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**Integration of Generic Skills' into the Formal Curriculum:
A Survey of Malaysian Public Universities**

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**Integration of Generic Skills' into the Formal Curriculum:
A Survey of Malaysian Public Universities**[*]

Abstract:

One initiative or skill bridging measure taken by public universities is to build into the formal curricula generic ('soft') skills to produce graduates with a right balance of diverse abilities. In most programmes the skills are recognized explicitly in the curriculum and their achievement forms part of the assessment system. However to date there is no attempt to review the integration of soft skills in the formal curriculum of university programmes. As such their effectiveness remains to be determined (EPU, 2007). The study therefore seeks to fill the void by reviewing the range of skills embedded/ imparted and acquired in taught courses (not including stand alone subjects) and practical/industrial training and microteaching. The specific focus of the study is to identify what worked well and what had not in acquiring the range of skills designated in the teaching-learning process. The key findings of the study are as follows. First, the impartation-acquisition of skills differs unequivocally between coursework and training, suggesting the complementary nature of both components of the formal curriculum for the integration of generic skills. For the coursework component, communication skills, which include mainly the verbal usage of English in lectures, tutorials and presentations, explain most of the total variance for skill embedment/ impartation and skill acquisition. Conversely, moral and professional ethics ranks first in explaining the total variance for skill embedment/ impartation and skill acquisition via training. Second, skills embedment is generally low and selective, indicating a need for improvement and reforms particularly in the existing training programmes of public universities. Third, impartation-acquisition of generic skills remains highly concentrated on specific items/ skills for both coursework and training, implying a lack of uniformity in the integration (particularly for leadership and entrepreneurship skills) of skills within components.

1. INTRODUCTION

The education market in Malaysia has witnessed immense changes over the decades. Of importance is that the government is no longer the sole provider of higher education, especially since the 1980s. Higher education in Malaysia is in fact becoming an export industry, especially with the opening up of foreign campuses. This results in several dimensions of competition in the domestic marketplace, particularly between public institutions and private institutions (local and foreign). An issue that has received wide coverage is the marketability/ employability of graduates from public institutions of higher learning (IHLs). Graduates of public IHLs are found to lose out to graduates of private IHLs in terms of employment in the domestic marketplace.

In 2005, the government announced that there were 67,000 unemployed graduates, many of whom had graduated between 2000 and 2004. About 92.6 per cent of these unemployed graduates were from public universities, as opposed to only 5.3 per cent from private institutions. Prior to this alarming news, the Malaysian Institute of Economic Research (MIER, 2004) had revealed the results of a survey on the employability and marketability of university graduates, indicating that 46.2 per cent of public university graduates were unemployed in 2003. The reasons cited for the low unemployment prospects of public university graduates are that they are inadequately prepared for the job market, lack linguistic (English proficiency, both oral and written) (Lim and Normizan, 2004; Chiam, 2005; Norizan *et al.*, 2006; EPU, 2007; Marina, 2007) and technical skills, plus cognitive abilities (analytical thinking, problem-solving, reasoning).

The low marketability of public institution graduates have thus brought to the fore several issues that plausibly contribute directly or indirectly to the former. Is it a question of the quality of the students that enter public universities, the quality and relevance of programmes offered, the quality of existing academics or the result of poor research culture amongst academics (Atkin, 2004; 2005) leading to weak transmission of knowledge? The problem of graduate unemployment thus serves as a wake-up call for public IPLs in that student learning must be enhanced beyond the mastery of content so that the graduates can succeed in the local labour market. In short, there is even greater realization now that students are both inputs and outputs (Newman *et al.*, 2004), under the broad dimension of quality in higher education as fitness for purpose (i.e. meeting the needs of students, see Baird, 2007).

How then have universities responded to improve the employability of graduates? One such initiative or skill bridging measure taken by public IPLs is to build into the formal curricula generic ('soft') skills to produce graduates with a right balance of diverse abilities. In most programmes the skills are recognized explicitly in the curriculum and their achievement forms part of the assessment system. However to date there is no attempt to review the integration of soft skills in the formal curriculum of university programmes. As such their effectiveness remains to be determined (EPU, 2007).

The study therefore seeks to fill the void by reviewing the range of skills embedded/ imparted and acquired in taught courses (not including stand alone subjects) and practical/industrial training and microteaching. The specific focus of the study is to identify what worked well and what had not in acquiring the range of skills designated in the teaching-learning process[1]. The remainder of the paper is structured as follows. Section 2 briefly outlines the expansion of public IHLs in Malaysia. Section 3 elaborates on the mechanism for collecting data. Section 4 presents the main findings of the study. Section 5 concludes.

2.   PUBLIC IHLS IN MALAYSIA

The structure of the Malaysian education market can be categorized mainly into two groups, public and private institutions. Public IHLs are defined as higher educational institutions established by the government under the Universities and Universities College Act 1971 (Amended 1996). Public IHLs constitute public universities, polytechnics and colleges. (The study focuses solely on public universities). There are currently twenty public universities in Malaysia (see Appendix 1). Of the twenty, 6 universities were previously known as college universities prior to their upgrading of status to that of a university.

The expansion of tertiary education offered by public providers in Malaysia is captured by trends in entry, enrollment and output of graduates. Table 1 displays these statistics for undergraduate programmes of public IHLs for the period 2001 until 2005. In the field of Arts, courses related to Management, Economics and Education is preferred by most students. The entry into Arts based professional courses such as Law is limited as only the best students are allowed entry into this course based on their results at Malaysian Higher School Certificate or Ministry of Education Matriculation programme. For the Sciences, the entry of the students is the highest in the field of Sciences such as Physics, Chemistry, Biology, Biochemistry and Microbiology. Entry into professional courses such as Medicine, Dentistry and Pharmacy is also limited as not many public IHLs offer courses related to these professional degrees.

Table 1: Undergraduate Programmes - Entry, Enrollment and Output

Field	2001	2002	2003	2004	2005
ENTRY					
Arts	17,495	16,599	21,039	21,548	25,940
Sciences	9,363	13,956	14,412	15,163	15,761
Technical	3,104	5,179	7,711	9,145	9,816
Total	**29,962**	**35,734**	**43,162**	**45,856**	**51,517**
ENROLLMENT					
Arts	87,482	84,311	90,925	91,477	95,606
Sciences	58,029	65,617	65,235	63,813	69,218
Technical	37,138	34,262	36,128	39,180	44,244
Total	**182,649**	**184,190**	**192,288**	**194,470**	**209,148**
OUTPUT					
Arts	17,729	21,752	29,372	23,832	26,206
Sciences	8,706	10,944	16,699	12,589	16,645
Technical	4,698	4,106	4,178	7,405	8,920
Total	**31,033**	**36,802**	**50,249**	**43,826**	**51,771**

Source: Sektor Pengurusan IPTA, Jabatan Pengurusan IPT.

As for enrolment in the Arts, the highest is for Economics and Business courses and followed by Arts and Humanities. As most public IHLs in Malaysia offer courses related to Economics, Business, Arts and Humanities, it is not surprising that the enrolment into these courses superseded that for the other courses. Within the Sciences, enrollment is higher for Applied Sciences and Pure Sciences in Malaysia, attributed to a change in the intake policy of the Ministry of Higher Education. Currently, the Ministry is practising a 60-40 between Science to Arts based courses. In terms of higher education enrollment, public universities however have been ousted by private sector enrollment.

Finally, the largest output of graduates from public IHLs is from the Arts, particularly from Economics and Business, followed by Arts and Humanities. As the entry into these courses is high, it is not surprising that the number of graduates produced in these courses is concomitantly high.

3.   DATA AND METHODOLOGY

3.1   Data

A survey method was employed for the study and questionnaires were distributed to students of public universities to obtain quantitative data. The survey was carried during the period July 2007 – March 2008.   The target respondents were final year undergraduate students of the Arts programmes in eight established public universities (UM, UKM, UPM, USM, UUM, UiTM, UNIMAS and UMS; see Appendix 1). The targeted sample size was 2000 but the achieved sample size was 1803, giving a return rate of 90 per cent. Of the 1803 respondents, only 752 (42 per cent) had undergone practical training or microteaching.

The selection of a majority of respondents from the Arts was governed by the high entry, enrollment and output levels vis-à-vis that for the Science and Technical programmes (see Table 1). The respondents were also confined to final year students for the following reasons: (a) Having gone through at least 2-3 years of university education, final-year students would be able to provide more valuable feedback on the effectiveness of the integration of 'soft skills' into the various courses of the programme; and (b) They would also have undergone practical training (if any) and be able to provide views on the integration of 'soft skills' into the practical component of the programme.

The questionnaire was designed to gather information on students' perspectives on the adequate impartation and acquisition of designated 'soft skills' in the teaching-learning (course structure/ content, methods of delivery/ teaching approach, assessment methods, training programme) process.

The questionnaire is thus divided into four parts: Part A compiles the general information of the respondent; Part B gathers information on the embedment of skills in taught courses; Part C gathers information on the embedment of skills in practical/ industrial training or microteaching; and Part D gathers overall information on the acquisition of the array of skills and adequacy of their training. The main analysis centers on the information gathered from Parts B and C. Items in these sections require ranking, based on a scale of 0 (not relevant) to 4 (strongly agree).

The generic skills in question are classified into seven categories as follows: communication skills, critical thinking and problem-solving skills, teamwork skills, lifelong learning and information management skills, entrepreneurship skills, moral and professional ethics skills and leadership skills. For each skill category, there are 3-5 questions to ensure the reliability of the responses. More importantly the distilling of groups of questions for each skill category allows for students to reflect on their own experiences.

Finally, a caveat on the dataset is that it does not come from a controlled study. Responses were obtained from as many students as possible from the various universities in hope of a broad representation. Hence the suggested conclusions may contain some biases.
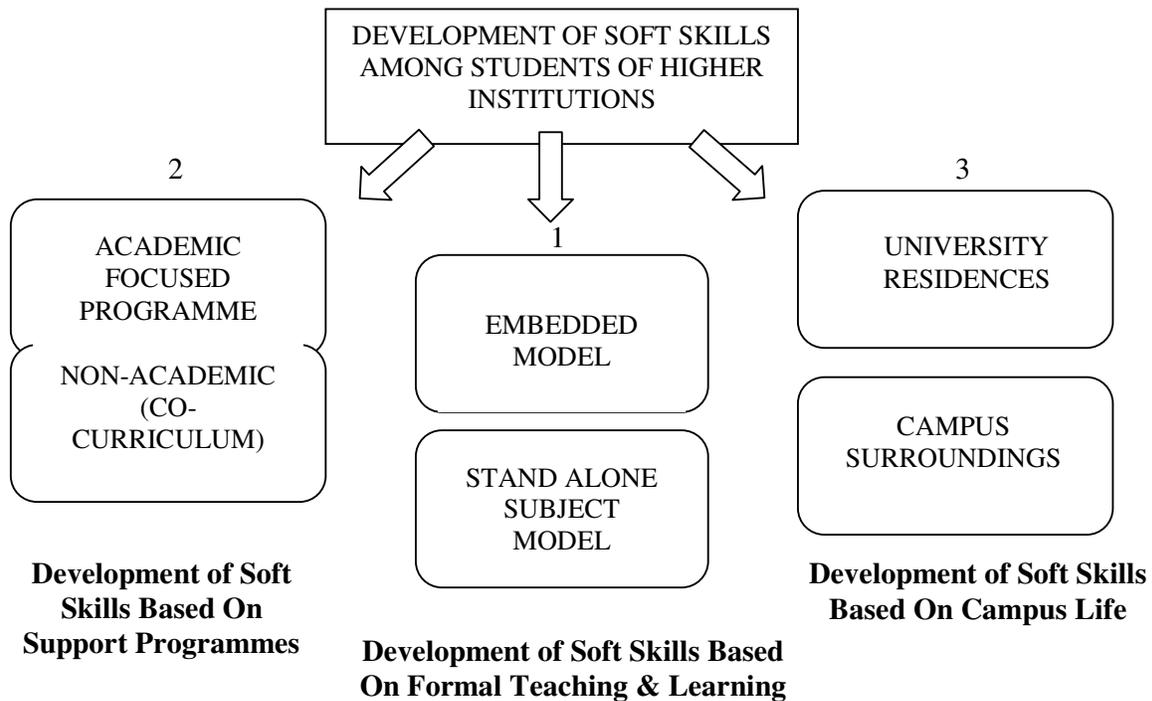
3.2 Framework

In 1997, Gates, Della-Piana and Bernat, discussed the Affinity Group Model in infusing soft skills among college students. This model was designed around the cooperative learning paradigm. Five basic elements of this cooperative model included (i) interdependence – that every group member is crucial for success, (ii) face-to face promotive interaction – each group member supports the other, (iii) individual accountability- each group member does a fair share of work, (iv) group skills – must be taught by the instructor, and (v) group processing – the group takes time to reflect about how the group is functioning. Through these elements soft skills can be infused.

The Partnership for 21st Century Skills (2007) put forward a model where the soft skills are taught by harnessing the latest technological tools of the 21st Century in the teaching-learning process. The framework reflects knowledge and skills that are essential for life in the 21st century. The Partnership's Framework stresses interdisciplinary topics focused on four themes with special relevance to modern life: Global Awareness; Financial, Economic, Business and Entrepreneurial Literacy; Civic Literacy; and Health Literacy. Interdisciplinary work often draws on a real world context, because as we all know, real life issues don't restrict themselves to knowledge from just one subject domain. This assists in the acquiring of soft skills.

Salih (2007) called the Malaysian approach of infusing soft skills a holistic approach. This approach is based on the combination of (i) formal teaching and learning activities, (ii) support programs, and the (iii) students' campus life. Overall, the development of soft skills among the students via the formal teaching and learning activities takes two models: (i) stand alone and (ii) embedded.

In the 'stand alone model', students are provided opportunities to learn soft skills in the specific courses that they take on campus. These courses can be such a 'Business English' of 'Public Speaking'. The 'Embedded Model' embeds soft skills in the teaching and learning activities across the curriculum. Each course offered by the university within the context of the various programmes. In these courses, teaching and learning are planned to infuse soft skills. The instructors who conduct these university courses will plan the use of various strategies such as problem-based learning for this purpose. Therefore in the Malaysian context, the effectiveness of the impartation and acquisition of skills can be examined in the taught courses and practical component separately as shown in Figure 1 (Salih, 2007).

Figure 1: Development of Soft Skills Amongst Students of Higher Education

DEVELOPMENT OF SOFT SKILLS AMONG STUDENTS OF HIGHER INSTITUTIONS

2 — ACADEMIC FOCUSED PROGRAMME / NON-ACADEMIC (CO-CURRICULUM)

1 — EMBEDDED MODEL / STAND ALONE SUBJECT MODEL

3 — UNIVERSITY RESIDENCES / CAMPUS SURROUNDINGS

Development of Soft Skills Based On Support Programmes

Development of Soft Skills Based On Formal Teaching & Learning

Development of Soft Skills Based On Campus Life

Source: Salih, 2007.

4. DISCUSSION OF FINDINGS

4.1 Profile of Respondents

Appendix 1 profiles the respondents for the study. Of the 1803 respondents from the eight public universities, approximately 90 per cent were from the Arts (Education and Economics) while the remaining 10 per cent are from the Sciences. The respondents are mainly Malaysians, and females constitute approximately 77 per cent of the total sample. This is not surprising as females comprise a larger proportion of undergraduate students in public universities. Similarly, the proportion of Malays, Chinese and Indian undergraduates in the sample also reflects that of the race composition of public universities.

In general the above profile of respondents indicates a representative sample of public universities in Malaysia. Further it is also representative of the student population in public universities in terms of nationality, gender and race.

4.2 Teaching-Learning Process: Skills' Embedment

As explained in the methodology, the respondents were required to indicate their levels of agreement or disagreement with statements regarding the items mentioned for each generic skill. Tables 2 and 3 present the summary of means for the various items related to skill embedment in coursework and training respectively.

From Table 2, it is evident that most items have a mean score ranging between 2 and 3, implying that students somewhat do not agree that there is adequate skills' embedment in

Table 2: Summary of Means for Skill Embedment in Coursework

Skills in Coursework	Mean	Standard Deviation
I. Communication Skills		
Wide usage of English in lectures/tutorials	2.96	0.81
Sufficient interactive sessions in lectures/ tutorials	2.84	0.65
Opportunities for in-class presentation/ microteaching	3.09	0.67
Instructors competent in English	2.99	0.77
II. Critical Thinking and Problem-Solving Skills		
Instructors provided/ recommended critical course-related readings	2.92	0.62
Given problem-based tasks that included critical enquiry	2.90	0.66
Given reflective (thought-provoking) writing assignments	2.90	0.69
Received critical feedback on assignments and presentations from instructors	2.77	0.74
Received critical feedback on presentations from my peers	2.67	0.78
Instructors integrated theory with practice and real world experiences in teaching	2.95	0.70
Instructors integrated economic issues with different areas of knowledge/ discipline in teaching	2.73	0.84
Application-based questions in mid-term and semester exams.	2.89	0.69
III. Teamwork Skills		
Reasonable size of teams/ groups	3.06	0.61
Good distribution of work within teams	2.91	0.71
Effective (brain-storming session/ critical questioning) group work within teams	2.90	0.70
IV. Lifelong Learning & Information Management Skills		
Given adequate exposure to computer skills	2.83	0.78
Instructors conveyed ideas and knowledge on contemporary issues	2.95	0.63
Learning process of most courses involved active reading	3.07	0.71
V. Entrepreneurship Skills		
Some courses included formulation of business projects/ teaching plans	2.82	0.80
Some courses provided knowledge of basic entrepreneurial skills	2.72	0.89
Opportunities to network with entrepreneurs/ inservice teachers/ expert teachers	2.61	0.92
VI. Moral & Professional Ethics Skills		
Instructors monitored class attendance regularly	3.04	0.70
Instructors monitored and ensured adequate class participation	2.97	0.65
Instructors ensured strict adherence to datelines and submission of assignments	3.14	0.65
Instructors themselves were exemplary of their profession	2.98	0.70
VII. Leadership Skills		
Courses provided vast opportunities to lead in discussions/ presentations	3.00	0.62
Some courses provided leadership *via* fieldwork	2.92	0.71
Some courses provided knowledge of basic leadership theories	2.94	0.72

Table 3: Summary of Means for Skill Embedment in Training/ Microteaching

Skills in Practical/ Industrial Training & Micro-Teaching	Mean	Standard Deviation
I. Communication Skills		
Communication at workplace mainly in English	2.20	0.88
Wrote reports at work mainly in English	2.65	1.08
Opportunities for making oral presentations/ teaching in schools	2.93	085
Opportunities to deal with customers/ clients/ students	2.91	0.89
Opportunities to observe presentations made by management/ head teachers	2.77	0.88
Expressed thoughts in meetings/ discussions at the organization	2.36	0.94
II. Critical Thinking and Problem-Solving Skills		
Tasks given were problem-centred	2.76	0.74
Training provided opportunities to relate theory with practice	3.07	0.71
Given critical feedback on tasks by the organization supervisor/ school leader	2.95	0.76
Adequately exposed to and engaged in discussions that promoted innovative and creative ideas	2.83	0.78
III. Teamwork Skills		
Opportunities to be directly involved in teamwork	3.03	0.73
Opportunities to be an observant in team discussions	2.90	0.76
Able to interact freely to achieve given tasks	2.94	0.73
Acquired skills on work coordination and work management within teams	2.95	0.72
IV. Lifelong Learning & Information Management Skills		
Work involved regular use of computers	2.95	0.84
Directly involved in data input/ analysis/ management of databases	2.61	0.94
Able to use computer skills at the organization	2.96	0.80
Acquired new skills on information management at the organization	2.87	0.83
Tasks required active seeking of information through research to enhance work output	2.86	0.81
Able to identify/ apply new knowledge acquired through training to current study	3.03	0.71
V. Entrepreneurship Skills		
Directly involved in specific projects	2.44	1.06
Participated in project discussions	2.48	1.06
Acquired specific industrial knowledge on project development, maintenance and promotion	2.30	1.07
Able to identify new business opportunities	2.19	1.09
VI. Moral & Professional Ethics Skills		
Punctuality to work was strictly monitored by the organization supervisor/ school leadership	3.10	0.79
Tasks were monitored closely by my organization supervisor/ school leader through regular exchange	2.98	0.78
Good guidance from organization supervisor/ peers/ school leadership on general ethical practices at work	3.05	0.76
Exposed to other aspects of good work ethics at the organization (honesty, integrity)	3.08	0.72
Organization supervisor/ school leader upheld good professional ethics to be followed by the staff	3.09	0.73
VII. Leadership Skills		
Opportunities to manage tasks independently	2.96	0.75
Opportunities to be involved in decision making/ finding solutions	2.88	0.79
Participated actively in the organization of events/ meetings	2.74	0.88
Had to meet job demands under stressful conditions	2.72	0.86
Provided input for the improvisation of work systems at the organization	2.65	0.88

the coursework. Items that scored a mean of 3 and above are confined to the following: instructors ensured strict adherence to datelines and submission of assignments, opportunities for in-class presentation/ microteaching, learning process of most courses involved active reading, reasonable size of teams/ groups, instructors monitored class attendance regularly and courses provided vast opportunities to lead in discussions/ presentations.

Similarly, the embedment of skills in training is also found to be relatively inadequate relative for training based on the mean scores reported in Table 3. Most items have mean scores below 3, indicating that respondents at large disagreed on the adequacy of skills' embedment in training programmes. Most items listed under the moral and professional ethics skills' in particular have mean scores above 3 indicating that on average, most respondents agree that this skill has been well imparted and acquired *via* training. The small standard deviations for all items again reveal small variation in responses.

The summary of means indicate that in general skills' embedment in both coursework and training has not met the needs of the students', with the exception for a few skills. This is a first-level indication that the integration of skills in the formal curriculum has not been completely realized.

4.3 Impartation-Acquisition of Skills': What Worked and What Had Not?

To assess the factorability of the data, the Bartlett's test of sphericity (Bartlett, 1954) and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1970; 1974) are employed. The factor analysis is considered appropriate given that the Bartlett's test of sphericity is significant at 1 per cent for both datasets (coursework and training). Further, the KMO indices of 0.9 each for both datasets, surpassing the minimum of 0.6, indicate that the sampling is adequate and acceptable.

Tables 4 and 5 report the factor loadings for skill embedment and acquisition *via* coursework and training respectively. The principal components analysis is used for the extraction of the factor dimensions whilst the varimax rotation is used to determine the underlying dimensions of 28 items and 34 items for the coursework and training datasets respectively. Items were removed if factor loadings were less than 0.4 (see Hair *et al.,* 1998). The scale for reliabilities, determined by the non-standardized Cronbach's alpha that is widely used (Aron and Aron, 1994) and preferred (Morgan and Greigo, 1998), of between 0.7 and 0.8 for the seven factors for both datasets are considered sufficient (Nunnally, 1978) for exploratory research since they exceed the 0.5 threshold.

The naming of the factor loading matrix in this study is relatively straightforward since the items clustered reflect closely the seven generic skills'. The seven factors are thus communication skills, critical thinking and problem-solving skills, teamwork skills, lifelong learning and information management skills, entrepreneurship skills, moral and professional ethics skills and leadership skills.   Table 6 shows that all seven factors explain 59 per cent and 64 per cent[2] of the total variance of the impartation-acquisition of skills by coursework and training respectively.

Table 4: Factor Analysis of Skill Embedment and Skill Acquisition in Coursework

Factor Dimensions	1	2	3	4	5	6	7
Communication Skills							
Wide usage of English in lectures/tutorials	0.802						
Instructors competent in English	0.730						
Opportunities for in-class presentation/ microteaching	0.618						
Sufficient interactive sessions in lectures/ tutorials	0.587						
Critical Thinking & Problem-Solving Skills							
Received critical feedback on assignments and presentations from instructors		0.750					
Received critical feedback on presentations from my peers		0.725					
Given reflective (thought-provoking) writing assignments		0.568					
Given problem-based tasks that included critical enquiry		0.532					
Instructors provided/ recommended critical course-related readings		0.454					
Instructors integrated theory with practice and real world experiences in teaching		0.452					
Moral & Professional Ethics Skills							
Instructors monitored and ensured adequate class participation			0.744				
Instructors monitored class attendance regularly			0.737				
Instructors ensured strict adherence to datelines and submission of assignments			0.684				
Instructors themselves were exemplary of their profession			0.633				
Entrepreneurship Skills							
Some courses provided knowledge of basic entrepreneurial skills				0.815			
Some courses included formulation of business projects/ teaching plans				0.683			
Opportunities to network with entrepreneurs/ inservice teachers/ expert teachers				0.654			
Instructors integrated economic issues with different areas of knowledge/ discipline in teaching				0.638			
Teamwork Skills							
Good distribution of work within teams					0.810		
Effective (brain-storming session/ critical questioning) group work within teams					0.765		
Reasonable size of teams/ groups					0.664		
Leadership Skills							
Some courses provided leadership via fieldwork						0.796	
Some courses provided knowledge of basic leadership theories						0.771	
Courses provided vast opportunities to lead in discussions/ presentations						0.594	
Lifelong Learning & Information Management Skills							
Given adequate exposure to computer skills							0.703
Learning process of most courses involved active reading							0.626
Instructors conveyed ideas and knowledge on contemporary issues							0.620

Table 5: Factor Analysis of Skill Embedment and Skill Acquisition via Training

Factor Dimensions	1	2	3	4	5	6	7
Moral & Professional Ethics Skills							
Exposed to other aspects of good work ethics at the organization (honesty, integrity)	0.829						
Good guidance from organization supervisor/ peers/ school leadership on general ethical practices at work	0.788						
Organization supervisor/ school leader upheld good professional ethics to be followed by the staff	0.784						
Punctuality to work was strictly monitored by organization supervisor/ school leadership	0.777						
Tasks were monitored closely by my organization supervisor/ school leader through regular exchange	0.748						
Entrepreneurship Skills							
Acquired specific industrial knowledge on project development, maintenance and promotion		0.845					
Participated in project discussions		0.818					
Able to identify new business opportunities		0.799					
Directly involved in specific projects		0.775					
Expressed thoughts in meetings/ discussions at the organization		0.499					
Lifelong Learning & Information Management Skills							
Able to use computer skills at the organization			0.757				
Work involved regular use of computers			0.743				
Directly involved in data input/ analysis/ management of databases			0.726				
Acquired new skills on information management at the organization			0.709				
Able to identify/ apply the new knowledge acquired through training to current study			0.527				
Tasks required active seeking of information through research to enhance work output			0.500				
Teamwork Skills							
Opportunities to be an observant in team discussions				0.809			
Acquired skills on work coordination and work management within teams				0.759			
Able to interact freely to achieve given tasks				0.724			
Opportunities to be directly involved in teamwork				0.715			
Leadership Skills							
Opportunities to be involved in decision making/ finding solutions					0.715		
Had to meet job demands under stressful conditions					0.692		
Provided input for the improvisation of work systems at the organization					0.659		
Participated actively in the organization of events/ meetings					0.658		
Opportunities to manage tasks independently					0.619		
Critical Thinking and Problem-Solving Skills							
Opportunities to deal with customers/ clients/ students						0.620	
Adequately exposed to and engaged in discussions that promoted innovative and creative ideas						0.614	
Opportunities to observe presentations made by management/ head teachers						0.562	
Training provided opportunities to relate theory with practice						0.546	
Given critical feedback on tasks by the organization supervisor/ school leader						0.534	
Tasks given were problem-centered						0.457	
Communication Skills							
Wrote reports at work mainly in English							0.733
Communication at workplace mainly in English							0.682
Opportunities for making oral presentations/ teaching in schools							0.519

Table 6: Importance of Factor Dimensions

Rank	Factor Dimensions	Variance Explained
	Coursework	
1	Communication Skills	28.70
2	Critical Thinking & Problem Solving Skills	7.95
3	Moral & Professional Ethics Skills	5.49
4	Entrepreneurship Skills	4.77
5	Teamwork Skills	4.26
6	Leadership Skills	4.09
7	Lifelong Learning & Information Management Skills	3.77
	Practical Training/ Micro-Teaching	
1	Moral & Professional Ethics Skills	33.00
2	Entrepreneurship Skills	8.37
3	Lifelong Learning and Information Management Skills	6.52
4	Teamwork Skills	5.20
5	Leadership Skills	4.31
6	Critical Thinking & Problem Solving Skills	3.49
7	Communication Skills	3.43

For the coursework component, communication skills, which include mainly the verbal usage of English in lectures, tutorials and presentations, explain 29 per cent of the total variance for skill embedment/ impartation and skill acquisition. The second most important factor that explains 8 per cent of the total variance is critical thinking and problem solving skills. The items that are clustered in the second factor relate mainly to the assessment methods employed in the coursework such as critical feedback on assignments and presentations and reflective and critical assignments/ tasks. The remaining five factors each explain only a small proportion of the total variance. To support the factor analysis in Table 6, the results from the ranking of adequacy of skills considered most integrated by students are reported in Table 7. The highest percentages of ranking '1' (most adequate) for communication skills, followed by critical thinking and problem-solving skills in coursework support the results of the factor analysis in Table 4.

Table 7: Adequacy* of Skills' Integration in Coursework

Rank	Coursework	Percentage**
1	Communication Skills	39.16
2	Critical Thinking & Problem-Solving Skills	17.91
3	Moral & Professional Ethics Skills	11.15
4	Entrepreneurship Skills	4.66
5	Teamwork Skills	13.42
6	Leadership Skills	7.88
7	Lifelong Learning & Information Management Skills	12.53

Note: *Based on students' ranking in descending order, 1 as most adequate until 7 as least adequate.
    ** Percentage of students that ranked '1' for each of the 7 skills.

Interestingly though, the importance of the various factors are unequivocally different when training is considered (see Table 6). Moral and professional ethics ranks first, explaining 33 per cent of the total variance for skill embedment/ impartation and skill

acquisition *via* training. This is followed by entrepreneurship skills and lifelong learning and management skills that explain 8 per cent and 7 per cent of the total variance respectively. Communication skills which rank first in terms of its importance in the teaching-learning process of coursework, ranks last in that of training. Conversely, lifelong learning and information management which ranks last in the impartation-acquisition process *via* coursework ranks third in that of training. The findings suggest that the impartation-acquisition of skills via coursework and training complement each other once the type of skill is considered. As such, practical training is an important component of the bachelor degree programmes to ensure that students are well-equipped with the designated skills.'

By coursework, the lack of impartation and acquisition of lifelong learning and information management skills deserve attention. This reveals a lack of dynamism in the existing programmes of public universities. Courses should be structured to cultivate lifelong learning through active reading and research beyond textbook learning, while relevant courses should provide hands-on-training in computer programmes and softwares to ensure that students are IT savvy to face a dynamic and ever-changing working environment. As for training, the lack of communication opportunities in English (both written and verbal) is governed inherently by the type of organizations for placements. Of the 752, students who had undergone industrial training, 82 per cent were attached to government institutions[3]. Students attached to government institutions for practical training and public schools for microteaching will more likely communicate in the Malay language, both verbal and written.

When considering all the seven generic skills for both coursework and training, it can be inferred from Table 6 that leadership skills' and teamwork skills' remain almost at the same positions of the ranking. This implies that these skills are not adequately imparted or acquired either by coursework or training. From discussions with employers', it is gauged that trainees are normally given simple tasks that are also individualistic in nature given the nature of their training (temporary status and short duration[4]). It is thus more appropriate for the coursework component to ensure adequate impartation and acquisition of both skills since students engaged in training are unlikely to acquire them.

In sum, the Catell's scree test (Catell, 1966) confirms that two factors contribute the most to the explanation of the variance in both the coursework and training datasets as shown in Figure 2. They are communication skills (wide usage of English in lectures and tutorials) and critical thinking and problem solving skills (critical feedback on assignments and presentations) for coursework and moral and professional ethics skills (exposure to good work ethics) and entrepreneurship skills (acquisition of specific industrial knowledge) for training.

Figure 2: Scree Tests

Coursework	Training
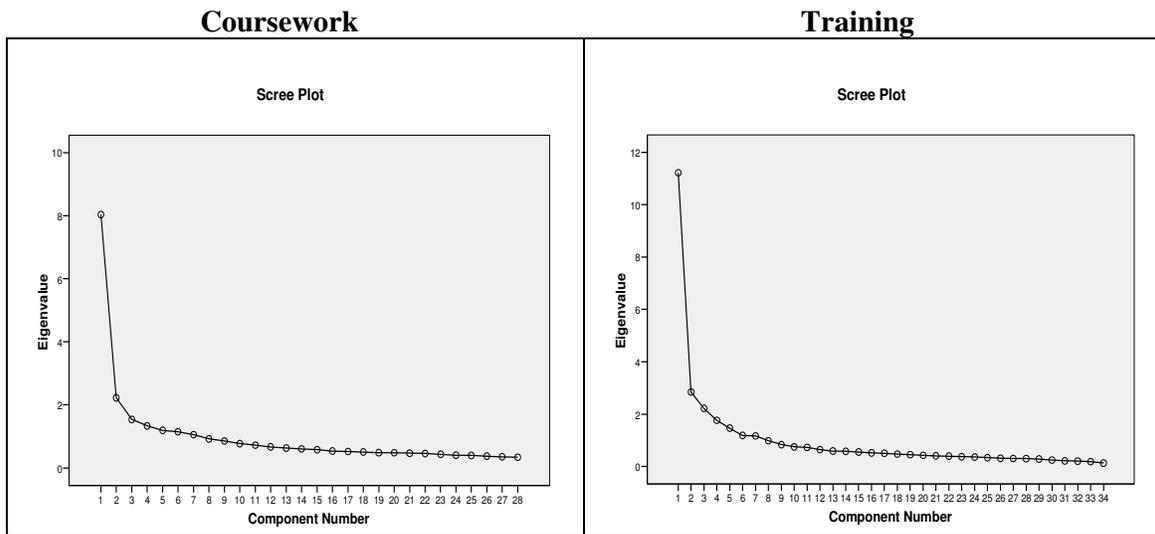
5.   CONCLUDING REMARKS

The study brings to the fore the following. First, the impartation-acquisition of skills differs unequivocally between coursework and training, suggesting the complementary nature of both components of the formal curriculum for the integration of generic skills. Second, skills embedment is generally low[3] and selective, indicating a need for improvement and reforms particulalry in the existing training programmes of public universities.   Third, impartation-acquisition of generic skills remains highly concentrated on specific items/ skills for both coursework and training, implying a lack of uniformity in the integration (particularly leadership and entrepreneurship skills, see footnote 5) of skills within components.

Given the above findings, there are several issues that can be addressed by public universities to ensure a more successful integration of generic skills in the curriculum. First, programmes that are solely based on coursework need to add-on the training component since some skills (moral and professional ethics skills and entrepreneurship skills) are better acquired through training. Second, the duration of the training needs to be extended given that the short-term nature of training does not allow for a meaningful transfer and acquisition of skills.' Third, courses should be restructured to inject some dynamism that will cultivate lifelong learning and information management skills' in line with the changing needs of market demand. Further, selectivity of placements in organizations for training purposes should be exercised to ensure adequate exposure and better acquisition of skills. In this respect, students should target placements beyond public to private organizations, large concerns of the industry and relevant organizations to the programme to ensure that they maximize their learning capacity at the workplace.

Appendix 1: Public IHLs in Malaysia

No.	Year	University
	University	
1	1962	Universiti Malaya (UM)
2	1969	Universiti Sains Malaysia (USM)
3	1970	Universiti Kebangsaan Malaysia (UKM)
4	1971	Universiti Putra Malaysia (UPM)
5	1975	Universiti Teknologi Malaysia (UTM)
6	1983	Universiti Islam Antarabangsa (UIAM)
7	1984	Universiti Utara Malaysia (UUM)
8	1992	Universiti Malaysia Sarawak (UNIMAS)
9	1994	Universiti Malaysia Sabah (UMS)
10	1996	Universiti Teknologi Mara (UiTM)
11	1997	Universiti Pendidikan Sultan Idris (UPSI)
11	1999	Universiti Teknologi Malaysia (UTM)
12	2005	Universiti Darul Iman Malaysia (UDM)
13	2006	Universiti Malaysia Kelantan (UMK)
14	2006	Universiti Pertahanan Nasional Malaysia (UPNM)
	University (Upgraded from University College)	
15	1998	Kolej Universiti Islam Malaysia (KUIM), renamed as Universiti Sains Islam Malaysia (USIM)
16	1999	Kolej Universiti Sains dan Teknologi Malaysia (KUSTEM), renamed as Universiti Malaysia Terengganu (UMT)
17	2000	Kolej Universiti Teknologi Tun Hussein Onn (KUiTTHO), renamed as Universiti Tun Hussein Onn Malaysia (UTHM)
18	2000	Kolej Universiti Teknikal Kebangsaan Malaysia (KUKTM), renamed as Universiti Teknikal Malaysia Melaka (UTeM)
19	2002	Kolej Universiti Kejuruteraan Utara Malaysia (KUKUM), renamed as Universiti Malaysia Perlis (UniMAP)
20	2002	Kolej Universiti Kejuruteraan dan Teknologi Malaysia (KUKTEM), renamed as Universiti Malaysia Pahang (UMP)

Source : www.mohe.gov.my

Appendix 2: Profile of Respondents

Item	Percentage (N=1803)
University	
UM	11.4
UKM	25.5
UiTM	16.4
USM	15.3
UNIMAS	5.5
UMS	9.3
UUM	6.9
UPM	9.7
Faculty	
Education	55.4
Economics	34.3
Science	10.3
Nationality	
Malaysian	97.8
Others	2.2
Gender	
Male	23.2
Female	76.8
Race	
Malay	68.2
Chinese	23.1
Indian	3.7
Others	5.2
Religion	
Islam	68.1
Christian	10.5
Buddhist	18.1
Hindu	2.8
Others	0.4

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Notes

[1] For the study, impartation-acquisition refers synonymously to teaching-learning.

[2] The seven-factor dimension for skill impartation-acquisition via training exceeds marginally the 60 per cent of the explained variance recommended in social sciences (Hair *et al.,* 1998).

[3] Caution should be taken when interpreting the results since the lack of adequate impartation-acquisition of communication skills in English language *via* training may be due to the large number of placement of trainees at government institutions.

[4] The training component of first degree programmes of public universities in Malaysia are basically 3-6 months. Approximately 92 per cent of the respondents underwent a 3-month training programme.

[5] Only 16 per cent of the respondents claimed that they were very satisfied with the palette of skills acquired throughout their course of study. A majority of respondents (52 per cent) feel that they still lack communication skills, followed closely by 47 per cent each indicating a lack of leadership skills and lack critical thinking and problem-solving skills and 46 percent lack entrepreneurship skills. Conversely, a high proportion of respondents are confident that they do not lack lifelong learning and information management skills, moral and professional ethics skills and teamwork skills.

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