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Leading an Entrepreneurial University: Do We Have the Right Ecosystem?

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ABSTRACT

Entrepreneurial universities play an important role as both knowledge-producer and disseminating institution. A scrutiny of the available literature suggests that most of the studies have utilised 'case study' approach to explain this phenomenon; justified by the embryonic nature of the topic field, and with the lack of a robust theoretical framework to understand it. There is lack of studies that looks into the ecosystem towards the pursuit of an entrepreneurial trajectory within the ecosystem, especially in the context of a developing country. This paper aims to contribute to a better understanding of the critical factors that conditioned these missions and to this end brings a proposal model to measure this phenomenon empirically in the light of the Resource-Based View. The methodology adopted is quantitative method in which four hundred and thirty three responses were obtained from the academicians from various faculties within the local higher education sector. Responses in regards to the presence of the right ecosystem within the universities were obtained which include resource mobilisation, unconventionality, industry collaborations, university policies and academic readiness. The challenges towards the pursuit of the entrepreneurial university were also revealed. This research could cover invaluable strategies to bring further benefits towards the creation of entrepreneurial universities.

Keywords: Entrepreneurial University, University-Industry Linkage, Academic Entrepreneurship, Entrepreneurial Ecosystem, Entrepreneurship, Higher Education.

1. Introduction

The flux within the educational landscape has witnessed the gradual transition of the university core from its traditional ethos into a more entrepreneurial mode that contributes to the economic growth. Entrepreneurial university, as it is termed, has now become a part of legitimate approach for the economic and social development. This new paradigm has shifted the conventional mission of the university which initially concentrated on teaching and research into a more sophisticated mode mimicking private entities that could eventually contribute to the economic development (Jimenez-Zarco *et al.*, 2013). This development path includes the self-sufficiency and self-dependency of the entrepreneurial universities, which ultimately leads to the reduction in governmental expenditure (Yokoyama, 2006). Conceptualizing this, governments are now pushing universities to embrace the paradigm of entrepreneurial university given the various external pressures which include the "massification" of higher education, employability issues, challenges of globalisation, and internationalisation strategies of universities (Gibb *et al.*, 2013).

Universities are urged to play a larger and enhanced role in contributing to international competitiveness of economies that could contribute to local and regional economic growth. The positive outcomes of these entrepreneurial activities are not only in terms of improving regional or national economic performance but also in the form of financial advantage and gain to the enterprising universities, making them less dependent on government funding for their operations (Phan and Siegel, 2006).

This new mission has somewhat impelled Malaysian government to reshape and transform its Higher Education Insititutions (HEIs). The repositioning of the higher education strategic policy has seen a greater emphasis given to universities in producing graduates with entrepreneurial mindset and capabilities. The initiative has also contributed in increasing the number of graduate entrepreneurs along with nurturing entrepreneurial academics and researchers. For instance, the introduction of the Entrepreneurial University Award in 2012 is said to act as a catalyst for the creation of a conducive environment and a holistic entrepreneurship development in local HEIs. This award is also meant to recognise the HEIs with excellent achievement in terms of promoting entrepreneurship education and entrepreneurial development in their institutions.

As a developing country, Malaysia is increasing its spending in research and development to enhance overall competitiveness. In the Ninth Malaysian Plan (2006-2010), the government had allocated RM 3,337.9 million to RM 5,253.1 million for research and commercialisation which is seemed to be an ascending trend (Economic Planning Unit, 2006). However, in the Tenth Malaysian Plan, the government has announced the reduction in proportion of government funding to universities in which the local HEIs are urged to seek alternative sources of funds especially through greater collaboration with in terms of research and development activities (Economic Planning Unit, 2006). As such, universities have no choice but to embark on entrepreneurial mode to generate more funds for their operations including research activities. This later development in educational scene has seen a greater emphasis on academic entrepreneurship and entrepreneurial initiatives within the local HEIs.

Against this backdrop, the present study is undertaken to explore the perception of academicians within Malaysia HEIs in terms of the availability of the factors that move the institutions towards an entrepreneurial university agenda. This study also attempts to obtain feedback on the underlying challenges facing by a university of a developing country that is currently undergoing the transition from a research university into an entrepreneurial one.

2. Literature Review

Entrepreneurial university has now become a part of legitimate approach for the economic and social development. The conventional mission of the university was initially concentrated on the transfer of knowledge and advancement of the knowledge through basic research. Together with teaching and research, the entrepreneurial university adopts the third mission of contributing to economic development (Philpott *et al.*, 2011) through generating own funding opportunities. According to Etzkowitz (2004) entrepreneurial university, is an isomorphic developmental path which includes the self-sufficiency and self- dependency of the entrepreneurial universities, ultimately which will reduce governmental expenditure. Such conceptualization has encouraged governments to influence the universities to embrace the paradigm of entrepreneurial university. Therefore, some of the university managements are budging away from a long-established organic approach towards a more interventionist top- down push approach (Philpott *et al.*, 2011; Gibb *et al.*, 2013). The conceptualization and practice of entrepreneurial university has been also seen as an extension of Research University with fund raising motivation (Etzkowitz, 2003). In this regard, it is important to consider the role of entrepreneurial orientation in context of entrepreneurial university.

The distinction between entrepreneurship and entrepreneurial orientation has now become acknowledged by the academia and scholars. According to Lumpkin and Dess (1996), entrepreneurial orientation refers to the strategic orientation, decision making activities, method, and practices. As such, key players functioning in a dynamic multiplicative process should be involved with intention and actions aiming for new venture creation (Lumpkin and Dess, 1996). In a similar line, Wiklund and Shepherd (2003), explained entrepreneurial orientation as process that enables organizations to lead in a competitive and dynamic environment. The benefit of engaging in activities with the entrepreneurial manner by the large organizations is found to be widely emphasized in the extant literatures of 'entrepreneurial orientation' (Todorovic *et al.*, 2011). It has been suggested by Covin and Miles (1999) that entrepreneurial orientation facilitates to scan and monitor constantly for explore new opportunities which would strengthen the competitive position of the organizations. In the extant literature of entrepreneurial orientation, the dimensions of autonomy, innovativeness, risk taking, pro-activeness, and competitive aggressiveness has been supplemented by Lumpkin and Dess (1996). There have been substantial completions on the fundamental dimensions of entrepreneurial orientation in the context of large commercial corporations (Todorovic *et al.*, 2011). Significant number of studies also have been carried out to explore the level of entrepreneurial orientation among the public organizations and small medium enterprises (Caruana *et al.*, 2002; Keh *et al.*, 2007). However, the consideration of economic

advantages and financial dependency on own have prompted universities to shift the mindset towards the commercialization of the valuable resources (Todorovic *et al.*, 2011). In the context of entrepreneurial university, Todorovic *et al.* (2011) have examined research mobilization, unconventionality, industry collaboration, university policies as the dimensions which explain the entrepreneurial orientation of an entrepreneurial university.

Mobilization refers to the shift of traditional knowledge management towards a system that supports knowledge creation and innovation at individual or organizational level (Hasan and Crawford, 2007). However, according to, Todorovic *et al.* (2011), research mobilization refers to engagement of external stakeholders at all stages, specifically on the research outcomes which can be easily understandable and transferable to the concerned stakeholders. Unconventionality signifies the extent of searching for new opportunities which are useful and beneficial for the stakeholders (Todorovic *et al.*, 2011). In the literatures of entrepreneurial university, the issues of pursuing for new opportunities have also been well discussed as it opens up the horizon of possible outcome which facilitate to convert the traditional knowledge to the innovative activities (Clark, 2001). Industry collaboration, refers to the engagement of department, faculty, and student with the related industry (Todorovic *et al.*, 2011). The industry collaboration has been seen as the commercialization of knowledge to the industry in a collaborative manner which brings win-win situation for both the university and industry (Siegel *et al.*, 2003). According to D'Este and Perkmann (2011), in context of entrepreneurial university, collaboration with industry gives a leverage to promote and encourage more entrepreneurial activities among the researchers in the university. University policies represent the departmental perception on the initiatives of university policy and objective with regard to the recognition of innovative ideas (Todorovic *et al.*, 2011). Another important dimension to be included in the entrepreneurial orientation is 'Academic'. It refers to the engaging in entrepreneurship teaching at the university level for the students and encouraging them to participate in the entrepreneurship related activities. While vowing for entrepreneurial university concept, Gibb and Hannon (2006), suggested including entrepreneurship course in the student's curriculum, innovative pedagogical support for departments, along with active participation of students in the entrepreneurial activities. However, Hills (1988) believes that implementing the courses on entrepreneurship requires integration of the functional areas.

Beside the entrepreneurial orientation, there are some challenges emerges to implement the concept. Challenges to entrepreneurial university faced by developed countries which is known as European Paradox. This paradox has been attributed to: (a) lack of entrepreneurial spirit among scientists; (b) poor intellectual property rights to university inventions; (c) differing legal systems between nations that inhibit cross border technology transfer. In general there are other internal and external factors which limit the materialization of entrepreneurial university. Major internal factors include: limited time due to classes or administrative work; limited financial resources; lack of infrastructure; delay in fund management; and lack of skilled personnel. In addition to that major external factors are: increasing capital costs; inadequate government funds; difficulty in private sector collaboration; dearth of expert research and development personnel; lack of supplementary services to support research and development (Yusof and Sapuan, 2008).

3. Methodology

The present study strives to offer deeper insight into the views of the academics pertaining to the creation of an entrepreneurial university ideal within the context of HEIs in Malaysia. The survey was conducted on 6 Public and 7 non public universities in Malaysia. The measurement was adopted from Rice *et al.* (2010). A total 433 usable responses were used in the study for analysis of which, 263 responses from public university and 170 responses from the non-public university.

3.1. Respondents' Profile

As depicted in Table 1, most of the respondents age are 46 years and above. 52% of the total respondents are male and 48% are female. Of the total respondents, 40% working as lecturer in different faculties of the university and 9.2% are Professors. In context of the experience, more than 50% of the total respondents have been working as professional for 1 to 10 years. While the study was conducted, 57.3% of the respondents were working with the current university for 1 to 5 years.

Table-1. Respondents' Profile

Variable	Description	Frequency	Percent	Cumulative Percent
Age	26 to 30	76	17.6	17.6
	31 to 35	79	18.2	35.8
	36 to 40	94	21.7	57.5
	41 to 45	46	10.6	68.1
	46 & above	138	31.9	100.0
Gender	Male	225	52.0	52.0
	Female	208	48.0	100.0
Position	Professor	40	9.2	9.2
	Associate Professor	65	15.0	24.2
	Senior Lecturer	152	35.1	59.4
	Lecturer	176	40.6	100.0
Experience	1 to 5 years	149	34.4	34.4
	6 to 10 years	106	24.5	58.9
	11 to 15 years	55	12.7	71.6
	16 to 20 years	43	9.9	81.5
	21 years & above	80	18.5	100.0
Current university experience	1 to 5 years	248	57.3	57.3
	6 to 10 years	73	16.9	74.1
	11 to 15 years	50	11.5	85.7
	16 to 20 years	24	5.5	91.2
	21 years & above	38	8.8	100.0
University Type	Public University	263	60.7	60.7
	Non Public University	170	39.3	100.0

4. Findings

4.1. Descriptive Statistics of Key Variables

As shown in Table 2, the mean values of all the variables found to be above the midpoint 2.50. Industry Collaboration holds the highest with a mean value of 3.943, followed by Research Mobilization (3.848). The dispersion values reported through standard deviation indicates that the dispersion values were less than 1 in all the study variables. Environmental Informal Factors has the highest value of standard deviation (0.955) in the study while Research mobilization holds the lowest standard deviation with the value of 0.616.

Table-2. Descriptive statistics of the variables

	Minimum	Maximum	Mean	Std. Deviation
Research Mobilization	1.00	5.00	3.848	.6164
Unconventionality	1.00	5.00	3.755	.6420
Industry Collaboration	1.00	5.00	3.943	.6264
University Policies	1.00	5.00	3.681	.7689
Academic	1.00	5.00	3.722	.7414
Entrepreneurial University Mission	1.00	5.00	3.654	.7226
Environmental Formal Factors	1.00	5.00	3.312	.8399
Environmental Informal Factors	1.00	5.00	3.251	.9558

4.2. Independent Sample t-test

An Independent sample t-test was conducted to determine the possibility of significant differences between the respondents of public and non-public university. The result indicates that there were statistically significant mean difference in 7 out of 9 constructs in the context of the study variables with $p<0.05$ (refer to Table 3).

Table-3. Independent Sample t-test (public and non-public universities)

	Variables	Mean	Std. Deviation	*t value*	Sig
1	Research Mobilization	3.901[a]	0.535	2.12	.035*
		3.765[b]	0.717		
2	Unconventionality	3.829	.560	2.86	.005*
		3.639	.811		
3	Industry Collaboration	4.025	0.573	3.42	.001*
		3.816	0.684		
4	University Policies	3.743	0.760	2.11	.035*
		3.584	0.775		
5	Academic	3.682	0.755	-1.40	.161
		3.784	0.718		
6	Entrepreneurial University Mission	3.798	0.622	5.03	.000*
		3.431	0.807		
7	Environmental Formal Factors	3.399	0.770	2.59	.010*
		3.178	0.924		
8	Environmental Informal Factors	3.250	0.967	-.029	.977
		3.253	0.941		

Note: Upper row 'a' denotes public university and lower row 'b' denotes non-public university
*denotes significant at $p<0.05$

4.3. Internal Challenges towards Entrepreneurial University Agenda

As mentioned at the outset, this study also explores the challenges faced by the academicians in adopting the entrepreneurial university agenda. As shown in Table 4, the biggest constraint faced by the academicians is pertaining to the workload. Apparently, the academicians felt that the requirements of an entrepreneurial university (that is mainly to generate income) posed a lot of burden in terms of managing the time especially in terms of teaching, researching, and generating income to the university.

Table-4. Internal Challenges towards Entrepreneurial University Agenda

Internal Challenges	Mean	SD
1. Workload constraints	4.11	.873
2. Absence of entrepreneurial role model	3.69	.939
3. Unattractive incentive mechanism	3.80	.965
4. Absence of a unified entrepreneurial Culture	3.75	.964
5. Adverse impact on academic career progression	3.57	.938
6. Current promotional system impede engagement 7. in entrepreneurship activities	3.55	.997
8. Absence of expert in entrepreneurship	3.55	1.04
9. Lack of flexibility within the university structure	3.52	1.08
10. Lack of autonomy to reconfigure the university	3.51	.993
11. Funding is limited	3.83	1.07

The respondents also reported other forms of challenges that could be categorised into several themes namely; (1) Academic resistance, (2) Structural Issues, (3) Leadership Challenges, (4) Entrepreneurial Culture issues, (5) Social Capital issues. The description of challenges are depicted in Table 5.

Table-5. Other Challenges

Challenges	Description
Academic resistance	• Attitude and mind-set change is another big challenge • Balance between the teaching hours and research activities • Heavy workload • Talent need to be sought by using entrepreneurial attributes. • The concept is still at faculty level not university level
Structural issues	• Bureaucracy • Career path way via enterprising is limited or not well understood. Publication is still the key requirement for professorship or promotion • Delay in the research fund • Does not seriously recognize the contribution of staff to development of university • Too much emphasize on research & publication, obsess with world ranking • Lack of research grant for product/services/ practice oriented research • Lack of funding to promote research culture, it is just a more teaching and learning institute
Leadership Challenges	• Head of department/top management/ dean's attitude toward creating entrepreneurial university. • insufficient strategies to support new initiatives • Required policy with global accepted goal • Intelligent properties (IP) issue.
Entrepreneurial culture issues	• Resistance to new ideas and lack tolerance among academician • Lack of entrepreneurial motivation • Lack of guidance for students to inculcate entrepreneurial culture • Negative perception and mentality of certain people on entrepreneurship.
Social capital issue	• Linkage and collaboration with local industries and institutional partnership with foreign universities • Reluctance to be involved with industry due to very short deadline of period to complete a project. • Lacks international university collaboration

4.4. Availability of Elements of an Entrepreneurial University

The study also asked respondents to respond to the availability of the elements reflecting an entrepreneurial university by referring to their own institutions. As shown in Table 6, it has been revealed that 58% of the respondents identified "Entrepreneurship as subject" as an element of entrepreneurial university undertaken by the university. However, Strategic vision statement on entrepreneurship, On-going curriculum innovation, development of innovative pedagogies and teaching, Student led Entrepreneurship initiatives, Consultancy-directly selling academic expertise to external organizations, Alumni incorporated as speakers and guests of the academics, Innovation and commercialization office, Entrepreneurship student club, Patenting and Licensing were also found to be identified as entrepreneurial university elements of the respective universities.

Table-6. Elements of an Entrepreneurial University

Elements of an Entrepreneurial University	N	% of cases
1. Entrepreneurship as subject	251	58.0%
2. Strategic vision statement on entrepreneurship	208	48.0%
3. On-going curriculum innovation, development of innovative pedagogies and teaching	190	43.9%
4. Student led Entrepreneurship initiatives	184	42.5%
5. Consultancy-directly selling academic expertise to external organizations	164	37.9%

Continue

6. Alumni incorporated as speakers and guests of the academics	158	36.5%
7. Innovation and commercialization office	152	35.1%
8. Entrepreneurship student club	141	32.6%
9. Patenting and Licensing	136	31.4%
10. Entrepreneurship courses for non-business majors	131	30.3%
11. Entrepreneurship academic division	125	28.9%
12. Business plan competition	114	26.3%
13. Networking events for entrepreneurs	110	25.4%
14. Entrepreneurship activities centre	109	25.2%
15. Entrepreneurship integrated in core requirements	104	24.0%
16. Large scale research grants from external sources	95	21.9%
17. Links to successful entrepreneurs, business angels, and venture funds	92	21.2%
18. Science or technology parks	88	20.3%
19. Extension education focusing on cooperate/social/ family entrepreneurship	75	17.3%
20. Technology transfer office	75	17.3%
21. Business incubator	63	14.5%
22. Entrepreneurship research centre with funded research centre	63	14.5%
23. Spin off firms formation	63	14.5%
24. Students incubator	45	10.4%
25. Entrepreneurship endowed chair	41	9.5%

5. Discussion and Conclusion

The study was conducted among the 13 public and non-public universities in Malaysia. The respondents were faculty members positioned as lecturer to Professor from different faculties. This paper is set out to illustrate the descriptive analysis of the research carried out on the entrepreneurial university. The analysis revealed that industry collaboration being a part of entrepreneurial orientation is well practiced among all the universities in Malaysia. Industry collaboration represents the engagement of students, teachers, and relevant department with the industry. It is important for the university to be recognized by the industry, which would ease the way to be successful in the entrepreneurial initiatives. While any university is recognized by the industry, it's become easy to position the students in the respective industry for employment. Further, industry collaboration represents the acceptance of the innovative work and research carried out by the university that indicates the activities are in line with the concept of entrepreneurial orientation. Following the industry collaboration, the mobilization of knowledge (research) is also well applied in the Malaysian universities. The universities are appeared to be encouraging the research and its practical implication for the industry. In doing so, the researchers of the universities are working in partnership with the external professionals. The outcome of the research should be beneficial for the industry with its practical implications. To embrace the mind-set of becoming entrepreneurial in nature it is also important to seek for new opportunities for the research initiatives. Considering the associated risk, exploring the new prospects for research and outcome will assist the universities to be aside of conventional or traditional approach for research. However, inclusion of the entrepreneurship courses in the academic syllabus and enthusiasm of universities reflecting on the policies related to entrepreneurship, also significant for establishing entrepreneurial university.

It has also been found that both the public and non-public universities gives greater emphasize on the curriculum to develop the entrepreneurship mind-set among the students in Malaysia. It is obvious that inclusion of the entrepreneurship courses in the study program will create an access to knowledge regarding the entrepreneurship and its widespread scope. Such awareness of entrepreneurship will create a favourable attitude towards entrepreneurship among the staffs and the students. Interestingly, with regard to generating entrepreneurs, publishing scientific papers, knowledge transfer, and challenges faced by the universities found to possess significant difference between the public and non-public universities. Perhaps the ownership structure is the main reason for such significant variation between these two types of universities. In context to the challenges in creating an entrepreneurial university, staffs of the

universities identified workload constraints as most important impediment following the funding limitation and unified entrepreneurial culture. The teaching staffs typically are engaged with teaching, dealing with students and papers, examinations, and publishing research papers which is essential part of their responsibility. At the same time it is difficult for them to manage time and effort for other involvements while carrying out the major responsibilities. Further, limited and unattractive funding and the mechanism is also another barrier for creating entrepreneurial university. Due to the lack of appropriate funding, most of the cases researchers step back from researches which would facilitate to become entrepreneurial university. Nevertheless, 58% of the respondents identified "Entrepreneurship as subject" as significant element of entrepreneurial university which is possessed by their own university. In addition, strategic vision statement on entrepreneurship, On-going curriculum innovation, development of innovative pedagogies and teaching, Student led Entrepreneurship initiatives, Consultancy-directly selling academic expertise to external organizations, Alumni incorporated as speakers and guests of the academics, Innovation and commercialization office, Entrepreneurship student club, Patenting and Licensing were also found to be identified as entrepreneurial university elements for the respective universities.

In summary, the study has given an overall picture of the state of the concept of entrepreneurial university in Malaysia. Most of the universities found to have entrepreneurial mindset, nonetheless with some challenges related with workload and funding. If the universities along with the policy makers take appropriate initiatives and measures, it is possible to make the each university to be self-dependent in terms of generating funding and thus establish itself as entrepreneurial university.

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