Evaluation of Polytechnic Entrepreneurship Programs in Malaysia

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***Abstract*—Entrepreneurship programs can give students the knowledge, skills, and experience necessary to thrive financially in complex and dynamic economics, challenges. Lecturers in such programs play a vital role in stimulating and motivating students. This paper aims to evaluate entrepreneurship programs in polytechnic from the perspective of the lecturers. A total of 109 participants were chosen from polytechnic from six zones in Malaysia. A descriptive survey method was employed using a questionnaire designed to evaluate three dimensions: institution, instruction, and program objectives. The results showed that the institutional dimension received a moderately high rating, with the highest mean obtained for administrator support, the lecturers' level of knowledge obtained the lowest mean rating. In the instructional dimension, teaching methods received the highest mean rating, whereas availability of facilities and infrastructures obtained the lowest. Finally, the lecturers indicated a moderately high level of satisfaction with program objectives. These results demonstrate the need to improve certain aspects of the existing entrepreneurship programs.**

***Index Terms*—Entrepreneurship, entrepreneurship program, program evaluation.**

I. Introduction

By 2020, Malaysia will become a fully developed nation characterized by a knowledge society, knowledge workers, and knowledge economy (K-economy). A K-economy is necessary in order to transform the country in the face of globalization, which entails both economic uncertainty and global competition. This situation requires students entering the job market to be creative and competitive through entrepreneurial activities [1]. Thus, globalization has created a demand for programs aimed at increasing students' entrepreneurial skills [2]. Various entrepreneurship programs have emerged in Higher Education Institutions (HEIs) since 2003, when all public universities were required to prepare students for business ventures in order to increase their competitiveness in the job market. Therefore, every student and graduate today must have the skills and ability to add value to products, services, and processes in order to successfully face competition, both locally and globally. Entrepreneurship program lecturers play a vital role in guiding students to face global challenges. The main focus of entrepreneurship programs in polytechnics is to shape attitudes and develop experience, knowledge, and skills of entrepreneurship in students of different backgrounds [3]-[5].

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With this aim, the Transformation Plan of the Polytechnics is expected to produce enterprising graduates with marketable skills by the year 2015 [6]. To realize this objective, the Minister of Higher Education created the Malaysian Polytechnics Entrepreneurship Center (MPEC) on October 30, 2011. MPEC determines the policy and direction of entrepreneurship education development at polytechnics through transformation initiatives to enhance student marketability and entrepreneurship. The compilation of entrepreneurial development programs that are organized and relevant are embedded across the curriculum and co-curriculum in order to facilitate the the achievement of MPEC's objectives [7]. Many studies on entrepreneurship education have proven that it can foster an entrepreneurial culture [8]. Therefore, HEI, through the Ministry of Higher Education, has funded infrastructures and provided financial resources, academic staff, research, and innovation as well as lifelong learning education in entrepreneurship [9]. In addition, awareness of the importance of entrepreneurship education in academic and co-curricular activities has increased the number of entrepreneurship training programs in HEI [10].

II. Literature Review

A. Entrepreneurship Education

According to [11], three important objectives of entrepreneurship education approaches influence programs: (1) to promote better understanding of entrepreneurship, (2) to enhance entrepreneurial skills, and (3) to create more entrepreneurs. To achieve the first objective, the appropriate teaching method is use of the media, lectures, or seminars. To achieve the second objective, students should be given relevant entrepreneurial experience. Accordingly, if entrepreneurship education aims to create more entrepreneurs, then teaching approaches should give students practical exposure in a controlled environment. Therefore, the appropriate pedagogical methods to facilitate and strengthen interest in an entrepreneurial careers include real-life activities outside the classroom [12]. Specifically, the objectives of entrepreneurship programs are (1) to nurture and strengthen the values and culture of entrepreneurship among students, (2) to provide exposure and knowledge about business management, (3) to provide insights into business potential and entrepreneurial opportunities, and (4) to encourage students to pursue entrepreneurship after graduation [13]. This study analyzes lecturer experiences in entrepreneurship programs at Malaysia's polytechnics.

B. Entrepreneurship Program in Polytechnics

To complement entrepreneurship courses or classroom modules, the Polytechnic Department, in collaboration with appropriate bodies, organizes various entrepreneurial activities. In order to improve teaching quality, lecturers should not only practice appropriate teaching methods but also encourage the application of skills in a practical program or mini business project on campus. This will allow students to be more independent; it will also foster appropriate attitudes and entrepreneurial thinking. Lecturers must ensure that students in the program are innovative and competitive, both mentally and physically [14]. Specifically, the Polytechnic Department aims (1) to teach basic entrepreneurship knowledge through seminars, workshops, entrepreneurship opportunities, carnivals, conferences, courses, and training; (2) to identify the level of entrepreneurship of students in the program; (3) to identify students who have entrepreneurial inclinations; (4) to implement entrepreneurship development programs and strengthen students' entrepreneurial skills through the incubation process, simulation, and practice (In addition, the consolidated programs should be implemented through guidance by the SMEs and other agencies based on the real business world.); (5) to build an entrepreneurship center in the zone in order to create a measurement instrument, set a key performance index (KPI) for entrepreneurship education programs, perform evaluation and impact studies of graduates, and collect data to evaluate program effectiveness; (6) to provide an environment conducive and practical for entrepreneurship development through a one-stop student center, recognition of success of the entrepreneurial projects, and provision of facilities for graduate entrepreneurs; and (7) to engage in activities that strengthen staff competencies, including social visits, a course trainer, coaching, mentoring, a job attachment program in SMEs or industry, seminars or workshops, invited lecturers or speakers who are successful entrepreneurs or experts, with the aim of developing networks and creative business ideas to increase knowledge and new skills among the lecturer [15].

C. Program Participant Selection Methods

The coordinating center of the entrepreneurship program has adopted several methods to recruit qualified participants:

1) Lecturer Nomination

Lecturers nominate students who (1) demonstrate interest in entrepreneurship during class activities, (2) have an entrepreneurial attitude, such as being a risk-taker or friendly, (3) have family engaged in business, or (4) are interested in business.

2) Open Advertisement

The program is open and advertised to all students, even those who are not enrolled in entrepreneurship courses in the current semester. Advertising posters are displayed across departmental areas one week before the interview sessions.

3) Selection Form

All interested students fill out a selection form in which they are asked about their personal background, family, business to be conducted, obstacles to doing business, business capital resources, and vision and mission of the proposed business.

4) General Enterprising Tendency Test V2 (GETv2)

The General Enterprising Tendency Test V2 (GETv2) measures the tendency towards entrepreneurship. Students are required to rate their level of agreement on various statements within ten minutes; their answers provide an insight into the entrepreneurial potential of each student. The test scores are used to classify the students according to three types of enterprising tendency: very enterprising, medium, and less enterprising.

5) Interview Session

Interviews are conducted by the lecturer, who are appointed by the entrepreneurship center. During the interviews, students are selected based on the information they provided on the selection form, their interest, readiness, mental endurance, ability, and determination.

D. Evaluation Model for the Entrepreneurship Program

Entrepreneurial activities and programs are more accurate predictor of student intentions and entrepreneurial behavior than are demographic factors, personality, and other situational factors [16], [17]. Entrepreneurship is measured in three ways: 1) evaluating students' knowledge and skills based on exams, 2) evaluating courses and teachers through student surveys, and 3) evaluating the employment and income status of participants after the program ends. However, there is no consensus on what criteria should be used to evaluate program effectiveness [18]. Previous studies have used criteria such as time, contextual effects, financial aspects, environmental elements, personal factors, social status, role-model or family factors, interests, and motivations [19]. This study adopts Hammond's objective-based evaluation model. Ref. [20] said this model combines institutional and instructional factors as a relevant factor in the objective attainment level. It attempts to identify what factors contribute to program success or failure. Although the model looks at the cubic interaction of institutional, instructional, and behavioral objectives, only a few cells are relevant for evaluation purposes. Therefore, the authors have adjusted the model to suit the objectives of this study.

III. Problem Statement

Although entrepreneurship programs have existed for more than two decades, only 1.9% of graduates become self-employed [21], [22]. Although some evidence indicates more HEIs are offering courses and support for entrepreneurship, the effect remains low, as confirmed by [23], [24]. Moreover, 53% of students believe the contents of entrepreneurship modules in polytechnics are not comprehensive and effective, too theoretical, not multi-disciplinary, lack application of the knowledge and skills, do not encourage creativity and innovativeness, and do not emphasize motivational and business management elements [11]. In addition, lecturers often lack expertise, entrepreneurship skills, experience, training, and pedagogical ability [26]-[28]. A recent study on the evaluation of entrepreneurship programs at six polytechnics found that in the objective dimensions, there was, overall, a moderately high level of satisfaction with the lecturers' level of knowledge and skills and a moderately good rating for the condition of infrastructures [29]. However, there were

practical gaps in the implementation of the entrepreneurship programs, reflecting an imbalance in the entrepreneurship educational mission and the program objectives aimed at producing future entrepreneurs. Therefore, this study seeks to explore how lecturers evaluate the human and non-human factors of entrepreneurship programs in relation to the program objectives. Figure 1 presents the conceptual framework used:

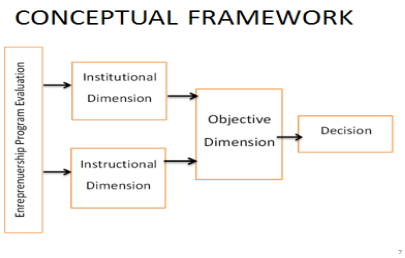

Fig. 1. The conceptual framework.

As Fig. 1 shows, the institutional dimension consists of lecturers' beliefs about the level of knowledge and skills, experiences, abilities, influences, and support from four categories of stakeholders involved in the program, namely, administrators, lecturer, families, and communities. The instructional dimension comprises four items: appropriateness of the content organization, appropriateness of the teaching method, availability and condition of campus facilities and infrastructures, and appropriateness of the time organization. The objective dimension addresses lecturer satisfaction with the program implementation, where a higher level of satisfaction indicates greater achievement of the program objectives. Based on the results of evaluation for each dimension, the researchers will recommend either continuing or terminating the entrepreneurship program. The decision will aid stakeholders in polytechnic schools as well as the management team at the ministry level to improve future programs and activities, because one of the twelve trends in program evaluation is to empower a program' stakeholders [30].

IV. Objectives of The Study

A. General Objective:

To evaluate the Polytechnic Entrepreneurship Program.

Specific Objectives:

1) Determine the level of knowledge, skills, experiences, influences and support of the stakeholders' in the institutional dimension.
2) Determine the appropriateness of both the content and delivery methods of the entrepreneurship program, the sufficiency of time organization, and the availability of program infrastructures and facilities.
3) Determine the lecturers' satisfaction level with regard to the objective dimension.

V. Methodology

This study employs a descriptive survey method to evaluate entrepreneurship programs. Lecturer from six polytechnic programs in Malaysia participated. In total, 120 participants were selected from six to seven departments of each polytechnic program using the purposive sampling technique; 109 mailed questionnaires were returned (90% response rate) [31]. The questionnaires consisted of 94 items to evaluate the dimensions of institution, instruction, and objective on a five-point Likert scale, adapted from [22]. Table I shows the interpretation of the mean score of each dimension.

TABLE I: Interpretation of the Mean Score [3]

Mean Score	Interpretation
1.00 – 2.00	Low (L)
2.01 – 3.00	Moderately low (ML)
3.01 – 4.00	Moderately high (MH)
4.01 – 5.00	High (H)

The validity of the questionnaire was verified using the view of experts and its reliability was verified by Cronbach's Alpha. The overall Cronbach's Alpha value is 0.82. The reliability also was obtained for each indicator of administrator (0.93), family and community (0.91), lecturer (0.98), content organization (0.97), teaching method (0.96), facilities and infrastructures (0.95), time organization (0.94), and objective dimension (0.94). All values are above the minimum value of reliability suggested by [34].

VI. Results and Discussion

A majority of the lecturer are female (71.6%), have parents in business (67.9%), hold a college degree (48.6%), teach business studies (55%), and have more than six years of teaching experience (61.5%). In addition, 82.6% were involved in and/or were managing entrepreneurship programs, but 52.3% did not have business experience.

A. Institutional Dimension

Human factors, educators, and infrastructure determine the outcome of any learning environment [35]. Table II shows that, overall, lecturers moderately agreed on the role played by stakeholders in the program. The highest mean rating (3.82) is for the questionnaire items that evaluate administrator support, indicating that administrators gave moderate support to lecturers. However, the lowest mean rating (3.48) is obtained for staff members' perceptions of their own knowledge and skills level.

TABLE II: Mean, Standard Deviation and the Interpretation of Institutional Dimension

No.	Items	Mean	SD	Level
1	Administrator	3.82	0.694	MH
2	Families and community	3.77	0.697	MH
3	Lecturers	3.48	0.687	MH

As Table III shows, most lecturers highly agreed that administrators showed interest and commitment (4.01). However, they agreed only moderately with statements that the administrators did the following: provide opportunities and encouragement (3.87), give priority (3.83), encourage

discussion on problems (3.81), always discuss the attitude and culture of entrepreneurship (3.79), give appropriate credit (3.73), and ensure the availability and good condition of the infrastructure (3.72).

TABLE III: LECTURER EVALUATION OF ADMINISTRATOR SUPPORT

No.	Items	Mean	SD	Level
3	Administrator shows interest and commitment to improving the quality of the entrepreneurship program.	4.01	0.887	H
6	Administrator always provides opportunities and encouragement to the lecturer to help plan and implement the entrepreneurship program.	3.87	0.882	MH
1	Administrator gives priority to the entrepreneurship program at the polytechnic school.	3.83	0.799	MH
2	Administrator encourages lecturers to discuss problems and provide comments and suggestions to improve the quality of entrepreneurship activity.	3.81	0.817	MH
4	Administrator includes all parties in discussions about the attitude and culture of entrepreneurship among students and lecturers.	3.79	0.824	MH
5	Administrator always gives credits to the lecturers who contribute towards improving the quality of education and the entrepreneurship program.	3.73	0.734	MH
7	Administrators ensure that all facilities are appropriate.	3.72	0.862	MH

Table IV summarizes the lecturer view on the influence of families and communities on students' career decision: The key person in students' lives is the most influential factor (m=3.83), followed by the local community (3.81). The lowest influential factor (3.72) is the students' immediate family. These findings indicate that people around the students and surrounding supports can stimulate their interest in having an entrepreneurship career [36], [37].

TABLE IV: LECTURER EVALUATION OF FAMILY AND COMMUNITY INFLUENCE ON STUDENT CAREER CHOICE

No.	Items	Mean	SD	Level
1	I believe that a key person in my students' lives thinks that entrepreneurship is a career choice.	3.83	0.799	MH
4	The local community influences my students' choice of pursuing an entrepreneurship career.	3.81	0.829	MH
5	The polytechnic community encourages my students to choose an entrepreneurship career.	3.75	0.857	MH
3	I believe my students' best friends feel that they should pursue a career as an entrepreneur.	3.73	0.787	MH
2	Students' immediate families think they should pursue a career as an entrepreneur.	3.72	0.772	MH

Table V shows the findings regarding lecturers' entrepreneurial skills and knowledge. Their basic entrepreneurial skills, such as technical, business, interpersonal, self-assessment, motivation, and communication skills, scored the highest mean (3.62). However, their financial management knowledge and skills were tied for the lowest mean (3.39). This shows that the lecturers' knowledge and skills are only moderate and fairly comprehensive, which may prevent students' development of good business practices. The result contradicts the findings of [3], that a person should develop deep knowledge of entrepreneurship after becoming involved in it and receive more exposure through education or training in entrepreneurship. According to [14], educators must develop their own entrepreneurial skills before they can teach these skills to students. This is proven by [23], which focused on the role of lecturer at Malaysian universities. Knowledgeable, skilled, and visionary entrepreneur trainers are essential to further developing students' entrepreneurial attributes through entrepreneurship programs [41].

TABLE V: LECTURER SELF-EVALUATION OF ENTREPRENEURIAL SKILLS AND KNOWLEDGE

No.	Items	Mean	Level
1	Basic skills	3.62	MH
2	Marketing knowledge	3.53	MH
3	Marketing skills	3.45	MH
4	Financial management knowledge	3.39	MH
5	Financial management skills	3.39	MH

B. Instructional Dimension

The instructional dimension comprises four items, as shown in Table VI. In the lecturer evaluations, appropriateness of the content organization and teaching method scored a high mean of 4.00 and 4.05, respectively. Thus, the lecturers agreed that the program should teach the skills of leadership, motivation, business, finance, marketing, and entrepreneurial thinking. Further, they agreed with the idea of an active, explorative, and experiential teaching approach. These results are congruent with [26], [27], [42]. The studies believed appropriate teaching methods create opportunities for students to learn entrepreneurship and increase their confidence. In addition, students develop greater aspirations towards entrepreneurship careers. Therefore, HEI lecturers should understand and apply teaching methods that effectively accommodate different learning styles of learning. However, in the questionnaire responses, lecturer evaluations of the availability of the facilities and infrastructures as well as the appropriateness of the time organization were only moderately high, with mean scores of 3.55 and 3.74, respectively.

TABLE VI: MEAN, STANDARD DEVIATION, AND INTERPRETATION OF INSTRUCTIONAL DIMENSION

No.	Items	Mean	SD	Level
1	Content organization	4.00	0.699	H
2	Teaching method	4.05	0.562	H
3	Facilities and infrastructure	3.55	0.705	MH
4	Time organization	3.74	0.640	MH

Table VII shows that most of the facilities and infrastructures exist and are both appropriate and in moderate condition, with mean ratings above 3.60 (except for computer usage and inventory storage, which have means below 3.50). Entrepreneurship educational needs, environmental support,

space, physical facilities, and infrastructure are important in providing students with hands-on experience. Lecturers believed that the condition of such infrastructures in polytechnics can be improved. These findings provide important information about which parts of the program should be changed. According to [41], programs must offer an environment that nurtures future entrepreneurs, including infrastructural support, whether physical, financial, technical, or technological.

TABLE VII: LECTURER EVALUATION OF PROGRAM FACILITIES AND INFRASTRUCTURE

No.	Items	Mean	SD	Level
1	Entrepreneurial center to coordinate all activities of entrepreneurship programs exist and are appropriate.	3.54	0.735	MH
2	Electronic and printed media used are appropriate and satisfactory.	3.51	0.740	MH
3	Equipment to carry out entrepreneurial activities is appropriate and satisfactory.	3.49	0.767	MH
4	Strategic business location is visited. Rooms used for entrepreneurship activities are appropriate and comfortable.	3.39	0.902	MH
5	Retail space and the existing kiosks are appropriate and satisfactory.	3.70	0.877	MH
6	Information board for notices and promotions exist and are satisfactory.	3.62	0.893	MH
7	Computers are provided to facilitate the implementation and operation of the program.	3.39	0.867	MH
8	Stores for inventory and products are satisfactory.	3.70	0.820	MH
9		3.62	0.855	MH

Table VIII shows the evaluation of program time organization. The duration of program operation received the lowest mean rating (3.72), whereas the program schedule received the highest (3.75). This shows that entrepreneurship program success depends in part on time management, because consistent and adequate exposure to entrepreneurship can stimulate student interest [17], [46], [48].

TABLE VIII: LECTURER EVALUATION OF THE PROGRAM'S ORGANIZATION OF TIME

No.	Items	Mean	SD	Level
1.	Schedule programs or courses that are conducted are appropriate and adequate (number of days).	3.75	0.672	MH
2.	Sessions for an entrepreneurship program carried out are appropriate and adequate (day or night).	3.74	0.722	MH
3.	Duration of operations is appropriate and adequate (number of hours).	3.72	0.708	MH

C. Objective Dimension

As Table IX shows, most of the items reflect a moderately high level of lecturer satisfaction, with the highest mean obtained for teaching methods (3.84), followed by family and community influence on motivating students to pursue entrepreneurship careers (m= 3.83). The lowest rating (3.62) was given for program facilities and infrastructures. All elements, whether academic or non-academic, human or non-human, should interact positively to enhance student learning in entrepreneurship programs.

TABLE IX: MEAN, STANDARD DEVIATION AND THE INTERPRETATION OF OBJECTIVE DIMENSION

No.	Items	Mean	Level
5	Teaching method	3.84	MH
2	Families and community	3.83	MH
4	Content organization	3.82	MH
1	Administrator	3.82	MH
7	Time organization	3.80	MH
3	Lecturer	3.79	MH
6	Facilities and infrastructures	3.62	MH

Overall, the entrepreneurship programs in this study are well implemented. Based on the findings presented here, the researchers recommend continuing the entrepreneurship program with a few improvements, especially in areas that received the weakest mean ratings from lecturers. Hence, the stakeholders of the program need to focus on each of the human and non-human factors related to the evaluation. In order to achieve program objectives, stakeholders should consider and improve all the factors discussed above. Consequently, all lecturer, including both lecturers and visiting lecturers have a major commitment to improve their respective programs to achieve the KPI set by the Director of the Polytechnics Education Department. Section VII lists the authors' recommendations.

VII. RECOMMENDATIONS

A. Recommendations for Management of Polytechnics

1) Administrator and ministry management should consider the viewpoint of lecturer in decision making and designing the appropriate modus operandi of each program.

2) Administrators should attend entrepreneurship program development meetings.

3) Administrators and top management should fully understand program objectives and lend full support to ensure they are attained.

4) Administrators should practice flexibility and allow lecturers to take initiative.

5) The management of polytechnic schools should recognize and reward star performers, including lecturers.

6) The management of polytechnic schools should regularly upgrade the condition and availability of campus infrastructures and facilities.

7) Administrators should ensure that all lecturers attend at least two entrepreneurship courses or trainings conducted through collaborations with university academicians or industry experts.

8) The management of polytechnic should hold an entrepreneurship in-house training for lecturers' professional development.

9) The management should require lecturers to have knowledge and exposure to the technical aspects of entrepreneurship.

10) The management should always match the objectives of the program with lecturer expectations and the institutional culture.

11) The management should encourage involvement of the

male lecturers in the program.

B. Recommendations for Lecturers

Lecturers should increase their personal knowledge and experiences in entrepreneurship.

1) They should attend seminars and workshops organized by other institutions of higher learning or by the related ministry.

2) They should possess the latest and appropriate skills in entrepreneurship pedagogy.

3) They prioritize the development of entrepreneurial skills, especially those related to business finance, marketing, and management.

4) They should seek practical experience as real entrepreneurs.

5) They should develop a thorough plan and begin program activities as early as possible in order to effectively implement the program throughout the academic year.

6) They should be satisfied and comfortable with their daily tasks within the program.

C. Recommendations for Future Study

1) Future research must make use of a valid instrument in data collection and analysis.

2) More in-depth research should include industry sectors and cost analysis in the variables.

3) Researchers should conduct a comparative analysis of student versus lecturer evaluations in order to reveal evaluation patterns regarding the attainment of entrepreneurship program objectives.

VIII. Conclusion

This study evaluates entrepreneurship programs in polytechnic, considering both human and non-human factors. Both factor types are based on the lecturer responses within polytechnics culture and practices. For a program to be effective, all stakeholders must actively participate in the implementation and improvement of entrepreneurship program activities. Any areas that have been evaluated with a mean score of 4.00 or less need corrective solutions in order to successfully achieve the program mission and objectives.

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