

Entrepreneurship Ecosystem Model to Promote Entrepreneurship among Malaysian Graduates: A Conceptual Paper

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Abstract

Unemployment among recent Malaysian university graduates has gained attention, fuelled by a growing alumni population, sparking concerns about employability. In response, the government is strategically promoting entrepreneurship to shift students from job seekers to job creators, aligned with the goal of a knowledge-driven economy and Sustainable Development Goals (SDGs) 4 "Quality Education" and 8 "Decent Work And Economic Growth" strive to ensure inclusive and quality education for everyone, promote lifelong learning, foster inclusive, long-term economic growth, full and productive employment, and decent work for everybody. This study focuses on enhancing graduates' employability and income generation, aiming to lower unemployment and boost GDP. The government's efforts have led to supportive ecosystems and educational programs fostering entrepreneurship. Encouraging students to embrace entrepreneurship addresses unemployment, spurs job creation, and fuels economic growth, supported by entrepreneurship education. The government's initiatives will reshape Malaysia's economy by addressing graduate unemployment through entrepreneurship. Despite producing 51,000 graduates annually, nearly 60% remain unemployed after a year. Establishing an entrepreneurial ecosystem aims to cultivate a culture of entrepreneurship within institutions. This research aims to develop an integrated model for studying entrepreneurial ecosystems in Higher Educational Institutions, enhancing student entrepreneurship, and encouraging a mindset shift towards entrepreneurship. Using an exploratory sequential mixed methods approach, the study focuses on three MOHE Entrepreneurial Award (MEA)-winning public universities. Findings are expected to contribute to understanding university entrepreneurial ecosystems and education. This approach aligns with the national entrepreneurship policy, viewing universities as "incubators" fostering more students and graduates to become entrepreneurs and job creators.

Keywords: Entrepreneurship Ecosystem, Higher Education Institutions, Students

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1.0 INTRODUCTION

In the dynamic landscape of today's job market, the future of employment for university graduates remains uncertain. Amid this backdrop, opting for an entrepreneurial career path offers distinct advantages and holds promise for addressing pressing concerns such as unemployment among young Malaysian university graduates. The worrisome issue of unemployment among recent Malaysian university graduates has garnered substantial attention. This concern has been further accentuated by the rapid increase in the number of university alumni, leading to doubts about their employability in an evolving job market. According to recent reports by the Ministry of Education Malaysia

(2018), Table 1 presents the statistics of the three public universities in Malaysia with the lowest number of unemployed graduates. Unfortunately, University Malaysia Sarawak (UNIMAS), University Malaysia Kelantan (UMK), and University Malaysia Sabah (UMS) have experienced higher rates of unemployment among their graduates compared to other public universities in the country. Based on the data provided in the total number of employed graduates at public university (PU) in Malaysia by the Ministry of Education Malaysia in 2018, it is revealed that 52.9% of students are currently employed, 17.8% are pursuing further studies, 2.7% are enhancing their skills, 5.0% are waiting for job opportunities, and 21.6% are not working. The range of

Table 1: The Statistics of The Three Public Universities in Malaysia with the Highest Number of Unemployed Graduates

No.	Public University	Total Respondent	Working	Further Studies	Enhance Skills	Waiting For Work Replacement	Not Working	Total Not Working
1	Universiti Malaysia Sarawak (UNIMAS)	3981	46.3%	3.9%	1.5%	6.8%	41.4%	1648
2	Universiti Malaysia Kelantan (UMK)	2417	50.3%	2.7%	1.7%	3.7%	41.6%	1005
3	Universiti Malaysia Sabah (UMS)	4985	36.2%	5.5%	1.4%	7.6%	49.1%	2447
	Total	11383						5100

graduate unemployment rates within the public universities vary from 7% to 56%. These findings underscore the pressing need to address these issues collectively and to establish effective strategies that can enhance the employment prospects for graduates across the educational institutions in the country.

Furthermore, Malaysia's thriving higher education sector, as highlighted by Looi and Maritz (2021), underscores the critical need for customised approaches in educating and guiding aspiring students toward the successful launch and expansion of businesses, particularly in the fiercely competitive landscape of Malaysia's middle income economy. According to Azina and Ismail (2011), currently, a good academic achievement is no longer a guarantee for the Malaysian graduates to get a job. Moreover, universities have a vital role in fostering entrepreneurship education to bolster regional and societal economics, as noted by Binks (2005), and a supportive university environment can inspire students to embark on entrepreneurial paths. To effectively promote entrepreneurship, universities must cultivate an entrepreneurial mindset within their own institutions.

To add, in the context of the evolving global landscape, where economies are increasingly interconnected and knowledge-based, the phenomenon of graduate unemployment extends beyond national boundaries. Across the world, concerns over graduate employability have become a focal point in educational discourse. The convergence of the technological advancements, shifts in labour markets, and changing job requirements have led to a shared challenge faced by many nations the need to bridge the gap between academic qualifications and market demands. As we delve into the intricacies of graduate unemployment

within the specific context of Malaysia, it is vital to recognise that our exploration contributes to a larger conversation surrounding this issue on an international scale. In essence, this additional context acknowledges that graduate unemployment is not isolated to a single country, but rather a concern that many countries are grappling with due the changing nature of work, technology, and economies worldwide.

The Malaysian Government's efforts at developing entrepreneurial ecosystems have led many institutions to create entrepreneurial support structures aimed at promoting entrepreneurship as a career choice among students (Ahmad & Buchanan, 2015) and acknowledging entrepreneurship as a pivotal element in tackling unemployment, the Malaysian government, along with numerous scholars, perceives it as a viable remedy to the challenge of jobless graduates (Looi & Maritz, 2021). In direct response to these challenges and the escalating joblessness rates among recent graduates, the Malaysian government has embarked on a comprehensive strategy to steer the nation toward becoming a knowledge-driven economy. Within this strategic framework, entrepreneurship has been identified as a critical component in addressing the unemployment issue. This recognition has prompted concerted efforts to nurture and enhance entrepreneurial initiatives across the country. As a result, an environment conducive to the expansion of knowledge-based industries, innovation, and entrepreneurship has been fostered.

Moreover, universities in Malaysia are playing a vital role in this transformation by adopting tailored approaches to inspire and cultivate entrepreneurship among their students. These approaches encompass a spectrum of offerings, including dedicated entrepreneurship courses, mentorship programs,

networking platforms, and resources that empower students to transform innovative concepts into thriving enterprises. By nurturing these customised practices and promoting entrepreneurship among students, universities hold the potential to significantly impact the reduction of unemployment rates in the country. This nurturing equips students with the adaptability and innovative thinking required to navigate economic uncertainties while simultaneously contributing to the mitigation of unemployment challenges. Within this context, the concept of a conducive university environment gains prominence as a catalyst for igniting and nurturing students' entrepreneurial aspirations. By leveraging available resources, students can acquire the essential knowledge and skills necessary for entrepreneurial success. Universities stand as pivotal institutions in nurturing student entrepreneurs by offering comprehensive entrepreneurship education, facilitating incubation programs, hosting competitions and events, creating clubs and societies, engaging with the community, and providing tools for business initiation and expansion. This concerted effort empowers students to transition from the traditional role of job seekers to becoming drivers of economic growth through the creation of job opportunities.

Furthermore, the collaboration between universities and the government is crucial for achieving the broader goals of fostering a knowledge-driven economy and enhancing global competitiveness. Universities play a vital role in equipping students with innovation and entrepreneurial skills, while government initiatives provide the necessary environment and support for entrepreneurship to thrive. This partnership accelerates the transformation of knowledge into practical applications, promoting economic growth and technological advancement. Together, universities and the government create an ecosystem that fosters innovation, attracts investments, and positions the nation as a hub for creativity and job creation, ultimately contributing to a more competitive global landscape.

To effectively foster entrepreneurship, universities must adopt an entrepreneurial mindset themselves. As universities advocate for entrepreneurship education, they demonstrate their commitment in promoting regional and societal economic growth. This not only equips students with the skills to embark on their entrepreneurial journeys but also positions universities as active participants in fostering an entrepreneurial culture that resonates

throughout their campuses. In light of the changing landscape, a significant portion of Malaysian graduates tend to lean towards conventional employment paths, often overlooking entrepreneurship as a viable career option. Elevating awareness and understanding the benefits and opportunities associated with entrepreneurship can play a significant role in inspiring more graduates to consider entrepreneurship as a viable and rewarding choice. Furthermore, fostering an entrepreneurial environment within universities aligns with the Malaysian government's focus on promoting entrepreneurship as a solution to address graduate unemployment. The government's endeavours to enhance entrepreneurship education, infrastructure assistance, advisory services, and technical training support highlight the commitment to equipping students with vital entrepreneurial skills and attributes during their academic journey.

Universities can utilise the insights to enhance their entrepreneurial ecosystems by addressing specific challenges identified through in-depth qualitative exploration and prioritising factors ranked by students in the quantitative phase. This could involve establishing funding mechanisms, mentorship programs, and experiential learning opportunities. Policymakers can leverage the insights to design effective policies that encourage entrepreneurship initiatives, such as incentivising mentorship, creating funding programs, and supporting incubators. Together, these actionable recommendations have the potential to foster a more supportive environment for student and graduate entrepreneurs, contributing to economic growth and innovation.

In conclusion, the concerted efforts of universities and the Malaysian government are converging to create a favourable ecosystem for entrepreneurship. This ecosystem is aimed at inspiring students to embrace entrepreneurship as a career choice, equipping them with the tools and skills needed to drive economic growth. By adopting tailored strategies and integrating key components, universities are poised to foster an entrepreneurial culture that not only benefits the students but also contributes to the nation's economic development and competitiveness on the global stage. As Malaysia continues its journey towards a knowledge-driven economy, nurturing entrepreneurship within universities emerges as a key driver for shaping the next generation of entrepreneurs and innovators.

1.1 Problem Statement

The escalating unemployment rate among graduates in Malaysia poses a significant challenge to both the education system's credibility and the nation's economic progress goals. This issue not only affects how Malaysia's education system is perceived but also jeopardises the country's aim to achieve developed economic status by the end of the decade (Shamsuddin, Mohmad, Mahfol, Naim, Nafisah, & Alagari, 2013). The increasing graduate unemployment rate underlines the need to shift students' focus from job-seeking to embracing business opportunities. The consequences of unemployment extend beyond graduates, impacting society and the entire nation, potentially leading to substantial losses and a threat to overall well-being (Hanapi & Nordin, 2014).

As of 2021, Malaysia's graduate unemployment rate stands at 4.1% from the previous year's 4.4 percent. based on Graduates Statistics 2021 data from the Department of Statistics Malaysia (DOSM). To address this issue, universities' role in nurturing a robust entrepreneurship ecosystem is crucial. Universities influence entrepreneurial engagement by shaping students' attitudes and behaviours toward entrepreneurship (Moraes, Lizuka, & Pedro, 2018; Politas, Winborg, & Dahlstrand, 2012; Saeed, Yousafzai, Soriano, & Muffatto, 2015). They do this by providing education, incubation, skill development, industry partnerships, and an entrepreneurial culture. Equipped with knowledge and resources, aspiring entrepreneurs are empowered to succeed, driving economic development and societal impact.

The OECD's framework outlines seven components for fostering a university entrepreneurial ecosystem. Malaysian universities are implementing elements of this framework to promote student and graduate entrepreneurship, addressing graduate unemployment. The framework emphasises strong leadership, sustainable finances, collaboration, entrepreneurial education, mentorship, engagement with external stakeholders, and impact measurement. These efforts help universities create a thriving entrepreneurial culture, benefiting local and global communities. However, challenges related to defining higher education's purpose and scope remain.

In conclusion, the rising graduate unemployment rate in Malaysia prompts a shift toward entrepreneurship. Universities play a vital role in this transition by

implementing the OECD framework's components, cultivating entrepreneurial mindsets, fostering collaborations, and measuring impact. These endeavours not only alleviate unemployment but also contribute to economic growth and societal well-being. The challenge of graduate unemployment in Malaysia has prompted the government to consider entrepreneurship as a solution, emphasising the role of universities in fostering entrepreneurship. Incorporating incubators and accelerators on campuses can immerse students in essential skills for starting businesses while studying, aligning with NKRA 11 and SDGs 4 and 8. Despite weaknesses like limited support and bureaucracy, public universities can promote entrepreneurship through physical infrastructure, culture, networks, and education. To achieve this, universities need to shift from traditional education and research focus to driving regional development through innovation. Three main challenges hinder universities' entrepreneurial transformation: lacking an entrepreneurial culture, focusing solely on monetary gains, and neglecting knowledge dissemination.

In alignment with Malaysia's educational goals outlined in the Malaysia Education Development Plan (2015-2025) and the broader international agenda, such as the 2030 Agenda's Sustainable Development Goals (SDGs) 4 and 8, this study aims to explore top management's role, student perspectives, and the impact of university support on entrepreneurial inclination, addressing a gap in the existing literature within the Malaysian context. However, research is lacking on how university ecosystems stimulate student and graduate entrepreneurship. Furthermore, The Malaysia National Entrepreneurship Policy underscores the importance of establishing a comprehensive and supportive entrepreneurial ecosystem, cultivating an entrepreneurial mindset in society, increasing the number of competitive entrepreneurs, enhancing the capabilities of micro, small, and medium-sized enterprises, and promoting entrepreneurship as a preferred career choice. These policy objectives align with the study's aim of investigating the effectiveness of these policies and programs in reducing unemployment.

However, it is crucial to acknowledge that the success of these policies and programs in addressing unemployment challenges is influenced by various factors, including the prevailing economic conditions, the skill sets of the workforce, and the demand for labour across different industries. To effectively address

unemployment and align with the objectives of NKRA 11 and SDGs 4 and 8, it is essential to consider and account for these factors when implementing strategies aimed at reducing unemployment and promoting entrepreneurship. Thus, this study seeks to explore how these policies and initiatives interact with the broader context of labour market dynamics and economic conditions to advance the goals of quality education and decent employment.

Moreover, public universities can create an entrepreneurial environment by offering dedicated spaces, nurturing an entrepreneurial culture, building industry networks, and providing practical entrepreneurial education. This fosters entrepreneurial talent and bridges the academia-industry gap, contributing to economic growth. The Malaysian government urges students to transition from job seekers to job creators, highlighting the need for universities to nurture entrepreneurial competencies.

1.2 Significance of the Research and Research Questions

The researcher aims to conduct an investigation to gain insights into the entrepreneurial ecosystem within universities, emphasising its role in fostering the advancement of student entrepreneurs and graduate entrepreneurs. The study seeks to comprehend the constituent elements that establish a nurturing environment for entrepreneurial development, delve into the strategies employed by university ecosystems to cultivate student entrepreneurs and capture the perspectives of students regarding the ecosystem's influence on their entrepreneurial endeavours. In essence, this research aims to provide a comprehensive understanding of how university entrepreneurial ecosystems significantly contribute to the growth trajectory of student and graduate entrepreneurs. As such, the research will address the following key inquiries:

1. The objective of the study is to develop an entrepreneurial ecosystem model in universities that facilitates the development of student and graduate entrepreneurs.
2. This research aims to suggest strategies to enhance the university entrepreneurial ecosystem to cultivate entrepreneurs among students

3. This study aims to rank and recommend the entrepreneurial ecosystem elements that are priorities based on students' perceptions that lead towards developing student entrepreneurs and graduate entrepreneurs.

2.0 LITERATURE REVIEW

The literature review highlights the importance of assessing and improving physical infrastructure in educational institutions, promoting entrepreneurial education to equip students with essential skills, fostering an entrepreneurial culture to encourage innovation, emphasising networking and ecosystem for entrepreneurial growth, and utilising theories to understand entrepreneurial behaviour while acknowledging potential challenges and limitations associated with these concepts within university context.

2.1 Physical Infrastructure

Assessing the performance of physical infrastructure can enhance the value of educational institutions, benefitting both their facilities and operational endeavours. This ongoing enhancement process has been elucidated by Bon, Mahan, and Carder (1994) functioning as a feedback loop, this process paves the way for consistent and gradual enhancements. The objective of measuring the performance of physical assets and facilities is simply to enhance the delivery process of these resources for educational activities (Musa & Ahmad, 2012). Ensuring quality assurance for institutional physical assets and facilities necessitates adherence to fundamental guidelines. This involves accommodating adaptability, diverse user needs, and aesthetic appeal while prioritising accessibility. By adhering to these principles, the institution can ensure optimal functionality. Physical infrastructure is pivotal in the university entrepreneurship ecosystem, providing a nurturing environment for student and graduate entrepreneurs. Well-equipped spaces and resources facilitate entrepreneurial growth. User-friendly facilities, maintenance, international standards, and environmental safety create an attractive environment, fostering entrepreneurial skills and enhancing the university's reputation. This draws in global students and staff, enriching the institution's standing.

2.2 Entrepreneurial Education

Entrepreneurial education can be defined as a learning process that enhances knowledge, abilities, skills, and personal attributes in the context of entrepreneurship (Cai, Murad, Ashraf, & Naz, 2021; Yuan and Wu, 2020). Entrepreneurship education involves structured learning experiences and programs designed to cultivate the knowledge, skills, and mindset essential for entrepreneurship. It encompasses diverse activities that equip individuals to recognise, evaluate, and capitalise on entrepreneurial opportunities. This education is delivered through formal instruction, hands-on learning like internships and startups, mentorship, and competitions.

At its core, entrepreneurship education entails creating valuable, distinctive outcomes by dedicating time and effort, embracing associated risks, and reaping monetary and personal rewards (Hisrich, 2002). This approach empowers students to navigate entrepreneurship's complexities and seize opportunities, fostering creativity, innovation, critical thinking, problem-solving, and effective communication. By integrating entrepreneurship education throughout all educational levels, individuals are empowered to contribute to economic growth, innovation, and entrepreneurial endeavours.

2.3 Entrepreneurial Culture

The concept of entrepreneurial culture relates to the degree to which society places value on and encourages entrepreneurship (Fritsch & Wyrwich, 2014). The cultural environment can significantly impact entrepreneurship by shaping entrepreneurs' ambitions and determining the likelihood of individuals pursuing entrepreneurial paths (Wyrwich, Stuetzer, & Sternberg, 2016). It is important to acknowledge that when examining entrepreneurial culture within an organisation, innovation stands out as a crucial factor for achieving growth and prosperity. Hence, focused research on this topic within the entrepreneurial framework is essential (Kang, Matusik, Kim, & Philips, 2016). Within the university's entrepreneurial sphere, the term "entrepreneurship culture" pertains to the dominant standards, principles, and actions that endorse and motivate entrepreneurial mindset, conduct, and endeavours. It forms an ambience in the university that cultivates and endorses the growth of entrepreneurial

thinking among students, faculty, and staff. This culture within the university environment nurtures innovation, embraces risk, and fuels creativity. It spurs individuals to detect prospects, exercise critical thinking, and venture into entrepreneurial avenues.

Diverse stakeholders are integral to entrepreneurial ecosystems, encompassing emerging entrepreneurs, small and medium enterprises (SMEs), venture capitalists, trendsetters, final consumers, academia and researchers, guides and facilitators, and more (Keupp and Gassman 2009; Scott, Hughes, & Kraus, 2019; Spigel, 2017). Entities such as universities and public agencies/private companies have a pivotal role in creating the essential social connections and networking capabilities needed to access the industry (Malecki, 2018). Based on the foundation of social capital networks, a university-linked incubator exemplifies how an entrepreneurial ecosystem rooted in academia can effectively gather resources. These ecosystems extend their reach beyond local boundaries by leveraging nationwide networks, relying on trust to sustain the ecosystem through dynamic relationships (Malecki, 2018; Theodoraki & Messeghem, 2017). By leveraging social networks, students can acquire crucial resources, information, and valuable business connections that are essential for their achievement and long-term viability (Burt, 1997; Neegaard, Shaw, & Carter 2005).

2.4 Networking

Internal cooperation in the incubator network is particularly important for incubate survival (Bøllingtoft, 2012). Establishing robust bonds with fellow incubator participants not only intensifies the frequency and depth of interactions but also fosters a stronger propensity and capability for enterprises to actively seek out knowledge (Soetanto & Jack, 2013). The external network refers to the collaborations between incubators and various external organisations, such as customers, suppliers, competitors, research institutions, and government organisations (Sungur, 2015). These networks promote cooperation, the exchange of knowledge, and the sharing of resources among individuals and departments within the university (internal networking). Furthermore, they establish links with external actors like industry collaborators, government bodies, investors, and mentors (external networking). These networks are instrumental in

nurturing a conducive atmosphere, accessing resources and expertise, and building partnerships that enrich the entrepreneurial ecosystem. They also facilitate the transition of ideas and innovations from the academic sphere to the market.

As noted by Feldman and Zoller (2016), an effective entrepreneurial network should comprise a wide range of individuals, including entrepreneurs, investors, mentors, and dealmakers. To strengthen both their internal and external networks, universities should tap into expertise from diverse fields. By integrating professionals with varied backgrounds, universities can promote a comprehensive, interdisciplinary approach to entrepreneurship education and ecosystem development. This inclusive strategy can enhance the availability of resources, opportunities, and collaborations, ultimately bolstering the success of entrepreneurial initiatives. Moreover, a diverse network plays an active role in promoting inclusivity and equity within the entrepreneurial ecosystem.

2.5 Underpinning Theories

Student entrepreneurial action encompasses a range of activities, from starting businesses to creating social enterprises, driven by entrepreneurship education-acquired knowledge and skills. These actions yield economic and societal benefits like job creation, innovation, and social betterment. Fayolle and Gailly (2015) define entrepreneurial action as students initiating new ventures or expanding existing ones, involving tasks such as planning, funding, marketing, and sales, enhancing skills like creativity and problem-solving (Neck & Greene, 2012). Therefore, integrating student engagement in entrepreneurial action is vital in entrepreneurship education for practical experience and skill refinement fostering innovation and sustainability (Fayolle & Gailly, 2015). The theory of planned behaviour (TPB) developed by (Ajzen, 1991) has provided valuable insights and other models like Entrepreneurial Event Model (EEM) proposed by (Shapero & Sokol, 1982), the Implementing Entrepreneurial Ideas (IEI) model introduced by (Bird, 1988), and the most recent LFM model by (Lüthje & Franke, 2003) provide insights into entrepreneurial intention. McMullen and Dimov (2013) view entrepreneurship as a recurring process rather than a linear. The action-based approach in entrepreneurship education highlights the role of a university's

entrepreneurial ecosystem, preparing students through experiential learning and dynamic involvement, fostering an entrepreneurial mindset. Self-determination theory (SDT), proposed by Ryan and Deci (2000), emphasises the importance of motivation for human development and well-being. (SDT) asserts individuals' inclination for growth, with universal needs for autonomy, competence, and relatedness. This study aims to merge entrepreneurial ecosystem theory, TPB, and SDT, exploring how nurturing ecosystems, personal motivations, and self-regulation impact knowledge dissemination and application in entrepreneurship. This integrative approach offers a holistic understanding of mechanisms driving entrepreneurial success and innovation in entrepreneurship literature.

However, it is essential to acknowledge potential counterarguments and limitations that might arise from these concepts. In the evaluation of physical infrastructure performance, one potential limitation could be the challenge of accurately quantifying the impact of enhancements on educational outcomes. While improved facilities might contribute positively, other factors like teaching quality and curriculum design also play significant roles in educational effectiveness. Regarding the notion of an entrepreneurial culture, critics might argue that attempting to foster such a culture within a university setting might unintentionally prioritise business-oriented ventures over other valuable academic pursuits. Balancing a focus on entrepreneurship with the broader spectrum of academic disciplines and interest could be a challenge.

When it comes to student entrepreneurial action, it is important to consider that not all students might possess the same level of interest or aptitude for entrepreneurial activities. Some students might thrive in traditional academic pursuits or other creative endeavours, and pressuring everyone to engage in entrepreneurial actions might not be suitable for all individuals.

Furthermore, the concept of an entrepreneurial ecosystem might face challenges in terms of inclusivity and representation. Certain groups or communities might have less access to the resources and networks offered within these ecosystems, leading to disparities in opportunities. Lastly, entrepreneurship education could potentially face criticism for oversimplifying the complexities of starting and managing business. Real – world entrepreneurship is often rife with challenges,

uncertainties, and failures that might not be fully captured within the controlled environment of a classroom.

3.0 METHODOLOGY

Sequential explanatory designs do not adopt a direct advocacy perspective. In these designs, qualitative data is first collected and analysed, after which quantitative data is gathered and assessed (Hanson, Creswell, Clark, Petska, & Creswell, 2005). Exploratory sequential mixed methods approaches encompass the sequential collection and analysis of both qualitative data, with each type of data informing and guiding the collection and analysis of the other (Creswell & Creswell, 2017). This approach is appropriate for exploring intricate phenomena that necessitate a deep comprehension of contextual aspects, alongside a wider applicability of results (Greene, Caracelli, & Graham, 1989). Through the utilisation of both qualitative and quantitative methodologies in this study, a holistic comprehension of the entrepreneurial ecosystem within Malaysian public universities (PU) is achieved.

This study employs a two-phase, sequential exploratory mixed methods approach to establish an effective entrepreneurial ecosystem model within a university, promoting the growth of both student and graduate entrepreneurs. The initial phase involves qualitative research, focusing on strategies for enhancing the university's entrepreneurial ecosystem for students. This involves field observations, focus groups, and face-to-face interviews with top management, final-year students, and successful alumni entrepreneurs from three Malaysian universities: UiTM, UPM, and USM. The insights from the qualitative phase will inform strategies to improve the university's entrepreneurial ecosystem for student entrepreneurs. These findings will guide the subsequent quantitative phase, which aims to identify essential elements within the entrepreneurial ecosystem.

These key elements will be determined based on students' perceptions, contributing to the development of student and graduate entrepreneurs within the university. Utilising a mixed-methods approach, this study acknowledges the exploratory nature of its research questions. Qualitative data will be the primary source, complemented by quantitative data for validation and cross-validation. This approach combines depth and diverse perspectives to enhance practical understanding and result credibility. The study aims to comprehensively

understand the role of the university's entrepreneurial ecosystem in fostering student and graduate entrepreneurs, without pursuing hypotheses testing for variable relationships. Following Creswell's framework, six distinct approaches to mixed-methods data collection exist, categorised into three sequential methods (explanatory, exploratory, and transformative) and three concurrent methods (triangulation, nested, and transformative). The chosen design involves a sequential exploratory approach, beginning with qualitative data collection and analysis, followed by quantitative data collection and analysis. The study focuses on three Malaysian public universities that received the MOHE Entrepreneurial Award (MEA) between 2012 and 2018: UiTM, UPM, and USM. Interviews will involve key individuals from each university, including Vice Chancellors and relevant centres for entrepreneurship development.

Specifically, Universiti Teknologi MARA (UiTM) was honoured with the MEA for three consecutive years in 2012, 2013, and 2015. In the following years, Universiti Putra Malaysia received this prestigious award in 2016/17, followed by Universiti Sains Malaysia in 2018, recognising them as Malaysia's most entrepreneurial universities. This study will conduct interviews with two representatives from each of these esteemed institutions, including key figures from the Malaysia Academy of SME & Entrepreneurship Development (MASMED, UiTM), the Centre of Entrepreneurial Development and Graduate Marketability (CEM, UPM), and the Entrepreneurship Centre (EPIC@USM), as well as the Vice Chancellors of each university.

In essence, by employing the sequential exploratory mixed methods approach, we enhance the effectiveness of addressing our research questions. This approach facilitates a comprehensive understanding of the complex dynamics within university entrepreneurial ecosystems and their influence on student and graduate entrepreneurs. The qualitative phase allows us to delve into nuanced insights that might be overlooked in quantitative analysis alone. These qualitative findings then inform the development of quantitative measures, creating a well-rounded framework for addressing our research inquiries. This approach ensures that we capture both depth of qualitative understanding and the breadth of quantitative insights, providing a holistic perspective on the intricate

relationship between entrepreneurial ecosystems and entrepreneurial success within the context of universities.

3.1 Qualitative Method

The study employs various qualitative research methods, including structured, semi-structured, and unstructured interviews, focus groups, participant observation, content analysis, and thematic analysis. The primary focus is on amplifying participant voices, with the aim of comprehending their responses to societal and institutional expectations within a socially constructed framework. Collaborations with key figures overseeing entrepreneurship initiatives in three universities—Malaysian Academy of SME & Entrepreneurship Development (MASMED), Centre of Entrepreneurial Development and Graduate Marketability (CEM), and Entrepreneurship Center (EpiC@USM)—facilitate participant recruitment.

To ensure comprehensive data collection, the study intends to conduct a qualitative multiple case study involving three participant groups: top management, students, and entrepreneur alumni. This encompasses six top management members, nine students, and six entrepreneur alumni. A combination of semi-structured interviews and focus groups will be employed, each tailored to the specific participant group. Participants will be contacted through email and telephone, with interview details provided subsequently. Selection criteria encompass MASMED, CEM, and EpiC, targeting final-year students engaged in business activities and alumni with 1 to 3 years of business experience. Communication will serve to clarify the study's purpose, and interview schedules will be arranged based on participants' preferences. In the context of focus groups, three students will be selected from each university, while individual interviews will involve two entrepreneur alumni. The interview sessions will commence with an introduction to the research objectives and a commitment to upholding confidentiality. The sessions will be recorded and subsequently transcribed for thorough analysis, focusing on identifying and exploring four overarching themes. As a gesture of gratitude for their participation, participants will receive tokens of appreciation.

This research strategy employs a deliberate sampling approach to capture contextual variations, utilising an exploratory sequential mixed-method design with two distinct phases. The initial phase focuses on qualitative

data collection and analysis using Nvivo Software. The analysis aims to identify significant themes within the data to address research questions through rigorous thematic analysis. Interview sessions are anticipated to last approximately one to one and a half hours. The data gathered from these interviews will be utilised to create descriptive case studies, which will undergo cross-analysis using serial and thematic coding techniques. This comprehensive analysis ensures meaningful findings and implications. The data analysis follows a six-stage thematic analysis technique, which involves becoming familiar with the data, generating initial codes, identifying key themes, reviewing these themes, defining and naming them, and then compiling a comprehensive report. Insights obtained from the analysed data will effectively tackle the first and second research questions, serving as the foundation for the subsequent quantitative phase. The results will be further elaborated on in the second phase, employing quantitative methods to gain a more comprehensive understanding of the research topic.

3.2 Quantitative Method

Quantitative data will be collected through an online questionnaire aimed at final-year students in the participating universities. The questionnaire will be designed around identified variables, focusing on assessing factors that enhance the entrepreneurial ecosystem in their respective universities. This is intended to support the growth of both student entrepreneurs (SE) and graduate entrepreneurs (GE). The quantitative analysis will be conducted at an individual level, concentrating on the students. This approach is chosen because of the understanding that numerous factors influence the entrepreneurial ecosystem, and examining individuals' perceptions and experiences within this framework can offer valuable insights. The questionnaire will comprise two main sections. The first section will gather demographic information including gender, faculty, entrepreneurial subjects taken, and entrepreneurial intention. The second section will concentrate on ranking the factors contributing to the university's entrepreneurial ecosystem, with a specific focus on graduate entrepreneurs.

To gather data from this target population, a self-administered survey will be employed. According to information sourced from university websites, the projected count of final-year students is approximately 8000 at UiTM, 1500 at USM, and 1200 at UPM.

According to Krejcie and Morgan (1970) a minimum of 375 respondents will be targeted for participation. The questionnaire is structured with two main sections. The first section includes four demographic questions, covering gender, faculty, entrepreneurial subjects taken, and entrepreneurial intention. The subsequent section is designed to assess the ranking of factors contributing to the development of an entrepreneurial ecosystem within the university, particularly their impact on the rise of graduate entrepreneurs. The data will be collected through a self-administered survey.

The survey will be conducted online via Google Forms, offering respondents the convenience of completing it within approximately 5-10 minutes. The collected data will be directly gathered through the Google Forms platform. The decision to use Google Forms is supported by its extensive accessibility, ensuring widespread participation across the system and providing all segments of the population an opportunity to partake in the survey.

The distribution of the online survey to the target population involves a well-structured approach to ensure comprehensive participation. By utilising an online survey platform like Google Forms, the process is streamlined for efficient data collection. The initial step is to clearly define the survey's intended audience, including students, faculty members, and stakeholders within the university's entrepreneurial ecosystem. The survey is thoughtfully designed based on research objectives and qualitative data analysis findings. Clear communication about anonymity and privacy is maintained throughout the process. Incentives and follow-up reminders further encourage participation. Through the strategic combination of these methods, the distribution process aims to attain a representative and diverse sample that accurately reflects the insights and perceptions of the target population.

The collected questionnaire data will be analysed using SPSS version 27. Descriptive analysis will be performed on the quantitative data to address the third research question. This examination will encompass calculating the frequencies and percentages of elements present in the data. Moreover, descriptive statistics including maximum, minimum, mean, standard deviation, and variance will be computed. These statistical measures will furnish a comprehensive depiction of the participants, offering valuable insights

into the distribution and attributes of the key factors under investigation in the study.

4.0 ETHICAL CONSIDERATIONS

The ethical considerations in this study are paramount to ensure the protection, respect, and confidentiality of participants throughout the research process. Informed consent will be obtained from all participants, clearly explaining the study's purpose, procedures, potential risks, benefits, and their right to withdraw at any time without repercussions. Participants' identities will be kept confidential, and pseudonyms will be used in reporting to ensure anonymity. Any personal information collected will be securely stored and used solely for research purposes. Participants' privacy will be maintained by excluding any identifying information in research reports. The research will also adhere to ethical guidelines set by the university and relevant institutional review boards. Transparency and open communication will be maintained, allowing participants to ask questions and seek clarification about the study. Overall, the ethical considerations prioritise the well-being and rights of the participants while ensuring the integrity and rigour of the research.

5.0 CONCLUSION

In response to the pressing issue of graduate unemployment, both the Malaysian government and universities have acknowledged the potential of entrepreneurship as a potent solution. This conceptual paper has delved into the intricate landscape of graduate unemployment in Malaysia, shedding light on how universities, in collaboration with governmental initiatives, are actively fostering entrepreneurship among students and graduates. The overarching goal of this collaborative effort is to cultivate a vibrant entrepreneurial ecosystem that empowers students to shift from mere job seekers to proactive job creators. This objective aligns harmoniously with the nation's aspirations of a knowledge-driven economy and enhanced global competitiveness.

Throughout the paper, we have explored the multifaceted dimensions of university entrepreneurial ecosystems through a thorough review of pertinent literature. The significance of physical infrastructure, entrepreneurial education, and the fostering of an entrepreneurial culture emerged as pivotal factors in

shaping an environment conducive to nurturing student and graduate entrepreneurs. Additionally, we discussed how frameworks such as the theory of planned behaviour, self-determination theory, and the integrative model approach shed light on the underlying motivations and mechanisms propelling successful entrepreneurial actions.

Methodologically, our study has employed a sequential exploratory mixed methods approach, skillfully merging qualitative and quantitative research methods to offer a comprehensive and holistic comprehension of the subject matter. The qualitative phase has meticulously investigated strategies aimed at enhancing the entrepreneurial ecosystem within universities, unravelling invaluable insights from top management, students, and entrepreneurial alumni. Subsequently, the quantitative phase aimed to validate and quantify the influence of the identified ecosystem components on the growth of student and graduate entrepreneurs.

The findings of this study hold the potential to contribute not only to the existing body of knowledge on entrepreneurship education and ecosystems but also to offer actionable insights for universities and policymakers alike. Through the establishment of an integrated model tailored to the study of entrepreneurial ecosystems in higher education institutions, this research lays a strong foundation for informed decision-making and strategic actions geared towards fostering entrepreneurship.

In culmination, the concerted endeavours of universities and the Malaysian government are harmoniously converging to construct a conducive ecosystem for entrepreneurship. This ecosystem is designed to ignite inspiration, provide necessary tools, and imbue students and graduates with the confidence to embrace entrepreneurship as a viable and gratifying career path. By implementing customised strategies, allocating resources judiciously, and nurturing an entrepreneurial mindset, universities are poised to mould the next generation of entrepreneurs, innovators, and economic pioneers. The synergy between physical infrastructure, educational initiatives, entrepreneurial culture, and external networks cultivates an environment that nurtures innovation and facilitates the seamless transition of concepts from academic incubation to real-world enterprises.

As Malaysia's economy evolves and strives for developed status, the incorporation of entrepreneurship education and ecosystem development within universities becomes pivotal. This paper serves as a cornerstone for continued research and practical implementations that harmonise with the national objectives of economic growth, social advancement, and inclusive development. The journey towards establishing a thriving entrepreneurial culture within universities and society at large remains an ongoing pursuit, holding the promise of transforming challenges into opportunities and grooming graduates into architects of value and progress.

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