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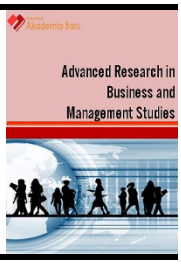

A Mini Review of Stackable Credentials for Entrepreneurial Skills in Business Diploma Program

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ABSTRACT

Since entrepreneurial abilities are essential in promoting growth, generating income, and creating employment, entrepreneurship has a significant influence on a nation's economic advancement. One of the initiatives to encourage youth entrepreneurship is the Malaysia Education Blueprint 2015-2025 (Higher Education) by integrating environmental variables with the cognitive characteristics and practices of entrepreneurs to better understand their learning process as they must take responsibility of their own growth. As the use of micro-credentials in higher education may help in the decoupling of degree programs, extension of learning alternatives, and giving students access to effective tools for skill and competency recognition. The goal of this study is providing an overview to develop a dynamic and flexible stackable credentials framework that may equip business students at the diploma level with entrepreneurial competences and attitudes to compete in the market. In addition to the present Covid-19 pandemic and the impending recession, this clearly illustrates the significance of educating students and recent graduates entrepreneurship skills. Stackable entrepreneurship education may help people become more entrepreneurial, this study will engage industry professionals to participate in focus groups and surveys of students and academics.

Keywords: Stackable Credentials; Higher Education; Entrepreneurial Skills

1. Introduction

Every nation must be ready to compete, especially in the era of Industry 4.0, which has implications for how significant digital and economic literacy are about originality and inventiveness. But in many countries, the unemployment rate among youth remains exceptionally high, especially among those with low educational levels [1, 2]. Since Industry 4.0 is altering society at the same rate as it is expanding, governments must fully comprehend the ramifications of Industry 4.0 at all levels, particularly in the higher education [3]. To deal with a quickly shifting global economic environment in the innovation-based digital era, one has to be well-trained in entrepreneurial technical competence. For the purpose of developing entrepreneurial competencies, it is imperative to establish learning in this area, especially at the higher education level [4]. Between the years 2000 and 2010, Malaysia's Higher Education Providers / Higher Education Institutions (HEPs/HEIs) first

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exposed Science, Technology, Engineering, and Mathematics (STEM) students to entrepreneurship education for its economic advantages [5].

The Global Depression strengthened the link between a high level of education and employment, which has been a crucial tool in the struggle against unemployment and unstable employment at a time when the world economy and labour force are transitioning [6]. Organizations in the public and private sectors are increasingly faced with new economic and labour imperatives, especially after the disastrous economic repercussions of the COVID-19 pandemic. Additionally, the recent uptick in the costs of higher education, employer worries about graduate abilities, and student discontent with the lack of job chances have all led universities, autonomous credentialing organizations, and national qualification frameworks' leaders to investigate the capability for a wider range of credentials [7, 8]. Micro-credentials (MCs) are spreading across Malaysian Higher Education (MOHE), which is committed to achieving one of the main objectives of the European Commission, namely to effect a paradigm change in skills and lifelong learning to increase the country's competitiveness and innovation [9].

Generally, competencies comprise the information, skills, attitudes, and behaviours required to execute a task, such as strategic thinking, a positive orientation toward change and innovation, the capacity to forge strategic alliances and networks, risk assessment, opportunity identification, and the ability to inspire others to strive toward similar objectives [10]. Students should be determined, self-assured, assertive, inventive, and capable of starting a venture based upon these entrepreneurship education programs where competencies may be created via educational research, notably in the field of business [5], which is aligned with the six entrepreneurial skills principles that proposed by Mitchelmore et. al. (2013) which are accurate identification and niche market definitions, developing goods or services for niche markets or product innovation, coming up with ideas, identifying the environment, spotting and seizing chances, and coming up with plans to take advantage of opportunities [11]. Entrepreneurship education seeks to educate all students in developing not just an entrepreneurial mentality, but also competence and entrepreneurship abilities. There has been a substantial increase in popularity and attention on students' competence to grasp how to generate commercial or societal value from their talents and knowledge across all academic areas [12].

This study aims to investigate the essential components of diploma business courses while using a flexible stacking credentials paradigm concerning entrepreneurial competencies. This study’s goal is to examine insights into the expertise and knowledge that students in the business/commerce domain need and cause which may appear to be in line with the objectives of the business curriculum because it would simultaneously address a current need for micro-credentials and give students a solid skill set [13]. Stackable credentials are academic programs that allow students to leave higher education for a job and then return later, with their credits accumulating toward the next certificate or degree. Stacking credentials could have become prominent among HEPs/HEIs students and graduates to continue lifelong learning by accepting stackable credentials as a bridge to graduate-level degree programs in recent years highlights the effect of micro-credentials. The Diploma Business Program's credential stacking, however, makes it possible for more flexible skill evaluation and qualification issuance in the development of entrepreneurial capacities. Therefore, it is crucial to identify the pertinent samples in this area.

2. Scope and Methodology

2.1 Micro-Credentials for Lifelong Learning

In recent research, the theoretical debate surrounding the requirement for innovation within them is included for present educational paradigms to remain relevant in a changing world. Conjointly, it extends the issue of how micro-credentials bridge the gap between practice and academia despite the growing disparity in their separate fields of competence as well as the significance of MCs to national social and economic development policies [14]. The major findings show that investments in MCs have mostly been made in the STEM and education sectors and have primarily occurred in high-income nations and regions, which are contexts that place a special emphasis on practice-accredited MCs [14]. Contrarily, low-income nations stick to tradition and demand MCs that have received formal accreditation from the reputable academic organization. This causes the skills gap between low- and high-income nations or regions to expand, which exacerbates existing worldwide disparities [14]. The concept of lifelong learning is a key indicator of educational and employment standards in both developed and developing nations, therefore we must strengthen our understanding of their content and utilization.

Scholars have investigated the relationships between lifelong learning and entrepreneurial learning, which is why we will focus on lifelong learning, entrepreneurship, and their relationship with each other [15, 16]. Accessible credential courses have been made available over the years by both for-profit and non-profit organizations, such as EdX and Coursera, as well as contributors and influencers in the Massive Open Online Courses (MOOCs). Entrepreneurial learning is a process in which an individual learns and grows as an entrepreneur. Therefore, through entrepreneurial learning, we can obtain the knowledge, skills, and abilities necessary at different phases of company development. MCs have become the most popular terminology for describing credentials that do not represent a complete degree or even a certificate but rather a significant group of courses or related learning/training. MCs are a simple way to prove, confirm, and attest to the acquisition of particular abilities and/or competencies. They differ from conventional degrees and certificates in that they are typically delivered over shorter or more flexible periods and have a tendency to be more specialized.

Micro-credentials may be provided online, on-campus, or through a combination of the two. As a result, Taşç & Titrek (2020) regard learning as an important part of the entrepreneurial growth process [15, 17, 18]. Lifelong learning is a continuous process of becoming well as one acquires and develops skills, knowledge, and dispositions. It assists individuals in acquiring the knowledge, values, skills, and understanding they will need to perform their roles, apply them in any situation or environment, and maintain high self-esteem [16, 19]. To be prepared for the future, individuals must make themselves aware of their current knowledge and skills. The benefits of lifelong learning include better health and emotional stability, financial gains, and supporting people in adjusting to the wild and chaotic world of today. Individuals must learn how to establish lifelong learning goals to obtain these benefits [18, 20].

2.2 Students' Entrepreneurial Competencies

Competency was described as a collection of unique characteristics, including motivation, qualities, self-concept, knowledge, and abilities. Individual characteristics can be used to gauge performance in a certain position and setting. Entrepreneurial competency, which is regarded as the fundamental competency for business owners, was defined as the capacity to recognize, foresee, and seize opportunities. Most studies have found that a lack of entrepreneurial self-efficacy is related to a lack of entrepreneurial intention, failure to launch start-ups, and lack of venture; as well as various

potential factors affecting entrepreneurial self-efficacy and their relationship with entrepreneurial intention [11, 21-23]. This capacity is continually strengthened as the entrepreneur becomes more familiar with the market. Since it was introduced to the field of entrepreneurship research, the competency method has grown in importance as a tool for studying entrepreneurship. The idea, structure, and characteristics of entrepreneurial competencies have been hotly debated in certain domestic and foreign literature, and several insightful research findings have resulted from this discussion.

In recent studies, a structural-component model for developing students' entrepreneurial abilities is discussed to examine the competencies and entrepreneurial orientation of high school graduates [24]. Competency-based, synergistic approaches to analyzing entrepreneurial skills have gained prominence recently, and there are substantial correlations between entrepreneurial abilities and the efficacy of educating professionals in this field [25]. To assess the empirical data on the development of entrepreneurial competencies, a sample survey, factor analysis, reliability analysis, and discriminating analysis were carried out [15]. Situational analysis, in-depth interviews, and document analysis were the qualitative research techniques used in the past studies which prompted the authors to conclude that it is critical to employ a variety of tools to engage students and that a high degree of entrepreneurial competence development is attainable via the combination of competency, synergetic, and resource approaches to the educational process [24].

This study discusses pertinent concerns regarding people's capacity to function in the quickly expanding sector of entrepreneurship as well as a summary of the research on the entrepreneurial competencies [26]. It also provides a framework for understanding how entrepreneurial competencies might influence entrepreneurial success and failure (i.e., due to inadequate skill levels or poor business practices) [11, 27]. While being employable is an individual responsibility, it can also be influenced by others. Higher education systems and employers need to work together to develop appropriate pathways for vocational training and the learning of particular competencies that promote lifelong learning activities of adult learners [26].

Employers have long believed that graduates of professionally approved programs simply lack the abilities required to be job-ready, which has led to serious worries about the employability of such programs. Past research studies show that there is a gap between the requirements for entrepreneurial competency development and employability in universities around the world, which is likely caused by a lack of academic development and training at the university level [26, 28, 29]. Employers typically claim a lack of practical skills and degree of graduation experience as the reason they won't assume liability, with the potential for a direct impact on productivity through a scarcity of capability together with the added cost of further in-house training needed to become productive and gain competence.

2.3 Research Process and Finding

The development and improvement of university students' entrepreneurial competencies to support their companies is becoming a hot topic in entrepreneurship education for students as the students' inventive endeavors continue. To address the problem, the skills required to help students or graduates succeed in their businesses must first be identified. As a result, this paper uses university students or recent graduates who have launched a firm as its research sample. Using behavioral event interviews, it examines the skills these individuals should have as well as the traits of entrepreneurial university students. Since the focus of the study is on entrepreneurial competencies among university students, high and bad performance were not specifically distinguished in the sample selection.

This study provides a theoretical framework for the concept of entrepreneurial potential as well as some research on its empirical support. To be more precise, a theoretical model that incorporated an evaluation tool and the key features was created that set entrepreneurs apart as demonstrated by the earlier research [25]. Several theoretical advancements in the literature on the traits of entrepreneurs are presented in the current study. It proposes a theoretical model of entrepreneurial potential that is built on the findings of the psychological components that have previously been supported by the research. This study highlights the significance of individual traits and competencies that are part of the entrepreneurial potential model, enhancing previous empirical findings and making parallels to theoretical claims [25]. According to recent studies, Figure 1 depicts the conceptual framework for the process of fostering students' entrepreneurial competencies [31].

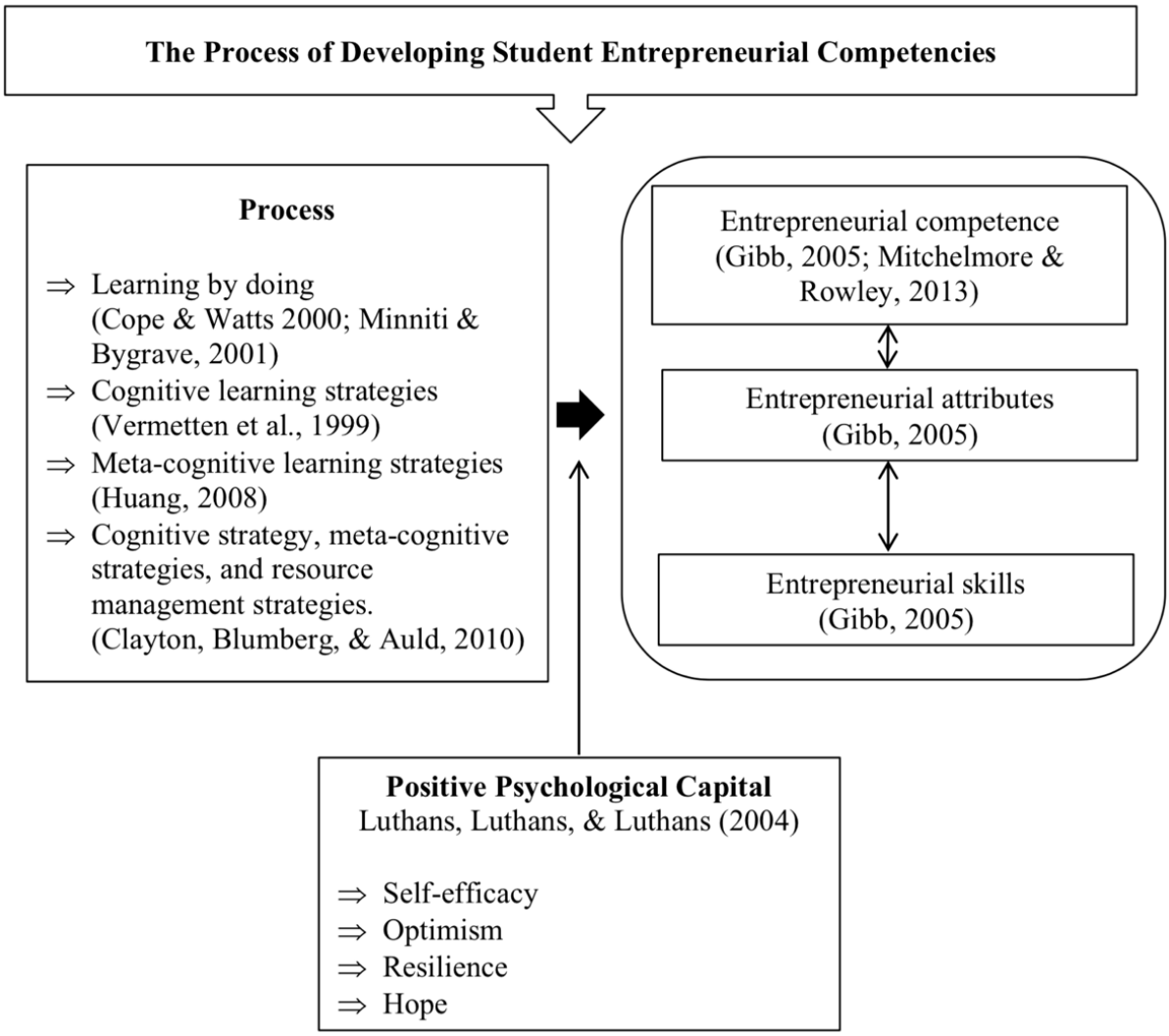

Fig. 1. The Conceptual Framework of the Process of Developing Student' Entrepreneurial Competencies [31]

Students/Graduates develop entrepreneurial skills as a result of their university education, preparing them for successful professional action in the future in cutting-edge infrastructures. This is because it enables us to face the challenges of strategic analysis of educational institutions' actions in the development of entrepreneurial capabilities in students and places a strong emphasis on the resources and competencies that are especially relevant to businesses considering their competitive

environment. HEPs/HEIs may modify their curriculum, instruction, and even delivery methods due to the rapid expansion of digital technologies and Industry 4.0 in the 21st century. By employing the "stacking credentials curriculum," students enrolled in the Diploma in Business Studies Program can flexibly obtain appropriate credits as part of their stackable entrepreneurial education. They are encouraged to cultivate their spirit of entrepreneurship within such a flexible and multifaceted curriculum, which results in the relationships between each aspect as shown in Figure 2 below.

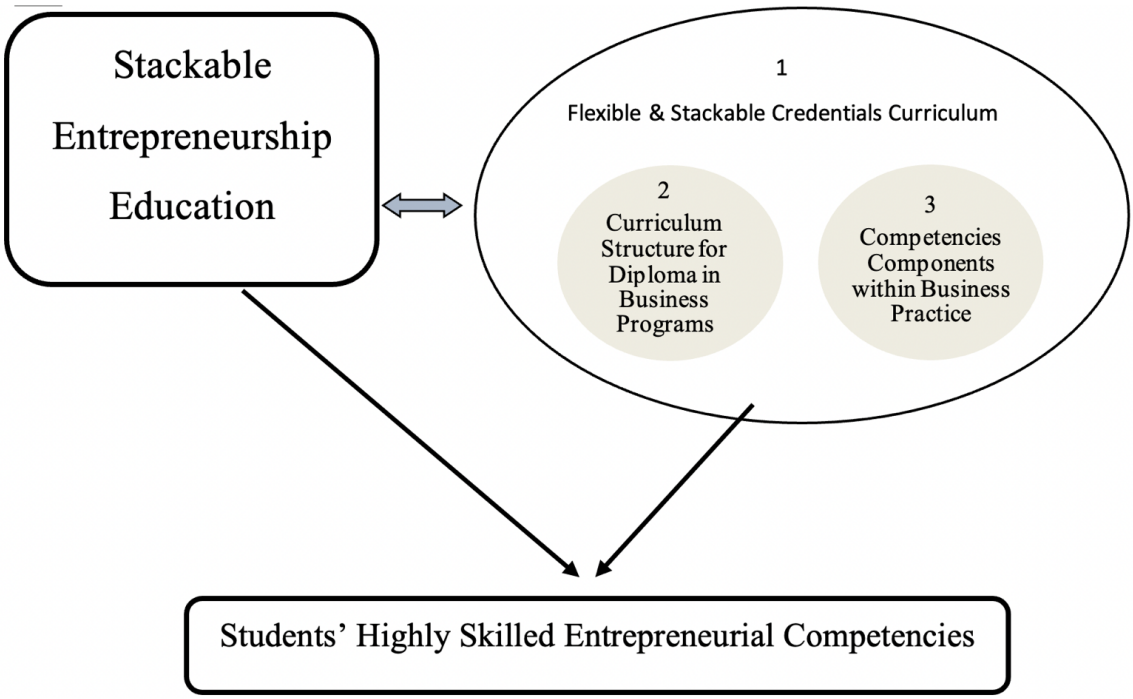

Fig. 2. The interrelation between the components within the study

Creating stackable credentials is complicated because states and institutions are endeavouring to overcome various hurdles that have made it difficult for students to obtain the credentials they need to advance in their professions and for companies to obtain the qualified personnel they want [30]. Stackable credentials must have market value in the labour market and be accepted as valid acknowledgments of learning outcomes in educational credit and credentialing systems for students to access education and continue on their educational path without having to restart as their needs and interests change. According to Ganzglass (2014), to create stackable credentials that go beyond these criteria, institutions and states must:

i. Compare and contrast the many standards and criteria that underpin industry and educational credentials;
ii. Work within and around the limitations imposed by governmental and institutional governance structures;
iii. Break down barriers inside and between educational institutions;
iv. Close the gap between credit-bearing and non-credit opportunities for education;
v. To encourage credential portability, strike a balance between the requirement for local freedom and the need for more uniformity; and
vi. For students with varying requirements and courses of study, provide the proper combination of traditional classroom instruction, online alternatives, and experiential learning opportunities through internships and job experience.

This study will be conducted throughout Malaysian HEPs/HEIs utilising pre-existing data and statistics collected from government entities, universities, colleges, and other related academic institutions using a survey instrument. A cross-sectional survey is used to collect data from a specific population at a certain point in time with closed-ended and open-ended questions which contains descriptive data for each question from responses. This study considers a wide range of post-secondary learners who have completed any tertiary education levels, and/or working adults who have gone back to school after a hiatus at work and have opted to join any Malaysian HEPs/HEIs in pursuing stackable entrepreneurship education when it comes to establishing entrepreneurial capabilities, primarily at the diploma level.

This study will make use of various instruments such as focus group discussions, questionnaires, document reviews, interviews, etc. To learn more about the possible dynamics of stacking credentials concerning micro-credentials, a systematic literature review was also used to look for relevant publications in the literature. HEPs/HEIs may update their curricula, instruction, and even delivery techniques in the 21st century due to the quick development of digital technologies and Industry 4.0. Through the use of the "stacking credentials curriculum," students enrolled in the diploma program in business studies can flexibly obtain pertinent credits as part of their entrepreneurial education. Within such a flexible and stacked curriculum, business students are expected to develop their entrepreneurial spirit.

3. Discussion

The ability of a nation to be innovative, competitive, and economically powerful has long been recognized as being strongly influenced by its entrepreneurial spirit [28]. Through training, seminars, short courses, conferences, and events, the Malaysian Ministry of Education (MOE) aims that entrepreneurship education may be defined as the systematic formal transfer of entrepreneurial skills, which are the concepts, abilities, and mental awareness that individuals learn to establish and extend their growth-oriented enterprises [32]. The economic cost of the Malaysian economy, which is controlled by enterprises and entrepreneurs, demonstrates the importance of entrepreneurship to the country's economic growth success. Entrepreneurs are the driving force that necessitates a variety of entrepreneurial ideas and strategies to avoid or lessen the effects of the aftermath to succeed long-term in business, especially now that every person on Earth has been affected by the COVID-19 epidemic and the lockdowns that followed have shocked the entire world in a way that has never happened before [12, 33]. More importantly, they draw attention to particular skill gaps that have developed as a result of the sweeping changes that have been imposed as a result of the COVID pandemic.

Nonetheless, the global concern for entrepreneurial development appears to have risen as a result of technological advancement, machine learning, and automation [34]. Given that education is formed by needs, education should be created to equip people with the skills necessary for lifelong learning since learning continues throughout life and gets more continuous as one's knowledge and ability develop [35]. The current economic paradigm has important deficiencies and one of the most challenging ones is ensuring sustainable development. In fact, in the 2020 edition of the contest, the organization decided to explicitly include the sustainable development goals (SDG) from the United Nations [36] in the evaluation criteria of the ideas and they should be related to social needs solving. Even though many universities provide online certification programs, some academics have seen MCs as an additional certification to a formal qualification [37].

However, according to analysis of the job market, a college degree is required to advance to management-level positions. The fundamental business, operational, and communication skills

required to be successful in middle- and upper-level positions are taught in college courses that go beyond these essential business concepts. The HEPs/HEIs can take a number of actions to fully realize the promise of stackable certificates. Lessons from workforce training programs can also be applied to the business diploma program to make it stronger. These recommendations follow best practices for creating stackable credentials and take into account the particular requirements and requirements of the commerce industry. As work and study no longer need to be done in a straight line but rather can be spread out across a person's lifetime, it fosters lifelong learning.

Entrepreneurship is a set of attributes, motivations, self-images, social positions, and abilities that contribute to business development and enhanced performance [38, 39]. Competence is a subjective characteristic, an act, or a product of action. Personal traits and qualities, skills and abilities, and knowledge and experience are the three categories of entrepreneurial competencies [21, 40]. The emergence of Micro-credentials has sparked a boom in interest in "competence learning" in many areas of education, training, and professional development [41]. MCs have been described as a personalized, teacher-centered approach to professional development generated in short modules that can be accessed online, anywhere, at any time, allowing educators to demonstrate what they know and can accomplish with that material [42]. The closest example of this concept would be badges. Badges are usually assigned to learners who demonstrate proficiency in particular skills or knowledge [43]. MCs platforms have the potential to support the unbundling of higher education academic programs for greater efficiency and profitability, as well as expand learning opportunities, combat the decline in the popularity of academic qualifications, and provide learners with an effective form of recognition for their skills and competencies [44, 45].

Micro-credentials provide a way to personalize professional development by allowing students to design their pathway, similar to a one-on-one experience with a trusted advisor. As a result, learners are more likely to have complete and relevant skills and knowledge required for the position [33, 42, 46]. For instance, Business Model Canvas (BMC) business plan is a strategic tool for visualizing and designing a business model for HEIs/HEPs students. A BMC template aids in the identification and alignment of essential business operations and their relevance to your value proposition [47]. Students will be able to participate in interdisciplinary teams working on real issues in science and technology, and also have access to a wide range of complementary activities that are suitable for training people in the innovation skills [47]. Therefore, it is important to continue to monitor whether the short-term programs and STEM career track improve the economies of scale of their graduates, such as their ability to get better jobs and have higher earnings.

This paper reviews the challenges of creating stackable credentials and possible solutions to overcome these challenges. The focus is on designing and providing different types of credentials that can meet the needs of different learners as they progress through their educational requirements [30]. Credentials are also designed to be useful in both academic and professional settings, increasing their value as an acknowledgment of achievement. Almost all colleges and universities will want to set these initial requirements. They should look at the kind of schooling that is being offered at other institutions and compare them to their own programs [30]. The idea is to create an education-based career path tailored to specific industry needs and interests, but also capable of meeting the needs of a diverse set of students. Institutions should also look at course design, student interaction outside the classroom, the teaching methods used and their effectiveness, completion percentages, and retention policies [30].

A stacking credential is a coordinated route of two or more occupation-specific education credentials that enable students to exchange courses and build abilities within one profession [48]. The process of developing stacking credentials is difficult because of the various constraints that have made it difficult for students to obtain the credentials they need to advance in their professions and

for companies to locate the qualified employees they desire. Nations and institutions must overcome these obstacles if they are to progress in developing stacked credentials. If credentials are stackable, students will be more inclined to pursue higher education since they will have the option of employability with each award and the chance to go back for more study. Stackable credentials will also likely become more vital and advantageous in constructing higher-level, straightforward degree maps and designs, allowing progression stacks to dramatically rise in the future [49].

As curricula are reconfigured in a stackable format to include multiple certificates and national credentials along the path to an associate degree, authoritative decisions must be made over whether the costs of making those certain changes provide a value-added benefit to students in the form of creating more opportunities for entrepreneurial competencies. To overcome existing barriers and challenges, notably during the COVID-19 epidemic, to reduce the effect of mass unemployment, support people in keeping their jobs and access to education, and recommit to attaining quality education featuring in enhancing lifelong learning. There is a big push to align programs to national certifications so that when students graduate, they will leave business studies programs with an educational degree and a nationally recognized certification. Stackable credentials as resume builders help students become more employable or even create their preferable jobs. Adopting curricula allowing students to earn stackable credentials along their career pathways can help open more doors to employment opportunities.

4. Conclusions

An extensive literature review was necessary to gain a holistic understanding of micro-credentials and how they are regarded in academia and practice. The world of work is changing dramatically, with new jobs and technologies rapidly emerging. The traditional education system presents a serious obstacle to this change. Education, like the economy, is undergoing a radical transformation: education is no longer sufficient to prepare students for the future. Therefore, we must rethink how education should be structured to meet these needs. From the studies, there are some research gaps discovered. This study also inadvertently contributes to the understanding of how entrepreneurial learning fosters the growth of positive psychological capital, which in turn encourages entrepreneurial competencies. In the future, it is hoped that entrepreneurship learning can be developed in the form of development research. If the study was conducted based on student perceptions, this research is inseparable from several limitations. Future research could focus on other aspects, such as students' overall attitudes, which may help us better understand what motivates students to be part of them.

The focus on stackable certificates at the national level presumes a smooth transition from one level of instruction to the next—educational gains matched by development along a vocational trajectory. Theoretically, by more closely matching training with job possibilities, these approaches may help students. In the study, the competency components and intention of the entrepreneurial competencies of college students through the study and coding of the interview transcripts were reviewed. Based on a larger sample size of interview transcripts, future studies can conduct more analysis and exploration of the behavioural focus of entrepreneurial competencies. Based on that, we may create a scale for evaluating college students' entrepreneurial skills to improve the theories and empirical studies that are relevant to this. Finally, stackable credentials are in high demand because they support the goal of college completion, indicate alignment with industry, and match labour market needs. Malaysia HEPs/HEIs are in a good position to offer training programs that adhere to industry best practices for stackable credentials in industries like business/commerce, where job titles and credentials are, at best, an imperfect match, and on-the-job experience

dominates formal education in ways that are challenging to quantify in the early stages of career development. By tackling this problem, Malaysia HEPs/HEIs may make sure that students can secure entry-level employment as well as steady career advancement.

Moreover, an examination of graduate employment would be useful to evaluate the effects of employability. It will also be quite fascinating to follow students after they graduate and get their views on the impact of their involvement in the contest while entering the labour market. Although this employment of graduates cannot be seen as measuring employability, the beneficial effects should be noted in the long run [50]. The study seeks to determine the concise affiliations between entrepreneurial and competency development elements in diploma-level business courses offered by MOHE, along with how it may prepare for Education 4.0 hurdles that might confront by developing an appropriate framework. Educators can use this study's findings to better structure entrepreneurship education. This will most likely be done utilizing the stacking credentials paradigm in combination with micro-credentials, and is projected to be beneficial in line with the use of Education 4.0 technologies as the use of micro-credentials in the educational system grows simultaneously. To corroborate this inventive flow structure, further studies are required.

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