Measuring Student Performance in Job Market through Industrial Training: A Study at Universiti Utara Malaysia

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Abstract: There is a lack of studies that investigate the impact of industrial training on university students. To fill this gap, a study was carried out to investigate and consequently measure the performance of students of Universiti Utara Malaysia (UUM) who are undertaking their industrial training in various organisations of different industrial backgrounds. Five skills are measured including students' knowledge on basic knowledge, communication skills, attitude and discipline, hands-on skills and leadership. Questionnaire was sent to all organisations which participate in UUM's industrial training programme and a total of 438 responded. The initial feedback indicated that industrial training is viewed by the respondents as essential and would benefit both university and the industry. The performances showed by the students are satisfactory and, in general, fulfil the organisations' needs. The respondents also forwarded some interesting suggestions and ideas on how to improvise efforts to strengthen students' skills.

Keywords: Industrial Training, Soft Skills, Student, Performance

Introduction

EDUCATION IN UNIVERSITIES aims at moulding and producing knowledgeable future human resources for various job areas through teaching and learning processes and curricula activities. In conjunction with this, most curricula designed in the universities focus on technical education that plays a vital role in developing quality personnel (Zagonari, 2009; Ball & Razmi Chik, 2001). Technical education usually covers courses and programmes where lecture is a major method used to deliver the knowledge. In contrast, vocational education is largely job specific within the purview of the employer and greater industry (Barrows & Walsh, 2002) where developing hands-on skills are a major concern.

Although there is no absolute theory to proof the distinction between curricula in universities and vocational institutes, students from universities are more likely to learn on how to cope with the changing skill requirements on completion of their curriculum. Besides, the rapid technology changes demands students to be updated. In contrary, students from vocational institutes are more likely well-identified with transferable skills and they are able to demonstrate the skills on completion of their curriculum (Zagonari, 2009). Nevertheless, Brunello and Checchi (2007) suggested for general education in vocational institutes to in-

crease intergenerational mobility among students. This is to ensure that students survive with the rapid changes of technologies and economy.

Following Olave and Salvador (2006), this study is motivated to understand performance of graduates from universities in jobs market through industrial trainings rather than intentional focus on the distinction between universities and vocational institutes. Industrial training (which is also called co-operative education programmes) prepares students for the complex job market (Mihail, 2006) by attaching them to organisations for a specific length of time. These programmes allow students to participate in productive activities within workplace which involve thousands of employers willing to provide placements. The advantages of these programmes can be summarised in two pillars: (i) exposures gained by students (see Weinberg, 1989) and (ii) feedbacks received from the industry by universities for curriculum improvement (see Ferguson, 1991).

The importance of industrial training has been discussed by many researchers such as Lloyd and Briston (2006), Barney and Pleban (2006), Griffith and Wilson (2003) and Beck and Kosnick (2002). Most of these studies critically discussed the change of attitude that should be possessed by students when they complete the training. Students may possess good attitudes, better skills and maturity but their mood (anxiety, job satisfaction, perception and efficiency) may change unconsciously throughout the period (Teng, 2008). These findings demand further research to be done especially in developing theoretical framework of industrial training in vis-à-vis smart partnership. A deliberate plan of industrial training programmes will prepare students for quality young employees that could bring benefits to the country economically.

Whilst some studies indicate that industrial training provides good platform to bridge gaps between academicians and practitioners, the objectives of the programmes will not be achieved successfully if there is a lack of commitment from organisations. Bailey et al. (2000) reported that non-participating organisations in industrial training believe that such programmes are voluntary activities that will not bring much benefit for them. In addition, the objectives are also failed if the participating organisations misuse the programmes for their own benefits (althoughthey believe it is beneficial to the students). Such situationoccurs when their main interest is to gain access to low-cost labour and short term employees thus their motivation towards educating the trainees is slightly low.

Universities need to investigate how their students are accepted in the job market. Findings of the investigation will be helpful for universities to identify loopholes in the offered programmes thus some necessary action can be planned to overcome the problems. Realising the importance to understand quality of undergraduates this paper will highlight a study that investigates the performance of Universiti Utara Malaysia (UUM) students in job market through the industrial training programmes. The main focus of the study is to measure students' level of soft skills which are commonly sought by employers. This paper starts with a discussion on previous related studies followed by the description of the methodology used. Then the research findings are presented before the concluding remarks.

Student Performance in Job Market

Student Quality

Quality of students in job market can be investigated generally in two possible ways either when (i) students have graduated from university and tied in job market or (ii) students have not yet graduated but are in a workplace for industrial training purposes as part of their study. The former may give a better insight about students' motivations, attitudes towards their jobs and skills. However, tracking them in job markets is difficult and consumes high amount of cost. As a matter of fact, there is a possibility that the number of participating organisations in a study may be too small.

In comparison to the former, the latter offer better participation from organisations but it may be slightly biased to reflect performance and capability of students as employees. For example, students are easily uninspired and lack of interest in their activities if they are treated as aliens and seldom given trustworthy tasks like permanent employees. Therefore, they may not be able to show their true quality on the job as suggested by a study by Teng (2008).

The industrial training programmes in Universiti Utara Malaysia (UUM) require students to undergo their training in their final semester after all courses have been completed. These programmes prepare students with soft skills needed by industry and they will gain new knowledge through their positive participation in the workplace within four to six months of industrial training. The main reason for offering the industrial training programmes during the final semester is to allow the trainees to get employment offers before the training ends, thus reducing the unemployment problem among the graduates.

Since, industrial training has been made a prerequisite for most undergraduate programmes in UUM, students' performance must be evaluated to ensure the programmes are indeed effective in enhancing students' thinking skills, communications skills, attitude, appearance and other necessary skills that should be possessed by a good employee. Currently, all activities performed by students during the training period will be graded by the industry supervisors and the assigned university lecturers. In UUM, each student is assessed on certain criteria that are accumulated for grading purposes. The participating organisations contribute about 20-25% of the accumulated marks while major contribution is from the appointed lecturer (university supervisor) where each student is assessed from the written report, presentation, log book, and other related components. However, there is a loophole in this assessment process whereby the larger portion of mark is allocated to technical aspect such as the return report that conceal the true performance of the student. Subsequently, a survey was carried out as an alternative to get feedbacks from organisations regarding students' performance which include soft skills.

Skills Acquisition

The question on what are the skills that should be assessed from the students during the industrial training programmes is crucial. In general, students are supposed to get exposure to real work environment and be able to harness their skills and competencies upon completion of the training. These added values can be used as a milestone to understand whether the objectives of the industrial training programmes are successfully achieved. The issue is what

are the expected skills and competencies that should be attained by the students from the programmes?

Mihail (2006) used 22 areas of skills from Murray and Robinson (2001) to investigate the most important benefits attained by students from the industrial training at Greek universities. These areas of skills were extracted from the three main categories of skills which are academic, enterprise and personal development skills. The first category assembles skills that are related to learning such as written and spoken communication, computer literacy and specialist knowledge. The second category focuses on the ability to work in group, to prioritise tasks and to manage time and finally, the last category consists of quality of oneself such as self-confidence, creativity and ability to solve problems. His study discovered that students had the chance to enhance specialist knowledge and becoming much better with information technology. Besides, the industrial training shapes the students to be manageable in time management and prioritising work, as well as giving them opportunities to have open dialogue and experience working as a team.

According to Beard (2007), assessment of the intern by the on-site supervisor should provide an opportunity to reflect on the student's attitude, initiative, dependability, maturity, judgment, ability to learn, quality and quantity of work, relation with others, attendance and punctuality. Similarly, a study on the participation of organisations in the industrial training programmes by Bailey et al. (2000) reveals that skills possessed by interns are at least as good as the entry-level workers. These similarities occur when the investigation was carried out on several skill categories including attendance, reliability, attitude, productivity, training required to learn job, communication skills, writing skills, mathematics skills and technical skills.

Therefore, based on the analysis on the related literature reveals that there are at least five interrelated skills that can measure students' performance at workplaces which are basic knowledge, communication skills, practical skills, leadership and attitude. Details of how these measures are achieved are presented in Section 2.2.

Methodology

Population of Study

This study obtained feedbacks from organisations on performance of UUM students from their experience with the industrial training programmes. A total of 2665 students from various academic programmes who went for industrial training in December 2006/2007 (later known as A062) was chosen as a population and the distribution of students' academic programmes is tabulated in Table 1.

Table 1: Number of Students Involved in the Internship Programme December 2006/2007 Based on Academic Programmes

Academic Programme	Number of Students
Accounting	43
Banking, Finance and Insurance	351
Business Management	588
Communication	189
Economy and Decision Sciences	110
Human Resource	82
Information Technology and Multimedia	348
International Affairs	177
Public and Development Management	340
Social Work	80
Management of Technology	235
Tourism and Hospitality	122
Total	**2665**

Questionnaire Development

The questionnaire development process is divided into four phases as the following: (i) analysis of the related literature, (ii) focus group, (iii) items development and (iv) face and content validation. The first phase is the accumulation of related skills that are suitable to be measured on graduates' performance as discussed from existing studies by Mihail (2006), Bailey et al. (2000) and Breaugh (2008).

Then, the obtained skills are discussed in the focus group represented by the experts from the University Industrial Training Programmes in the second phase. Only appropriate skills that should be attained by graduates from management studies are identified and will be used in the questionnaire in order to avoid bias evaluation. In the third phase, each selected skill is converted into a measurement item in the questionaire. Since there are too many skills and some of which are interrelated, these skills are grouped into five main categories namely basic knowledge, communication skills, practical skills, leadership skills and attitude and discipline. The use of categories will give better insights about students' performance in workplace. For example, students are expected to be able to deliver their opinion or idea in the form of writen and spoken. These two skills are obviously different but they are grouped together under the same category of communication skills. Details of these categories and skills are discussed in Section 2.2.1.

Finally, face and content validation tests are performed in small identified sample to ensure that the constructed questionnaire is readable and reliable to the study before it is finalised. This sample is participated by volunteer lecturers and organisations that collaborate actively with the internship programmes.

Identifying Soft-skill

The questionnaire focuses on five categories of soft skills which are: (i) basic knowledge, (ii) communication skills, (iii) practical skills, (iv) leadership skills and (v) attitude and discipline. Measurable items were then identified for each category as listed in Table 2.

Table 2: Category of Soft Skills and Measurable Items

Category	Measured Item
Basic knowledge	Knowledge on the field of study, responsibility, attached industry and current issues.
Communication skills	Level of capabilities to deliver thought, opinion and perform negotiation to customers, peers and officers in Bahasa Melayu and English using both mediums; written and spoken.
Practical skills	Components in this category include students' ability to use computer and technology and solve the assigned problems.
Leadership skills	This category consists of components such as the ability to make decision pertaining to the task planning, to lead other colleagues, willingness to accept responsibilities.
Attitude and discipline	Components in this category include the level of commitment on the job, time management, willingness in giving assistance when needed and tasks prioritisation.

Basic knowledge aims at measuring students' awareness on getting information about the attached organisation, the given tasks or projects, the application of subject learning and some current issues surrounding them. The communication skills evaluate students' capability to communicate in writing and speaking when they performed their tasks. These skills are tested in Bahasa Melayu, the mother tongue for most Malaysians, and English, the language that is commonly used in private and corporate sectors in Malaysia.

One of the main objectives of industrial training programmes is to provide students a platform for gaining either knowledge or theories in real work setting. Therefore, this study investigates how students are able to integrate knowledge (obtained in the classroom) exposed to them in the classroom while solving real problems using information and communication technology (ICT), technologies andother possible solutions. The items under practical skills will determine the level of capability in handling technologies commonly used in management area. The measurements used in this category are not extensively exclusive as the ones that are often used for medicine and engineering industrial training programmes that demand students to use special technologies or systems.

Leadership aims at measuring the quality in decision making among students. Items listed in this category investigate students' ability in planning and taking appropriate action for a given task, leading and working in a team and responsibility towards a given task. Finally, the attitude and discipline category investigates students' manner and discipline during the training. This category attempts to identify students' willingness to improve themselves, commitment in their jobs, confidence in taking a challenge, discipline in time management and willingness in helping peers to achieve the same objectives.

Questionnaire Design

The questionnaire consists of five parts which are; (I) profile of the participating industry, (II) measurement on the five category of soft skills of students' performance, (III) measurement of the performance of the University in managing the industrial training programmes, (IV) industry opinion towards the industrial training programmes and (V) employers' suggestion for enhancing the industrial training programmes as they prefer to. The focus of this paper will be on parts I, II and V only.

All the identified components as listed in Section 2.2.1 are measured using the Likert scale ranging from 1 to 5 in part II of the questionnaire. The lowest value indicates less satisfactory performance and the level of satisfactory increases as the value approaches 5.

Respondent Identification

There were 712 organisations involved in placing UUM students for industrial training programmes for A062 session. They accepted at least one student at any one time, and the training may take two and the half months, four months or six months depending on the requirement of programmes. Some of these organisations have been participatingin the industrial training programmes for many years and others may be first timers. However, such status will not be a major barrier in their assessment of students' performance. All organisations participating in the industrial training programmes must provide their backgrounds for record purposes and this information is stored in Practicum System (SISPR), and is used in this study.

Data Collection

The questionnaire was distributed through mail to the officer in each organisation who was responsible to supervise the attached trainees. Due to poor response at the beginning of the data collection process, the questionnaire was again distributed to organisations by visiting them. Besides, phone calls were also made to remind the respective officers to respond. Subsequently, this effort resulted into 438 organisations (61.5%) participating in the survey.

The completed questionnaires were analysed using descriptive statistical analysis to explain the background of the sample and their response. A content analysis was also performed to determine some potential suggestions to be considered for further improvement of this programme. The overview of this study is summarised in Figure 1.
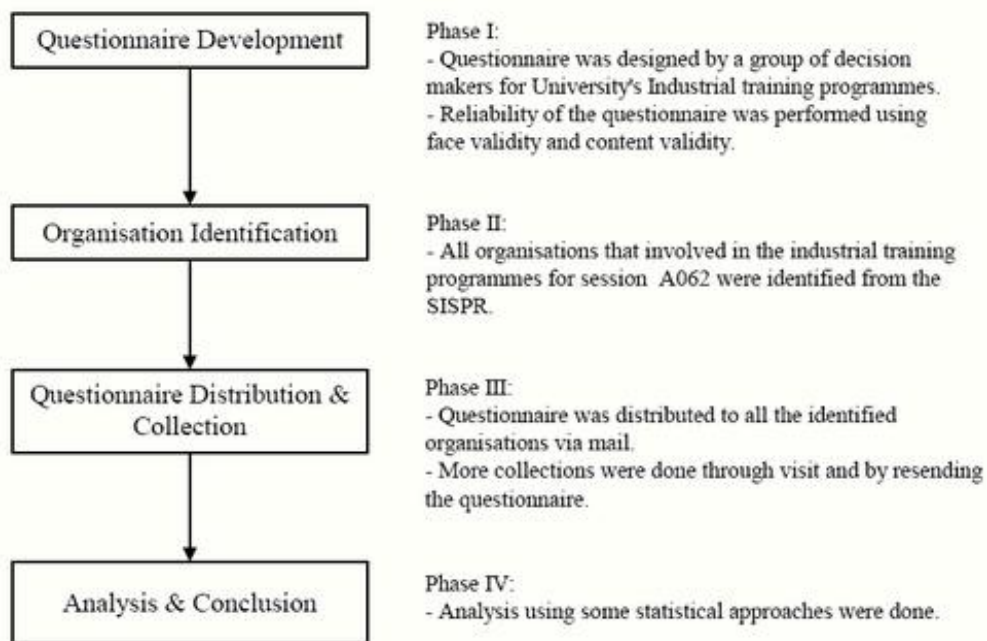
Questionnaire Development	Phase I: - Questionnaire was designed by a group of decision makers for University's Industrial training programmes. - Reliability of the questionnaire was performed using face validity and content validity.
Organisation Identification	Phase II: - All organisations that involved in the industrial training programmes for session A062 were identified from the SISPR.
Questionnaire Distribution & Collection	Phase III: - Questionnaire was distributed to all the identified organisations via mail. - More collections were done through visit and by resending the questionnaire.
Analysis & Conclusion	Phase IV: - Analysis using some statistical approaches were done.

Figure 1: Framework of the Study

Results and Discussion

Organisations involved in this study can be grouped into four sectors: private organisation (45.1%), government (42.3%), government local companies (8.0%) and non-government organisations (4.6%). From this list, 54.7% of the organisations have been participating with the UUM industrial training programmes for more than a year.

Records from the Academic Affairs Department revealed that the grades scored by students of A062 session for the industrial training programmes are excellent (see Table 3) with 99.7% students passing the programmes. These results show that the performance of students in the job market is satisfactory. However, these grades are unable to describe the strengths and weaknesses of skills possessed by students because major contribution of the assessment is dominated by the technical aspects such as the final report and log book, with less input from the industry perspective.

Table 3: Results for Industrial Training for A062 Session

Grade	A	A-	B+	B	B-	C+	C	D+	Fail
Number of students	1358	778	387	44	16	4	5	1	7

Analyses conducted on the returned questionnaires show that students are generally good in hands-on skills, leaderships and disciplines (see Table 4). In the hands-on skills category, the survey shows high level of computer and software literacy among students. Most of these students are also able to perform their jobs and solve the given problem satisfactorily. In terms of leadership skills, most of the students are able to work in groups, making decision, possess high level of integrity and responsibility and deliver satisfactory job. The only setback

is related to the students' inability to do well in leading their peers. Finally, students possess good discipline in their job and time management during their internship training.

Despite good performance in most measured soft skills, the results also indicate that students face some difficulties in observing the organisation (basic knowledge skills) and communicating in English confidently (communication skills). As printed in Table 4, most students have little knowledge about the organisation they are attached to, contrary to good knowledge of their programme of study. In communication skills, most students are recorded as having difficultyin communicating with others in English either verballyor written. They however perform well when communicating in native language.

Table 4: Table of Performance for Five Categories of Soft Skills (in Percentage)

Skills	Level of Performance			
	Unsatisfactory	Moderate	Satisfactory	Excellent
i. Basic knowledge of …				
programme of study	0.7	28.4	49.7	21.2
jobs or responsibilities	1.1	31.7	45.3	21.8
organisation	3.9	44.6	35.4	16.1
general and current issues	3.2	39.1	42.5	15.2
ii. Communication in …				
writing: native language	0.5	16.6	47.0	35.9
writing: English	6.9	44.0	38.7	10.4
oral: native language	0.0	14.5	45.4	40.1
oral: English	6.0	46.0	37.6	10.4
iii. Hands-on skills and competency in				
computer and software literacy	0.2	14.4	47.7	37.6
do job	1.1	19.9	45.3	33.3
solve the given problem	2.8	31.0	45.9	20.4
iv. Leadership for …				
decision making	2.8	41.6	43.0	12.7
leading peers	3.5	45.7	36.6	14.2
teamwork	0.5	16.3	46.9	36.3
integrity	0.2	13.6	45.5	40.7
responsibility	0.2	13.8	42.1	43.9
quality job	0.9	27.4	46.8	24.9

v. Discipline in …

focus during the training	0.8	2.2	42.9	34.1
time management	0.8	15.1	40.5	43.7
lending help	0.0	19.0	40.5	40.5

The spider-web chart as presented in Figure 2 summarises the organisations' perceptions on the investigated categories of students performances. This chart will identify critical signal of weaknesses on the performance based on the type of organisations. A short brief about the spider-web chart is as follows: a perfect performance will score 5 points hence if all the five skills are excellent, then each skill scores 5 points. Labelling the points in the spider-web chart and joining the points lead to a perfect pentagon.
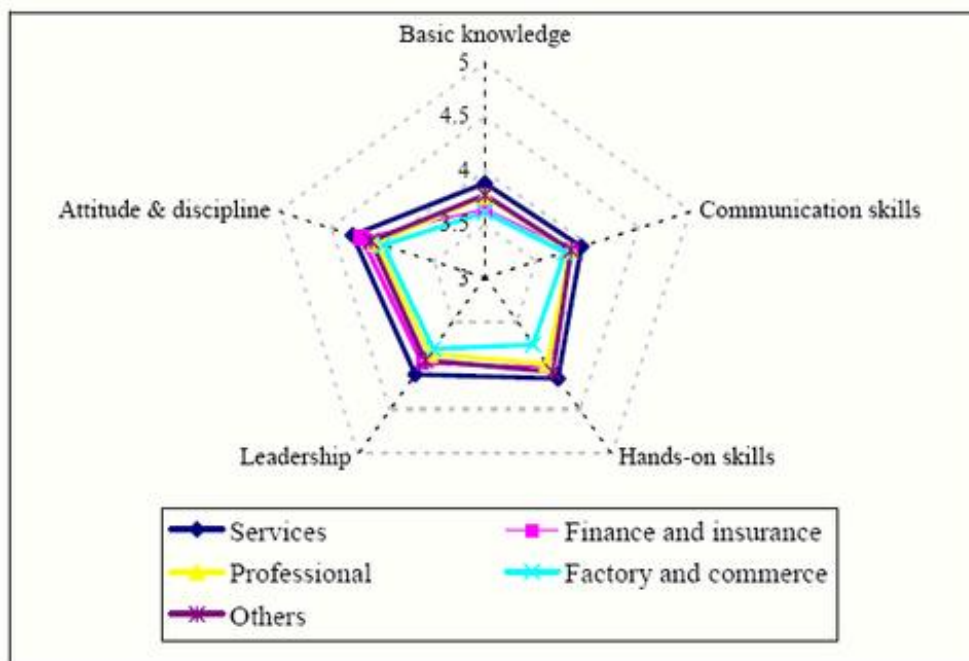

Figure 2: Summary of Students' Performance Based on Five Soft Skills. See Text for Explanation

In comparison to Table 4, Figure 2 shows variation of organisations' perception on the measured skills. There are five large groups of organisations participating in this study labelled as (i) services (e.g. government services, hotel and tourism agencies, business service etc.), (ii) professional (e.g. audit firm, research and development institute etc.), (iii) finance and insurance, (iv) factory and commerce and (v) others. The last group consists of various organisations such as state and property, agriculture, construction and education. Meanwhile, factory and commerce are grouped together due to limited number of them but combining with "Others" leads to bigger number of organisations compared to the other three groups.

Organisations from services category are satisfied with students' performance in all skills and the scores are similar. These perceptions are shared by other organisations except for factory and commerce as they have rated moderate satisfaction for all skills. Interestingly,

factory and commerce have given the lowest satisfaction score for hands-on skills, but they are satisfied with the students' communication skills.

Figure 2 also indicates the differences in skills sought by oganisations. Among the investigated organisations, factory and commerce put higher weight on students to have a good basic knowledge on some technical aspects and hands-on skills especially when it is related to jobs and responsibilities. They however have less requirement on communication skills.

There are about 78.0% participating organisations in this study which also provided internship placement for students from other local universities. Therefore, it is interesting to identify some differences in the level of skills among them. In general, UUM students are rated as good in soft skills by the participating organisations. Similar performance is also rated to other local students. This result can be understood as local students are having similar performance despite the differences of teaching and learning approaches by the universities.

The participating organisations suggest some skills that can be implanted into the curricula of management studies such as basic accounting and financial skills, critical thinking and organisation management. Such skills are considered appropriate because all employees, regardless of their positions in an organisation, must understand how an organisation is managed. Furthermore, these skills are generally applicable to various types of organisations.

Conclusion

This study shows that feedbacks about the performance of students in the job market can be obtained from the industrial training programmes. This strategy promises good participation from organisations and may overcome problems that often occur when feedbacks are difficult to be collected once students are employed. Besides, the problem of bias evaluation due to mismatching between job and students' academic background is reduced because internship programmes arrange the internship programmes placement is plannedaccording to students' academic background.

Five categories of soft skills are focused in this study namely basic knowledge, communication skills, hands-on skills, leadership skills and attitude and discipline. Each category consists on selected soft skills that best reflect graduates from management backgrounds. However, one should consider some added skills when dealing with technical internship programmes such as medicine, engineering and pure sciences.

This study discovers that UUM students' performances are satisfactory in their overall practical skills, leadership qualities and discipline eventhough they do not have working experience. However, students' basic knowledge and confidence to converse in English must be strengthened. Most students are rated well for knowledge of background of their programmes of study but they are not equipping themselves with new information beyond their pursued study area. Meanwhile, the issue of lack of confidence to communicate in English still remains and it needs some structured activities or programmes to overcome the problem.

Most categories of organisations indicate similar perception on UUM's students except for factory and commerce. The results obtained in this study should not be interpreted that students from management background of studies do not fit into such industries. There are some departments in the factory that they are possibly can be accepted such as financial department and human resource department. However, students need some time to get familiarise with the technical aspects of which are the major concern of these industries.

Finally, this study potrays that there is no difference of job performances between UUM students and other local universities. Thus, it can be concluded that the issue of lack of basic knowledge and incompetence in communication occur among the local students. A collaborative effort through smart partnership between universities and the industry must be undertaken to minimise this problem.

Information gathered from this study can provide important insights from the perspective of organisations, which can be shared with programmes' coordinators and administrators. These feedbacks should be considered important components of a comprehensive evaluation on students' performance. Thus, the resulting feedbacks can be valuable in improving the internship programmes as well as the overall academic programmes for future professionals and managers.

Future study is planned in order to identify some potential differences of soft skills between local and abroad graduates, especially those who are from management studies. Factors that contribute to such differences must be identified and the results will be useful for local higher institutions to generate better curriculum in their endeavour to produce better knowledgeable human capital.

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