Journal of Research, Policy & Practice of Teachers &
Teacher Education
Vol. 3, No. 1, June 2013, 26-35

Outcome-Based Education: An approach for teaching and learning development

Noor Al-Huda Abdul Karim* and Khoo Yin Yin
Sultan Idris Education University, Malaysia

This conceptual paper attempts to provide an understanding of the importance of outcome-based education (OBE) approach for teaching and learning development. As a theory of education, OBE has certain beliefs and assumptions about learning, teaching and the systemic structures within these activities. The results of OBE approach are expressed in terms of individual student learning and they are expected to achieve the two long-term benefits : i) OBE is able to measure 'what the students are capable of doing' and ii) OBE goes beyond 'structured tasks' by demanding that students demonstrate their skills through more challenging tasks. The OBE system also can be benefited when the outcomes are used to guide instructional planning. In Malaysia, the OBE system is implemented by the Malaysia Quality Agency (MQA). The Agency holds the task to improve the quality of human capital in the country from three main aspects namely, knowledge, skills and attitude.

Keywords: Outcome-based education (OBE); teaching; learning; assessments.

Introduction

In the past decade, there has been an increasing demand to evaluate the outcomes of education for the purpose of gaining returns to investment in education. In developed countries such as USA and UK, various forms of outcome-based education had spread rapidly during 1980s and 1990s. In Malaysia, the recent educational policies towards knowledge economy and higher levels of economic efficiency call for this OBE approach. The stimulus for OBE approach comes from political, economic and educational sources.

OBE can be referred to as a method of curriculum design and teaching that focuses on what students can actually do after they are taught. OBE addresses the following four key questions:

a) What do we want the students to learn?
b) Why do we want them to learn it?
c) How can we best help the students learn it?
d) How will we know what they have learnt?

The OBE's instructional planning process is a reverse of traditional education planning (Spady, 1988; 1993; Acharya, 2003; Chandra, Omer & Essaid, 2008).

* Corresponding author. Email: nooralhuda@fpe.upsi.edu.my

The significance and benefits of OBE system in the 21st century should be understood in its philosophy, premises, principles and instructional planning process. OBE can be viewed in three different ways—as a theory of education, or as a systemic structure for education, or as classroom practice (Killen, 2000). Ultimately, the systemic structure and the classroom practice with the theory are aligned to produce genuine outcomes based education. As a theory (or philosophy) of education, OBE embodies a certain set of beliefs and assumptions about learning, teaching and the systemic structures within which the activities take place. The most detailed articulation of OBE theory can be found in Spady (1994a, 1998). Spady is one of those authors who have made significant contributions to OBE. The idea drawn from Spady's definition is that OBE is an approach to planning, delivering and evaluating instruction that requires administrators, educators and students to focus their efforts on what results of education are desired. The results are expressed in terms of individual student learning. Within the philosophy, two main approaches are developed. One approach emphasizes student mastery of traditional subject-related academic outcomes with strong focuses on subject-specific content and some cross-discipline outcomes that include the abilities to solve problems and to work co-operatively. The second approach emphasizes long-term and cross-curricular outcomes that are related to students' roles in their future life, such as being productive workers or responsible citizens or parents.

OBE for a long-term significant learning

In order to ensure that outcomes can describe long-term significant learning, OBE is underpinned by three basic premises of Spady (1994a):

1) All students can learn, but not all in the same time or in the same way.
2) Successful learning promotes more successful learning.
3) Educators or teachers control the conditions that determine whether or not their students achieve learning success.

In the philosophical work of Mamary (1991) on outcomes-based schools, the following points are suggested:

1) All students have talent and schools hold responsibility to develop it.
2) The schools play role to find ways for students to succeed (instead of finding ways for students to fail).
3) Good outcomes-based schools are driven by mutual trust.
4) Excellence is for every student, not for a few.
5) By preparing for students every day for their success the next day, the need for correctives will be reduced.
6) In learning activity, students should collaborate rather than compete.
7) No student should be excluded from any activity in a school.
8) It is essential to have positive attitudes.

From the three premises stated above, Spady (1994a) further developed four important principles of OBE.

1) Clarity of focus about outcomes. Teachers must have a clear focus on what they want their students to be able to do successfully. Teachers' planning should focus on helping the students to develop knowledge, skills and dispositions in a way that the students will be able to ultimately achieve the already outlined outcomes. This principle requires teachers to make their short-term and long-term intentions for student learning clear to the students at each stage of teaching process. Teachers have to focus all student assessment on clearly defined significant outcomes.

2) Designing backwards. All curriculum design must have a clear definition of the significant learning that students are to achieve by the end of their formal education. All instructional decisions are made by tracing back from this "desired end result" and identifying the "building blocks" of learning that students must achieve in order to eventually reach the long-term outcomes. In designing curriculum backwards, planning, teaching and assessment decisions should be linked directly to the significant outcomes that students are ultimately to achieve.
3) Consistent, high expectations of success by teachers. Teachers must establish high and challenging performance standards in order to encourage students to engage deeply with the issues they are learning. Helping students to achieve high standards is linked with the idea that successful learning promotes more successful learning. Students' experience of success, reinforces their learning, builds their confidence and encourages them to accept further learning challenges.
4) Expanded opportunity. Intellectual quality is not something reserved for a few students. It is something that should be expected from all of them. The idea derived from this principle is that not all students can learn the same thing in the same way and in the same time. However, most students can achieve high standards if they are given good opportunities. Students learn the things that are important. They do not learn in a particular way or by some arbitrary point in time.

The outcomes-based education approach can provide administrators with some level of control over the outcomes of education, and at the same time provide teachers with a large degree of freedom to select the content and methods through which they will help their students achieve the defined outcomes. The control will come through the specification of the syllabus objectives and outcomes, and the freedom comes through the chosen content, teaching methods and assessment that are left up to the schools and individual teacher (Killen, 2000, 2006).

According to Towers (1996), there are four points for the OBE system to work:

a) What to be learnt by students must be clearly identified.
b) Student's learning progress is based on their demonstrated achievements.
c) There must be multiple instructional and assessment strategies to meet the needs of each student.
d) Adequate time and assistance for each student to reach potential at maximum level are important.

Based on Acharya (2003), OBE is important for its long-term benefits derived as follows:

1) OBE is able to measure 'what the students are capable of doing'. According to Acharya, the traditional education system often fails to do it. For example, in assessment practice, a conventional education system often grade students based on their ability to choose a correct answer from a group of four or five possible answers. This practice does not allow students to demonstrate what they have learnt. In OBE system, students understand the content of what they learn. The developed cognitive skill goes much deeper than the finding of correct answer. According to Spady (1995), OBE requires the students to understand the contents by "extending the meaning of competence far beyond that of narrow skills and the ability to execute structured tasks in a particular subject area and classroom". This theory is consistent with Lennox (2009) findings.
2) OBE goes beyond 'structured tasks' (for example, memorization). Using this approach, students can demonstrate their skills through more challenging tasks like writing project proposals, completing the existing projects, analyzing case studies, giving case

presentations etc. These exercises require students to practice and demonstrate their ability to think, question, make research, make decisions and give presentations. In short, OBE involves students in a complete course of learning. The approach helps develop students' skills from designing to completing a whole process (Spady, 1994b, 1995). This approach also identifies higher levels of thinking (for example, creativity and abilities to analyze, synthesize information, plan and organize tasks). Such skills are emphasized especially for students who are required to organize and work as a community or entrepreneurial service teams to propose solutions to problems and market their solutions.

Outcomes as a guide to instructional planning

The OBE system also can be benefited when the outcomes are used to guide instructional planning through four major steps (Killen, 2000,2006; Acharya, 2003):

1) Deciding on the outcomes. In OBE, programming for outcomes is meant by organizing teaching to achieve predetermined results. A clear specification is made on what students are to know, what they are to be able to do, and what attitudes or values are desirable by the end of the program. The most important feature of this approach is that all students are expected to be successful. Therefore, students have to succeed that determines what content is presented to students, what learning experiences can be gained by them, how they can be tested, their engagement period in learning particular knowledge or skills and the values available in the educational process. All instructional efforts are done to help students to achieve learning outcomes. Practically, programs using OBE approach have to be flexible so that students can engage in appropriate learning activities at the time that best suits their stage of understanding. Most outcomes cover three dimensions: content (from simple to complex), context (from simple to complex) and competences (from low to high).
2) Demonstrating outcomes. In the OBE system, students are given multiple opportunities to demonstrate their competence. Demonstrations are set as 'benchmarks' for each level of the program. The list of benchmarks is different in every level of study. One benchmark is defined as one skill that must be demonstrated by the student. These benchmarks should address the goals of the curriculum and determine ways to assess whether the students have reached the goals of the existing level of study. All students must demonstrate their skills at their study program.
3) Deciding on contents and teaching strategies. It is the "responsibility of educators to construct meaningful learning experiences that lead to the mastery of outcomes" (Cockburn, 1997:7). To construct these experiences, teachers have to decide teaching strategies. There are two basic approaches to teaching: teacher-centered and student-centered. In the two approaches, learning (and, therefore, learners) should be at the center of all teaching and teacher plays a more direct role than in other approaches.

   Teacher-centered approaches are referred to as direct instruction, deductive teaching or expository teaching for examples, lectures and demonstrations. Using these teaching methods, the teacher controls the lessons or information to be taught and how they are presented to his or her students. The teacher-centered approaches seek to bring all students in a classroom to high levels of learning before they proceed further.

   Student-centered approaches are referred to as discovery learning, inductive learning, or inquiry learning. These approaches give a strong emphasis on the learners' role in the learning process. For examples, co-operative learning and student research projects. In these approaches, teacher still set the learning agenda. However, he or she has less direct control over what and how students learn. Teacher is no longer a filter

through which all information must pass before reaching the students. In the student-centered approaches, teacher meets each student at his or her level of competency and build upon the existing strengths throughout the course. In the course, students must clearly understand the program objectives. In addition, a mutual respect should have been built in the classroom and the teacher has detailed information about each student. At this juncture, the teacher can conduct an assessment of students' mastery in the content they has learnt and other skills that they have developed. The assessment helps the teacher determine the instructional levels for the course to start.

Teacher-centered and student-centered approaches do not use a specific textbook in classes because it brings a sense of confinement. Instead, a varied range of reference books and authentic materials from the world around is preferable. Students' interests can be built upon when units of study are developed according to the changing needs of the student population and integrated into the curricula from one year to one year. In both approaches, classroom experience for the students can be benefited (Burns & Squires, 1987). In the end of the study program, projects, reports, and group activities are completed to evaluate students' thoughts and process of development. In writing the projects, freedom is given to students to explore their interests and abilities they have.

4) Assessments in OBE approach

In OBE approach, assessments should conform to the following principles:

i. The assessment procedures should actually assess what a teacher intends them to assess.
ii. The assessment procedures should give consistent results.
iii. The assessment procedures should not be influenced by any irrelevant factors such as the student's cultural background.
iv. Assessment should reflect the knowledge and skills that are learnt by students.
v. Assessment should stretch students to the limits of their understanding and ability to apply their knowledge.
vi. Assessment should be comprehensive and explicit.
vii. Assessment should support student's opportunity to learn important things; and,
viii. Assessment should allow the individuality of students to be demonstrated.

Willis & Kissane (1995) recommended the following two techniques that a teacher can assess students' learning outcomes:

a. 'Standard-referenced assessment' with a clear description of expected performance, and
b. Student portfolios documenting their progress.

Assessments in OBE focus on the students' learning outcomes, that is how much and how well the students have learnt. It implies that students with different abilities will follow different paths to reach their goals and can finish at different times. At this point, the questions raised are when and how often to carry out the assessments in a semester or how many attempts should a student be allowed to show his or her abilities. Moreover, continuous assessments in OBE approach could help a lecturer determine on

i. How to achieve the learning outcomes?
ii. What is the progress of particular students in the class?
iii. When to assess the students on how much they have learnt?

These techniques have been implemented and indicated the positive result by Adedoyin and Shangodoyin (2010).

The importance of OBE in Malaysia

One reason that outcomes-based education can lead to successful student learning is that it encourages teachers to be well prepared. Teachers cannot provide students with appropriate opportunities to learn if they do not assess the students' prior knowledge, to identify possible difficulties, to select appropriate content and learning experiences, to reflect on the moral and ethical principles implicit in their teaching, and to consider all these things in light of the needs, interests and backgrounds of particular students. Using outcomes-based programming, teaching can be made purposeful and systematic because it allows students to discover, to follow their interests, to take responsibility for their own learning, and to develop both personally and academically. This approach is hoped to provide students with appropriate and purposeful learning experiences and opportunities so that they can develop originality, self-motivation and independence at the same time as they acquire useful knowledge and skills.

In Malaysia, OBE approach is implemented at all levels of education. The implementation of OBE at higher learning institutions, both public and private, has been particularly emphasized. As a result, the Quality Assurance Department at the Ministry of Higher Education, Malaysia (MOHE) currently known as Malaysia Quality Agency (MQA) was initiated in 2007. The MQA is responsible for the accreditation of courses offered by the educational institutions. At first, OBE was implemented in engineering education sector. It was made as an essential requirement for Malaysia by the year to become a fully signatory member of a multinational agreement for the mutual recognition of engineering degrees, i.e. The Washington Accord (WA). It becomes an endorsement that the engineering education system has demonstrated a strong, long-term commitment to quality assurance in producing engineers ready for industry practice in the international scene (USM, 2008).

In the OBE system, there are three learning domains, namely, cognitive, psychomotor and affective determined by the MQA. Furthermore, eight domains of learning outcomes are provided: knowledge; practical skills; social skills and responsibilities; values, attitudes and professionalism; communication, leadership and team skills; problem solving and scientific skills; information management and lifelong learning skills; and managerial and entrepreneurial skills. All these domains are essential to quality and standards of higher education system in Malaysia. In short, OBE approach should have a clear definition of the outcomes that students are to achieve, and the efforts that must be made to indicate the priority of each of the outcomes. The teacher must then describe the knowledge, skills and dispositions in detail, which students must develop in order to achieve the outcomes. Having done that, prerequisites for students should be made explicit before they attempt to develop their new knowledge, skills and attitudes.

In relation to the application of OBE approach in Malaysia, analytical studies were done by some scholars pertaining to student learning achievement. For example, the study of Mohd Ghazali *et al.* (2008) was conducted at the Universiti Putra Malaysia (UPM) that determined the extent to which the Ministry's set of eight learning outcomes had been achieved. This study involved lecturers teaching diploma and degree programs in the university. The instrument was developed by focusing on two (2) major domains: teaching and learning taxonomy (cognitive, psychomotor and affective) and learning outcomes. Levels and explanation for each domain were referred from Bloom's Taxonomy. The result indicated the following achievements of OBE: cognitive domain was at level four, psychomotor domain at level four and affective domain at level three. The highest score went to providing 'knowledge" to students. The least achievable learning outcome was managerial and entrepreneurial skills. The results highlighted lack of soft-skills among students.

In the above study of UPM, the infusion of low order cognitive domains in an instruction provided students with basic understanding. It is equally as important as providing them with the higher order categories that employ critical and creative thinking skills. There is a need for students to understand the basic facts before engaging in employing those facts for higher order thinking, such as to analyze, synthesize, evaluate, or even spiritualize. Each instruction must ensure that higher order thinking skills can achieve the ultimate aim of teaching and learning. The study also showed that the utilization of psychomotor domains was well spread out in the instructions. Some students still required instructors' guidance in their psychomotor activities. However, the other half of the majority had gain confidence in doing things on their own. It is essential for students to attain the ability to engage higher order categories of the psychomotor domains i.e. 'complex overt response', 'adaptation', and 'origination'. The affective domains were also well infused in the instructions. These domains are to develop students' moral, attitudes, and feelings, which is important for their intellectual development.

In a study carried out by Mansor *et al.* (2008) at the Faculty of Electrical Engineering, Universiti Teknologi MARA, a mini project was assessed and students' performance on acquiring a designed program outcomes was analyzed. Mini project is one of non-examinable courses included in the OBE approach. Digital System and Microprocessor (ECE511) was a computer engineering module selected as a model case of using the proposed system. Their study focused on the assessment process, the evaluation system and the assessment results for the selected module. In ECE511, the students were required to complete a project, which was selected from four to five open-ended problems in a group of maximum four students in a month. Each project concerned with the development of an input and output interfacing circuit using MC68000 microprocessor trainer board. The project provided specifications that were designed based on existing course outcomes. Eleven program outcomes (PO) set by the faculty were mapped with the course outcomes (CO).

The faculty assessment tool known as Non-Exam CO-PO versi FKE assisted the lecturer to observe each of his or her student's performance in addressing the respective program outcomes. Moreover, the tool produced various indicators that could be used by the lecturer in order to evaluate the teaching method and learning activities applied. Eventually, the strength of each course in addressing the program outcomes can be identified based on the Continual Quality Improvement (CQI) report submitted to the faculty by the respective lecturer. The findings of Mansor *et al.* highlighted that implementation of OBE on non-examinable could improve teaching and learning environments in order to produce more knowledgeable, creative and better skilled learners with positive values and attitudes.

The study of Abdul Latif and Lajiman (2011) sought to answer the three main questions:

a) How are students' acceptance of a planned learning experience conducted through various activities of teaching and learning?
b) What is the level of students' acceptance toward the activities of teaching and learning?
c) Is there a relationship between the students' level of acceptance toward the activities of teaching and learning with their final grade?

In their study, they used a set of samples consisted of 65 students from a group of students who took the instructional design and technology course for semester 2, 2009/2010 at the Universiti Pendidikan Sultan Idris (UPSI), Malaysia. This course had six learning outcomes and each had own specific learning experience. In order to achieve the learning outcomes, teaching methods had been chosen as an integrated approach to design. The selected students were asked to write a reflection on the experience with reference to the

diversity of methods that had been carried out. The learning experience had a predetermined set that started from a lecture to a search for information from libraries, reading and analyzing literature, and finally to plan an instructional material integrated with technology. In their findings, students were positive about their learning experience while undergoing the course. They agreed that the activities of teaching and learning activities undertaken contributed to their acquisition of knowledge and skills. There was a high level of acceptance from respondents toward the activities. The study also found there was a relationship between the levels of acceptance to the activities with students' final grades.

The above study is necessary to observe the relationship between the acceptances of students with the various methods or teaching and learning activities with their final grade. Final grades reflect the overall performance of the students, including grades earned from course works and final examination. This analysis can facilitate the instructor to predict the impact of teaching and learning activities to the fulfillment of learning outcomes.

The implementation of OBE provides various methods of teaching and learning as well as tools in assessing students' performance at higher learning institutions in Malaysia. Their levels of knowledge can be traced in attempts to produce quality education expected by the country. Moreover, in the OBE system, students must not only smart academically but also morally. For this reason, knowledge, skills and attitude are the three important aspects emphasized by the MQA.

Conclusion

The significance and benefits of OBE principles as discussed above involve active roles played by relevant parties such as administrators, educators, parents, teachers and even students themselves. OBE promises high level of learning not for few students but for all students. The approach facilitates the achievement of prescribed learning outcomes, which is characterized by its appropriateness to each learner's development level and experienced-based learning. In the OBE system, students are given freedom to study the content of the course in a way that it can help them learn it.

In general, learning outcomes are being benefited when they influence all components of the curriculum. The outcomes cover the scope and structure of the course content through which students will develop the knowledge, skills and values; focus the instructional methods so that each learning activity has its specific purpose; determine the way in which student placement and advancement (that is based on demonstrated learning rather than age) will be organized; determine how student learning (that emphasizes on what learning students can demonstrate, rather than when they are required to demonstrate their learning) will be assessed; and focus attention on the learning environment in order to achieve the outcomes.

At the end of the learning program in OBE system, assessments are carried out that focus on the existing, well-defined learning outcomes. The assessments do not put much emphasis on factors of what is taught, how long the student takes to achieve the outcomes or which path the student takes to achieve their target. The learning outcomes are set out on a gradation of increasing complexity that students are expected to master these outcomes sequentially. Finally, OBE emphasizes student success rather than failure, which is reflected by how students are assessed. Assessment methods in the OBE approach provide students with opportunities to demonstrate what they know and what they can do with their knowledge.

In Malaysia, the OBE system implemented by the MQA is to improve the quality of Malaysia's human capital in achieving its Vision 2020. Apart from academic aspect, soft skills elements are also needed in providing curriculum contents. It is essential to prepare

students with various capabilities for career success after they complete their studies. Their readiness is required in facing challenges of the present global economic scene.

References

Abdul Latif., G. & Lajiman, J. (2011). A study of student's perception of teaching and learning in instructional design and technology. *International Journal of Humanities and Social Science*. *1(15),* 80-86.

Acharya, C. (2003). Outcome–based education (OBE): A new paradigm for learning. *CDTLink*, National University of Singapore: Centre for Development of Teaching and Learning. Retrieved June 15, 2011 from http://www.cdtl.nus.edu.sg/link/nov2003/obe.htm.

Adedoyin,O.O., & Shangodoyin, D.K. (2010). Concept and Practices of OBE for Effective Educational System in Botswana. *European Journal of Social Science*, *13(2*),161-170.

Burns, R., & Squires, D. (1987). *Curriculum organization in outcome-based education*. San Francisco: Far West Lab for Educational Research & Development.

Chandra, R.S., Omer,F., & Essaid,B. (2008). Continuous improvement process based on Outcome- Based Education. Proceedings of the *2008 IAJC-IJME International Conference*. November 17-19. Paper 031, ENG107. Nashville: Purdue University. pp.1-14.

Cockburn, P. (1997). *Building a brighter future: curriculum 2005*. Pretoria: Department of Education.

Killen, R. (2000). *Outcomes-Based Education: Principles and possibilities.* Unpublished manuscript, University of Newcastle, Faculty of Education.

Killen, R. (2006). *Effective Teaching Strategies*. Thompson Social Science Press.

Lennox, T.T. (2009). *Education towards integration: An alternative programme*. Unpublished Thesis. University of South Africa.

Mamary, A. (1991). Fourteen principles of quality outcomes-based education. *Quality Outcomes -Driven Education*, October, 21-28.

Mansor, W., Hashim, H., S.A Che Abdullah, S. A., Kamaluddin, M. U., Abdul Latip, M. F., Mohd Yassin, A. I., Ab Rahman, T. K., Zakaria, Z., & Md Kamal, M. (2008). Preliminary results on the implementation of outcome-based education on the non-examinable computer engineering modules. Paper presented at the *38th ASEE/IEEE Frontiers in Education Conference*, Saratoga Springs, NY.

Mohd Ghazali, M., Turiman, S., Ghazali, M., Mohd. Majid, K., Norfaryanti, K., Nor Azirawani, M., Azura, A., & Siti Norziah, A. (2008). Implementation of outcome-based education in Universiti Putra Malaysia: A focus on students' learning outcomes. *International Education Studies*. 1(4), 147-160.

Spady, W. G. (1988). Organizing for results: The basis of authentic restructuring and reform. *Educational Leadership*, *46(2*), 4-7.

Spady, W. (1993). *Outcome-Based Education*. Belconnen, ACT: Australian Curriculum Studies Association.

Spady, W. (1994a). *Outcome-Based Education: Critical issues and answers*. Arlington, VA: American Association of School Administrators.

Spady, W. (1994b). Choosing outcomes of significance. *Educational Leadership*, 51(6), 18–22.

Spady, W. (1995). We need more 'educentric's standards. *Educational Leadership*, 53(1), 82–84.

Spady, W. (1998). *Paradigm Lost: Reclaiming America's Educational Future*. Arlington, VA: American Association of School Administrators.
Towers, J.M. (1996). An elementary school principal's experience with implementing an outcome-based curriculum. *Catalyst for Change*, 25,19–23.
USM (2008). *What is outcome base education (OBE*). Retrieved July 3, 2011 from http://civil.eng.usm.my/undergrad/ CIVIL%20USM%20WEB-OBE.pdf.
Willis, S., & Kissane, B. (1995). *Systemic Approaches to Articulating and Monitoring Expected Student Outcomes*. Murdoch, Western Australia: Murdoch University.