



Article

Sustainability of Graduate Employability in the Post-COVID-19 Era: Initiatives by the Malaysian Ministry of Higher Education and Universities

Soon Singh Bikar ^{1,*}, Rosy Talin ^{1,*}, Balan Rathakrishnan ¹, Sabariah Sharif ¹, Mohamad Nizam Nazarudin ² and Zulhikar Bin Rabe ¹

¹ Faculty of Psychology and Education, Universiti Malaysia Sabah, Kota Kinabalu 88400, Malaysia; rbhalan@ums.edu.my (B.R.); sabariah@ums.edu.my (S.S.); zulpkar91@gmail.com (Z.B.R.)

² Faculty of Education, Universiti Kebangsaan Malaysia, Bangi 43600, Malaysia; mohdnizam@ukm.edu.my

* Correspondence: soonbs@ums.edu.my (S.S.B.); rostalin@ums.edu.my (R.T.)

Abstract: The COVID-19 pandemic that hit the world in early 2020 has had major impacts on social and economic life in every country, including Malaysia. Many socio-economic activities have been globally disrupted, leading to the closure of companies and the suspension of work activities, which have drastically increased the unemployment rate and narrowed employment opportunities. This study used a qualitative method to explore the initiatives taken by the Malaysian Ministry of Higher Education and University Malaysia Sabah to improve the sustainability of graduate employability in the post-COVID-19 era. The study sample comprised ten officers who are experienced and responsible for organising initiatives for university graduate employability programmes and ten students who participated in these programmes. The study showed that the Short-Term Training and Placement Programme (MySTEP), Career Advancement Programme (Penjana CAP), Professional Certification Programme (Penjana PACE), and Career Advancement Programme at State (Penjana KPT-CAP @ State) were the major initiatives taken by the Malaysian Ministry of Higher Education to improve graduate employability in the post-COVID-19 era. The findings also revealed that the university undertook initiatives regarding upskilling and reskilling, the gig economy, entrepreneurship, finishing school programmes, and online career fairs to improve graduate employability rates in the post-COVID-19 era. Interviews with student respondents showed that these initiatives have given them the opportunity to learn and improve on new skills that are necessary to find new job opportunities in the post-COVID-19 era. The main contribution of this study is that upskilling and reskilling programmes are essential to improving the sustainability of graduate employability in the post-COVID-19 era.

Keywords: sustainability; graduates; employability; initiatives



Citation: Bikar, S.S.; Talin, R.; Rathakrishnan, B.; Sharif, S.; Nazarudin, M.N.; Rabe, Z.B. Sustainability of Graduate Employability in the Post-COVID-19 Era: Initiatives by the Malaysian Ministry of Higher Education and Universities. *Sustainability* **2023**, *15*, 13536. <https://doi.org/10.3390/su151813536>

Academic Editor: Tin-Chun Lin

Received: 5 June 2023

Revised: 16 August 2023

Accepted: 23 August 2023

Published: 11 September 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

The World Health Organization (WHO) proclaimed COVID-19 a pandemic on 14 March 2020, after the disease spread to hundreds of thousands of people globally and caused more than 12,000 deaths [1]. In a short amount of time, the sickness spread to every corner of the globe, affecting and transforming human life everywhere. In order to break the chain of COVID-19 infections, the majority of countries were forced to establish curfews and engage in social isolation. According to the World Health Organization (WHO), the physical and social distancing required to prevent the spread of this virus had to be maintained for several months and possibly even years. The installation of curfews and social isolation led to the loss of employment chances, as evidenced by the substantial decline in labour demand [2]. In March 2020, for instance, roughly 10 million Americans lost their jobs [3]. In Malaysia, curfews and social distancing have had significant impacts on the economy, resulting in a decrease in the number of available workers and a rapid loss of employment [4]. The Malaysian Research Institute (MIER) has estimated that 2.4 million

individuals will lose their jobs due to COVID-19 as a result of the closure or reduced operation of businesses, including some small and medium companies (SMEs), and the recession of the Malaysian and global economies. This issue will worsen when hundreds of students at public and private higher education institutions who wish to continue working graduate this year [5]. The Central Bank of Malaysia also recently announced an increase in the unemployment rate projection for 2020 to 4% [5]. In the post-COVID-19 era, this has been a challenge and a new norm for graduates graduating in 2020–2022. Therefore, the Malaysian Ministry of Higher Education entrusted specific public universities with career centres with the responsibility of implementing early initiatives to assist in preparing students who graduated in 2020 with the mental preparedness, skills, knowledge, experience, and competitiveness necessary to pursue employment opportunities in the post-COVID-19 era. However, there is still a lack of research that examines the programmes provided by KPT and Malaysian universities for improving graduates' marketability in the post-COVID-19 era. Therefore, the aim of this study was to determine the initiatives taken by the Malaysian Ministry of Higher Education and public universities in an effort to boost the marketability of graduates in the post-COVID-19 era. In addition, this study developed a programme model that can be utilised to boost the marketability of graduates in the post-COVID-19 era. The main contribution of this study is that upskilling and reskilling programmes can be implemented to improve the sustainability of graduate employability in the post-COVID-19 era.

2. Literature Review

2.1. The Impact of COVID-19 on Graduate Employability

Job loss has been a repercussion of the COVID-19 pandemic. In Malaysia, 191,000 and 413,500 workers lost their jobs in 2019 and 2020, respectively [6]. COVID-19 has had repercussions in other nations. For instance, 22 million workers lost their jobs in the United States; 2.6 million workers lost their jobs in the United Kingdom; 600,000 workers lost their jobs in Australia; and 120 million workers lost their jobs in India. These losses of employment have resulted from the decreases in economic activity brought on by reductions in operations and the job market. This highlights the issue of the marketability of the increasing number of university graduates each year. On the other hand, the proliferation of COVID-19 resulted in the creation of additional jobs. This has created a skill mismatch between the available positions and increased the likelihood of unemployment for graduates who are still in school or have recently graduated. For instance, [7] conducted a survey to determine the impact of the COVID-19 outbreak on the lives of working students in Japan, and they found that 37% of students were concerned about their health, the cost of living, tuition fees, and finances.

In this regard, [8] indicated that a person's education degree is a predictor of employment. During the COVID-19 pandemic, young people with a primary or secondary education have struggled the most to find and maintain employment. Because of the COVID-19 pandemic, the majority of graduates from public universities do not feel secure about finding employment in their respective disciplines after completing their studies [9,10]. Accordingly, [11] argued that the COVID-19 pandemic necessitates that governments enhance their techniques for increasing the employability of graduates by incorporating various modern platforms and partnering with public universities and significant companies. Hence, this study was conducted to investigate and comprehend the issue of graduate employability in Malaysia, focusing on how the government and the University of Borneo have responded to this issue by enabling graduates to maintain their employability in the post-COVID-19 era.

2.2. Ministry of Higher Education's Initiatives to Increase Graduate Employability

When COVID-19 struck, the health and livelihood of many people were impacted. Many were laid off and lost their employment. This has impacted the employment prospects of those who graduated during the pandemic. Numerous nations around the

world are concerned with this issue. In the pandemic era, countries have developed a variety of programmes to increase the employability of graduates. Countries such as Australia, China, India, the Eurozone, and Spain have developed measures to enhance graduates' skills and competencies in order to increase their employability [12]. In India, for instance, initiatives in the fields of corporate communication and English, logical and numerical abilities, analytical problem solving, and coding have been implemented [13]. Higher education in Japan has highlighted a need for hard and soft talents, including customer psychology, business strategy, marketing, networking skills, passion, and hard work, particularly in the sports industry [14]. In Thailand, skills are cultivated through "social enterprise" programmes for upskilling, reskilling, career counselling, and entrepreneurial education [15]. Malaysia did not miss an opportunity to boost the marketability of its graduates. The Ministry of Higher Education entrusted public universities, particularly the career centres in each institution, with the responsibility of implementing initiatives to ensure that 2020 graduates had the mental preparedness, skills, knowledge, experience, and competitiveness needed to seize post-COVID-19 opportunities: the KPT-CAP or "Career Advancement Programme" and the KPT-PACE or "Professional Certificate Programme" [16]. The target participants for both programmes were graduating private and public university students in 2019 and 2020. The programmes were intended to guarantee job placement for those who completed the training and met the established conditions.

In addition, the Malaysian Ministry of Higher Education has continuously enhanced the collaboration between industry and academia in public universities and industry-driven curricula. As advised by the Ministry of Higher Education, institutions play a role in addressing graduate employability. UTM, for instance, has successfully provided career development talks, resume and interview preparation guides, registration, and professional qualifications with the Board of Engineering Malaysia (BEM), the Malaysian Board of Technology (MBOT), and the Malaysia Automotive Robotic and IoT Institute (MARii), together with Malaysia–Japan International Institute of Technology (MJIT) alumni, through its graduate programme [17]. Additionally, the institution has attempted to establish a network with other institutions, both domestically and internationally, to obtain more extensive information regarding other skills and employment opportunities compatible with the graduates' skills and knowledge [18]. Despite the number of initiatives that have been carried out, relatively little information about their effectiveness has been published. Therefore, the purpose of this article is to explain the efficiency of the programme implemented among Borneo region graduates.

2.3. University Initiatives

According to [10], the university is viewed as a tool for establishing a dynamic and progressive society in conformity with contemporary trends. This indicates that universities play a crucial role in providing students with specialised information and abilities in their respective disciplines. However, the global spread of the COVID-19 pandemic since the beginning of 2020 has resulted in significant changes in terms of assisting students to prepare for work and ensure their employability after completing their studies [19]. Graduate employability refers to a graduate's capacity to obtain and maintain employment and to adapt to industry needs. COVID-19 has affected the lives of everyone on Earth, even college students, because it has generated economic turbulence and therefore increased the likelihood of unemployment. For instance, the authors of [9] conducted a study on 644 university students in seven countries (the United States, The Netherlands, Ireland, Republic of Korea, China, Malaysia, and Taiwan), and they found that COVID-19 caused uncertainty regarding the marketability of work and the financial situation of students.

The authors of [20] found that most students in all nations have suffered from high levels of anxiety during curfew periods due to concerns about their future work prospects. Consequently, most colleges have had to take proactive measures to aid and enhance the employability of university students from the beginning of the pandemic to the present. For instance, institutions have implemented a variety of programmes that allow students

to continue to survive after completing their studies. By involving students and businesses on a frequent basis, structured programmes and seminars that give information and skills and alleviate student anxiety regarding their marketability can be developed [9,20,21].

From the same perspective, Ref. [10] conducted a qualitative study focusing on the role of career advisors and graduate recruiters in giving employment chances in the financial, banking, and accounting industries. The findings of their analysis demonstrated the need to implement new approaches involving university cooperation in order to more systematically measure graduate marketability. Considering students' education levels and career fields, these findings also demonstrate the significance of each institution in bridging the employment gap after graduation [8].

Educational institutions, notably universities in Malaysia, are very concerned about the employability of their graduates. For instance, Ref. [22] conducted a study to determine the impact of the post-COVID-19 era on the relationship between alumni perception and marketability (PMBS). Their research demonstrated that there is no association between marketability perception and marketability rate, but they demanded that higher education institutions and industries redesign their education programmes to meet the needs of the post-COVID-19 market. Therefore, public universities must develop the most effective techniques that can alter the thinking and viewpoints of graduates so that they are more motivated to seek employment during the COVID-19 pandemic [23]. Consequently, most colleges, particularly student career centres, have implemented several programmes to assist and improve graduates' employment prospects in the post-COVID-19 era. For instance, the University Sains Islam Malaysia (USIM) has taken a proactive stance by offering a variety of graduate employability programmes [5]. In this context, universities in Borneo have also attempted several comparable efforts, but the impacts of these projects remain uncertain. Consequently, this study was conducted to analyse and comprehend the efficacy of the programmes designed to assist graduates in bridging the gap between their employability demands and industry expectations.

2.4. Theory of Employability

Employability is a very important aspect of graduates' need to be accepted and gain high opportunities in their fields of employment after finishing their studies. Thus, many scholars and researchers have developed their own theories and models of employability to assess the level of marketability of graduates, evaluate the effectiveness of higher education institutions, and assess the impacts of higher education on employment. For example, the employability model of [24] suggests that a higher education should include courses on appropriate knowledge, skills, awareness of, and real experience in working in employment organizations. In addition, Ref. [25] used the Magic Bullet Model to emphasise the important role of universities in the marketability of graduates, who receive all their relevant knowledge, skills, and experience from universities in order to find jobs.

Employability is a measure of a person's knowledge and understanding, skills, and personal qualities that enable them to choose a job and subsequently succeed in their chosen career [26]. Based on these theories and concepts, University Sains Islam Malaysia (USIM) developed a model aimed at measuring graduates' marketability based on four main criteria, namely, understanding, skills, efficacy beliefs, and metacognition. This model was found to be decisive in terms of the potential ability of graduates to find and succeed at a job in their chosen field. In fact, Ref. [27] utilised a Career-EDGE Model and found that for graduates to have and improve their marketability, they require a form of training that focuses on five main dimensions, namely, career development, degree subject knowledge, generic skills, emotional intelligence, and experience. This consequently helps graduates choose, secure, and maintain graduate jobs because they feel satisfied and successful in their chosen career field.

Therefore, it can be concluded that the existing theories and models of graduate employability are aimed at establishing the main needs and methods for required skills and filling all existing skill gaps to enhance graduates' employability. However, the concept of

marketability is flexible and tends to be tied to a country's economic and social changes and needs. This study evaluated the role of higher education institutions in providing marketability opportunities to students and subsequently finding industry jobs.

3. Method

The data in this study were obtained using qualitative research methods because qualitative methods can help researchers understand research problems in depth.

3.1. Research Design

This study was conducted utilising qualitative phenomenological approaches, including the collection of data from study participants via interviews and the analysis of official and informal documentation. Interviews are one of the primary strategies used to collect in-depth data on research participants. This is consistent with the philosophy of qualitative research, which is intended to acquire information and investigate the context of a phenomenon perceived by a study's respondents through communication [28]. Figure 1 shows the research design used in this study.

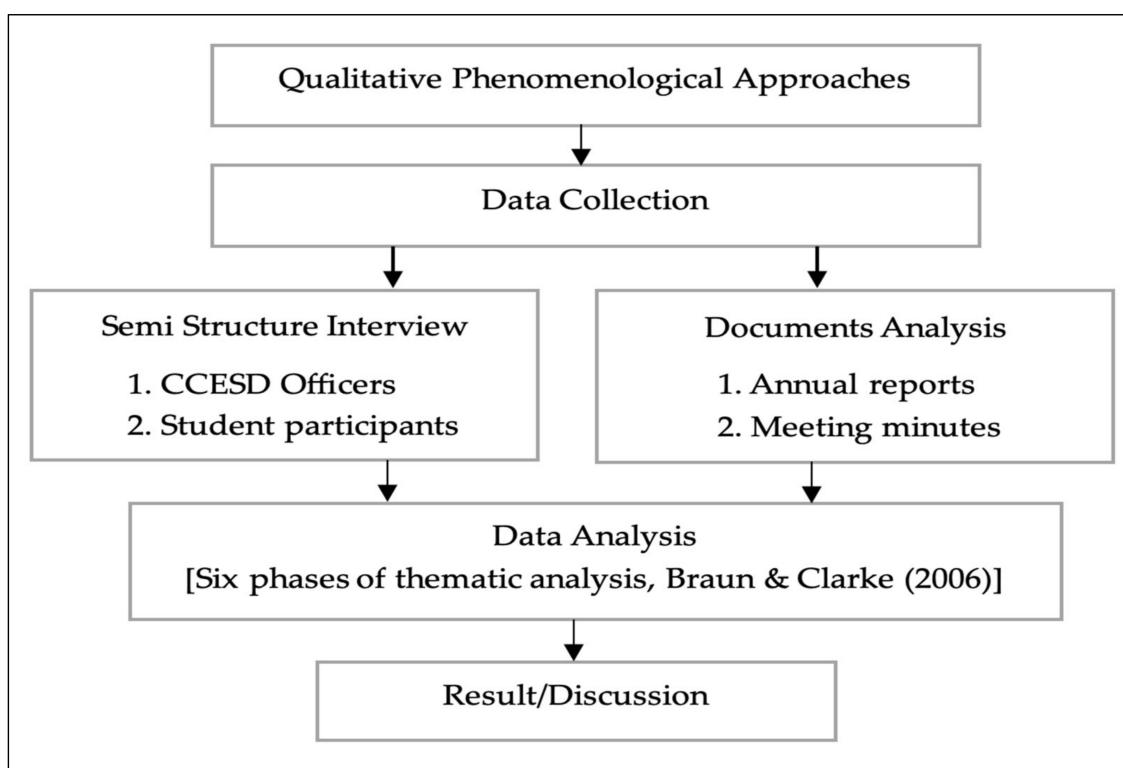


Figure 1. Qualitative phenomenological approaches.

Through in-depth interviews, this study was also intended to investigate the actual experiences of the study's participants. A study that employs phenomenological methodology is stated to be a qualitative study that describes an existing experience that its respondents have had [29].

Phenomenology was this study's research philosophy and methodology. Phenomenology, as a branch of philosophy, refers to the study of the structure of experience and consciousness. A phenomenological study is aimed at comprehending the subjectivity, life experiences, and perspectives of participants. Phenomenology is predicated on the premise that a single experience can be understood in multiple ways, and each participant's interpretation of that experience constitutes a statement. Thus, phenomenology provides information regarding unique individual experiences, providing a rich and comprehensive picture and understanding of humans.

3.2. Participants

In order to examine the initiatives undertaken by the University Malaysia Sabah to enhance the employability of graduates, purposeful sampling was used to select ten officers at the University Malaysia Sabah, Centre for Career and Student Entrepreneurship Development (CCSED), who have planned and implemented programmes related to the employability of graduates. The approach of purposive sampling was also utilised to select ten students who had participated in the employability programme.

3.3. Officer Data Collection

Ten officers at the University Malaysia Sabah, CCSED, who had organised and implemented graduate-employability-related programmes participated in an in-depth, one-on-one interview, as in-depth interviews are the most effective method for gaining insight into respondents' experiences, feelings, and attitudes [30]. Interviews were conducted in the career centre's meeting room to ensure that no outside meddling occurred. There were four different types of questions: (1) opening questions; (2) questions pertaining to the initiatives undertaken by the government and institution; (3) questions centred on the impact of the programme; and (4) concluding questions. Prior to data collection, the interview questions were reviewed and approved by two subject-matter specialists in order to ensure their reliability and validity. The total number of interviews was 25. Depending on each participant's responses, each interview session lasted between 45 and 60 min, with two interviewers present. All interview sessions were taped.

3.4. Student Data Collection

During and after three months of participation in the graduate employability programme, student participants underwent one-on-one interviews via Google Meet. Overall, ten interviews were conducted. Each interview session began with a brief explanation of the interview format and concluded with the researcher thanking the student for their participation and assuring them that their responses would be kept strictly confidential. A protocol for the interview was prepared, and additional questions were asked based on each participant's responses. Also, the researcher informed students that their comments would remain anonymous. Every interview lasted between 50 and 60 min, and audio was recorded.

3.5. Data Analysis

In this study, qualitative data were analysed using a thematic analysis method based on Braun and Clarke's six phases of thematic analysis [31]. First, the audiotapes of the participants were transcribed verbatim, and then the correctness of each transcription was verified. The transcriptions were then imported into NVivo version 10 for further analysis.

During the second phase, categories or correlated codes were constructed from the initial data points identified during the data familiarisation approach using an open coding method. Coding was centred on the initiatives taken by the Ministry of Higher Education and University Malaysia Saba to implement graduate employability programmes and their impact on the employment of student participants. During the coding procedure, researchers assigned each piece of data equal importance. By labelling and identifying text within each data item, the open coding function of NVivo enabled researchers to generate many initial codes for likely themes and patterns. In the third phase, the basic codes derived from open coding were refined. The revised codes were then rearranged and collated into prospective themes using analytic techniques. In the fourth step, the basic ideas were revised in order to refine, integrate, or separate them into the primary topics. The emphasis of this phase was on internal homogeneity (the data inside each topic should meaningfully cohere) and external heterogeneity (the data should be precise and apparent between the themes). Moving between data extracts and themes, the fifth phase comprised the investigation of the validity of the themes. The researchers ensured that the themes accurately represented the dataset by recognising and resolving similarities and

conflicts between them. The final collection of themes was double-checked to ensure that they effectively addressed the study topic. The sixth phase produced findings based on themes and direct quotations from the data collection.

4. Results

4.1. The Initiatives Undertaken by the Ministry of Higher Education to Improve the Marketability of Graduates in the Post-COVID-19 Era

In the COVID-19 pandemic era, the Malaysian Ministry of Higher Education has adopted several initiatives to enhance the employability of graduates. The interviews with CCSED officers and students revealed four major themes: the MySTEP Programme (Short-Term Training and Placement Programme), Penjana KPT-CAP (Career Advancement Programme), Penjana KPT-PACE (Professional Certification Programme), and Penjana KPT-CAP @ State (Career Advancement Programme at State).

According to the analysis of officers' and students' interview data presented in Table 1, nearly 75 percent concurred that the MySTEP Programme (Short-Term Training and Placement Programme) was a major initiative undertaken by the Ministry of Higher Education to improve the marketability of graduates in the post-COVID-19 era. The interviews also revealed that the Penjana KPT-CAP (Career Advancement Programme) was the second most prominent project, followed by the Penjana KPT-PACE (Professional Certification Programme). The analysis of officer and student participant interview data revealed that the Penjana KPT-CAP @ State (Career Advancement Programme at State) has been a very uncommon action implemented by the Malaysian Ministry of Higher Education to enhance the marketability of graduates in the post-COVID-19 era. These findings suggest that the Malaysian Ministry of Higher Education has taken proactive measures to promote and sustain the marketability of graduates in the COVID-19 era. However, the PENJANA KPT-PACE and PENJANA KPT-CAP @ State programmes are a less favourable choice for students because the training's duration is six months.

Table 1. Themes of officer views on government initiatives used to improve the marketability of graduates in the post-COVID-19 era.

Officer Responses		
Themes	Frequent	Example
MySTEP Programme (Short-Term Training and Placement Programme)	72%	The My Step programme is the main programme implemented by the government to increase the marketability of graduates.
Penjana KPT-CAP (Career Advancement Programme)	20%	It is the second-most popular programme among graduates because students are trained for one week and placed to work in a selected company for a year.
Penjana KPT-PACE (Professional Certification Programme)	7%	This programme is quite important because the graduates are trained to obtain professional certificates in various fields to increase their marketability.
Penjana KPT-CAP @ State (Career Advancement Programme at the state level)	3%	Malaysia's Ministry of Higher Education also collaborates with the state government to implement the CAP @ State Sponsorship Programme to increase the marketability of graduates from their respective states. But the opportunities provided are few and limited.

Table 1. Cont.

Themes	Student Responses	
	Frequent	Example
MySTEP Programme (Short-Term Training and Placement Programme)	75%	This is one of the best programmes organised by the Ministry of Higher Education to enhance graduate employability in Malaysia. During the programmes, I was given the opportunity to learn soft skills such as communications, writing a proper email, and dressing code (participant 7).
Penjana KPT-CAP (Career Advancement Programme)	15%	This programme has enhanced my career by getting me my dream job. I attended one month of training at the university as an aircraft maintenance technician and was offered a job as an engineer at Air Asia.
Penjana KPT-PACE (Professional Certification Programme)	5%	Thank you to the Ministry of Higher Education for offering me a professional certification programme. Throughout the course, I attended a power BI course, which helped me secure a job at an IT company in Sabah (participant 5).
Penjana KPT-CAP @ State (Career Advancement Programme at the state level)	5%	The state government of Sabah and the Malaysia Higher Ministry of Education collaborated to organise a very good programme to enhance Sabah state students' employability. The students are given a choice to embark on train-and-place courses or place-and-train courses to secure a job in the endemic era. I have attended place-and-train courses and secured a job in a bank.

4.2. The Initiatives Undertaken by University Malaysia Saba to Improve the Marketability of Graduates in the Post-COVID-19 Era

The analysis of the officer interview data revealed five main themes of the initiative taken by the University Malaysia Saba to improve the marketability of graduates.

4.2.1. Upskilling and Reskilling Programmes

The analysis of career centre officer interviews revealed that the primary measure taken by University Malaysia Saba to enhance the marketability of graduates was to provide students with upskilling and reskilling programmes. This is because most of the job opportunities that exist in the pandemic era require additional skills that are not relevant to each student's field of study. For example, CCSED officer 1 stated:

Reskilling and upskilling programmes are very necessary to be held to enhance students' skills because most of the job opportunities that exist during the pandemic era require new skills to ensure the sustainability of the marketability of graduates. According to him, the university has planned three categories of upskilling and reskilling programmes, one of which is the Training and Placement programme. This programme is implemented in collaboration with industry to train students in the disciplines required by the industry so that they may be hired by the industry.

This statement was also supported by the second CCSED officer, who stated that the university has taken drastic steps to design various upskilling and reskilling programmes in three main areas—namely, pure science, social science, and technology—to guarantee the sustainability of graduates' marketability by improving students' marketable skills.

However, the cost of implementing this programme has been very high. Therefore, the university has implemented a policy of collaborating with local industries to apply for upskilling and reskilling funding provided by the Malaysian Ministry of Higher Education. According to the third CCSED officer, UMS managed to obtain funds of almost 6 million Malaysian ringgit (as shown in Table 2) to implement this programme.

Table 2. Total funding obtained by University Malaysia Sabah from the Malaysian Ministry of Higher Education.

No	Programme Name	Total Funds	Number of Students	Types of Upskilling
01.	Internet of Thing Industrial Skills Certificate Course	RM 53,806.89	50	KPT-CAP
02.	Certified Drone Precision Agriculture Proficient Aircraft Manufacturing Technology	RM 49,328.61	50	KPT-CAP
03.	Carnival Event Management and Sales	RM 41,259.46	35	KPT-CAP
04.	Management and Business in Music	RM 58,518.13	50	KPT-CAP
05.	Trust Unit Consultant	RM 56,724.47	50	KPT-CAP
06.	Halal Executive Certificate Food Safety Management Executive Programme	RM 45,625.64	100	KPT-CAP
07.	CSWIP 3.0 Visual Welding Inspector Certification Course	RM 26,904.55	40	KPT-PACE
08.	NDT Liquid Penetrant Testing (PT) Inspector	RM 53,808.14	80	KPT-PACE
09.	NDT Magnetic Particles Testing (MT) Inspector Certificate of Competence—Occupational Health Nursing (Occupational Health Nurse—OHN)	RM 9416.42	14	KPT-PACE
10.	Workshop on Banana Tissue Culture Techniques and Commercial Banana Plantation Certified Environmental Professional in Schedule Waste Management	RM 9416.42	14	KPT-PACE
11.	Radiation Protection and Safety Training	RM 77,348.18	115	KPT-PACE
12.	Certified Team Leader	RM 33,632.91	50	KPT-PACE
13.	Certified Team Leader Phase 2	RM 4708.60	7	KPT-PACE
14.	Certified Digital Marketer Entrepreneurship Pioneer Course	RM 25,561.01	38	KPT-PACE
15.	MySTEP Management Programme Course	RM 23,057.13	25	KPT-CAP-STATE
16.	Certified Team Leader Phase 2	RM 40,590.22	35	KPT-CAP-STATE
17.	Certified Digital Marketer Entrepreneurship Pioneer Course	RM 45,229.06	43	KPT-CAP-STATE
18.	MySTEP Management Programme Course	RM 59,187.53	50	KPT-CAP-STATE
19.		RM 320,150.76	100	MySTEP

The analysis of student interviews also demonstrated that the university has actively implemented various upskilling and reskilling programmes to ensure the sustainability of student employment. For instance, student respondent 1 (who majored in social science) stated:

The new job opportunities that exist in the pandemic era require new working skills, which makes it difficult for literary students to obtain employment. Therefore, the university implements online upskilling programs aggressively so that students can obtain employment.

This statement was also supported by student respondent 8 from the Department of Technology, who explained that the university is proactive in instituting upskilling and reskilling programmes to ensure that students majoring in pure science and technology can be marketable.

The analysis of CCSED officer and student respondent interview data showed that the university has taken proactive steps by holding various upskilling and reskilling programmes to enhance and sustain the marketability of graduates. These programmes have been implemented with funds obtained from the Ministry of Higher Education.

4.2.2. Gig Economy Programmes

One of the most important providers of job opportunities during the COVID-19 era is the gig economy, which is the concept of creating income by working temporarily or short-term. The interview with CCSED officer 1 showed that the gig economy is starting to become the focus of students. Therefore, the university introduced gig economy programmes to all university graduates, as shown in Figure 2.

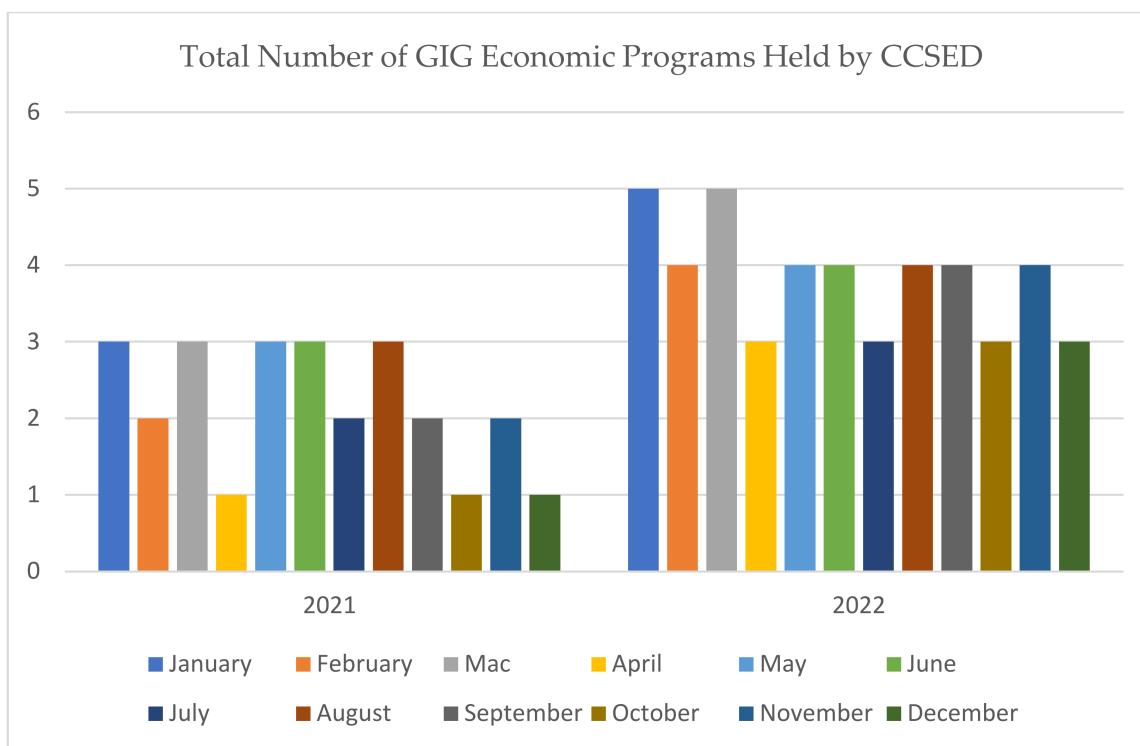


Figure 2. Total number of gig economy programmes held by the CCSED in 2021 and 2022.

Figure 2 shows that the CCSED successfully introduced 25 gig economy programmes for graduates in 2021, and the number of programmes increased to 45 in 2022. CCSED officers 1, 2, and 3 stated that the gig economy programmes with the best student responses were Panda Bite, Siswa Mall, Runner Man, and MYSITI. In addition, analyses of meeting minutes documents and the Student Career and Entrepreneurship Development Centre's annual reports for 2021 and 2022 revealed that the gig economy programmes were introduced to students in two phases, namely, phase 1 in June and phase 2 in November. The interview with CCSED officer 3 revealed that the gig programmes were introduced in two phases because approximately 70 percent of students graduate in July and the remaining

30 percent graduate in December. The implementation of gig economy programmes in June and November therefore provided students with exposure and career opportunities.

Interviews with student respondents also showed that the university is aware that it is quite difficult for students to venture into new career fields after the pandemic without work experience. Therefore, the university has regularly exposed students to job opportunities in the gig economy as an alternative to conventional job opportunities. This finding is supported by student respondents 4 and 7:

It can be said that as many as four to six economic gig economy programmes will be conducted by the university every week to give exposure and opportunities to students to get involved in the field of gig economy. I have attended six programmes, and the one in which I chose to participate actively is Siswa Mal.

Based on the analysis of interview data, meeting minutes, and annual reports, this study concluded that the university has taken drastic initiatives to introduce gig economy jobs to graduates because graduates can productively, flexibly, and sustainably generate income in the gig economy through services related to areas such as education, transportation, food, goods delivery, and financial products.

4.2.3. Entrepreneurship Programme

The entrepreneurship programme that was established in the Ministry of Higher Education's Entrepreneurship Action Plan 2021–2025 has also been used as a guide for universities to implement various programmes to encourage graduates to enter the field of entrepreneurship as a job opportunity. CCSED officer 2 stated:

The Student Career and Entrepreneurship Development Centre also helps and encourages graduates to choose entrepreneurship as one of their career fields in the pandemic era. For example, through Bank Rakyat's Entrepreneur Programme, students are given business assistance of RM 5000 to RM 7000 to start a business. In addition to that, the Career Programme with the Ministry of Entrepreneurship was held to give exposure to students on how to register a business and obtain business start-up funds.

CCSED officer 3 explained further:

Through 2021, the Entrepreneurship Unit will implement 32 entrepreneurial programmes and activities. The programmes consist of education, training, and exposure to the world of entrepreneurship. The students will be exposed to entrepreneurial abilities and knowledge. In fact, our objective is to increase the number of students who become entrepreneurs, as employment opportunities in the industry have decreased since the COVID-19 pandemic.

To further strengthen this study's analysis, researchers reviewed the annual report and minutes files of the meeting of entrepreneurial activities carried out by the Centre for Career and Student Entrepreneurship Development (CCSED). Data analysis showed that the number of entrepreneurship programmes implemented by the CCSED increased during 2021 and 2022, as shown in Figure 3:

As shown in Figure 3, the number of entrepreneurship programmes implemented by the CCSED increased from 32 programmes in 2021 to 52 programmes in 2022.

In addition, interviews with student respondents indicated that the university, via the Centre for Career and Student Entrepreneurship Development (CCSED), promotes and encourages students to engage in entrepreneurship as an alternative job opportunity in this pandemic era. For instance, student respondents 7 and 8 explained:

The university always plans and implements numerous entrepreneurship programmes to encourage students to pursue entrepreneurship as a career. Both of us from the Food Science Faculty participated in the Bank Rakyat Siswa Entrepreneur programme. This programme exposed me to numerous business opportunities and provided me with funding to launch a cake business.

The analysis of interviews and documents indicated that the university has planned and implemented various entrepreneurship activities to encourage students to choose

entrepreneurship as a career option in the pandemic era. This is due to the university's dedication to producing graduates who can establish employment opportunities for themselves and the surrounding community. This ambition is consistent with the primary objective of the Ministry of Higher Education's Entrepreneurship Action Plan 2021–2025.

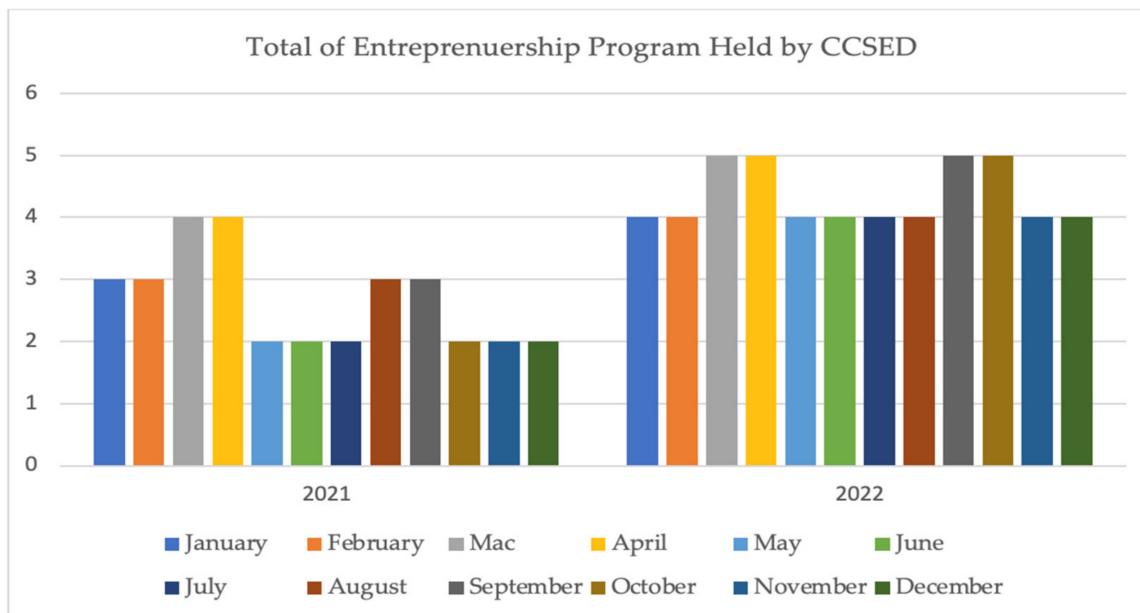


Figure 3. Total number of entrepreneurship programmes held by the CCSED in 2021 and 2022.

4.2.4. Finishing School Programmes

The university has designed finishing school programmes to ensure that graduates are prepared for job applications. The names of the programmes held by the CCSED and the total number of students who participated are shown in Table 3.

Table 3. Names of programmes and number of students who participated.

No	Name of Programme	2021		2022	
		Number of Students Who Participated			
01.	Writing E-Resumes	50	78		
02.	Interview Preparation	57	92		
03.	Mock Interviews	43	69		
04.	Effective Communication	36	84		
05.	LinkedIn Registration	34	65		
06.	My Future Job	62	102		
07.	Personal Branding and Planning for Job Application	37	71		

Table 2 shows that the number of students who participated in finishing school programmes drastically increased from 2021 to 2022.

The interview with CCSED officer 4 revealed that the finishing school programmes have been planned and implemented in two phases: the first phase at the faculty level and the second phase at the CCSED level. According to CCSED officers 6 and 8, the main focuses of the finishing school programmes include writing e-resumes, interview preparation, mock interviews, effective communication, LinkedIn registration, My Future Job, and Personal Branding and Planning for Job Applications. Furthermore, officer 9 explained that the 2021 and 2022 finishing school programmes were implemented online and face-to-face, respectively. According to him, finishing school programmes are very important in ensuring that graduates are fully prepared to enter the job market.

The analysis of the annual report document showed that the finishing school programmes are held from February to September at the faculty level and in October at the university level. The findings of this analysis also showed that the finishing school programmes are implemented in collaboration with local industries, the Ministry of Youth and Sports, and the Social Security Organization (Ministry of Human Resource).

The analysis of interviews with student participants also showed that the faculty carried out various activities during the finishing school programmes. Among the programmes, students' main choices were found to be writing e-resumes and My Future Job training. For example, student participant 10 stated:

The main activities awaited by most students to attend during the Finishing School Programmes are the My-Resume writing workshop and My Future Job training.

Student participants 3 and 6 stated:

I am looking forward to attending Finishing School Programmes because I am learning extra knowledge on how to find my dream job with a good salary.

Annual report document analysis and interviews with CCSED officers and students also indicated that the university has implemented finishing school programmes to ensure that graduates are prepared to enter the workforce. The implementation of various programmes throughout the finishing school programme has received a warm welcome from students.

4.2.5. Online Career Fair

A career fair is one of the annual activities organised by the CCSED to give prospective graduate students the opportunity to choose jobs that match their qualifications.

Career fairs were reported to be held in collaboration with the Ministry of Higher Education, Perkeso, and domestic and international industries. However, during the pandemic, the university was unable to physically hold a career fair. Therefore, the career fair was conducted online. Interviews with officers at the CCSED and annual report document analysis revealed that the career fair programme was held from February to September at the faculty level and in October at the university level. The CCSED and faculty were reported to have organised a schedule for the entire year and contacted industries that were interested in participating. The career fair was implemented online and required between three and five hours to complete. This career fair began with an industry preview session and proceeded with interviews. In 2022, the career fair was held face-to-face.

The analysis also showed that at the university level, career fairs have been implemented in collaboration with the Ministry of Higher Education, the Ministry of Youth and Sports, and the Social Security Organization (Ministry of Human Resources), and they have been held three times a year in June, September, and November. The total number of career fairs held by the CCSED and the total number of job opportunities are shown in Table 3.

Table 4 shows that the number of career fairs and total job opportunities offered by industries drastically increased in 2021 and 2022.

Interviews with students who attended the online and in-person career fairs were also conducted to examine the effectiveness of these career fairs in helping graduates find job opportunities. Interview analysis showed that the CCSED was very active in organising career fairs online in 2021 and physically in 2022. These career fairs were very helpful for graduates wanting to find job opportunities that suit their fields. For example, student respondent 1 stated:

I often receive career fair posters from CCSED via email and WhatsApp. I have attended the online career fair four times and managed to secure a job that suits my field. Therefore, I would like to thank CCSED for helping me get my dream job.

Student respondents 5 and 9 stated:

The career fair organised by CCSED to help graduates get a job is very good and effective. This is because every month there is a career fair, and various industries participate. The

jobs provided are diverse and allow students to work from home. In addition, graduates are also given the opportunity to work online with companies in Singapore and Thailand.

The analysis of CCSED officer and graduate interviews, as well as documents, showed that from 2021 to 2022, the CCSED actively organised career fairs. These career fairs have provided various job opportunities for graduates, which consequently increased the marketability rate of Malaysian Sabah University graduates in the COVID-19 pandemic era.

Table 4. Number of job opportunities and career fairs offered in 2021 and 2022.

Month	2021		2022	
	Number of Career Fairs	Job Opportunities	Number of Career Fairs	Job Opportunities
January	1	10	4	100
February	1	15	4	120
Mac	2	50	5	200
May	2	80	6	150
June	3	40	6	180
July	3	40	4	110
August	2	50	6	200
September	4	80	5	180
November	4	150	4	160
December	10	550	16	1500
Total	32	1065	52	2900

5. Discussion

The findings of this study show that the Malaysian Ministry of Higher Education has taken proactive measures to promote the marketability of graduates in the COVID-19 pandemic era. The major initiative undertaken by the Ministry of Higher Education to improve the marketability of graduates in the post-COVID-19 era has been the Malaysian Short-Term Employment Programme (MySTEP). Graduates who are selected to participate in this programme are given training for one month and provided work placement in various ministries, government agencies, government-linked companies (GLCs), government-linked investment companies (GLICs), and strategic partners with a monthly salary of RM 2000.00. This initiative significantly helped to increase the marketability of students who graduated in 2021 and 2022 by providing a transitional job opportunity for six months before graduates found jobs equivalent to their qualifications. This programme effectively created 20,000, 35,000, and 50,000 employment opportunities in 2021, 2022, and 2023, respectively [31]. Overall, these findings are difficult to compare with those of previous research due to the paucity of reports on temporary job placement initiatives undertaken by governments in other nations to improve the employability of graduates in the post-COVID-19 era.

Another important finding of this study concerns the initiatives taken by University Malaysia Saba to improve the marketability of graduates in the post-COVID-19 era. The analysis of officer interview data showed that the university has undertaken five main initiatives to improve the marketability of graduates, namely, upskilling, reskilling, gig economy and entrepreneurship, finishing school programmes, and online career fairs. In this regard, the analysis of CCSED officer and student interview data showed that the university has taken proactive steps by holding various upskilling and reskilling programmes to enhance and sustain the marketability of graduates, with an emphasis on three main fields, namely, pure science, social science, and technology. The authors of this study believe that the implementation of these programmes, which are focused on the three main aforementioned areas, has resulted in more opportunities for graduates due to the development of new jobs that require technological skills and various soft skills. This finding is supported by [1,12]. However, the cost of implementing these programmes is very high. Therefore, these programmes have been implemented in collaboration with industries and have received funding from the Ministry of Higher Education. The implementation of

these programmes in collaboration with industries is intended to provide exposure and training to students in accordance with the job requirements desired by industries in the future. This finding is in line with [12,13], which found that industries prefer graduates who are easy to train and can adapt themselves to their jobs.

In addition, the university has taken a drastic initiative to introduce a gig economy programme, because the gig economy can allow graduates to productively, flexibly, and sustainably generate income through a variety of services related to areas such as education, transportation, food, goods delivery, and financial products. This study found that students are interested in this programme because the gig economy provides students with the opportunity to learn, find work experience, and explore talents and interests by participating in various types of jobs instead of relying on a single job source. This is one form of support used to reduce the financial gap and increase the marketability of students, especially during the COVID-19 pandemic [21,22].

These findings also indicate that University Malaysia Saba has planned and implemented various entrepreneurship programmes to encourage students to choose entrepreneurship as one of their career options in the pandemic era. This is due to the university's dedication to producing graduates who can establish employment opportunities for themselves and the surrounding community. This is in line with the findings of [10], which showed that the practical role played by public universities can benefit graduates in the process of transitioning into the workplace during the COVID-19 pandemic [5]. In this regard, such programmes are also able to expose students to knowledge, information, motivation, and self-training that enables them to be more open to job opportunities based on the potential of their specialisation. This is because entrepreneurs are not as dependent on working as employees in the job market, especially during the COVID-19 era.

Another initiative taken by the university has been the implementation of finishing school programmes to ensure that graduates are prepared to enter the workforce. In this context, relevant basic writing and preparation skills are essential for every job application [8,13]. Therefore, all types of courses undertaken as part of the finishing school programmes increase the quality and qualifications of students, thus helping them stand out in job applications, especially for entry-level positions and interview sessions in their chosen industry. This point is supported by [18], which found that graduates can procure a higher level of support with practical programmes carried out by universities and further guarantee their marketability by meeting market demands. Therefore, the implementation of finishing school programmes has received a warm welcome from students.

In addition, the organisation of an online career fair was found to provide a variety of online job opportunities for graduates. These new job opportunities have encouraged graduates to apply for jobs while also reducing the waiting period to find such jobs. This finding is difficult to compare to those of previous studies due to the paucity of research on university initiatives used to increase graduates' marketability. However, according to [5,23], every public and private university in Malaysia has played a significant role in enhancing the skills of graduates in the post-COVID-19 era so that 2020, 2021, and 2022 graduates can be marketed and the unemployment rate can be reduced.

6. Implications of the Study

The Malaysian Ministry of Higher Education has allocated RM 1000 billion to enhance the employability of graduates in the post-COVID-19 era [32,33]. The findings of this research will provide a clear picture of the efficacy of the programmes implemented to increase the marketability of graduates and can be utilised by the government in the development of intervention plans to enhance the marketability of graduates. In addition, the findings of this study can serve as a guide for the development of modules that can be utilised in the future to enhance graduate employability.

This study's findings can also be used by upper management to evaluate the efficacy of programmes designed to enhance the marketability of university graduates in the post-

COVID-19 era. In addition, the findings of this study can be used as a guide for planning and implementing various programmes to sustain graduate marketability.

This study also demonstrates that the new job opportunities that have arisen in the pandemic era require a variety of new skills that are incompatible with the knowledge and expertise of university students graduating in 2020, 2021, and 2022. Therefore, the university and the government must plan to develop various upskilling and reskilling programmes that are in accordance with the requirements of job openings that exist in the post-COVID-19 era.

7. Conclusions

The findings of this study indicate that the Malaysian Ministry of Higher Education and related universities have taken significant steps to improve and sustain graduates' marketability. They have implemented various upskilling and reskilling programmes in three major areas, namely, pure science, social science, and technology, to ensure the sustainability of graduates' marketability by increasing students' marketable abilities. The interviewed graduates who participated in these programmes concurred and thanked the Malaysian Ministry of Higher Education and University Malaysia Sabah for their perseverance in enhancing graduates' marketability. Therefore, this study's findings can be used as a guide for formulating policies and developing programmes to increase the marketability of Malaysian university graduates.

Author Contributions: Conceptualisation, S.S.B. and R.T.; methodology, B.R.; software, Z.B.R.; validation, S.S.; investigation, S.S.B.; resources, R.T.; data curation, R.T.; writing—original draft preparation, S.S.B.; writing—review and editing, M.N.N.; visualisation, B.R.; supervision, S.S.B.; project administration, R.T.; funding acquisition, S.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research received funding from University Malaysia Sabah (SDK0212-2020).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Acknowledgments: The authors acknowledge the Research Management Centre, University Malaysia Sabah, for providing the funding; the Ministry of Higher Education; and the officers and students who participated in this research.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Mckibbin, W.; Fernando, R. The global Macroeconomic Impact of COVID-19: Seven Scenarios. *Asian Econ. Pap.* **2021**, *20*, 1–30. [[CrossRef](#)]
2. Muratoglu, G.D. *COVID-19 Global Economic Crisis, Policy and an Assessment on Turkey, Challenges in Economics and Business Studies from Research to Practices*; IJOPEC Publication: London, UK, 2020; pp. 1–125.
3. Baker, S.; Bloom, N.; Davis, S.J.; Terry, S. *COVID-Induced Economic Uncertainty: Technical Report*; National Bureau of Economic Research: Cambridge, MA, USA, 2020; pp. 1–17.
4. Mawani, F.N.; Gunn, V.; O'Campo, P.; Anagnostou, M.; Muntaner, C.; Wanigaratne, S.; An, A. COVID-19 economic response and recovery: A rapid scoping review. *Int. J. Health Serv.* **2021**, *51*, 247–260. [[CrossRef](#)] [[PubMed](#)]
5. Kamaruddin, M.I.H.; Ahmad, A.; Husain, M.A.; Abd Hamid, S.N. Graduate employability post-COVID-19: The case of a Malaysian public university. *High. Educ. Sci. Work-Based Learn.* **2021**, *11*, 710–724. [[CrossRef](#)]
6. Prospek dan Dasar tahun 2021—Bank Negara Malaysia. Available online: <https://www.bnm.gov.my> (accessed on 14 January 2023).
7. Tsurugano, S.; Nishikitani, M.; Inoue, M.; Yano, E. Impact of the COVID-19 pandemic on working students: Results from the Labour Force Survey and the student lifestyle survey. *J. Occup. Health* **2021**, *63*, e12209. [[CrossRef](#)]
8. Gavriluță, N.; Grecu, S.P.; Chiriac, H.C. Sustainability, and employability in the time of COVID-19. Youth, education, and entrepreneurship in EU countries. *Sustainability* **2022**, *14*, 1589. [[CrossRef](#)]
9. Hawley, S.R.; Thrivikraman, J.K.; Noveck, N.; Romain, T.S.; Ludy, M.J.; Barnhart, L.; Tucker, R.M. Concerns of college students during the COVID-19 pandemic: Thematic perspectives from the United States, Asia, and Europe. *J. Appl. Learn. Teach.* **2021**, *4*, 11–20.

10. Donald, W.E.; Ashleigh, M.J.; Baruch, Y. The university-to-work transition: Responses of universities and organizations to the COVID-19 pandemic. *Pers. Rev.* **2022**, *51*, 2201–2221. [[CrossRef](#)]
11. Chen, T.; Rong, J.; Peng, L.; Yang, J.; Cong, G.; Fang, J. Analysis of social effects on employment promotion policies for college graduates based on data mining for online use review in China during the COVID-19 pandemic. *Healthcare* **2021**, *9*, 846. [[CrossRef](#)]
12. Abd Hair, A.; Ishak, Y.; Arawati, A.; Zafir, M.M. Kebolehpasaran Graduan IPT Tempatan: Penilaian Dari Perspektif Majikan. *Malays. J. Youth Stud.* **2012**, *7*, 77–92.
13. Nair, P.R. Increasing employability of Indian engineering graduates through experiential learning programs and competitive programming: Case study. *Procedia Comput. Sci.* **2020**, *172*, 831–837. [[CrossRef](#)]
14. Shintaro, S.; Taehn, K.; Ebe, D.; Hirotaka, M. Graduate employability and higher education's contributions to human resources development in sport business before and after COVID-19. *J. Hosp. Leis. Sport Tour.* **2021**, *28*, 100301.
15. Youth Employability Scoping Study. Available online: <https://www.unicef.org> (accessed on 7 February 2023).
16. Great Initiatives to Match Jobless Grads with Potential Employers. Available online: <https://www.google.com/search?client=firefox-b-d&q=https%2F%2Fperantisiswa.kkmm.gov.my> (accessed on 2 January 2023).
17. Nakanishi, H.; Othman, R.; Igusa, K.; Komaki, S. Global Standardization Education Program Collaborated by Osaka Univ. and MJIIT, UTM. *J. ICT Stand.* **2013**, *1*, 59–82. [[CrossRef](#)]
18. Ma'dan, M.; Ismail, M.T.; Daud, S. Strategies to enhance graduate employability: Insight from Malaysian public university policy-makers. *Malays. J. Learn. Instr.* **2020**, *17*, 137–165. [[CrossRef](#)]
19. Noman, M.; Kaur, A.; Nafees, N. COVID-19 fallout: Interplay between stressors and support on academic functioning of Malaysian university students. *Child. Youth Serv. Rev.* **2021**, *125*, 106001. [[CrossRef](#)]
20. Sundarasen, S.; Chinna, K.; Kamaludin, K.; Nurunnabi, M.; Baloch, G.M.; Khoshaim, H.B.; Sukayt, A. Psychological impact of COVID-19 and lockdown among university students in Malaysia: Implications and policy recommendations. *Int. J. Environ. Res. Public Health* **2020**, *17*, 6206. [[CrossRef](#)]
21. Soria, K.M.; Horgos, B.; Shenouda, J.D. Disparities in college students' financial hardships during the COVID-19 pandemic. *J. Stud. Aff. Res. Pract.* **2022**, *60*, 31–48. [[CrossRef](#)]
22. Syaripuddin, B.; Rehat, C.A. Post COVID-19 Outbreak, Perception and Employability Rate: The Case Study of Alumni of Politeknik METR O Betong Sarawak. *Borneo Eng. Adv. Multidiscip. Int. J.* **2022**, *1*, 1–12.
23. Abd Rahman, N.H.; Ismail, S.; Ridzuan, A.R.; Abd Samad, K. The issue of graduate unemployment in Malaysia: Post COVID-19. *Int. J. Acad. Res. Bus. Soc. Sci.* **2020**, *10*, 834–841. [[CrossRef](#)]
24. Bennett, N.; Dunne, E.; Carré, C. Patterns of core and generic skill provision in higher education. *High. Educ.* **1999**, *37*, 71–93. [[CrossRef](#)]
25. Harvey, L. Defining and measuring employability. *Qual. High. Educ.* **2001**, *7*, 97–109. [[CrossRef](#)]
26. Yorke, M.; Knight, P. Self-theories: Some implications for teaching and learning in higher education. *Stud. High. Educ.* **2004**, *29*, 25–37. [[CrossRef](#)]
27. Dacre Pool, L.; Sewell, P. The key to employability: Developing a practical model of graduate employability. *Educ. Train.* **2007**, *49*, 277–289. [[CrossRef](#)]
28. Creswell, J.W. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*, 5th ed.; SAGE Publication: Thousand Oaks, CA, USA, 2018; pp. 1–388.
29. Hafifi, H.H.; Musirin, M. Kaedah Humor dalam Pengajaran oleh Guru Bahasa Melayu di Sekolah Rendah: Satu Kajian Fenomenologi. *Malays. J. Soc. Sci. Humanit.* **2021**, *6*, 63–70.
30. Guest, G.; Bunce, A.; Johnson, L. How many interviews are enough? An experiment with data saturation and variability. *Field Methods* **2006**, *18*, 59–82. [[CrossRef](#)]
31. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [[CrossRef](#)]
32. Zulkarnain, S.H.; Nawi, A.S. The relationship between macroeconomic variables on residential property price: Case study in Malaysia before and during COVID-19. *Int. J. Hous. Mark. Anal.* **2023**. [[CrossRef](#)]
33. Kenyataan Media Penjana Kpt-Cap: Peruntukan Rm100 Juta Bagi Menangani Isu Kebolehpasaran Graduan. Available online: Https://Www.Mohe.Gov.My/?Option=Com_Content&View=Article&Id=58&Itemid=60 (accessed on 24 February 2023).

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.