Empowering students through outcome-based education (OBE)

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Introduction

Education plays a vital role in the quest of developing human capital and knowledge workers. Most countries are giving a lot emphasis to their tertiary education as they need graduates who are creative, innovative and knowledgeable. These are the ingredients required to make the economy and the country into a high income and developed nation. Countries therefore have invested large amounts of money in their education system to realise this objective.

Traditional instruction, such as the typical lecture-based session, developed before textbooks were mass-produced, often involves delivering as much information as quickly as possible. The lecture method was one of the most effective and efficient ways to disseminate information and has often been used for this end. Because some faculty members may be poor lecturers, and because students are often poor participants in the lecture, this type of instruction has often allowed students to be passive in the classroom. Students, not knowing how to be active participants in the lecture, have relied on transcription, memorising and repetition for learning.

In recent decades, however, we have learned a great deal from cognitive science research about the nature of learning. Students construct knowledge; they do not take it in as it is disseminated, but rather they build on knowledge they have gained previously (Cross, 1998). They benefit from working together and they may learn best from teaching each other. Research also suggests that students learn best in the context of a compelling problem (Ewell, 1997); they learn through experience.

This relatively new information suggests that teaching is a complex activity and it necessitates the emergence and development of approaches to instruction that are consistent with what we know about the way learning happens (Ewell, 1997). This new understanding has given rise to the notion of a paradigm shift in higher education, one from a focus on teaching to a focus on learning (Barr and Tagg, 1995).

In Malaysia, the Quality Assurance Division, Ministry of Higher Education, had realised the need for an outcome-based approach for continual improvement in education. This is because there was an alarming increase of unemployed graduates in Malaysia. According to *The Sun* (Ram, 2006),

70 per cent of graduates from public universities and institutes of higher learning fall under the unemployed category as at year 2006. Based on a survey carried out by the Economic Planning Unit (EPU) of the Prime Ministers Department, it showed that in 2005 nearly 60,000 Malaysian graduates were unemployed (*New Straits Times*, 2005). This number had increased to 80,000 in 2008. The project, which was carried out to gauge the extent of the unemployment problem among graduates, highlighted many problems in the education system as well as among the graduates. Those surveyed cited the lack of job experience, poor command of the English language, with inadequate communication skills and the possession of qualifications that are not relevant to the job market as reasons for not being able to find suitable employment.

The results have led to some introspection. The higher education institutions started to respond to a growing concern for the adequacy of students' professional and career preparation by specifying the outcomes or abilities that were demanded in the market. Such outcomes are programmed to focus on assessing performance as well as knowledge, bridging the gap between university and career world. The Malaysian Qualification Agency was established to uphold the responsibility of quality assurance practices of higher education for both public and the private sectors (MQA website). One of the salient points of the MQA is to address the learning outcome for all programmes which are offered in the higher institutions in the country. This approach is important and corresponds with the global education concept of outcome-based education (OBE) rather than the traditional pedagogical teaching. This is to ensure each of the university programmes is able to generate a holistic, successful student in the academic field and magnificent human capital.

In many universities in Malaysia, OBE has compelled many faculties to re-examine the programmes as well as the courses offered, to consider if they are aligned with the requirements of the MQA. OBE emphasises the necessity of a structured curriculum that is organised and practical, with the purpose of generating a versatile graduate who can understand and master the said curriculum. In line with this, various steps, processes and systems have been developed to document the implementation of OBE. One requirement in implementing OBE is the entrance and exit survey form, which is completed at the programme level as well as in each course that a student has registered for. The purpose of this survey is to gauge if the students have achieved the programme and course objectives at the end of their study in the university. In order to measure this, a pre- and post-test was carried out to gauge the level of understanding of students per course. This article will discuss the implementation of entrance and exit survey forms in one of the faculties in which OBE has been implemented lately. In addition, the article will explore the outcome of this survey and the extent to which it contributes to the achievement of the desired OBE objectives as set by the Ministry of Higher Education and the university. But first, OBE will be explained in detail.

This article attempts to provide a snapshot of the implementation of OBE at one of the faculties in UiTM. The first section of the article will provide some literature on outcome-based education. Section two will highlight the introduction of new methodologies in higher learning education, with a focus on the development in Malaysia. This is followed with some highlights of the research findings, and finally some suggestions and conclusions.

Literature review on outcome-based education (OBE)

There is no one single model to describe OBE. The literature indicates that the frameworks for OBE 'share an emphasis on systems-level change, observable, measurable outcomes and the belief that given time, all students can learn' (Faouzi *et al.*, 2003, p. 204). Glatthorn (1993) and Guskey (1994) postulate that the shift towards OBE resulted from worries about the traditional education system. According to them, there is a classic belief that the input the traditional education system provides cannot prepare students for life and work in the twenty-first century. Hence, there exists a need for a more effective approach which focuses on the potential and actual abilities of the students after they are trained.

It is worth noting that in OBE, the learning outcomes need to be clear and observable. The observations are on the 'demonstrations of students' learning that occur after a significant set of learning experiences' (Faouzi *et al.*, 2003, p. 205). Faouzi *et al.* further comment that the learning outcomes are not 'values, attitudes, feelings, beliefs, activities, assignments, goals or grades' (2003, pp. 205). In simpler terms, learning outcomes in the context of OBE are the observable and measurable performance of the students.

The following are the three aspects of OBE: first, the focus on outcomes; second, the curriculum design process which starts from the exit level outcome downwards; and third, the responsibility of the institution and teacher/trainer to supply appropriate learning experiences for the success of all students.

On the part of the curriculum design and implementation, there are several conditions which are controllable and they include: 1) where the instructional focus is placed, 2) how long, how often and when the time for learning is provided, 3) what learning is expected from whom and how it is rewarded, and 4) how the curriculum is designed and organised (Gerber, 1997). Universities in the United States, for instance, are moving towards an OBE education framework, hence abandoning the traditional grade-point average framework (Faouzi *et al.*, 2003). As a result, accreditation institutions such as the North Central Association now require universities and colleges to present a method of assessing the students' learning outcomes (Faouzi *et al.*, 2003). Based on the OBE framework, several approaches could be applied in observing and measuring students' learning outcomes.

The most detailed articulation of the theory underpinning OBE is given in Spady (1994, 1998). While Spady is not the only person to have made a significant contribution to OBE, he is regarded by many as the world author-

ity on OBE and it is evident that his ideas have had considerable influence on the approach to OBE that has been taken in Australia.

In Spady's words: 'Outcome-Based Education means clearly focusing and organising everything in an educational system around what is essential for all students to be able to do successfully at the end of their learning experiences. This means starting with a clear picture of what is important for students to be able to do, then organising the curriculum, instruction, and assessment to make sure this learning ultimately happens' (Spady, 1994, p. 1). Such an approach presupposes that someone can determine what things are 'essential for all students to be able to do', and that it is possible to achieve these things through an appropriate organisation of the education system and through appropriate classroom practices.

The main idea behind Spady's definition is that OBE is an approach to planning, delivering and evaluating instruction that requires administrators, teachers and students to focus their attention and efforts on the *desired results of education* – results that are expressed in terms of individual student learning. Within this broad philosophy, there are two common approaches to OBE.

One approach emphasises student mastery of traditional subject-related academic outcomes (usually with a strong focus on subject-specific content) and some cross-discipline outcomes (such as the ability to solve problems or to work co-operatively). The second approach emphasises long-term, cross-curricular outcomes that are related directly to students' future life roles (such as being a productive worker or a responsible citizen or a parent). These two approaches correspond to what Spady (1994) calls traditional/transitional OBE and transformational OBE. Spady clearly favours the transformational approach to OBE in which outcomes are 'high quality, culminating demonstrations of significant learning in context' (Spady, 1994, p. 18). For Spady, learning is not significant unless the outcomes reflect the complexities of real life and give prominence to the life roles that learners will face after they have finished their formal education.

Whereas, according to Killen (2000), in addition to the idea that outcomes should describe long-term significant learning, OBE is underpinned by three basic premises, which are:

- All students can learn and succeed, but not all at the same time or in the same way.
- Successful learning promotes even more successful learning.
- Schools (and teachers) control the conditions that determine whether or not students are successful at school learning.

Higher education in Malaysia

The Malaysian higher education sector has grown tremendously during the past decade and Malaysia is fast becoming a centre of educational excellence in the region. The launch of 'Strategic Plan for Higher Education: Laying the Foundation Beyond 2020' outlines the measures and strategies that will

make Malaysia an international centre of educational excellence. The Ninth Malaysia Plan (2006–2010) advocates the development of a world class human capital. The Ministry of Higher Education (MOHE) has incorporated this vision as one of its primary objectives under its strategic plan, in line with the national agenda to make Malaysia a preferred centre to pursue higher education.

The objective of the Malaysian Higher Education system is to produce professionals as demanded by the nation for human resources. One purpose of higher education is to produce graduate students who will become productive citizens. Skills employers consistently seek from university graduates:

- Scientific (problem-solving) skills
- Communication skills
- Decision-making skills which enable students to become leaders
- Well developed analytical skill
- Teamwork skills
- Well practiced leadership skills
- Good interpersonal skills

Malaysia's higher educational institutions currently house an estimated 942,000 students of which about 50,000 are international students from more than 100 countries (www.mohe.edu.my). There are about 50,000 Malaysia students studying overseas. The higher education sector in Malaysia is under the jurisdiction of the MOHE. The education sector has always enjoyed the highest national development budget, which symbolises the commitment of the Malaysian government towards education.

With a multi-ethnic population of about 28 million, Malaysia has twenty public universities, thirty-two private universities and four foreign university branch campuses; 485 private colleges, twenty-two polytechnics and thirty-seven public community colleges as at June 2007 (www.mohe.edu.my). These higher education institutions (HEI) offer a wide range of tertiary qualifications at an affordable cost. There are also various higher educational institutions from the UK, US, Australia, Canada, France, Germany and New Zealand which offer twinning and '3+0' degree programmes through partnerships with Malaysian colleges and universities. Five of the twenty public universities in Malaysia have been assigned research university status with additional funding for R&D and commercialisation of research.

Outcome-based education has been introduced by the MOHE at all Malaysian universities, and students are evaluated on two key aspects: achievement of MOHE learning outcomes and achievement of soft skills learning. Under the former, there are nine criteria for assessment: knowledge; practical skills; thinking and scientific skills; communication skills; social skills, teamwork and responsibilities; values, ethics, morality and professionalism; information management and lifelong learning; management and entrepreneurship; and leadership skills. As for the latter, seven

criteria are assessed: critical thinking and problem-solving skills; communication skills; teamwork skills; values, professionalism and morality; information management and lifelong learning; entrepreneurial skills; and leadership skills.

The Malaysian Qualifications Agency

In December 2005, the Malaysian Cabinet decided to merge the National Accreditation Board (*Lembaga Akreditasi Negara*, LAN) and the Quality Assurance Division (QAD) of the MOHE. This merger created the MQA, the single quality assurance agency in the country, whose scope now covers both the public and private Higher Education Providers (HEP). The Malaysian Qualifications Agency Act 2007 (MQAA, 2007) assigns the responsibility for quality assuring higher education in Malaysia to the MQA. The responsibilities are:

1 To implement the Malaysian Qualifications Framework (MQF) as a reference point for Malaysian qualifications.
2 To develop, with the co-operation of stakeholders, standards, criteria and instruments as a national reference for the conferment of awards.
3 To quality assure higher education providers and programmes.
4 To accredit programmes that fulfil a set of criteria and standards.
5 To facilitate the recognition and articulation of qualifications.
6 To establish and maintain the Malaysian Qualifications Register (MQR).
7 To advise the minister on any matter relating to quality assurance in higher education.

OBE implementing process: course entrance and exit survey forms

The Faculty of Administrative Science and Policy Studies (FSPPP) of Universiti Teknologi MARA (UiTM) had taken the initiative to revise its curriculum and to be aligned with OBE requirements. The revised curriculum was first implemented in the 2009 academic year. One of the many process involved in OBE is the completion of the entrance and exit survey by the students at the beginning and end of each semester for every course where they have registered. The purpose of this survey is to ensure and examine if the students have achieved the programme and course objectives at the end of their study in the university. Each lecturer has to implement this survey exercise with their students – based on their course outcomes (COs). The same questionnaire has to be given out to the students, first, at the beginning of the semester for a particular course and again for the second time, during the last week of the semester. What seemed to be challenging in this process was that there was no a consistency in the reporting of the survey. Each lecturer had their own style of reporting.

To overcome this, software was developed called Computerised Outcome-based Education System (COBES). The aim of the COBES innovation is to

develop a proper system or process in computing as well as to analyse the results from entrance and exit survey forms.

Research methodology and findings

In order to gauge the students understanding of the subject, two sets of questionnaires were prepared and a pre-evaluation and post-evaluation of the subject was conducted. The survey forms were analysed using the COBES method.

Table 1 shows the total number of students who answered both sets of questionnaires. A total of forty-four students took the subject and all of them had diploma qualifications before enrolling into the degree programme. The lecturer ensured that the same student answered the questionnaire for both pre- and post-assessment of understanding of the subject. The subject chosen was ADS 560 Southeast Asia Affairs which is taught for part four students, the equivalent of the second year of the degree programme for Bachelor of Administrative Science (Hons).

Table 2 depicts the findings gathered for course outcome one (CO1) which is assessing students' understanding to the introduction to the subject on Southeast Asia and its characteristics. As we can see from the table, the overall mean score indicates an increase in the students understanding of the concepts before (mean = 3.6648) and after (mean = 4.0909). Therefore, the CO1 is more or less achieved but can be further improved with a better approach in teaching and learning. Table 2 shows the detail scores for each of the sub-objectives and its respective scores in terms of the total number of students and the percentage.

On the other hand, course objective two, which measures students' understanding of the Cold War issues, consists of five sub-objectives (Table 3). The overall mean recorded was 2.6636 for the beginning of the course and 3.5000 for the end of the course. Therefore, there is an increase in terms of their understanding of the concepts although the mean score can be still improved in future semesters by looking at the continuous improvement strategies of the lecturers concerned. More details on each of the sub-objectives were presented in Table 3.

Table 4 shows the findings achieved for the CO3, i.e. on ASEAN and its operations. Overall the mean scores indicate an improvement from 3.0750 (before the beginning of the course) and 3.9795 (end of the course). Students managed to enhance their understanding throughout the semester and

Table 1 Students qualification

Qualification	*Frequency*	*Per cent*
Diploma	44	100
Total questionnaires – beginning of the course	44	100
Total questionnaires – at the end of the course	44	100

Table 2 Course outcome 1

		Before					*After*				
No.		*Strongly disagree*	*Disagree*	*Mixed feelings*	*Agree*	*Strongly agree*	*Strongly disagree*	*Disagree*	*Mixed feelings*	*Agree*	*Strongly agree*
1	C01a	—	1 (2.3%)	3 (6.8%)	20 (45.5%)	20 (45.5)	1 (2.3%)	—	3 (6.8%)	14 (31.8%)	26 (59.1%)
2	C01b	—	1 (2.3%)	18 (40.9%)	15 (34.1%)	10 (22.7)	1 (2.3%)	—	10 (22.7%)	15 (34.1%)	18 (40.9%)
3	C01c	—	2 (4.5%)	25 (56.8%)	12 (27.3%)	5 (11.4)	1 (2.3%)	—	6 (13.6%)	27 (61.4%)	10 (22.7%)
4	C01d	—	6 (13.6%)	28 (63.6%)	10 (22.7%)	—	—	3 (6.8%)	11 (25%)	23 (52.3%)	7 (15.9%)
Overall mean score		**3.6648**					**4.0909**				

Note
C01a I am able to list down all the countries in Southeast Asia region
C01b I am able to identify the location of all the countries in Southeast Asia region
C01c I understand the concept of region
C01d I am able to describe the Southeast Asia regional setting

Table 3 Course outcome 2

		Before					*After*				
No.		*Strongly disagree*	*Disagree*	*Mixed feelings*	*Agree*	*Strongly agree*	*Strongly disagree*	*Disagree*	*Mixed feelings*	*Agree*	*Strongly agree*
1	C02a	—	12 (27.3%)	18 (40.9%)	13 (29.5%)	1 (2.3%)	—	—	19 (43.2%)	23 (52.3%)	2 (4.5%)
2	C02b	2 (4.5%)	14 (31.8%)	23 (52.3%)	1 (2.3%)	10 (22.7%)	—	2 (4.5%)	20 (45.5%)	20 (45.5%)	2 (4.5%)
3	C02c	4 (9.1%)	14 (31.8%)	22 (50%)	3 (6.8%)	1 (2.3%)	—	1 (2.3%)	20 (45.5%)	23 (52.3%)	—
4	C02d	4 (9.1%)	21 (47.7%)	15 (34.1%)	4 (9.1%)	—	—	1 (2.3%)	26 (59.1%)	16 (36.4%)	1 (2.3%)
5	C02e	4 (9.1%)	19 (43.2%)	17 (38.6%)	4 (9.1%)	—	—	2 (4.5%)	21 (47.7%)	18 (40.9%)	3 (6.8%)
overall mean score		**2.6636**					**3.5000**				

Note

C02a I understand the concept of the Cold War

C02b I am able to explain the meaning of the Cold War period and post-Cold War period

C02c I am able to describe the development in Southeast Asia during the Cold War period

C02d I am able to describe the development in Southeast Asia during the post-Cold War period

C02e I am able to differentiate the development in Southeast Asian countries during the Cold War and post-Cold War period

Table 4 Course outcome 3

		Before					*After*				
No.		*Strongly disagree*	*Disagree*	*Mixed feelings*	*Agree*	*Strongly agree*	*Strongly disagree*	*Disagree*	*Mixed feelings*	*Agree*	*Strongly agree*
1	C03a	1 (2.3%)	6 (13.6%)	12 (27.3%)	16 (36.4%)	9 (20.5%)	1 (2.3%)	—	3 (6.8%)	25 (56.8%)	15 (34.1%)
2	C03b	2 (4.5%)	6 (13.6%)	19 (43.2%)	14 (31.8%)	3 (6.8%)	1 (2.3%)	1 (2.3%)	2 (4.5%)	28 (63.6%)	12 (27.3%)
3	C03c	2 (4.5%)	7 (15.9%)	9 (20.5%)	17 (38.6%)	9 (20.5%)	—	2 (4.5%)	4 (9.1%)	25 (56.8%)	13 (29.5%)
4	C03d	2 (4.5%)	5 (11.4%)	6 (13.6%)	18 (40.9%)	13 (29.5%)	1 (2.3%)	1 (2.3%)	—	22 (50%)	20 (45.5%)
5	C03e	2 (4.5%)	7 (15.9%)	16 (36.4%)	17 (38.6%)	2 (4.5%)	1 (2.3%)	1 (2.3%)	5 (11.4%)	24 (54.5%)	13 (29.5%)
6	C03f	3 (6.8%)	10 (22.7%)	19 (43.2%)	12 (27.3%)	—	1 (2.3%)	—	11 (25%)	28 (63.6%)	4 (9.1%)
7	C03g	2 (4.5%)	13 (29.5%)	22 (50%)	6 (13.6%)	1 (2.3%)	1 (2.3%)	1 (2.3%)	7 (15.9%)	27 (61.4%)	8 (18.2%)
8	C03h	3 (6.8%)	17 (38.6%)	19 (43.2%)	5 (11.4%)	—	1 (2.3%)	1 (2.3%)	7 (15.9%)	28 (63.6%)	7 (15.9%)
9	C03i	3 (6.8%)	21 (47.7%)	16 (36.4%)	4 (9.1%)	—	1 (2.3%)	9 (20.5%)	18 (40.9%)	4 (9.1%)	12 (27.3%)
10	C03j	4 (9.1%)	17 (38.6%)	16 (36.4%)	7 (15.9%)	—	—	1 (2.3%)	12 (27.3%)	19 (43.2%)	32 (72.7%)
Overall mean score		**3.0750**					**3.9795**				

Note
C03a I understand what ASEAN stands for
C03b I am able to explain the meaning of ASEAN
C03c I understand that ASEAN is a regional organisation
C03d I am able list down all the ASEAN members
C03e I am able to explain the objectives of ASEAN
C03f I understand that ASEAN has its own working method
C03g I understand the concept of the ASEAN way
C03h I am able to define the concept of the ASEAN way
C03i I am able to describe the characteristics of the AEAN way concept
C03j I am able to explain how ASEAN members use the ASEAN way guidelines in dealing with various issues within the organisation

Table 5 Course outcome 4

		Before					*After*				
No.		*Strongly disagree*	*Disagree*	*Mixed feelings*	*Agree*	*Strongly agree*	*Strongly disagree*	*Disagree*	*Mixed feelings*	*Agree*	*Strongly agree*
1	C04a	2 (4.5%)	7 (15.9%)	12 (27.3%)	17 (38.6%)	6 (13.6%)	—	—	7 (15.9%)	29 (65.9%)	8 (18.2%)
2	C04b	2 (4.5%)	16 (36.4%)	19 (43.2%)	6 (13.6%)	1 (2.3%)	—	3 (6.8%)	19 (43.2%)	20 (45.5%)	2 (4.5%)
3	C04c	2 (4.5%)	16 (36.4%)	16 (36.4%)	8 (18.2%)	2 (4.5)	—	1 (2.3%)	19 (43.2%)	20 (45.5%)	4 (9.1%)
4	C04d	3 (6.8%)	12 (27.3%)	19 (43.2%)	9 (20.5%)	1 (2.3)	—	—	13 (29.5%)	29 (65.9%)	2 (4.5%)
5	C04e	2 (4.5%)	13 (29.5%)	23 (52.3%)	6 (13.6%)	—	—	2 (4.5%)	24 (54.5%)	18 (40.9%)	—
6	C04f	2 (4.5%)	15 (34.1%)	21 (47.7%)	6 (13.6%)		2 (4.5%)	1 (2.3%)	27 (61.4%)	11 (25%)	3 (6.8%)
Overall mean score		**2.8750**					**3.5833**				

the course objective is achieved. However, the increase is marginal and therefore can be further improved in the forthcoming semesters.

Table 5 shows the results obtained for CO4, i.e. ASEAN and its relationship with other regional and global institutions. The mean scores recorded are 2.8750 and 3.5833 respectively for before and after the course was taught. We can see that the students did not have much knowledge about ASEAN and its relationship with other institutions, but at the end of the course, given the lecturers, seminar and tutorial classes, they are able to enhance their understanding and assessment ability regarding this topic. The detailed results are as depicted in Table 5.

Discussion and conclusion

Based on the survey conducted over one semester time period involving forty-four students, we can see from the entry and exit survey results, the overall implementation of the OBE method at the faculty has achieved its desired objectives. Students are able to gauge their own understanding and ability for each of the subjects that they take. From that, they are able to evaluate their own achievement for the subject in terms of their effort and time that they have invested throughout the semester. In addition, lecturers are able to assess their performance and take corrective actions to further improve their teaching and learning methods and styles. However, the OBE implementation can be further improved and enhanced. It is an on-going and evolving process.

In short, the introduction and implementation of OBE at the faculty and university is timely in accordance with the employers' demand of the graduates. The university management needs to motivate and promote OBE implementation at all times so that the momentum can be sustained and therefore can achieve the stated objectives. All parties concerned, i.e. students, lecturers, administrators and the university decision-makers, should co-operate and work as a team in realising the OBE objectives.

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