Quality Assurance in Education

Outcomes-based approach to quality assessment and curriculum improvement in higher education
Maureen Tam,

Received 15 September 2011
Revised 24 April 2013
Accepted 10 September 2013

Outcomes-based approach to quality assessment and curriculum improvement in higher education

Maureen Tam
Department of International Education and Lifelong Learning, The Hong Kong Institute of Education, Hong Kong, China

Abstract

Purpose – This paper was written for practitioners in higher education, including academics and instructional designers who are engaged in curriculum revision. It aims to examine the notion of outcomes-based education, survey the literature and provide a critical review of the outcomes-based approach to quality assessment and curriculum improvement in higher education. The outcomes-based approach is completely student-centred, which focuses on what students know and can actually do. Sharpening the focus onto student learning outcomes goes beyond mere tinkering with traditional structures and methods; it really constitutes a paradigm shift in educational philosophy and practice.

Design/methodology/approach – This paper begins with a summary of developments in institutional quality assessment and curriculum improvement in higher education in recent decades. Then, it identifies the underlying concepts and principles that characterize the outcomes-based approach for the design and improvement of curriculum and instruction in higher education. Finally, the outcomes-based approach is critically reviewed for its value from the perspectives of both practical and philosophical considerations.

Findings – In so doing, it is directed to the heightening of sensitivity as to the manner and situations in which the outcomes-based approach may be employed.

Originality/value – A final note is that while learning outcomes approaches are useful, care is needed to take into account the different views and perceptions of those involved in defining learning outcomes and to keep the ultimate goal of improving student learning clearly in mind. Care must also be taken to avoid rigidity and conceptual reification during implementation in curriculum and instructional design.

Keywords Quality improvement, Assessment, Learning, Quality assurance, Teaching, Curriculum development, Higher education, Quality assessment, Outcomes-based, Learning process, Curriculum improvement

Paper type Literature review

Quality Assurance in Education
Vol. 22 No. 2, 2014
pp. 158-168

0968-4883
DOI 10.1108/QAE-09-2011-0059

Outcomes-based approach in higher education

In recent decades there is a widespread interest in the outcomes of educational experiences and how those outcomes meet a variety of societal needs.

> Learning outcomes are important for recognition … The principal question asked of the student or the graduate will therefore no longer be "what you do to obtain your degree?" but rather "what can you do now that you have obtained your degree?" This approach is of relevance to the labour market and is certainly more flexible when taking into account issues of lifelong learning, non-traditional learning, and other forms of non-formal educational experiences. (Purser, 2003)

International trends in higher education show a shift away from the teacher-centered model that emphasizes what is presented, towards the learning-based model focusing on what students know and can actually do. As aptly pointed out by Ewell (2008), the vogue of outcomes-based approaches in higher education is in fact arising from the so-called "assessment movement" that began in the mid-1980s in the USA with government calls to examine the effectiveness of the funds invested in public institutions of higher education by looking at how much graduates had learned by the point of graduation. With the assessment movement in higher education focusing on student learning outcomes as the emerging measure of institutional excellence and effectiveness, ideas about what constitutes a high-quality education have shifted from the traditional view of what teachers provide to a practical concern for what learners actually learn, achieve, and become. Indicators of student learning outcomes as part of the larger accountability framework have become prominent in the early 1990s first in the USA, which then spread to many countries including Australia, New Zealand, the UK and South Africa.

> The outcome-based approach has been increasingly adopted within credit frameworks and by national quality and qualifications authorities such as the QAA (Quality Assurance Agency for Higher Education) in the UK, the Australia, New Zealand and South African Qualification Authorities. (Gosling and Moon, 2001)

In higher education, the contemporary trend towards funding, designing and evaluating education on the basis of the intended outcomes has encouraged the definition of outcomes in terms of pre-determined skills or competencies in systems of outcomes-based or competence-based education (Mulder *et al.*, 2007). One recent example of the widespread international interest in outcomes-based approaches is the cross-national effort at standards alignment currently underway in Europe under the auspices of the Bologna Process that seeks to create a common model for higher education in Europe, in which learning outcomes should play an important role (Adam, 2004, 2006). As a result, the target for 2010 was that all programs offered by higher education institutions should be based on the concept of learning outcomes, and that curriculum should be redesigned to reflect this. Through the development of national frameworks of qualifications, all degrees (Bachelor and Masters) would be described in terms of learning outcomes, workload, level, competences and profile (Kennedy *et al.*, 2006).

Given the overwhelming focus on learning outcomes in higher education in recent years, the heightened valuing of educational outcomes and standards has given rise to issues and concerns about the undue emphasis on the instrumental and economic value of education, measured in terms of efficiency and effectiveness in the modern cultural context (Bagnall, 2009). Central to the outcomes-based approach are the performance indicators of efficiency and effectiveness as the means of attaining the specified ends in a system of "outcomes-driven education" (Bagnall, 1994). This is congruent with the aforementioned assessment movement in higher education worldwide, where accountability in terms of effectiveness and efficiency is defined as the function to maximise the attainment of individual educational goals and societal outcomes (such as employment gains, reduced criminality).

To maximise educational effectiveness, it requires:

- The prior specification of the intended educational outcomes (as goals or objectives) or their consequences.
- The management of the ensuing education in such a way as to maximise the attainment of those desired ends.
- The evaluation of that education and its entailed learning in such a way as to assess the extent to which the desired ends have been realised in actual educational outcomes or their consequences (Bagnall, 1994, pp. 20-21).

Similarly, to maximise educational efficiency, it requires:

(1) That all educational activity be directed maximally towards the attainment of the specific desired ends.

(2) That any educational activity that is directed towards the attainment of other ends, or for the satisfaction of other interests, be minimised.

(3) That educational success be seen as the ratio of:
   - the extent to which the desired ends have been attained as a result of those particular educational activities; and
   - the total educational costs (time spent, materials used, other activities foregone, etc.). (Bagnall, 1994, pp.21)

By achieving effectiveness and efficiency in attaining the specified ends, educational institutions are seen to have fulfilled their particular institutional tasks and outcomes. Efficiency and effectiveness are thus the central concepts of outcomes-based approaches in higher education, providing the impetus for curriculum improvement at the levels of the individual student, program and institution.

Different levels of outcomes

The word "outcomes" will mean different things depending on the level of analysis and the kind of results of an academic experience that we are talking about. In fact, learning outcomes approaches have been used at many levels, ranging from that of instructional design where the individual student is the object of interest, through institutions and programs where the prominent concerns are evaluation-based program improvement and quality assurance (Ewell, 2008). At this juncture, it is necessary to define "outcomes" in relation to the context in which they are used.

At the individual student level, learning outcomes are used to express what learners are expected to achieve and how they are expected to demonstrate that achievement. Learning outcomes are here defined as student attainment as a result of engagement in a particular set of teaching and learning experiences. The classical work of Benjamin Bloom (1913-1993) has identified three broad categories of learning outcomes at the student level – cognitive, affective and psychomotor (Bloom *et al.*, 1956). Cognitive outcomes generally refer to the content knowledge that students can comprehend, explain, analyze and apply. Skills outcomes refer to the capacity to do things, including problem solving, communicating effectively, or performing certain technical procedures in a task. Affective outcomes are related to attitudes which usually involve changes in beliefs or the development of certain values such as ethical behavior, empathy, or respect for others.

At the program or course level, learning outcomes are more broadly defined as development or growth as a result of studying a particular course or program (Ewell, 2008). Student development can take the form of employability and increased career mobility, enhanced lifestyle, the opportunity for further studies, or simply a more fulfilled and happier life. However, in more pragmatic terms, learning outcomes at this level are also referred to as the certification of specific levels of knowledge, skill, or ability for a given profession. Simply put, student learning outcomes at this level refer to the attainment of the particular competencies acquired by students on completion of an academic program or course.

Outcomes at the institutional level are generally more broadly defined and are related to the assessment of institutional performance for quality assurance (Ewell, 2008). To this end, institutions need to collect evidence about student abilities to prove that the institution-level outcomes or goals are achieved. Evidence here embraces the results of both quantitative and qualitative approaches to gathering information about student learning outcomes either in absolute or value-added terms. In absolute terms, outcomes are referred to as attainment against established standards (criterion-referenced assessment) or as the performance of an individual or group compared to others (norm-referenced assessment). Here outcomes extend beyond student learning outcomes to provide quantitative measures to allow assessment of institutional performance. In value-added terms, outcomes can refer to the "before-after development" or "enhancement" as a result of a student's attendance at an institution of higher education. These outcomes may include things like enhanced income, changes in career, or even increased student satisfaction and motivation. Self-reports provided by students and alumni about their development and satisfaction with the university experience by way of surveys and interviews could also be counted as evidence of student learning outcomes for the purpose of examining institutional-level effectiveness.

The above delineation of the terminology provides the distinctions between the different units of analysis for learning outcomes ranging from individual students to aggregates of students grouped by an academic program or institution.

The paradigm shift

Sharpening the focus of higher education onto student learning outcomes goes beyond mere tinkering with traditional structures and methods; it really constitutes a paradigm shift in educational philosophy and practice. The traditional way of curriculum design, the teacher-centered approach focuses on the teacher's input and on assessment in terms of how well the students absorb the materials taught. A departure from this traditional paradigm is the student-centered approach where the emphasis is on what the students are expected to be able to do at the end of the learning experience. This approach is also referred to as an outcomes-based approach with statements used to express what knowledge students have actually acquired, and what abilities they have actually developed. Implicit in the student-centered model is the idea that teachers are facilitators of learning, who create and sustain an effective learning environment and experience based on a wide range of best practices in teaching and learning. And the fundamental role of assessment is to monitor, confirm and improve student learning.

Such radical shift from teacher delivery to student learning is resonant with the theory of constructive alignment (Biggs, 1999, 2003; Biggs and Tang, 2007, 2011). Central to this theory is the claim that any learning or meaning is constructed by the students in the course of their learning experience. Simply put, learning is a product of the student's activities and experiences, rather than the tutor's. The emphasis is on what students can actually do at the end of the learning experience. So when designing a learning experience, the focus should be on learning outcomes and the key questions to consider will include:

(1) What should the student be able to understand or perform at the end of the learning experience?

(2) What activities would the student have to undertake in order to learn this?

(3) How can the tutor find out if the student has learned successfully?

To answer these three questions, we need to draw up:

- learning outcomes;
- teaching and learning activities; and
- assessment.

It is important that there is agreement between the learning outcomes, the teaching and learning activities, and the assessment to make sure that the three elements should all be aligned (Biggs, 1999, 2003; Biggs and Tang, 2007, 2011). Aligning these three elements will ensure compatibility and consistency within the curriculum where the desirable learning outcomes agree with the teaching and learning activities and the assessment tasks in a coherent manner. This model of constructive alignment focuses on learning outcomes which specify the achievement of the desired kind of learning, while the teaching and learning activities and assessment are the means to achieve the ends. When the three elements are working in synergy, the learning outcomes are in fact driving the curriculum design, with the other elements including teaching and assessment falling in place dictated by the results of the desired learning experience of students.

When designing outcomes-based instruction, planning begins by determining what should be learned. It is results-oriented and the primary measure of curriculum success is what graduates actually know and are able to do. It is also competency-based when learning outcomes specified at the very outset are tied to the most important skills and knowledge in a program or course. Most importantly, it is dedicated to continual improvement through ongoing assessment of student learning. As the outcomes-based approach requires the demonstrated achievement of specified learning outcomes, designs of this kind are usually termed "competency-based" or "mastery" programs with focus on what the learner can demonstrate at the end of a learning activity.

Adopting the outcomes-based approach in curriculum planning, the first step is to identify the desired levels of student learning after engaging in a meaningful learning experience. The action verbs used in writing the outcomes statements define the required level of understanding and competence. The precise verbs chosen will drive and suggest the type of teaching and learning activities that students need to undertake in order to achieve the level of sophistication at which they are expected. For

example, action verbs such as "explain", "diagnose" or "problem solve" call for very different learning outcomes at various levels that need to be very specific at the outset for both students and curriculum designers to have a clear idea of what is expected at the end of the learning experience.

Having decided on the level and nature of learning outcomes, the second step is to consider what students need to do to be able to achieve the outcomes. This process informs the kind of student activity that is linked to the level of each learning outcome for curriculum designers and teachers to plan and select teaching and learning activities appropriate to the expected outcomes. It is no longer enough for designers and teachers to be competent in their discipline; they are required to create, develop, and manage stimulating learning environments, using a variety of resources, methods, and technologies, including assessment resources in order to deepen and enrich student learning. Such a shift for the role of designer or teacher from subject expert to facilitator of learning implies that teaching and learning activities are designed to reflect this relationship to focus more on the educational process rather than subject content.

What follows from the stage of designing appropriate teaching and learning activities is the very important part played by assessment to demonstrate that students have achieved in the end the kind and level of learning expected of them. As the design of teaching and learning activities takes messages from the declared outcomes in the early stages of curriculum planning, assessment should also be the starting point to be considered for how learning is to be assessed and evaluated. The outcomes-based approach, coupled with Biggs' constructive alignment theory, in fact calls for virtually simultaneous consideration of the desired learning outcomes, the planning of appropriate teaching and learning activities and the proposed means of assessment to aim at the desired level cognitive and affective outcomes which are declared as results from a worthwhile learning experience.

Benefits and limitations

As with any other models of educational and curriculum design, the outcomes-based approach has limitations, as well as promises for guiding better instruction and curriculum. In this section, the benefits and limitations of outcomes-based approaches will be identified and reviewed first from a practical implementation perspective, then through a philosophical analysis in broader terms.

At the level of implementation, the outcomes-based approach are considered to offer benefits including clarity, flexibility, comparison and portability (Ewell, 2008).

Clarity

Focusing on outcomes can help communicate clearly between various stakeholders the kind of learning expected at the end of a learning program or course. Students will know what is expected of them; same as teachers about the level and standards at which they need to teach the intended outcomes. This is particularly important when there is team teaching which involves diverse teaching staffs across departments and schools. At the institutional level, requirements and standards of a certain program or credential can be articulated in the form of a qualifications framework for benchmarking with similar credentials offered by other institutions. By the same

token, employers and even educational policymakers will know more precisely the standards and competencies of graduates for employment and accountability purposes.

Flexibility

Although the intended outcomes are specified, the means to achieve the ends are fairly open in an outcomes-based approach. For the same or similar outcomes, a variety of teaching and learning activities, methods and even modes of delivery can be deployed to suit different circumstances. A great deal of flexibility is built in the model for the selection of the means of instruction so long as the same intended level of knowledge and skills are resulted. In this regard, different abilities and backgrounds of students can be accommodated through the different instructional paths, technologies and modes that are allowed in an outcomes-based approach. There is also flexibility with recognizing prior student learning through assessment against the various levels of learning outcomes within the framework.

Comparison

With the outcomes-based approach, it is more plausible to establish comparable standards across programs and even institutions, for accreditation, benchmarking, as well as accountability purposes. These summative and formative comparisons will help institutions to check standards against each other and benchmark for improvement as they learn from each other through the cross-checking of outcomes. Comparison is also possible among students from different institutions or backgrounds by way of comparing assessed outcomes against recognized standards or certain qualifying criteria as in professional qualifications and credentials. Such comparative data will provide useful information for admission, placement or certification of students with reference to their level of standards and outcomes achieved.

Portability

As the word "portability" suggests, students can earn and transfer credits from a program offered by one institution to another program in a different institution. This is made possible by having articulated the learning outcomes in different programs using clear criteria and credible standards. It will also allow increased mobility and exchange of students in this age of growing student mobility and modularity of instructional provision, not just locally, but internationally.

Despite the many benefits it promises, the outcomes-based approach is not without problems. Further on the issue of benefits and problems, Ewell (2008) completes his analysis by cautioning against four major drawbacks – definition, legitimacy, fractionation, and serendipity, which may emerge when efforts are made to operationalize outcomes at the implementation level.

Definition

Definitions of learning outcomes are subject to the context of their application and the judgment made by a specific team or group of people involved. Outcomes identified for a particular course or program could not be generalized across contexts largely due to the sufficient precision and consistency required for a valid and reliable judgment

about the ability or characteristic in question. Simply put, it is not easy to obtain agreement or consensus about the definition and meaning of learning outcomes across different course or program teams, and even more so, across different disciplines and subject areas.

Legitimacy

Many academics opine that learning outcome statements are inadequate to capture those "ineffable" aspects of learning which may result in "reductionism" and "reification" (Ewell, 2008). By their very nature, outcome statements tend to break down holistic conceptions of learning, and reduce them to learning abilities or changes in behavior that are specific, observable and measurable. As a result, outcomes schemes still fall short of being widely accepted and recognized in academia as a valid way of conceptualizing what learning is all about.

Fractionation

The way assessment works in outcomes schemes may sometimes found to be too narrow and even mechanical in assessing learning, missing the essence of integrated ability that is supposed to unite many discrete skill elements into expert practice (Ewell, 2008). From the operational perspective, assessment for outcomes could become too focused on the student's acquisition of skills and knowledge that other more important developmental outcomes over time are ignored. Also, there may be a lack of coherence among smaller components in an instructional program as a result of fractionation that breaks down both learning and assessment in small units of incremental progress.

Serendipity

In a similar vein, outcomes-based approaches are criticized for their constrained serendipity which presumes that all of the valued and important ways that a learner can construct meaning in the context of a particular discipline or ability are known in advance (Ewell, 2008). This problem is conceived to be more pronounced in advanced levels of study and in certain disciplines such as fine arts where unexpected important learning may occur during the instructional process.

There are both advantages and disadvantages associated with adopting outcomes-based approaches. An understanding of both benefits and limitations will help make the principles and concepts of outcomes schemes more concrete in the form of application in curriculum and instructional design. In a broader perspective, Bagnall (1994) has examined the benefits and limitations presented by outcomes-based approaches through a philosophical analysis, from a lifelong education perspective. Building on the work of earlier critiques (such as those by Apling, 1989; Ashworth and Saxton, 1990; Hyland, 1991), Bagnall questions the efficacy of outcomes-based approaches which in practice may be more likely to diminish precisely those qualities that it is intended to enhance.

In his philosophical discussion, Bagnall has aptly pointed out that in order to maximize efficiency and effectiveness, outcomes-based education is in fact constraining and limiting; trivial and mechanical; inflexible and conservative with too much emphasis on attribution and consequence; promoting egoistic maximization of individual self-interests; and not as empowering to both the students and educators

as it claims because it dehumanizes students as resources to be enhanced and promotes dependence of the learners on the educators.

A learning outcome, in order to be useful and practical, has to be clearly and validly specifiable, reliably observable, quantifiable and essentially unchanging over the course of the instructional experience. In most cases, many worthwhile educational outcomes can satisfy these requirements without compromising their value. But for educational outcomes of a more liberal nature, such as creativity, intellectual virtues, respect for self and others, responsibility and self-sufficiency, are not easily amenable to concrete specification and quantifiable measurement in the form of behavioral learning outcomes. Because of its nature to constrain, to focus rather than to liberate, to broaden, an outcomes-based approach may work against, ironically, many of its ideals of enhancement of excellence, individual freedom, liberation, individuality, plurality, creativity, innovativeness and responsiveness, towards a system of encouraging the development of relatively closed, self-serving, bureaucratic systems of education (Bagnall, 1994). Failure to achieve what it purports to do in relation to these education ideals, outcomes schemes are prone to becoming dehumanizing and educationally trivializing to result in curricular fragmentation and simplification; the externalization of educational reward; student dependence; and educational conservatism, tokenism, inflexibility, centralization, instrumentalism and functionalism (Bagnall, 1994). The emphasis on the instrumental and economic value of learning outcomes resonates with those educational goals that are contingent and immediate. Often times, proximate and short-term goals are found to be in tension with longer term and broader realities and goals (Hyland, 2007).

Conclusion

The widespread interest in the outcomes of educational experiences has resulted in a shift away from the teacher-centered model that emphasizes what is presented, towards the learning-based model focusing on what students know and can actually do. Learning outcomes are defined according to the context in which they are used. Learning outcomes at the individual student level help students understand what is expected of them at the end of an educational experience. At the course or program level, learning outcomes are useful to guide curriculum, learning and assessment to aim at the achievement of those competencies or abilities by students enrolled in a particular course or program. Outcomes at the institutional level are often linked to institutional performance in terms of the efficiency and effectiveness towards achieving the institutional-level outcomes or goals.

Learning outcomes together with the theory of constructive alignment are found to be the essential components in the outcomes-based approach. In it the three elements – outcomes, teaching and learning, and assessment need to be aligned to achieve consistency and coherence in the design process, resulting in instruction and assessment that are designed to address the intended learning outcomes. In this light, the adoption of the learning outcomes approach has the potential to help embrace a more systematic approach to the design of programs and courses.

Despite its usefulness, the outcomes-based approach is subject to criticism and cautionary use. Some critics have found outcomes schemes to be overly specifiable, observable, quantifiable and so narrow that they can be limiting rather than liberating,

which may result in reductionism, reification, fractionation, serendipity, and may fail to achieve the kind of learning and education that it purports to promote in the first place. Despite these criticisms, outcomes-based learning appears to be premised on the belief that it is by nature empowering to its participants – both students and educators. There is no doubt that learning outcomes as measures of learning effectiveness and instructional quality can make an important contribution to the improvement of that quality by way of better curriculum and student learning. A final note is that while learning outcomes approaches are useful, care is needed to take into account the different views and perceptions of those involved in defining learning outcomes and to keep the ultimate goal of improving student learning clearly in mind. Care must also be taken to avoid rigidity and conceptual reification during implementation in curriculum and instructional design.

References

Adam, S. (2004), "Using learning outcomes: a consideration of the nature, role, application and implications for European education of employing learning outcomes at the local, national and international levels", July, Report on United Kingdom presented at the Bologna Seminar, Heriot-Watt University, Edinburgh.

Adam, S. (2006), "An introduction to learning outcomes", in Froment, E., Kohler, J., Purser, L. and Wilson, L. (Eds), *EUA Bologna Handbook*, Raabe, Berlin, p. B2.3-1.

Apling, R.N. (1989), *Vocational Education Performance Standards*, Congressional Research Service, The Library of Congress, Washington DC.

Ashworth, P.D. and Saxton, J. (1990), "On 'competence'", *Journal of Further and Higher Education*, Vol. 14 No. 2, pp. 3-25.

Bagnall, R. (1994), "Performance indicators and outcomes as measures of educational quality: a cautionary critique", *International Journal of Lifelong Education*, Vol. 13 No. 1, pp. 19-32.

Bagnall, R. (2009), "Values teaching and learning in vocational education and training: trends and challenges", Internal paper, Hong Kong Institute of Education: Hong Kong.

Biggs, J. (1999), *Teaching for Quality Learning at University*, Society for Research in Higher Education and Open University Press, Buckingham.

Biggs, J. (2003), "Enhancing teaching through constructive alignment", *Higher Education*, Vol. 32 No. 3, pp. 347-364.

Biggs, J. and Tang, C. (2007), *Teaching for Quality Learning at University*, 3rd ed., Society for Research in Higher Education and Open University Press, Berkshire.

Biggs, J. and Tang, C. (2011), *Teaching for Quality Learning at University*, 4th ed., Society for Research in Higher Education and Open University Press, Berkshire.

Bloom, B.S., Engelhart, M.D., Furst, E.J., Hill, W. and Krathwohl, D. (1956), *Taxonomy of Educational Objectives, Volume 1: The Cognitive Domain*, McKay, New York, NY.

Ewell, P. (2008), "Building academic cultures of evidence: a perspective on learning outcomes in higher education", paper presented at the symposium of the Hong Kong University Grants Committee on Quality Education, Quality Outcomes – the way forward for Hong Kong, Hong Kong, June, available at: www.ugc.edu.hk/eng/ugc/activity/outcomes/symposium/2008/present.html (accessed 15 September 2010).

Gosling, D. and Moon, J. (2001), *How to Use Learning Outcomes and Assessment Criteria*, SEEC Office, London.

Hyland, T. (1991), "Taking care of business: vocationalism, competence and the enterprise culture", *Educational Studies*, Vol. 17 No. 1, pp. 77-87.

Hyland, T. (2007), "Morality, work and employment: towards a values dimension in vocational education and training", *Journal of Moral Education*, Vol. 24 No. 4, pp. 445-456.

Kennedy, D., Hyland, A. and Ryan, N. (2006), "Writing and using learning outcomes: a practical guide", in Froment, E., Kohler, J., Purser, L. and Wilson, L. (Eds), *EUA Bologna Handbook*, Raabe, Berlin, p. C3.4-1.

Mulder, M., Wiegel, T. and Collins, K. (2007), "The concept of competence in the development of vocational education and training in selected EU member states: a critical analysis", *Journal of Vocational Education and Training*, Vol. 59 No. 1, pp. 67-88.

Purser, L. (2003), "Report on Council of Europe Seminar on Recognition Issues in the Bologna Process, Lisbon, April 2002", in Bergan, S. (Ed.), *Recognition Issues in the Bologna Process*, available at: http://book.coeint/EN/ficheouvrage.php?PAGEID=36&lang=EN&produit_aliasid=1618 (accessed 20 July 2009).

Corresponding author
Maureen Tam can be contacted at: msltam@ied.edu.hk

This article has been cited by:

1. Angela Starkweather, Lana Sargent, Carla Nye, Tara Albrecht, Rachel Cloutier, Ashley Foster. 2017. Progressive Assessment and Competency Evaluation Framework for Integrating Simulation in Nurse Practitioner Education. *The Journal for Nurse Practitioners* . [CrossRef]
2. GriffithStafford Alexander Stafford Alexander Griffith drstaff@yahoo.com Stafford Alexander Griffith is a Professor of Research, Measurement and Evaluation. He currently serves as a Director of the School of Education and a Deputy Dean, Faculty of Humanities and Education, Mona Campus, The University of the West Indies. Professor Griffith holds graduate degrees in education with specialized study in research, measurement and evaluation and curriculum development. He also holds an LLB degree. Professor Griffith has over 47 years of combined work experience in teaching, curriculum development, measurement and evaluation and programme planning and management. He previously served as a Pro-Registrar of the Caribbean Examinations Council. His research interests include large-scale testing and assessment for learning. School of Education, Faculty of Humanities and Education, The University of the West Indies at Mona, Kingston . 2017. Lessons from CXC for Caribbean higher education institutions. *Quality Assurance in Education* **25**:2, 224-236. [Abstract] [Full Text] [PDF]
3. Lidia Hernández-López, Desiderio J. García-Almeida, José L. Ballesteros-Rodríguez, Petra De Saá-Pérez. 2016. Students' perceptions of the lecturer's role in management education: Knowledge acquisition and competence development. *The International Journal of Management Education* **14**:3, 411-421. [CrossRef]
4. H. L. Bateman, G. I. McCracken, J. M. Thomason, J. S. Ellis. 2016. Learning outcomes: Exploring implications of adopting a different level of detail. *European Journal of Dental Education* . [CrossRef]
5. Maria-Jose Sanchez-Ruiz, Jamil El Khoury, George Saadé, Miriam SalkhanianNon-Cognitive Variables and Academic Achievement 65-85. [CrossRef]