult to escape without learning what s/he is intended to learn. Biggs, J. (2003) [2].

In setting up an aligned system, we specify the desired outcomes of our teaching, in terms not only of topic content, but in the level of understanding we want students to achieve. We then set up an environment that maximizes the likelihood

that students will engage in the activities designed to achieve the intended outcomes. Finally, we choose assessment tasks that will tell us how well individual students have attained these outcomes, in terms of graded levels of acceptability. These levels are the grades we award.

There are thus four major steps.

1. Defining the desired learning outcomes.
2. Choosing teaching/learning activities likely to lead to the defining the desired learning outcomes.
3. Assessing students' actual learning outcomes to see how well they match what was intended.
4. Arriving at a final grade. Biggs, J. (2003) [2]

Advantages of Aligned Teaching

The advantages of teaching and assessing in this way have been emphasized already. In sum:

1. It's more rewarding as a teacher, and more enriching. We are forced to reflect on what we mean by 'understanding', and how we can foster it.
2. The students see that what they are learning is real. They're being required to show that they can operate more effectively with what they have learned, not just talk about it. Cynicism, that enemy of deep learning, is much less likely.
3. The outcomes on graduation translate into informed action, which is what the community expects.

Through the evaluation system, the teacher should be able to understand the situation of the students, timely find the problems existing in the teaching process, the first time to reflect on the teaching method, guide students to improve methods of learning, teachers and students together amend teaching process; Then evaluate, revise, interact recursively, establish "the goal, process, evaluation, feedback and

correction” into each other between teaching and learning mode, by test driving the course teaching reform. Therefore, evaluation should not only focus on students’ academic performance, but also discover and develop the potential of the students, understand the requirements in the development of students, help students to understand the self, establish self-confidence, play the education function of evaluation, promote the development of students at the original level. Zhang, T., Liu, M. and Zang, Z.W. (2014) ^[28]

Levels of Thinking About Teaching

We distinguish three common theories of teaching, depending on what is seen as the main determinant of learning: (1) what students are, (2) what teachers do and (3) what students do. These define ‘levels’ of thinking about teaching.

At Level 1, the teacher’s role is to display information, the students’ to absorb it. If students don’t have the ability or motivation to do that correctly, that is their problem.

At Level 2, the teacher’s role is to explain concepts and principles, as well as to present information. For this they need various skills, techniques, and competencies. Here the focus is on what the teacher does, rather than on what the student is, and to that extent is more reflective and sophisticated.

At Level 3, the focus is on what the student does: are they engaging those learning activities most likely to lead to the intended outcomes? If not, what sort of teaching/learning context would best help them? How can I know that they have achieved the intended outcomes satisfactorily? Biggs, J. B. and Tang, C. (2007:27-8) ^[8]

The implementation of constructive alignment raises issues that apply to quality assurance and quality enhancement measures for the whole institution. Such measures should be founded in the scholarship of teaching and learning, involving staff development, continuing formative evaluation and policies and procedures for recognizing quality teaching and learning as an institutional priority. This way, teachers’ conceptions will move towards Level 3 and they will teach with conviction and a sense of priority. Biggs, J. B. and Tang, C. (2007:281) ^[8]

How do students learn?

It is only in comparatively recent years that researchers into learning have studied learning as it takes place in institutions, by students. There is now a body of theory called ‘student learning research’ which directly relates to practice, constructivism and phenomenography being the two most influential. Both emphasize that meaning is created by the learner, but constructivism focuses particularly on the nature of the learning activities the student uses and on this account more readily leads to enhanced teaching. Biggs, J. B. and Tang, C. (2007:28) ^[8]

Students Approaches To Learning

An approach to learning is a “composite of a motive and an appropriate strategy” Biggs (1987: 2) ^[6] used by students to acquire different information and engage in different learning situations. Students’ approaches to learning constitute a sufficient and crucial element in educational context and their relation to students’ achievement and learning motivation has attracted substantial concern. Hassan, M. (2002) ^[19]

Surface and Deep Approaches to Learning

Biggs (1987) ^[6] has identified two broad approaches to learning, ‘deep’ and ‘surface’, have consistently emerged through research in this area, with a deep approach seemingly leading to better learning outcomes, and therefore being considered the desired approach for students. Deep approaches involved an active search for meaning, underlying principles structures that linked different concepts or ideas together, and widely applicable techniques. Surface approaches, in contrast, relied primarily on attempts to memorize course material, treating the material as if different facts and topics were unrelated.

Learning activities that are too low a level to achieve the intended learning outcomes are referred to as comprising a ‘surface’ approach to learning, for example memorizing to give the impression of understanding. Activities that are appropriate to achieving the outcomes are referred to as a ‘deep’ approach. At university, intended outcomes would be high level, requiring students to reflect, hypothesize, apply and so on. Surface and deep approaches to learning are not personality traits, as is sometimes thought, but are most usefully thought of as reactions to the teaching environment. Biggs, J. B. and Tang, C. (2007:29) ^[8]

Literature on students’ approaches to learning reported significant correlation between the deep approach and class environment that encourages active participation in the learning process and the use of investigative skills in learning settings. Students using a formal learning style which requires deep thinking tended to use positive coping techniques. In contrast, students who represented the surface approach tended to focus on specific content, reproduction of information, and use of memorization. Hassan, M. (2002) ^[19]

According to Biggs (1987) ^[6], there are two components in a student’s relationship to academic learning: his or her motive for learning and ensuing strategies for going about learning. Students’ motives influence their strategies of learning (Biggs, 1992) ^[5], but teaching and learning environment (or context) also influences their choice of strategy. The students’ overall approach to learning thus depends upon two factors: students’ motivation and the learning/teaching environment. Students’ preferred approach to learning and preferred learning environment are two important components of classroom learning to consider before learning takes place (Biggs, 1992) ^[5]. Motives and strategies tend therefore to be congruent with each other, besides, they combine to form approaches to learning. Dasari, Bhoomiah (2009) ^[14]

Exploring the students’ approaches to learning is an important issue in developing quality of teaching in higher education. In order to create a learning environment which helps students achieve their full potential it is necessary to have some understanding of the way they approach their learning. The approach used by a student and the processes used during learning are related to the quality of his or her learning and for the purposes of this research paper are defined as ‘what’ and ‘how’ students learn.

Teaching and Approaches to Learning

Good teaching supports those activities that lead to the attainment of the intended learning outcomes, as in constructive alignment. Effective teaching requires that we eliminate those aspects of our teaching that encourage surface

approaches to learning and that we set the stage properly so that students can more readily use deep approaches to learning. This involves getting students to agree that appropriate task engagement is a good and impelling idea (otherwise known as 'motivation'), and establishing the kind of climate that will optimize appropriate interactions with our students. An important aspect to effective teaching is reflective practice, using transformative reflection, which enables teachers to create an improved teaching environment suited to their own context. Biggs, J. B. and Tang, C. (2007:31) ^[8]

Assessment for Learning

The Dominant Influence of Assessment on Learning Outcome

Formal testing under carefully controlled conditions is often only a small component of the total set of evaluation activities in a course, but the impact of classroom testing on students has been studied much more extensively than the impact of other forms of classroom evaluation. Thus tests and test-like activities feature prominently in this research paper. Other forms of classroom evaluation undoubtedly also have important effects on students. Fortunately, many of the general conclusions that can be drawn from research on testing are likely to apply also to other forms of classroom evaluation. Crooks, T. (1988) ^[13].

In the early 1970's researchers, on both sides of the Atlantic, engaged in studies of student learning at prestigious universities. What they found was that, unexpectedly, what influenced students most was not the teaching but the assessment. Students described all aspects of their study - what they attended to, how much work they did and how they went about their studying - to be completely dominated by the way they perceived the demands of the assessment system. If we wish to discover the truth about an educational system, we must first look to its assessment procedures. Gibbs, G and Simpson, C (2002) ^[17].

Many students are perfectly capable of distinguishing between what assessment requires them to pay attention to and what results in worthwhile learning. Whether or not what it is that assessment is trying to assess is clearly specified in documentation, students work out for themselves what counts - or at least what they think counts, and orient their effort accordingly. They are strategic in their use of time and 'selectively negligent' in avoiding content that they believe is not likely to be assessed. It has been claimed that students have become more strategic with their use of time and energies influenced by the perceived demands of the assessment system in the way they negotiate their way through their studies.. Gibbs, G and Simpson, C (2002:3-4) ^[17]

Two Approaches to Assessment

Two approaches to assessment underlie current educational practice. The first is the traditional model. We teach, then we test. Next, we order students along a quantitative scale, usually a percentage scale, which is done by the familiar process of 'marking', and then we allocate grades. There are many problems with this approach. Underlying them all is that there is no essential alignment between what outcomes are intended, what is taught, and what is assessed.

Traditional transmission theories of teaching ignore alignment. A common method of determining students' grades depends on how students compare to each other ('norm-referenced'), rather than on whether an individual's learning meets the intended outcomes ('criterion-referenced').

Although norm- and criterion-referenced assessment are logically different, there is still room for confusion, which we try to dispel with some exercises.

The second approach to assessment is criterion-referenced. That is, the score an individual obtains reflects how well the individual meets preset criteria, those being the objectives of teaching. This is what I am talking about here: alignment between objectives and assessment. But before I deal with this, let me outline some of

Conditions Under Which Assessment Can Support Learning:

Crooks, T. (1988) ^[13] sets out and attempts to justify a set of 'conditions under which assessment can support learning'. The evidence is rarely conclusive enough to argue that if your assessment fulfils these conditions then learning will inevitably be more effective. They are offered as a plausible set of guidelines.

Crooks, T. (1988) ^[13] has observed that assessments affect students in short, medium, and long term ways. These effects are classified into three groups based on this time perspective. There are inevitably some parallels between effects in the different categories.

Short term effects of evaluation:

These effects occur at the level of a particular lesson, topic, or assignment. The following effects seem to apply:

1. Reactivating or consolidating prerequisites kills or knowledge prior to introducing the new material;
2. Focusing attention on important aspects of the subject;
3. Encouraging active learning strategies;
4. Giving students opportunities to practices kills and consolidate learning;
5. Providing knowledge of results and corrective feedback;
6. Helping students to monitor their own progress and develop skills of self evaluation;
7. Guiding the choice of further instructional or learning activities to increase mastery;
8. Helping students feel a sense of accomplishment.

Medium term effects of evaluation

At the level of a particular learning module, course, or extended learning experience, the following are important effects:

1. Checking that students have adequate prerequisite skills and knowledge to effectively learn the material to be covered;
2. Influencing students' motivation to study the subject and their perceptions of their capabilities in the subject;
3. Communicating and reinforcing(or in some cases undermining) the instructor's or the curriculum's broad goals for students, including the desired standards of performance;
4. Influencing students' choice of (and development of) learning strategies and study patterns;
5. Describing or certifying students' achievements in the course, thus influencing their future activities.

Long term effects of evaluation

Finally, evaluation has longer term consequences, especially when students meet consistent patterns of evaluation year after year. These longer term effects include:

1. Influencing students' ability to retain and apply in varied contexts and ways the material learned;
2. Influencing the development of students' learning skills and styles;
3. Influencing students' continuing motivation, both in particular subjects and more generally;
4. Influencing the students' self-perceptions, such as their perception of their self-efficacy as learners. Crooks, T. (1988:443-4)^[13]

Black and Wiliam (1998:170)^[9], in their review revealed that there is "strong evidence that improving formative assessment can significantly raise standards of attainment. However there was concern, based on the growing international research evidence where assessment for summative purposes has burgeoned in the past decade, that the use of tests not only inhibits the practice of formative assessment but has a negative impact on motivation for learning".

Further, the use of test scores and examinations for purposes which affect the status or future of students, teachers or schools (that is, are 'high stakes') results in teachers focusing teaching on the test content, training students in how to pass tests, and adopting teaching styles which do not match the preferred learning style of many students.

Evaluation to Assist Learning

Educational assessments can be designed for any number of purposes, from conducting large-scale evaluations of multiple components of educational programs to measuring individual students' mastery of a specified skill. Understanding assessment results requires that the user draw inferences from available data and observations that are supported by the assessment.

Too much emphasis has been placed on the grading function of evaluation, and too little on its role in assisting students to learn. The integral role of evaluation in teaching and learning needs to be grasped, and its certification function placed in proper perspective.

Much of the evaluation activity in education might more profitably be directed solely to giving useful feedback to students, whereas the less frequent evaluations for summative purposes should focus on describing what students can or can't do. There are several ways in which the effectiveness of feedback could be enhanced. First, feedback is most effective if it focuses students' attention on their progress in mastering educational tasks. Second, feedback should take place while it is still clearly relevant. This usually implies that it should be provided soon after a task is completed, and that the student should be given opportunities subsequently to demonstrate learning from the feedback. Third, feedback should be specific and related to need. Simple knowledge of results should be provided consistently (directly or implicitly), with more detailed feedback only where necessary to help the student work through misconceptions or other weaknesses in performance. Crooks, T. (1988:468-9)^[13]

Aligning Educational Assessment to Learning Outcomes:

Educational assessment typically serve two purposes. First, it is a key input into personnel decisions (e.g. promotion, pay and tenure). Second, it is used for instructor development and course improvement. Moreover, our purpose here is that educational assessment of students could be used as input for evaluating an instructor's effectiveness, our objective is to provide information to improve course offerings by highlighting areas where opportunities exist to enhance courses through changes in content or teaching methodology. Our purpose should be viewed as a supplement providing information on course content and mastery that may well be missing from typical student evaluations.

Both researchers and faculty have different perspectives on what is actually measured by the typical student evaluations of that are taking place. Researchers have used measures of student achievement and satisfaction with the course to assess the quality of teaching effectiveness and education as a whole as it is believed that students' evaluations are valid measures of the quality of instruction. However in some cases, students' evaluations are viewed to be a measure of how much the students liked the instructor, rather than a measure of teaching effectiveness.

Course Learning Objectives

Course learning objectives define a course in terms of the outcomes the instructor expects students to achieve. The use of learning objectives in instructional design results in more efficient use of instructional time and, therefore, improves learning. In addition, he stated that instructional design principles can be used to make corrections in the way that content is delivered during the course. Hutchings *et al.* (1991) delineated the benefits of assessment as (1) the ability to compare student learning with objectives; (2) having objectives that are clear and known; and (3) capturing information that will enable ongoing improvement. Combs, Kathryn L. *et al.* (2008)^[12]

Assessment

The assessment of student performance in higher and postsecondary education is not a new concept or phenomenon. The first College Board examination designed to assess student learning outcomes on a national scale was administered in 1901 (In Harvard). The ensuing decades are marked by events that reflect a growing concern with assessing college student performance, such as: the emergence of a regional accreditation focus on student assessment; the establishment of university based and national testing centers; and the development of broadened taxonomies of student outcomes. However, these earlier developments pale in comparison to the emergence in the mid 1980s of student assessment as an important focus of educational policy at the national, state, and institutional level a focus that continues today. Peterson, M. W, *et al.* (1999:4)^[22].

Institutions may use assessment information within several areas of academic decision making such as academic planning and review, academic mission and goals, resource allocation, and faculty evaluation and rewards. Student assessment information may have both internal impacts, such as stimulating faculty interest in teaching and enhancing student learning, and external impacts, such as influencing

state funding or re-accreditation decisions. Peterson, M. W, *et al.*, (1999:9)^[22]

The results of the assessment can be used by the instructor, in concert with the typical student evaluation reports and any supplemental information gained on teaching methods, to determine modifications for future classes. Possible course enhancements that may be suggested include: (1) modification of future course objectives; (2) a shift in delivery methods, e.g. course structure and/or methodology; and (3) better communication of objectives and expected performance outcomes. Combs, Kathryn L. *et al.* (2008)^[12]

Examination concept is the key to set up on the basis of the test to promote teaching reform, recognize the importance of the examination, it not only plays a strong guiding role on education activity, but also evaluate and improve the teaching as the basic way to cultivate innovative talents; At the same time it is an important means of guiding students to learn actively and creatively; It is an important segment to test and improve students' innovative thinking and innovative ability. Scientific and reasonable, encouraging innovation and dynamic test is helpful to improve teaching effect and teaching quality, cultivate students' creativity, promote the students' autonomous learning ability of ascension, ultimately teaching and learning are interactive, mutual harmony into each other. Zhang, T., Liu, M. and Zang, Z.W. (2014)^[28].

Assessment results can be analyzed across sections and courses to improve

course consistency and coordination of the curriculum within programs. Faculty can use data gathered across sections of the same course to hone and standardize the list of objectives. In addition, coordination of objectives across courses can improve course sequencing, integration and curriculum development. For example, learning objectives that are applicable across a curriculum can be included as part of the assessment of each applicable course, thus providing a perspective on how students view a particular course as facilitating the achievement of that broader objective.

This methodology should also be appropriate for programmatic learning goals and objectives. If a program has particular objectives, such as the development of teamwork skills, these can be assessed pre-program and post-program to determine whether students believe these objectives are important and whether they perceive that they have improved mastery by the completion of the program. Combs, Kathryn L. *et al.* (2008)^[12]

Summary on Constructive Alignment Theory

Biggs, J. B. and Tang, C. (2007:59)^[8] summarized how constructive alignment came about and how the unit in which it was first used illustrates the important stages. Figure bellow can be used as a general framework for teaching. Although it arose in a professional programme, it can be implemented in virtually any course at any level of university teaching.

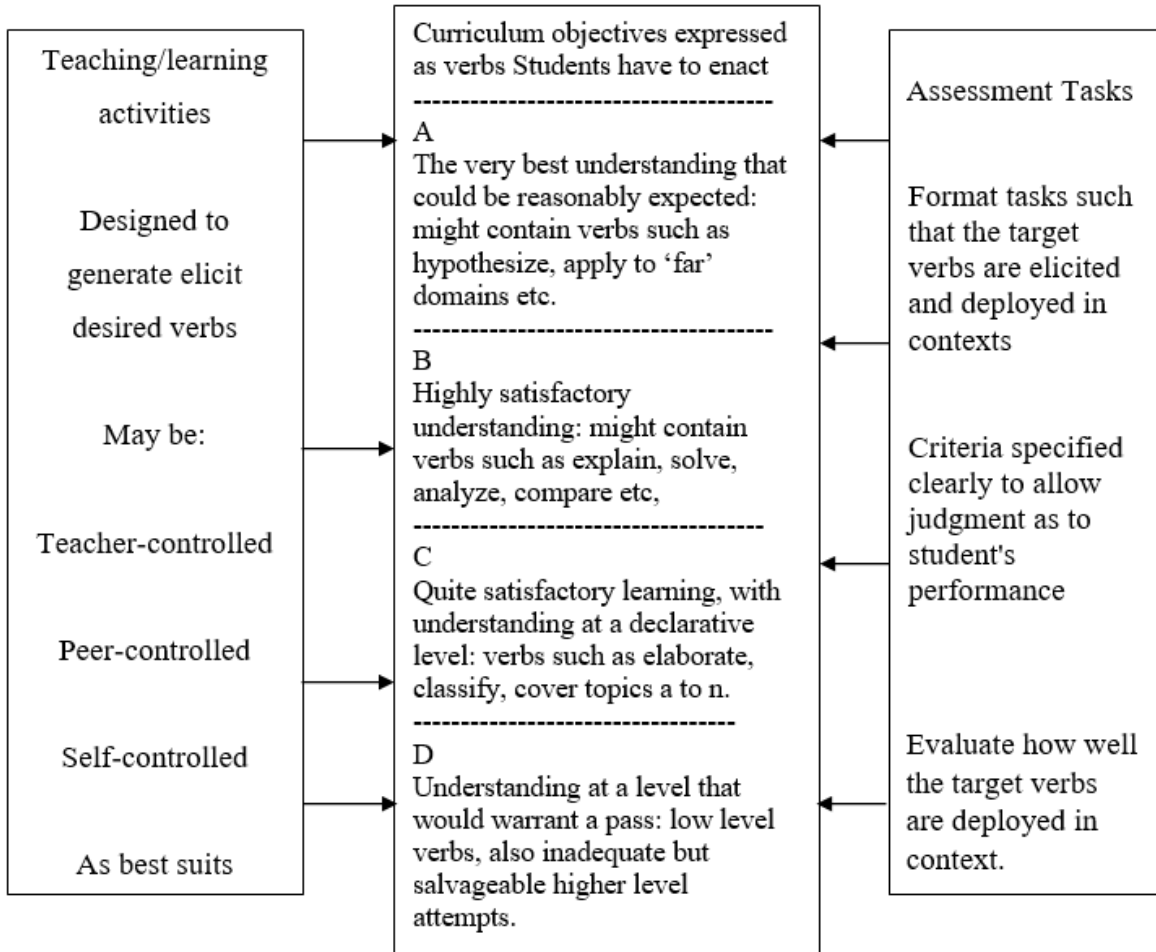


Fig 1: Aligning intended learning outcomes, teaching and assessment tasks the curriculum. Biggs, J. B. and Tang, C. (2007:59)^[8]

Aligning assessment tasks with intended learning outcomes: Principles what and how students learn depends to a major extent on how they think they will be assessed. Assessment practices must send the right signals to students about what they should be learning and how they should be learning it.

We examine the purposes of assessment, the relation between assessment and the assumed nature of what is being assessed, assessing for desirable but unintended or unexpected learning outcomes and who might usefully be involved in the assessing process. The underlying principle is that the assessment tasks should comprise an authentic representation of the course intended learning outcomes.

The first thing to get right is the reason for assessing. There are two paramount reasons that we should assess: formative, to provide feedback during learning; and summative, to provide an index of how successfully the student has learned when teaching has been completed.

Conclusion

Student approaches to learning are particularly important for teachers because they are not fixed and are susceptible to outside influences, especially the learning environment. How students respond to the context of learning is defined by the teaching and learning contexts. Teaching style is one of the contextual variables, which affects student approach to studying, in addition to course structure, the quality of teaching and attitudes of lecturers influence students in their approaches to studying. It is suggested strongly that changing the learning environment, in particular the task students are required to engage in, can have a major influence on how and what students learn.

A student adopting a surface approach intends to meet requirements minimally, on the other hand, a student adopting a deep approach intends precisely to comprehend content, seeing the facts and details as there to help to arrive at that meaning. Dasari, Bhoomiah (2009)^[14]

If the teacher used a teaching style that matched their students' learning style, then the students would learn better and therefore express a greater satisfaction with learning. In addition, students' attitudes towards learning constitute an aspect related to their academic satisfaction and therefore to approaches to learning. For example, university students who experienced poor teaching as reflected by their attitudes were less likely to use serious (deep) approaches to learning (Ramsden, 1983)^[25]. Moreover, teaching students with interventions that are matched to their learning-style preferences resulted in more positive attitudes toward learning. Hassan, M. (2002)^[19]

Approaches to learning have been the subject of a great deal of research over the past few years. There is now a substantial literature which describes the various ways, in which the learning environment and particularly assessment procedures and teaching methods affect the quality of student learning. Dasari, Bhoomiah (2009)^[14]

Deep learning and attributes of autonomy, responsibility and critical analysis are championed in Western countries. They are also valued in traditional Confucian belief, which places great value on education both in terms of learning and as a process itself. Unfortunately, Confucian traditional belief appears to be contradicted by reports of Asian students as "rote learners" who are passive and complaint.

References

1. Biggs JB. Aligning teaching for constructing learning. Centre for Learning and Teaching. 2008, 16(1). Winter 2008.
2. Biggs JB. Aligning teaching and assessing to course objectives. Teaching and Learning in Higher Education: New Trends and Innovations. University of Aveiro. 2003, 13-17.
3. Biggs JB. Enhancing Teaching Through Constructive Alignment. Higher Education. 1996; 32(3):347-364.
4. Biggs JB. What do inventories of students' learning processes really measure? A theoretical review and clarification. British Journal of Educational Psychology. 1993; 63:3-19.
5. Biggs JB. Why and how do Hong Kong students learn using the learning and Study Process Questionnaire? Faculty of Education, University of Hong Kong. 1992.
6. Biggs JB. Student approaches to learning and studying. Melbourne: Australian Council for Educational Research. 1987.
7. Biggs JB, Kember J, Leung DYP. The revised two-factor Study Process Questionnaire: R-SPQ-2F. British Journal of Educational Psychology. 2001; 71:133-149.
8. Biggs JB, Tang C. Teaching for Quality Learning at University. Maidenhead, UK: Open University Press/McGraw Hill. 2007.
9. Black P, Wiliam D. Assessment and classroom learning, Assessment in Education. 1998; 5(1):7-74.
10. Carr, Judy F, Harris, Douglas E. Succeeding with Standards : Linking Curriculum, Assessment, and Action Planning. Alexandria, VA, USA. ASCD. 2001.
11. Choo, Pauline Goh Swee. Assessing the approaches to learning of twinning programme students in Malaysia. Malaysian Journal of Learning & Instruction. 2006; 3:93-116.
12. Combs, Kathryn L, Gibson, Sharon K, Hays, Julie M *et al.* Enhancing curriculum and delivery: linking assessment to learning objectives. Assessment & Evaluation in Higher Education. 2008; 33(1):87-102.
13. Crooks T. The Impact of Classroom Evaluation Practices on Students, Review of Educational Research. 1988; 58:438-481.
14. Dasari, Bhoomiah. Hong Kong students' approaches to learning: cross-cultural comparisons US-China Education Review. 2009; 6(12):46-58.
15. Foucault, Michel. Discipline and Punish: The Birth of the Prison. Trans. Alan Sheridan. New York: Pantheon. 1977.
16. Gagne RM. The conditions of learning. (3rd Edn.) New York: Holt, Rinehart and Winston. 1977.
17. Gibbs G, Simpson C. Does your assessment support your students' learning. 2002. available at <http://isis.ku.dk/kurser/blob.aspx?feltid=157744>. (accessed 31 August 2017)
18. Gijbels, David, Van de Watering, Gerard, Dochy, Filip *et al.* The relationship between students' approaches to learning and the assessment of learning outcomes. European Journal of Psychology of Education. 2005; 20(4):327-341.
19. Hassan M. Academic satisfaction and approaches to learning among United Arab Emirates University

- students. *Social Behavior and Personality: An international journal*. 2002; 30:443-452
20. Kember D, Charlesworth M, Davies H, McKay J, Stott V. Evaluating the Effectiveness of Educational Innovations: Using the Study Process Questionnaire to Show that Meaningful Learning Occurs. *Studies in Educational Evaluation*. 1997; 23:141-157.
 21. Peter Zeegers. A Revision of the Biggs' Study Process Questionnaire (R-SPQ), *Higher Education Research & Development*. 2002; 21(1):73-92.
 22. Peterson, Marvin W, Augustine, Catherine H, Einarson, Marne K *et al.* *Designing Student Assessment to Strengthen Institutional Performance in Associate of Arts Institutions*. Stanford University, Stanford, CA: National Center for Postsecondary Improvement. 1999.
 23. Qin Sun, Yann Abdourazakou, Thomas Norman J. Learn Smart, adaptive teaching, and student learning effectiveness: An empirical investigation, *Journal of Education for Business*. 2017; 92(1):36-43.
 24. Rajhy, Hussein A, Shaikh Haroon M. Using the Assessment Results to Establish Learning Cultures and Sustainable Learning Development. *The International Journal of ELT, Education, Psychology and Allied Researches*. 2017; 4(14):15-24.
 25. Ramsden P. Institutional Variations in British students' Approaches to Learning and Experiences to Teaching. *Higher Education*. 1983; 12(6):691-705.
 26. Smith, Lois. An Investigation into Student Approaches to Learning at a Multicultural University Using the Revised Study Process Questionnaire. In A. Brew & C. Asmar (Eds.), *Higher Education in a Changing World: Higher Education Research and Development*. Sydney: HERDSA. 2005, 533-541.
 27. Sosnoski, James J. Examining Exams in David R Shumway, David J Sylvan and Ellen Messer-Davidow (eds) *Knowledges: Historical and Critical Studies in Disciplinarity*, Charlottesville: University of Virginia Press. 1993, 305-326.
 28. Zhang T, Liu M, Zang ZW. Research on the Effective Management of Examination Reform. *Open Journal of Social Sciences*. 2014; 2:105-108.
<http://dx.doi.org/10.4236/jss.2014.210012>