

**ANALYSIS OF UNIVERSITY-INDUSTRY COLLABORATION IN CURRICULUM DEVELOPMENT: A CASE STUDY FOR THE UNDERGRADUATE PROGRAMMES OF FACULTY OF ADMINISTRATIVE SCIENCE AND POLICY STUDIES, UNIVERSITI TEKNOLOGI MARA**

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**Abstract**

One of the challenges for a university's education is to fulfil the industries' demand for a "ready to work" graduate. Today, the expectation of industries has sought for balance and holistic graduates who are equipped with a proper problem-solving and communication skills, critical thinking ability and hands-on practices throughout their university's learning experiences. Therefore, getting the industries' inputs and feedbacks in the curriculum design are crucial for determining the sustainability and relevance of an academic programme in a university. Hence, the study aims to analyse the industries' current demands and feedbacks related to three undergraduates' programmes offered in the Faculty of Administrative Science and Policy Studies (FSPPP), Universiti Teknologi MARA (UiTM). The study adopted a qualitative approach and employed Focus Group Discussion (FGD) and a market survey to selected industrial panel experts industries. A total of 18 panel experts involved in the FGD and 109 industrial panel experts were involved in the market survey. The findings of the study had revealed that, the need of industries on FSPPP's curriculum design was centered on graduate preparedness theme in particular with sub-themes of; 1) knowledge and skills, 2) soft skills and 3) good ethical values. In addition, the findings also showed that the three FSPPP's undergraduate programmes were considered relevant and matched with the needs and demands of the industries. This study concludes that in ensuring the sustainability of the FSPPP's undergraduate academic programmes, the involvement of industries' in reviewing a programme curriculum will remain significant in order to ensure the effectiveness of a curriculum offered at the Faculty of Administrative Science and Policy Studies, Universiti Teknologi MARA (UiTM).

**Keywords:** Higher education, industries, curriculum development, curriculum design, graduate employability

**1.0 INTRODUCTION**

Malaysia Higher Education Blueprint 2015-2025 has been implemented in 2015 to bring about a major transformation in Malaysia tertiary education. Despite of many excellent achievements in higher education, the Malaysian Ministry of Education has recognized that the future challenges of industrial revolution, internet of things and the automation of knowledge are going to dramatically alter the higher education landscape in the 21<sup>st</sup> century.

Undoubtedly, an on-going concern facing the higher education in Malaysia is the issue of graduate employability. Among the youths in the workforce, the percentage of those unemployed is higher among those with a tertiary education compared to the ones without a tertiary education. In 2015, of the 405,000 youths with tertiary education, 15.3% were unemployed (Shanmugam, 2017).

Many factors have contributed to the graduate employability. This is the main dilemma faced by most of developing countries, when the increase of highly educated graduates who are not able to fulfill the needs of the available job market. Many empirical studies (Nooriah & Zakiyah, 2015; Zaliza & Mohd Safarin, 2014) found that the critical factor contributing to a low graduate employability is due to the unresponsiveness of the curriculum towards the industrial needs and expectations. Nooriah and Zakiyah (2015) found that more than 90% of respondents prioritised that the employability skills development must be in line with employers' expectations.

Additionally, this highlights how important the planning and design of a curriculum for producing a well-equipped graduate that could fit into the world of work. The question to ponder is, to what extent the present curriculum is responding to the industrial needs and expectations? Barnett (2011) argues that a greater educational achievement and employability could be attained through partnering with the industries in curriculum development. Thus, Barnett (2011) argued that it is crucial for ensuring that the teaching and learning at the tertiary education matches with the relevant set of knowledge, competencies and skills required by partner industry.

Banbul and Sintsyehu (2017) highlighted that the key indicators of curriculum success includes the quality of the learning achieved by students and also how effectively the students use what they have learned for their personal, social, physical, cognitive, moral, physiological and emotional development. Likewise, the goal of Malaysian higher education also aims to equip the future graduates with a set of competencies and skills that are relevant to the industries' needs and expectations (Malaysian Education Blueprint 2015-2025).

Hence, the study aims to analyse the industries' current needs and expectations related to three undergraduates' programmes offered in the Faculty of Administrative Science and Policy Studies (FSPPP), Universiti Teknologi MARA (UiTM). In particular, the study was carried out from the perspectives of the industries in order to ascertain the needs of industries in designing the FSPPP's undergraduate curriculum. The study also seeks to determine to what extent the FSPPP undergraduate curriculum was matching or responding to the needs and expectations of its stakeholders in producing competent public and corporate administration graduates.

### **1.1 Research Objective**

The main research objectives of the study are as follows:

- i. To determine the industries' needs of the FSPPP's undergraduate curriculum.
- ii. To examine whether the FSPPP's undergraduate curriculum matches with the needs and expectations of its industries.

### **1.2 Research Question**

- i. What are the needs and expectations of the industries towards the FSPPP's undergraduate
- ii. curriculum?
- iii. Does FSPPP curriculum match with the needs and expectations of its industries?

## 2.0 LITERATURE REVIEW

### 2.1 Future Education of 21<sup>st</sup> Century

According to McPhail (2016), twenty-first-century learning discourse is variously referred to in the literature as ‘future-oriented education’, ‘future-focused’, ‘future-oriented learning’ and ‘twenty-first-century learning’ thus the curriculum need to be opened up to relevant and accessible knowledge and skills (Bolstad, 2012). The key principles for a future-oriented education system of twenty-first-century learning are emphasising on (1) personalising learning; (2) equity, diversity, and inclusivity; (3) using knowledge to develop learning capacity; (4) rethinking learners’ and teachers’ roles; (5) a culture of continuous learning for teachers and educational leaders; and (6) new kinds of partnerships and relationships: schools no longer shift away from the community.

Many educators need to shift their thinking towards new conceptualisation of knowledge such as key competencies, education for sustainability, and education for enterprise as a means for finding ‘coherence across ideas, creating opportunities for deeper shifts in learning, curriculum, school organisation, and school-community relationships’. Besides, change towards twenty-first-century learning goals is not likely to succeed unless there is community buy-in. Personalised learning will be realised through partnerships with the community which provide students with opportunities to experience authentic ‘real-world’ projects that are of interest to them.

### 2.2 Theories in Curriculum Design

Curriculum models help designers to systematically and transparently map out the rationale for the use of particular teaching, learning and assessment approaches (O’Neill, 2015). However, these models should complement with personal and professional judgement on what is a good approach to enhancing student learning. In most programmes, there are elements of both the ‘Product Model’ and the ‘Process Model’, in fact, some programme may accentuate more than the other. The Product Model focuses much on learning objectives and were viewed as employing very technical, means-to-end reasoning (Tyler, 1949). Meanwhile, Knight (2001) expresses the Process Model is a more intuitive way focusing the processes, messages and conditions thus right and trusting good outcomes will follow. It is more important to prioritise what you are really trying to achieve in your teaching/learning activities and then write your programme and/or module learning outcomes. Besides the Product and Process Model, there are several models that are more specific than individually or collectively that are suitable to the needs of programme design.

**Table 1. An overview of the curriculum models**

Curriculum Models (Designs)		
Product	Higher Education Literature	Performance or system approach Traditional or Discipline based curriculum <sup>1</sup>
		Cognitive Approach <sup>1</sup> Social constructivist approach Threshold concepts <sup>2</sup>
Process		Experiential or personal relevance <sup>1</sup>
		Social critical approach <sup>1</sup>

1= Toohey (2000); 2= Land, Cousin, Meyer & Davies (2005)

In the higher education literature, Toohey (2000) elaborates on the above models with view knowledge, express goals, organise content, assess learning and what resources needed are used in different disciplines. There is a collection of models that are organised around how students cognitively process information either individually or how this is enhanced by groups/peers. These can vary from the more cognitive information processing models to the more social models, that is social constructivism. Meanwhile, a 'threshold concept' is a core concept that, once understood, transforms the learner's way of looking at, and acting in, the discipline. 'It represents a transformed understanding, without which the learner cannot significantly progress', explains Dr Bettie Higgs, NAIRTL Director (Land, Meyer & Smith, 2018). Hence, the FSPPP curriculum review work has been based on both the product and process curriculum models.

### **2.3 Industry Requirements for designing higher education curriculum in Malaysia.**

The main issue of designing higher education curriculum is in terms of quality curriculum structure. There are few aspects to be considered to achieve quality curriculum structure. Some may focus on the benefits that will be gained by students such as the skills acquired, depth of knowledge, quality of lecturers, facilities offered and others. On the other hand, others might argue on the relevance of the courses offered for the programme. This may include the content of the syllabus delivered, teaching methodologies, assessment criteria and references used. Apart from ensuring the programme matches with the quality and accredited by accreditation body, namely the Malaysian Qualification Agency (MQA), university also focuses on whether the graduates produced will be able to meet the market needs. Ability to meet industry's demand is crucial as it linked with the employability rates among graduates. A mapping of academic-industry expectation might be necessary to ensure the curriculum design and graduates produced align with industry requirements.

A good design of curriculum is expected to produce quality graduates that will become an advantage to the employer. A quality graduate who possesses relevant competencies to fill in vacant position in the industry will be beneficial to boost economic performance of the country. The 2016 Bank Negara Malaysia Annual Report highlighted that inadequate supply of industry-ready graduates hindered the firms from creating high-paying, high skilled jobs for the local workforce.

Question might be asked on what constitutes a quality graduate who fulfills the demand of the market? Does the problem of unemployment is due to the issue of quality level of graduate? A study by Rahmah, Ishak and Lai (2011) emphasise that high employer expectation and mismatching lead to unemployability. They further argue that the quality of the graduates is one of the factors that leads to unemployment as some employers complained on the graduates' quality and skills possessed which did not meet the expectation from the industry. This study also recommends that the practical training period to be prolonged to expose students with real working environment sufficiently. In addition, Zaliza and Mohd Safarin (2014) found that graduates' attributes, lecturers' competency and quality of education are among the factors that contribute to unemployment. This is supported by Shaharuddin Ahmad, Khaidzir, Azizan, Kadir, Zainul Ariffin, Khairil Anwar & Wan Mazlina (2014) who reveal that students' soft skills play very important role in their marketability when they leave their universities, based on the students' feedback.

Moreover, issue of discrepancy of expectation between educational provider and industry should be focused to ensure the expectation is aligned. A study by Parmjit, Roslind, Adlan Ramly, Imran Ho Abdullah and Zamalia Mahmud (2013) in comparing perception between employers and instructors on the importance of generic skills in terms of their priority in the workplace and the higher education curriculum disclose that a mismatch of perception has occurred. They find that integrity and professional ethics as the preferred skill by multinational employer compared to communication skills for local employers. Both skills also have

been identified as the most important generic skills required for employment by instructors. Nonetheless, instructors are highlighting teamwork skills in their teaching although this skill is not highly prioritised by the employers. They further argue in their studies that critical thinking and problem solving skills which is crucial in the educational objectives was not deemed as critically important by the employers (Parmjit, Roslind & Mohd Adlan Ramly, 2014).

## **2.4 Engaging Industry Elements in Designing Higher Education Curriculum**

In order to align industry demand and curriculum design, innovative approaches can be implemented. Plewa, Gala'n-Muros and Davey (2014) explain the need to increase employability and entrepreneurial behaviour of European curriculum by incorporating the industry approach in the teaching delivery. Their study indicates that there is positive impact of senior management engagement, alumni networks and external communication of university-business cooperation, particularly on business engagement in curriculum design as well as on the curriculum that meet industry needs. This is consistent with the result of the study by Davey, Baaken, Gala'n-Muros, and Meerman (2011) in which the academics and higher educational institution indicated extensive business engagement in curriculum design and delivery. Some of the respondents' further revealed that they have had a guest lecture from industry expert and conducted project with industry as their teaching methodology and assessment.

José Guimón (2013) also encourages the collaboration between universities and industries as innovative approach to reach win-win situation. This collaboration can be in terms of research, shared infrastructure, human resource, intellectual properties, just to name a few. He suggests that the most appropriate approach to promoting university-industry collaboration depends on the country's technological and institutional endowments and its willingness to consider the promotion of university-industry linkages as part of a broader science, technology, and innovation policy programme.

## **2.5 FSPPP and its undergraduates' curriculum designs.**

FSPPP conducts its curriculum review for every 4 years. This curriculum review is made to strengthen the existing curriculum based on feedback from industries, educators, students and alumni. A series of academic visits for its undergraduate programmes were conducted for several years at FSPPP UiTM from various campuses to review its curriculum by external examiner. The results of the external and the reviewer's feedback have been taken into account in the review. Additionally, the programme has conducted several focus group discussions and surveys using Google form to get the latest feedback from industry and alumni. Throughout series of workshops, meetings, presentation in front of the appointed expert panels, all academic's staff and management work hand in hand to ensure the smooth running of the curriculum review.

There are various aspects to be looked into in order to design higher learning education curriculum. In UiTM, curriculum component comprises university courses, faculty core courses, program core courses and elective courses. Maintaining the Blended Learning element, integrated Cumulative Grade Point Average (iCGPA), Technical and Vocational Education and Training (TVET), Massive Open Online Courses (MOOC) in the entire curriculum structure, has reinforced FSPPP undergraduate's programme curriculum. It is to ensure teaching and learning methods apply knowledge, skills and attitudes in line with the needs of the nation, the community and the industry.

### 3.0 METHODOLOGY

#### 3.1 Research Design

Case study design was adopted as the main research design of the study to gain insight into the phenomenon of the study (Creswell, 2007). The case study was adopted as it provides insights in understanding a complex phenomenon and serves as an important explanatory power. Therefore, given the reasons above, the qualitative research design was chosen for conducting this study.

#### 3.2 Unit Analysis

Key informants were chosen from the experts of relevant organization. They were chosen on the basis of fields of expertise, work experiences in the areas of public and corporate administration. A total of 18 key informants for FGDs were purposely selected among the relevant stakeholders that consisted of industrial experts. Moreover, the response rate of the market survey is 47% from the total population of 234 respondents. This is in line with Duncan (2008) comparative studies which resulted to the acceptable response rate for on-line survey is at 33%. Thus, for the purpose of this research, 109 FSPPP's industrial experts were involved in the study and questionnaires were generated through Google forms.

#### 3.3 Subject of Study and Sampling Technique

The subject of this study involved a total of 18 experts that were selected from relevant industries. For Diploma in Public Administration (DPA), expertise from Public Service Department (PSD), National Institute of Public Administration (INTAN), Malaysia Department of Insolvency (MDI) and Malaysia Development Bank (BPMB) were invited for Focus Group Discussion (FGD) with panel of expertise from the industry. As for the Bachelor in Corporate Administration (BCA), FGD was conducted with experts from The Malaysian Institute of Chartered Secretaries and Administrators (MAICSA), Malaysian Association of Company Secretaries (MACS), the Companies Commission of Malaysia (SSM), representatives from company secretarial firms and secretarial department and appointed Adjunct Professor to the faculty. The industries were selected based on their expertise to review and recommend on the curriculum structure improvement.

A purposive sampling technique was adopted for selecting the relevant panel industry. Purposive sampling method, in which the required essential criteria were preselected, was utilised to choose the appropriate population or sites to be studied. Patton (2002 as cited in Merriam, 2009) explains that the reason for the choice of purposeful sampling is most effective in selecting information-rich cases for an in-depth study. On the other hand, random sampling design was employed to select the market survey respondents among the FSPPP alumni's employer of the undergraduate programmes.

#### 3.4 Data Collection Techniques

This research employed two data collection techniques; 1) Focus Group Discussions (FGDs) among the panel experts from the industry and 2) A market survey that was distributed among the FSPPP's panel experts for the three academic programmes. A market survey technique was chosen to enable the researcher to validate the qualitative evidence in order to ensure the accuracy and validity of the data (Stake, 2010).

### 3.5 Data Analysis Procedure

Thematic Analysis was the main technique adopted for analysing the data. Boyatzis (1998) defines thematic analysis as a process for encoding qualitative information. A theme is a pattern found in the information that at the minimum describes and organizes the possible observations and at maximum interprets aspects of the phenomenon. Thematic analysis is concerned with determining something about the group of respondents as a whole. This means it looks at the patterns of themes across the full data set, highlighting what the interviews have in common as well as how they differ (Boyatzis, 1998).

## 4.0 RESULTS AND DISCUSSIONS

### 4.1 Finding 1: The Needs of the Industries towards the FSPPP's Undergraduate Curriculum

From the FGDs conducted, it was revealed that the industry required the graduates that are “ready to work” and equipped with the “hands-on” skills. The elements of graduates preparedness needed by the industry for the undergraduate programmes are; 1) knowledge and skills, 2) soft skills and 3) good ethical values. This is consistent with the study done by Rahmah et al., (2011) and Parmjit et al., (2014). Thus, it can be concluded that the industries needs for the FSPPP undergraduate programmes curriculum are to prepare the students to be ready to work considering the “reality” that will be faced by the graduates upon completion of their study. Hence, the current core competencies required by the industries to equip the students with good knowledge, improve the soft skills mainly the communication and English proficiency as well as to inculcate the good ethical values. The panels of industries had suggested that these elements to be embedded in the programs’ curriculum. This suggestion is similar with the students’ view revealed by Shaharuddin Ahmad et. al (2014).

The qualitative findings have also been supported with the results from the market survey among the employers in the industry. The questions asked through the survey are on the Programme Educational Objective (PEOs) of the undergraduate programmes in FSPPP and its suitability to match the needs of the industries. For Diploma in Public Administration, 50% of the respondents were from public sector, 46.2% were private sector and 3.8% were self-occupation. From the survey, 92.3% of the respondents were hiring graduates from Diploma in Public Administration. The Diploma in Public Administration PEOs was listed and 57.7% of respondents agreed that the programme PEOs were relevant with the current job market, 38.5% chose as partially relevant while 3.8% chose not relevant at all. Based on the PEOs, respondents have done the ranking based on the job market and the organisational relevance. The ranking for Diploma in Public Administration PEOs are as follows:

**Table 2. The ranking on dpa peos based on market survey**

Ranking	Description of PEOs	PEOs
1	To produce Bumiputra executive officers who apply knowledge in performing administrative skills and supporting good governance	1
2	To produce Bumiputra executive officers who practise ethical standard in providing quality services to the community through proactive volunteerism.	2
3	To produce Bumiputra executive officers who continuously improve their knowledge and generate new ideas in managing resources and information	4
4	To produce Bumiputra executive officers who alternately take the role of a leader and a team member and communicate issues and appropriate solutions to administrative problems	3

Based on Table 2, the respondents chose PEO 1 as very important followed by PEO 2, PEO 4 and PEO 3. It shows that ability of graduate to apply and transfer the knowledge learned in university is crucial and important for the industry. Ethical values and act of volunteerism is also important as PEO 2 was ranked at number 2. As future employees, this element is a pillar for accountability and integrity, thus it might be the reason why it was ranked at number 2. The next PEOs stressed on knowledge improvement and ability to generate idea while the lower rank PEOs was on ability to be a leader and team leader.

As for BCA, 84.2% respondents from the market survey are employers in private sector and 94.7% of them employed BCA graduates. The ranked PEOs are as follows:

**Table 3. The ranking on BCA PEOs based on market survey**

Ranking	Description of PEOs	PEOs
1	To produce corporate administrators who apply and organise broad base knowledge and administrative skills to provide quality services to the corporate sectors.	1
2	To produce corporate administrators who integrate ethical and professional values in providing services to the community, recipients and provider of the corporate sectors	2
3	To produce corporate administrators who continually lead and engage in team by employing the scientific methods to provide solutions to various strategic issues facing by corporate organisation through effective communicative abilities.	4
4	To produce corporate administrators who proactively seek to improve their functional know-how and career development and demonstrate innovative management of resources and information	3

Based on the market survey, the industry players has ranked PEO 1 as the first which focusing on knowledge application and followed by PEO 2 on ethical values as number 2. This trend is similar with selection of PEOs in DPA programme. It indicates that knowledge, skills and ethical values are the most important elements required by the industries. Based on the PEOs ranking, 78.9% respondents were willing to provide 1-3 positions for BCA graduates in the area of administration, human resource, public relations, and finance with the salary starting at RM 1501-RM 2500.

**Table 4. The ranking on bas peos based on market survey**

Ranking	Description of PEOs	PEOs
1	To produce administrators and managers who apply their fundamental knowledge of administrative science and harmoniously integrate the skills in performing administrative responsibilities	1
2	To produce administrators and managers who proactively seek to improve their functional know-how and career development and demonstrate entrepreneurial skills and innovative management of resources and information	4
3	To produce administrators and managers who alternately take the role of a leader and a team member and effectively communicate issue and solutions using scientific methods	3
4	To produce administrators and managers who ethically, virtuously and resiliently provide volunteered engagement to and with society	2

Finally, for BAS, 44.4% respondents from the market survey were employers in public sector, 49.2% from private sector and the remaining was self-employed. From the total respondents 74.6% of them employed BAS graduates. Table 4 shows the ranked PEO for BAS programme. Based on the market survey, the industry players had ranked PEO 1 as the first which focuses on knowledge application and followed by PEO 4 on entrepreneurial and information management, PEO 3 on leadership, teamwork and communication as the third-ranked and ethics at the final ranking. This ranking trend is different with DPA and BCA. Based on the PEOs ranking, 66.7% respondents were willing to provide 1-3 positions for BAS graduates in the area of administration, human resource, public relations, finance and marketing with the salary higher compared to BCA, starting at RM 2500 – RM2800.

For the improvement on all the undergraduates' programmes, the results of the market survey suggested that future graduates need to be exposed with the industries real scenario and challenges through practical training. At the same time, communication skills of the graduates need to be improved. In summary, the overall findings show that for the DPA, matching the needs of both public and private sector must be the primary focus of this programme. While for BCA, the programme needs to focus on the corporate sector functions and how the sector expands. Lastly, BAS programme needs to incorporate both knowledge and skill enhancement to ensure the graduate employability.

#### **4.2 Finding 2: The Matching of FSPPP Undergraduate Curriculum with the needs and expectations of the industries**

From the FGDs, the panel of industries agreed that the curriculum structure for BCA met the needs and the expectations for the industries. They had suggested that graduate need to be trained to have critical thinking. Therefore, most importantly, the design of the curriculum must meet this criterion. This is supported by the results of the Market Survey. It has shown that the DPA, BCA and BAS curriculum structures met the needs and expectations of the industries. The market survey conducted reveals that 96.2% respondents agreed that the diploma programmes were able to produce graduates that meet with demand of the job market, both in public and private sectors. The same opinion was shared for BAS (95.2%) and BCA (100%) programme as the respondents agreed that the PEOs in the programmes were suitable with the current labour market.

Furthermore, the findings revealed that the industries agreed that smart partnership and networking between industries and university is crucial in order to create a better symbiotic relationship in curriculum design. This includes transferring and sharing of knowledge among the industrial practitioners throughout the teaching and learning process. This finding is aligned with the suggestion made by José Guimón (2013).

From both practices, the faculty will be able to restructure the curriculum plan for its undergraduate programmes. This is vital in ensuring the curriculum developed matches with the industries needs and expectations.

## 5 CONCLUSION AND FUTURE WORKS

In short, university-industry collaboration is important in ensuring the way forward in curriculum design in higher education. Frequent engagement with the industry is compulsory practices to be taken by higher education in ensuring that no gaps exist between the academic programmes offered in the university with the expectations of the industry. The Faculty of Administrative Science and Policy Studies have successfully carried out a strategic practice in engaging with the industries in its curriculum improvement since 2015. As a result, full approval on curriculum review was given to all of its undergraduate programmes in 2017. An evaluation study will be carried in the near future on the first cohort who has undertaken the reviewed curriculum.

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