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FACTORS INFLUENCING THE DEVELOPMENT OF LIFELONG LEARNING SKILLS: OUM TRACER STUDY

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Emerging results of a tracer study conducted at Open University Malaysia (OUM) revealed that the four aspects, namely curriculum design, assessment system, teaching and learning and facilities provided by the university are significant factors contributing to the development of lifelong learning skills. The four predictor model explains 41.1% of the variance in the development of lifelong learning skills; this implies that there are other contributing factors which have not been included in this study. Among others, OUM needs to collaborate with employers to align its programmes' curriculum design with the requirements of the workplace; to encourage use of open learning and flexible delivery in its teaching and learning; to practice assessment which evaluates *what* rather than *how much* has been learned; which stresses timely constructive feedback that results in congruence between course aims and learning outcomes. Computer-based facilities including the digital library help the institution to produce graduates who are equipped with lifelong learning skills.

Key Words: *Lifelong learning, skills and attributes, curriculum design, teaching and learning, assessment system, and facilities and infrastructure.*

Introduction

Human capital development is a vital element in any country's economic development. Available research suggests strong relationships between education, productivity and output levels (Wilson & Briscoe, 2004) and thus higher education institutions which equip future employees with the necessary knowledge and skills are deemed critical for economic growth. Across the globe, both developed and developing countries look upon higher education as a vital link to improved economic prosperity. Likewise, making strong inroads in her goal to become a developed and high income nation by the year 2020, Malaysia has invested substantial amount of funds and efforts into making education as an active engine of growth. Private higher education institutions are being targeted alongside with the public institutions as "catalysts for industry transformation" (PEMANDU, 2010).

In stressing the critical role higher education plays in industry transformation, the Honourable Minister of Higher Education Malaysia, Dato' Seri Mohamed Khalid Nordin acknowledged that, "Today's challenging economic situation means that it is no longer sufficient for a new graduate to have knowledge of an academic subject; increasingly it is necessary for students to gain those skills which will enhance their prospects of employment. Hence, Higher Education Institutions must be responsive to these changes" (Nordin, 2009, p. 2).

With the workplace landscape seeing vast changes and new developments in terms of job requirements, dependence on knowledge-based economies and increasing utilization of newer information and communication technology (ICT) tools, much of what was learnt many years ago would be obsolete in the near future. Therefore, as Simmons-McDonald (2009) aptly emphasized, "the concept of lifelong learning has become more critical as a factor which influences the employability of individuals" (p. 2). Such is the scenario whereby even those who are currently employed would have to further enhance or upgrade their knowledge and skills to remain relevant in today's workforce.

Many reports have been written about the importance of Lifelong Learning and yet, most higher education institutions continue to conduct business as usual. Adults who are interested to participate in higher education must adapt to the institution, because institutions are not adapting quick enough to meet the needs of adult learners. However, higher education must recognise that adults may return to higher education to continue learning throughout their lives. Now the question is: what can higher education do to promote and facilitate greater lifelong participation in higher education?

Lifelong Learning: Definition and Its Importance

In the late 1997, the Commission for a Nation for Lifelong Learners presented its recommendations in "A Nation Learning: Vision for the 21st century" (Commission for a Nation for Lifelong Learners. 1997) in which LLL was defined as "a continuously supportive process which stimulates and empowers individuals to acquire all the knowledge, values, skills and understanding they will require throughout their lifetimes and to apply them with confidence creativity and enjoyment in all roles, circumstances and environments." The definition emphasizes on *continuous* – as it never stops; *supportive* – it cannot be done alone; *stimulating and empowering* – it is self-directed and active, not passive; *knowledge, values, skills and understanding* – its more than what we know; *spanning a lifetime* – it takes place from birth to death; *applied* – not just for knowledge sake; *confidence, creativity and enjoyment* – fulfilling experience

and in *all roles, circumstances and environments* – applies to our entire life and not just to the chosen profession (Duyff 1999).

In the Malaysian context, lifelong learning is viewed from the economic angle, it is defined as 'learning engaged by everyone of age 15 and 64 years and above except professional students'. 'Professional students' are those who enrol in a school, college or university with the sole aim of acquiring an academic qualification as first time entrants into the labour force. Individuals above 64 years old include the retirees and the homemakers. The most common element present in all the definitions is that every individual, regardless of gender, age, race and socio-economic background has an equal opportunity to adjust to the demands of social and economic changes and to participate actively in shaping the country's future (Malaysian National Blueprint 2011)

Lifelong learning has been around for 2000 years or more and the factors that have pushed the need for lifelong learning into the limelight recently, according to Phillip C.Candy (1995) include, among others: continuing shift to an information society; increasing internationalization; explosion of knowledge and technology; microeconomic reform and the changing workplace and emergence of new occupations and careers.

Learning occurs throughout life. Up to the 1980's, education was not universally approached as a lifelong process. Except for the certification purposes, most people did not have a conscious attitude of being a lifelong learner. The 'father of adult learning', Malcolm S. Knowles, predicted that lifelong learning would become the organizing principle of all education (Knowles 1975) and that now, lifelong learning is part of everyday conversation in education. Lifelong learning has emerged as one of the major challenges for a worldwide knowledge society of the future. This is supported by examples of events across the globe, such as: the 1996 was the European year of lifelong learning; UNESCO included "Lifetime Education" as one of the key issues in its planning; the G7-G8 group of countries named lifelong learning as a main strategy in the fight against unemployment; and in Malaysia itself, the launching of its lifelong learning blueprint in 2011 brought forth the declaration of lifelong learning as the third pillar of human capital development.

In today's competitive global market place, "lifelong earning demands lifelong learning"(Duyff 1999). It used to be that hard work and loyal service are the two main ingredients for a secure future. Today's employers however place a premium on those who continually acquire skills and knowledge and who have the ability to adjust to the evolving needs of the global labour market. Thus the ability to engage in lifelong self-directed learning is the single most important competence that people must possess. Lifelong learning is attitudinal – that one should be open to new ideas, decisions, skills or behaviours. Skills for lifelong learning relate to the need to acquire, process and transfer knowledge. Lifelong learners need to know what they want to learn, how to come up with their learning plans and exercise critical and creative thinking, problem solving and decision making accompanied by regular self-reflection.

Open and Distance Learning and Its Role in Lifelong Learning

Traditionally, higher education has been elitist in that only the 'cream of the crop' may obtain tertiary education at a certain age. Pursuing tertiary education also meant having to attend lessons in physical classes full time. Such a setting is no longer applicable in today's world as those who missed the 'cut' or the chance at pursuing their studies are now given the golden opportunity to pursue their ambition and dream of higher education through open and distance learning (ODL). Amongst others, through ODL, those with lesser qualifications but with relevant work experience may enter tertiary studies via the flexible entry (FE), and be able to acquire credits for certain courses via the accreditation of prior

experiential learning (APEL). The recognition of work experiences in FE and APEL have opened up opportunities for working adults and non-traditional students to move along on the academic pathway. Additionally, with a flexible blend of face-to-face and online learning using ICTs, working adults may continue to work full time and study part time.

However, while it has been widely recognized that there is a dire need to widen access to educational opportunities, the emergence of open and distance learning (ODL) higher institutions in meeting that need has been scrutinized in terms of the quality of their programmes. As pointed out by Kirkpatrick (2005), "Despite a long and generally successful track record, open and distance learning is still required to prove that the quality of student learning is at least equivalent to face-to-face teaching" (p. 2). This aspect has been covered in a paper entitled "Producing graduates who meet employer expectations: Open and distance learning IS a viable option". Findings from this study strongly suggest that ODL programmes offered by OUM have been successful in producing graduates who meet the expectations of their employers with regard to employability competencies. A high percentage of employers felt that OUM graduates were better or at least of the same quality as new graduates from other universities and this augurs well for the further contribution of ODL programmes towards human capital development (Lim et al 2011).

While improving students' Knowledge and Understanding of subject matter may be more objectively measured and has traditionally been the mainstay of tertiary education, the development of General Attributes and Generic Skills need to be given greater emphasis. Part of the Tracer Study survey question requires graduates to assess their own attributes and generic skills. This study uses the data based on this survey.

Past Research on the Development of Lifelong Learning Skills

There is a need for lifelong learning in a world requiring continual adaptation and learning. It is unquestionable that lifelong learning can only be really effective if individuals are taught how to learn and process information in truly effective ways (Cornford 2000). A study on the development of knowledge and skill for transitional economies conducted by Hargreaves and Shaw (2001) discovered the necessity for an innovative conception on curriculum design which should include content for learning new skills. These new content require teaching skills which should be taught to teachers before they deliver the content in their classroom. Curriculum for the future must be designed with extensive information encompassing the content as well as the learning skills that should be acquired by students to face the challenges of the globalized world (Cornford 2000, Hargreaves & Shaw 2001).

The main goals of education should digress from the definition of education which is learning specific content to a more meaningful definition of education that is combining effective learning and adaptation of new skills.

Lifelong learning must be defined, taught and practiced (Mourtos 2003). In his study, Mourtos focused on the outcomes of an engineering course and the different assessment methods to measure the outcomes. His findings suggested that a course specifically designed to address lifelong learning skills and incorporated with the teaching and learning methods promote lifelong learning skills. In terms of assessment, lifelong learning skills are in-built in open ended questions, design projects and presentations. Mourtos other findings indicated that the engineering course which he studied in his research has been designed with appropriate assessment methods to measure the presence of lifelong learning skills among the engineering students.

Another research showed that it is also important to provide up-to-date and specific services to attract new groups of learners or to retain senior students who are already in the system (Smidt and Sursock 2011). According to Smidt and Sursock, both administrative and educational services play an important role in determining student population. However relating this to lifelong learning skills, it is imperative to provide the ICT infrastructure for this will set the platform to prepare learners to search for information, to be independent learners, more knowledgeable and more interested to continue their study.

These findings from past research revealed that, among other aspects related to lifelong learning, curriculum design, teaching and learning, assessment system and facilities and infrastructure are equally important to promote lifelong learning skills.

Objectives of the Study

The objective of this research is to determine:

1. The satisfaction level of graduates on the following aspects:
    i. curriculum design
    ii. assessment system
    iii. teaching and learning and
    iv. facilities and infrastructure
2. The influence of the programme on the development of OUM graduates' lifelong learning skills;
3. The factors influencing the development of lifelong learning skills of the graduates.

Methodology

Research Design

This research was conducted based on the data collected from the Graduate Tracer Study Information System which is a web-based application system developed by the Ministry of Higher Education (MOHE). The information system is developed specially to acquire information from graduates of higher education institutions on various aspects of their programme of study. All graduates are required to complete their response online which was opened one month prior to the convocation and extended for a period of seven days after the actual convocation.

At OUM, a graduate tracer study is considered a very useful tool in reviewing graduates' capability in developing lifelong learning skills through our distance learning programmes. Besides, it also provides feedback on graduates' satisfaction level on some of their experiences throughout their studies in OUM. Findings from the study can be used as input to enhance the effectiveness of OUM's academic programmes, services, facilities and infrastructure.

The questionnaire consists of seven parts, Parts A to G. For the purpose of this research, only items in Parts A, B and C will be analysed. Part A collects data on the profile of the respondents. Part B consists of items for four constructs pertaining to the programme of study which include: (i) curriculum design (5 items), (ii) assessment system (3 items), (iii) teaching and learning (11 items), and (iv) facilities and infrastructure (15 items). Part C consists of 12 items measuring the influence of the programme on the development of lifelong learning skills. The Likert five point rating scale was used for items in Parts B and C. In this study mean scores greater than 4.00 are considered to be high. Graduates are required to

rate their satisfaction for items in Part B and the influence of the programme on the development of lifelong learning skills in Part C.

The degree of reliability for the items is found to be quite high, with Cronbach's alpha value of 0.950. This value indicates that the items have good internal consistency (DeVellis 1991).

Population and Sample

A total of 3283 OUM Bachelor degree graduates for the June 2011 convocation responded in the online survey. The respondents were from the Faculty of Business and Management (238), the Faculty of Information Technology and Multimedia Communications (93), the Faculty of Science and Technology (190), the School of Nursing and Applied Health Sciences (103) and the Faculty of Education and Languages Education (2659). The respondents were from all OUM learning centers located throughout the country. Female graduates represent 67.6% (2219) of the total number of respondents in the survey. Majority of the graduates (87.3%) are between 36 and 46 years old, 98.2% are working full time while 78.0% have been working for more than 10 years in the same organization.

Findings and Discussion

The findings for this study are divided into five sections:

Curriculum design
Assessment system
Teaching and learning
Facilities and Infrastructure, and
Influence of Programme on the Development of Lifelong Learning Skills

Table 1 shows the mean satisfaction scores for curriculum design, assessment system, teaching & learning and facilities & infrastructure at OUM. The mean satisfaction scores for the assessment system, teaching & learning and curriculum design were found to be in the range of 4.19 to 4.23 on a 5.0 point Likert scale. These relatively high ratings imply that the three constructs have been well tailored to the needs of the working adults. The slightly lower mean satisfaction score of 3.93 for facilities & infrastructure implies that OUM needs to improve its present facilities and infrastructure, not for the OUM-owned learning centers, but more for the rented premises so as to render the learning centers more conducive to its adult learners.

Table 1: Overall Mean Satisfaction Scores for Curriculum Design, Assessment System, Teaching and Learning and Facilities and Infrastructure at OUM

Items	Mean	SD
Assessment System	4.23	0.66
Teaching and Learning	4.22	0.57
Curriculum Design	4.19	0.58
Facilities and Infrastructure	3.93	0.63

Satisfaction Scores for Curriculum Design, Assessment System, Teaching and Learning and Facilities and Infrastructure

Curriculum Design

The mean scores shown in Table 2 indicate that OUM's graduates are satisfied with all the items measured in the curriculum design construct (mean score for 4 items ≥4.00). However, the Industrial Training/Practicum was rated slightly lower with a mean score of 3.74. Therefore, considerable attention should be given to enhance learners' ability through skill-based training by establishing link with the relevant industries for practicum or industrial placements of learners. In this aspect, there should be more emphasis on industrial training for most of the programmes so as to enable learners to apply the theories to real world situations. This will automatically improve the rating for the item 'balance between theory and practical'. Despite of the lower rating on these two items, graduates feel that the programme has prepared them for the working world. It is also gratifying to note that graduates found the content suitable to their needs.

Table 2: Mean Satisfaction Scores for Curriculum Design

Items	Mean	SD
Suitability of content	4.34	0.65
Preparing Students for Working World	4.31	0.71
Compulsory University Subjects	4.26	0.67
Balance between Theory and Practical	4.00	0.74
Industrial Training/Practicum	3.74	0.88

Assessment System

As for the assessment system, results revealed that graduates are satisfied with all the three items in this construct where the mean scores are greater than 4.00 (Table 3). A number of researches indicate that learners are particularly sensitive to the assessment requirements that govern their courses. Many are "cue-conscious" – they do depend on the hints that lecturers provide. However, if learners are accustomed to forms of assessment that encourage reproductive rather than transformational learning they may have difficulty in adapting to the complexity of learning in the real world. How much has been learned should be the emphasis, and the appropriate method to assess the learning outcome which comes with timely feedback would be the best way forward. This analysis shows that graduates are pleased with the assignment questions and the examination questions in terms of transparency, fairness and clarity. The task-based assignment questions were closely related to what they have learned in the course and the rubrics accompanied for each assignment guided them in preparing the answers. Meanwhile the examination questions are fairly distributed and developed according to the difficulty levels based on the Bloom's Taxonomy of Educational Objectives. A learner-centred teaching strategy focusing on the learner rather than on the teacher is most likely to yield graduates who will be able to critically evaluate their own performance. In this regard, OUM provides an ideal platform for learners to assess their own learning and carry out self-reflections as and when required via the learning management system, myVLE.

Table 3. Mean Satisfaction Scores for Assessment System

Items	Mean	SD
Assignment Grades	4.26	0.73
Transparent, Fair and Easily Understood	4.23	0.72
Examination Grades	4.19	0.74

Teaching and Learning

The mean scores for all 11 items in the Teaching & Learning construct are greater than 4 points. This set of 11 items measure the quality of the face to face tutors in the teaching and learning process. This construct includes items such as the qualification of OUM tutors, their ability to deliver in the tutorial sessions, their capability to interact with students etc. (Table 4). However, out of the whole list, three items are cause for concern and they are: ability to relate teaching with current practice (mean= 4.04); communication skills in English language (mean=4.06) and innovative and creative in teaching (mean= 4.11). Tutors play a critical role in the teaching and learning process. Besides enhancing students' content knowledge, tutors need to equip students with the current and relevant work related scenarios. This can be done through various teaching strategies such as incorporating more problem-based or case-studies in the tutorial sessions so that learners stay current with new advancement in the working environment. In terms of English, tutors are supposed to be conversant in English so that learners themselves can improve their English proficiency when interacting with tutors both in the face-to-face and online environments. Innovativeness and creativity in teaching is of utmost importance; learners would be able to seek contents from various sources, but the manner in which the contents are delivered determines whether learning has taken place. In this regards, OUM has made available many forms of online learning materials to cater to the diverse group of learners who carry with them their own learning styles. Even the blends of the delivery mode is varied; learners can choose to have all of their course online or some percentage online and some face-to-face. In terms of flexibility, learners can choose not to attend the face-to-face tutorials and opt for the online self-test to evaluate their understanding of the topics. Having gone through the whole system of learning using ICT as a tool, it is expected that the graduates are in a better position to continue learning as they have equipped themselves with the proper tools and attitudes.

Table 4. Mean Satisfaction Scores for Teaching and Learning

Items	Mean	SD
Qualifications	4.52	0.61
Online Interaction	4.33	0.65
Interaction with Students	4.32	0.67
Balance in Both Theory and Practical	4.23	0.70
Academic Staff easily contacted	4.23	0.75
Expose students with current knowledge	4.22	0.71
Delivery Skills	4.18	0.69
Communication Skills in Bahasa Malaysia	4.18	0.72
Innovative/Creative in Teaching	4.11	0.72
Communication Skills in English Language	4.06	0.78
Ability to Relate Teaching with Current Practice	4.04	0.75

Facilities and Infrastructure

Four out of the nine items in the facilities and infrastructure have a mean satisfaction scores above 4.00 points (Table 5). Out of the total four constructs, facilities and infrastructure requires the greatest attention. OUM leverages on ICT for its blended mode of teaching and learning, administration and support services; thus it is important that its ICT facilities be kept tip-top. Inculcating the culture of learning via ICT is extremely important, as learners who are not familiar with its use will find learning more challenging compared to those who are already familiar with using ICT in their learning. In order to create that culture, the ICT facilities must be up-to-date: easy access to the digital library, computer labs and other amenities such that at a click of a button, things get done. Working adults do not have the luxury of time; they need to accommodate their study hours in between their busy schedules.

Table 5. Mean Satisfaction Scores for Facilities and Infrastructure at OUM

Items	Mean	SD
Integrated online learning	4.13	0.73
Lecture hall/tutorial room	4.12	0.76
Campus Security	4.11	0.79
Conducive learning space	4.00	0.79
Library (Services and facilities in general)	3.90	0.86
Laboratory	3.90	0.84
ICT facilities	3.90	0.86
Parking	3.77	0.89
Cafeteria/canteen	3.48	0.91

Influence of Programme on the Graduates' Lifelong Learning Skills

The 12 items in this construct measures the lifelong learning skills of graduates and the mean scores of all items are rated >4.00. Graduates feel the programmes that they have gone through have had a great influence in their self confidence, self maturity and self resiliency. It is satisfying to note that the programme has had a huge influence on them becoming more knowledgeable. Overall, the programme has had a significant impact on the lifelong learning skills of graduates.

Table 6. Mean Scores for Influence of Programme on the Graduates' Lifelong Learning Skills

Items	Mean	SD
More Knowledgeable	4.55	0.57
Teamwork/Group Working	4.48	0.59
Enhance Interest to Continue Learning	4.46	0.62
Able to be Independent	4.46	0.59
Enhance Self Maturity	4.45	0.59
More Sensitive towards Current Affairs	4.43	0.61
Develop Self Confidence	4.42	0.60
Effective Communication	4.41	0.64
Develop Self Resiliency	4.41	0.61
Ready to Face the Working World and Challenges	4.40	0.62
Problem Solving and Decision Making	4.39	0.59
Critical and Creative Thinking	4.36	0.61

Factors Contributing to the Development of Graduates' Lifelong Learning Skills

A stepwise multiple regression analysis was used to develop a model to predict the development of graduates' lifelong learning skills. The predictors are curriculum design, assessment system, teaching and learning and facilities and infrastructure.

Table 7 revealed a significant model for the predictor variables [F= 572.23, p < .001; adjusted R^2 = 0.410]. When the influence of the programmes on the graduates' lifelong learning skills was predicted, it was found that curriculum (β =0.280, p<0.001), teaching & learning (β =0.276, p<0.001), facilities & infrastructure (β=0.098, p<0.001) and assessment system (β =0.070, p<0.01) were significant predictors. The overall model fit was R^2=0.411, which means that the four factors explained 41.1% of the variation in the development of lifelong learning skills. The greatest contribution was due to curriculum, followed by teaching & learning, facilities and infrastructure and finally the assessment system (Figure 1).

Table 7: Summary of Stepwise Multiple Regression for Variables Predicting the Development of Graduates's Lifelong Learning Skills (N=3283)

Model	Unstandardized Coefficients		Standardized Coefficients	R^2	R^2 Change	T	Sig.
	B	Std. Error	Beta				
Constant	1.773	.056	1.773			31.597	.000
Teaching and Learning	.252	.022	.276	0.352	0.352	11.663	.000
Curriculum	.249	.018	.280	0.404	0.052	13.802	.000
Facilties and Infrastructure	.081	.016	.098	0.409	0.005	4.910	.000
Assessment system	.055	.016	.070	0.411	0.002	3.421	.001

R^2 = Dependent Variable: Development of Graduates' Lifelong Learning Skills

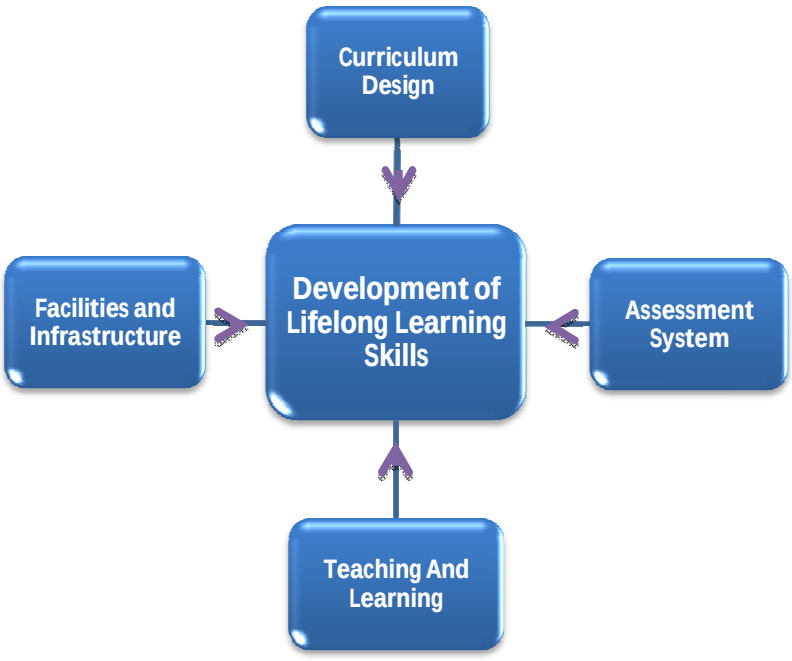

Figure 1: Factors Contributing to the Development of Lifelong Learning Skills

The Way Forward

In order to place lifelong learning skills at the heart of every programme, OUM needs to pay serious attention to the four factors of curriculum design, teaching & learning, facilities & infrastructure and the assessment system. The findings highlight the need to improve the balance between theory and practice and to emphasize industrial training or practicum in the curriculum design. At the same time, the teaching should also be related to current practice to ensure relevancy and suitability. This can be done through stronger and greater collaboration with the working professionals in the appropriate industries in the early stages of the curriculum design. In order to promote lifelong learning amongst its graduates, OUM will do even better by improving its ICT facilities, not merely as a means to provide the flexibility and accessibility to its learners but also to acculturate the use of ICT in their daily activities and ease their future learning.

Conclusion

Learners must acquire necessary skills to become effective lifelong learners and how do learners acquire these skills? Higher education institutions ought to incorporate these skills at the earliest stage, right through from the curriculum design, up through the whole teaching and learning process, accompanied by an appropriate assessment system. Effective learning will definitely require conducive facilities and infrastructure. These skills should be honed throughout the programme.

Finally, in order to adequately equip a workforce which meets the challenges and demands of the new labour market, "the nexus between output of graduates and industry needs, the university and the workplace, and the higher education system and the lifelong learning system needs to be further strengthened" (Ali, 2011).

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