

**GRADUATE EMPLOYABILITY FOR FUTURE OF
WORK IN BRUNEI DARUSSALAM BASED ON
SELECTED ISLAMIC-BASED DEVELOPMENT
PRINCIPLES FOR *AT-TAMAYYUZ* INTERNSHIP
PROGRAMME**

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OF WORK IN BRUNEI DARUSSALAM BASED
ON SELECTED ISLAMIC-BASED
DEVELOPMENT PRINCIPLES FOR AT-
TAMAYYUZ INTERNSHIP PROGRAMME**

by

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LIST OF ABBREVIATIONS

| | |
|----------|--|
| ASEAN | Association of Southeast Asian Nations |
| BILIF | Brunei Institute of Leadership and Islamic Finance |
| CGPA | Cumulative Grade Point Average |
| COVID-19 | Coronavirus Disease 2019 |
| CPKL | Centre for the Promotion of Knowledge and Languages |
| ERIC | Educational Resources Information Centre |
| HEI | Higher Education Institute |
| HRD | Human Resource Development |
| GR/ Gr | Group |
| ICT | Information and Communication Technology |
| IbD | Islamic-based Development |
| ILO | International Labour Organization |
| KDYMM | Kebawah Duli Yang Maha Mulia |
| MIB | Melayu Islam Beraja |
| MOFE | Ministry of Finance and Economy |
| MPEC | Manpower Planning and Employment Council |
| MTIC | Ministry of Transport and Info-Communication |
| NEET | Not in Education, Employment or Training |
| OCEAN | Office of Career Advancement and Industrial Networking |
| OECD | Organization for Economic Cooperation and Development |
| OIC | Organization of Islamic Cooperation |
| PRISMA | Preferred Reporting Items for Systematic Reviews and Meta-Analysis |
| UN | United Nations |

| | |
|--------|---|
| UNESCO | United Nations Educational Scientific Cultural Organization |
| UTB | Universiti Teknologi Brunei |
| SAW | Salallahu Alaihi Wasallam |
| SDG | Sustainable Development Goals |
| SWT | Subhana Wa Taala |
| STEAM | Science, Technology, Engineering, Arts and Mathematics subjects |
| STEM | Science, Technology, Engineering and Mathematics subjects |
| TVET | Technical and Vocational Education and Training |
| WEIRD | Westernized, Economic-Centric, Industry-Led, Reputation-Based and Dehumanizing |
| WISER | Wholistic, Integrated, Sustainable, Ethical and Resilient |

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APPENDIX A Interview Protocol Form

**KEBOLEHPASARAN GRADUAN UNTUK MASA DEPAN
PEKERJAAN DI NEGARA BRUNEI DARUSSALAM BERDASARKAN
PRINSIP PEMBANGUNAN BERTERASKAN ISLAM TERPILIH UNTUK
PROGRAM LATIHAN INDUSTRI *AT-TAMAYYUZ***

ABSTRAK

Kajian ini meneroka kebolehpasaran graduan untuk masa depan pekerjaan di Negara Brunei Darussalam dengan tumpuan kepada Program *Internship at-Tamayyuz*. Melihat kepada kadar pengangguran yang tinggi dalam kalangan graduan di Brunei Darussalam, kajian ini mengesahkan bahawa isu ini terletak pada ketidaksepadanan kemahiran dalam kalangan graduan dengan bidang pekerjaan. Sorotan literatur mengenai masa depan pekerjaan telah menekankan bahawa graduan STEM perlu mengembangkan kemahiran bagi menyesuaikan diri mereka dengan perubahan trend pekerjaan masa hadapan. Walau bagaimanapun, terdapat kekurangan kajian yang menekankan tentang pembangunan kemahiran yang berasaskan Islam melalui falsafah Melayu Islam Beraja (MIB). Paragraduan dalam bidang ini memainkan peranan penting dalam menyumbang kepada pembangunan Negara Brunei Darussalam. Oleh itu, kajian ini memfokuskan prinsip-prinsip pembangunan berteraskan Islam sebagai kerangka konseptual kemahiran kebolehpasaran graduan untuk Program *Internship At-Tamayyuz*. Oleh kerana itu, objektif kajian ini adalah : Pertama, mengenal pasti kebolehpasaran utama yang diperlukan untuk masa depan pekerjaan graduan. Kedua, menganalisis kebolehpasaran graduan dalam Program *Internship At-Tamayyuz* berdasarkan prinsip-prinsip pembangunan berteraskan Islam. Ketiga, mencadangkan kebolehpasaran graduan ini melalui Program *Internship At-Tamayyuz* berdasarkan prinsip-prinsip pembangunan berteraskan Islam. Kaedah penyelidikan ini

menggunakan reka bentuk kualitatif asas dengan menggunakan data primer dan sekunder. Data primer diperoleh daripada temu bual yang dijalankan dengan pemilihan informan bertujuan tertumpu kepada penyelaras yang terlibat dalam menjalankan Program *Internship At-Tamayyuz*. Sampel ini terdiri daripada 10 pakar industri dan 3 pakar akademik. Data sekunder diperoleh daripada literatur kontemporari dari sumber konvensional dan Islam. Kaedah analisis menggunakan analisis tematik dan analisis kandungan. Hasil kajian menunjukkan sebelas jenis kemahiran yang melibatkan kebolehpasaran graduan terdiri daripada kemahiran pembelajaran sepanjang hayat, kemahiran komunikasi, kemahiran digital, kemahiran pengurusan, kemahiran penyelesaian masalah, etika profesional, kerja berkumpulan, kemahiran kepimpinan, kemahiran keusahawanan dan mentaliti, kemahiran pembangunan diri dan kemahiran etika. Dapatan kajian termasuk dua kemahiran yang tidak tersebut dalam kajian lepas iaitu kemahiran multidisiplin dan kemahiran pembangunan diri. Selanjutnya, penemuan ini menyumbang komponen baru di antara komponen modal yang sedia ada dengan menyertakan modal kerohanian bersama modal insan, modal sosial, dan modal psikologi. Melalui modal kerohanian, wujud kemahiran etika yang mana merangkumi empat ciri-ciri nabi iaitu kejujuran, kebolehpercayaan, kecerdasan kerohanian, dan kemahiran insaniah. Kemahiran ini adalah selaras dengan tiga prinsip pembangunan berteraskan Islam yang dipilih untuk menyediakan model rujukan bagi penyelidik dan pakar pada masa depan.

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PROGRAMME**

ABSTRACT

This study explores graduate employability for future of work in Brunei Darussalam with a focus on *At-Tamayyuz* internship programme. Due to the high rate of unemployment among graduates in Brunei Darussalam, the study identifies that the issue lies within skills mismatch among graduates. Existing literature on future of work has emphasized the need for STEM graduates to develop employability skills to adapt to the changes to future of work. However, there are a lack of studies that emphasize on skills development among graduates in Islamic related field of knowledge. These graduates play a vital role in contributing towards the development of Brunei Darussalam because its development is based upon the philosophy of Malay Islamic Monarchy (MIB). Therefore, this study uses the principles of Islamic-based development as a conceptual framework to develop a framework of graduate employability skills for *At-Tamayyuz* internship programme. As such the objectives of this study are: First, to identify the key graduate employability skills required for future of work. Secondly, to analyse the graduate employability skills for *At-Tamayyuz* internship programme which are required for future of work in Brunei Darussalam based on the principles of Islamic-based development. Thirdly, to propose these graduate employability skills for *at-Tamayyuz* internship programme based on the principles of Islamic-based development. The method of research uses basic qualitative design using both primary and secondary data. The primary data is derived

from interviews conducted with a purposive selection of informants derived from 10 practitioners and 3 academicians. The secondary data is derived from contemporary literature from conventional and Islamic sources. The method of analysis uses both thematic and content analysis. The findings show a total of eleven graduate employability skills which comprise of lifelong learning skills, communication skills, digital skills, management skills, problem-solving skills, professional etiquette, teamwork, leadership skills, entrepreneurial skills and mindset, self-development skills and ethical skills. The findings also showed two skills which did not appear in previous literature which are multidisciplinary skills and self-development skills. Furthermore, the findings contributed a new component among the existing capital components to include spiritual capital alongside human, social, and psychological capital. Under the category of spiritual capital, the ethical skills that were found to be most important lie within the four characteristics of the prophet namely honesty, trustworthiness, spiritual intelligence, and soft communication skills. These skills were aligned with the three selected principles of Islamic-based development to provide a model of reference for future researchers and practitioners.

CHAPTER 1

INTRODUCTION

1.1 Introduction to the Chapter

This thesis explores two main concepts which are graduate employability and future of work with a focus on *At-Tamayyuz* internship programme. The general objectives of this thesis are to explore the key skills of graduates that are required for the future of work within the context of Brunei Darussalam for the purpose of enhancing their employability using an internship programme (*At-Tamayyuz* internship programme) as a subject of focus in this study. *At-Tamayyuz* internship programme is offered under an Islamic Higher education institute in Brunei Darussalam. In this respect, the theoretical framework applies the principles of Islamic-based Development as the underpinning concept to contribute to the study¹. The contents of this chapter include the background of the research, the problem statement, research objectives and questions, followed by the operational definitions, scope and limitations of the research, significance of the research and lastly the overall organization of the thesis.

1.2 Background of the study

The background of the study explores the global trends of unemployment which leads to the main themes of the study which are future of work and graduate employability. These themes are then explored based on global initiatives followed by Brunei Darussalam. It narrows down to the main issue prevalent in Brunei which is

¹ The justification for the use of these principles are explained further in Page 35 of this chapter.

skills mismatch among graduates in Brunei which affects their employability for future of work. To this end, the study then focuses on *At-Tamayyuz* internship programme and Islamic-based development with relevant justifications.

The root issue of graduate employability and future of work is unemployment in which there are three factors that affect this issue: labour supply, sustainability and COVID-19 (ILO, 2017, 2020; ILO & OECD, 2018). In general, the concept of employability is examined from the conventional perspectives according to these three main factors derived from literature are as follows: (1) capital components, (2) career management; and (3) contextual components (Fakunle & Higson, 2021). Subsequently, the future of work is explored in terms of three factors: 1) Technological progress; 2) Demographic, social and environmental changes; 3) Globalisation; and 4) Labour flexibility (Beno, 2020).

After exploring the two themes on graduate employability and future of work within the global context, the background study then explores the issue of unemployment within the context of Brunei Darussalam. The latest reports and research which have been conducted show that the main issues causing unemployment in Brunei is skills mismatch (CSPS, 2020; Musa & Idris, 2020). According to International Labour Organization (ILO), skills mismatch can be broken down into five factors: (1) overeducation versus undereducation; (2) over skilling versus under skilling, (3) horizontal versus vertical mismatch, (4) skills shortages versus obsolescence or skills gaps and (5) mismatch in low and middle income countries (ILO, 2020; Mcguinness et al., 2017).

Consequently, the main variables that influence the concept of graduate employability and future of work refer to its labour supply and labour market responses

(ILO, 2017; ILO & OECD, 2018). So far, little is known on the concept of employability and future of work from an Islamic perspective. Most research examines employability skills empirically as opposed to conceptually with most studies focusing on western contexts (Fakunle & Higson, 2021). This prompts the study to focus on *At-Tamayyuz* internship programme, offered by an Islamic Higher Education institution in Brunei Darussalam. The institute specializes in providing graduates disciplined in Islamic knowledge that contribute towards the development of the country's state philosophy (Malay Islamic Monarchy). These graduates have been highlighted by the Monarch, His Majesty the Sultan of Brunei Darussalam, as an important asset towards the country's economic as well as spiritual development.

1.2.1 Global trends of unemployment

The issue of unemployment has been significantly linked with future of work. The future of work also known as Industry 4.0 which contributes to the issue of unemployment due to persistent and costly imbalances between skills supply and demand within the job market (ILO & OECD, 2018). The issue stems from the digitalization of work processes causing jobs to be displaced for existing low skilled workforce and job creation for new high skilled workforce (Azahari, Ahmad, & Ramlee, 2023).

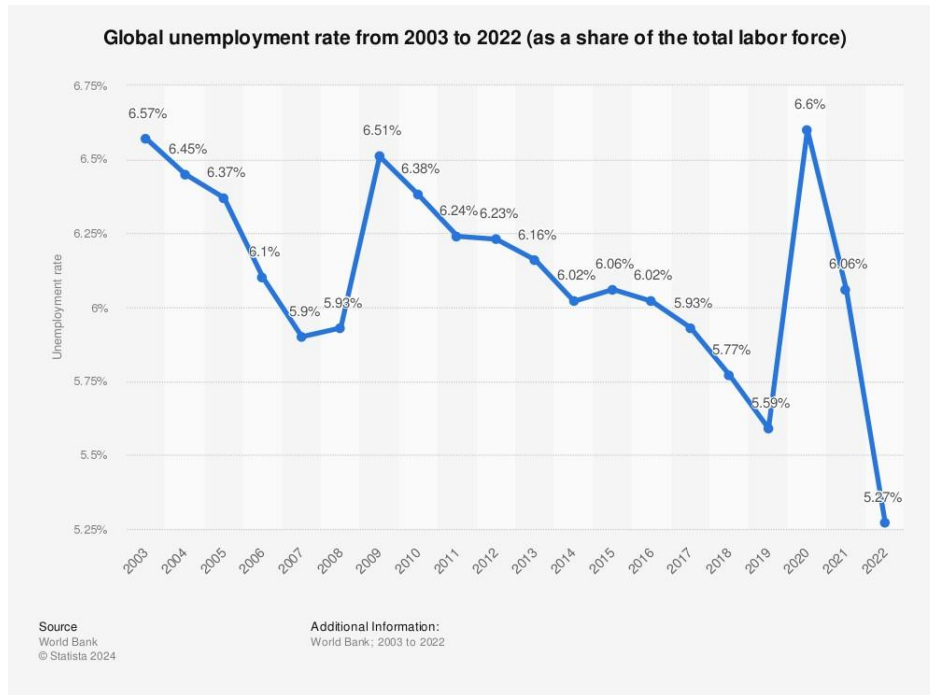


Figure 1.1 Global Unemployment Rate from 2010 to 2022

Source: (Statistica, 2024)

Figure 1.1 shows how unemployment particularly soared between the years 2019 and 2020. The factors affecting this decrease have been identified as labour supply, sustainable development, and COVID-19 (ILO, 2020). Subsequently, during post COVID-19, this rate dropped just as fast in 2022. Despite this global recovery, the same cannot be ascertained for the local situation in Brunei Darussalam which will be discussed later in paragraph 1.2.3. Post COVID-19, it was reported in a recent SDG report that youth not in education, employment and training remain within regression (PMO, 2023). This bring the focus onto the issues of labour supply and sustainable development.

For example, in terms of labour supply, despite evidence that show a substantial decrease in global unemployment, there is some evidence to suggest that that young people are three times as likely as adults (25 years and older) to be unemployed (ILO, 2020). The issue shows a high number of youth labour

underutilization at 267 million which represent the number of young people currently not in employment, education or training meaning they are not contributing to self-development or national development by acquiring skills or engaging in work (International Labour Organization (ILO), 2020; PMO, 2023). This issue is still ongoing in a recent research on youth that are neither in employment, education or training and their prospects for the future of work (Boland & Griffin, 2023).

This issue is a common issue and is addressed by various global actors from both government and private sectors that mostly contribute towards research on the latest skills required for future of work as well as employability. Examples of a few global actors that have been referred to in this study include International Labour Organization², United Nations³, Asia Pacific Economic Cooperation⁴, the World Bank⁵ McKinsey Global Institute⁶, World Economic Forum, and Coursera⁷.

² The International Labour Organization examines the global trends of youth unemployment around the world as well as the concept of skills mismatch at the global level to understand the economic concept of labour supply and demand (International Labour Organization (ILO), 2020; Mcguinness et al., 2017; ILO, 2019, 2018)).

³ The United Nations offer a holistic approach towards addressing global issues which are highlighted under the 17 Sustainable Development Goals (Burbules et al., 2020). The performance of individual member states towards achieving these goals are further assessed according to a global ranking system. The United Nations also have numerous subsidiary organizations, one of which is United Nations Educational Scientific and Cultural Organization which address socio-cultural issues relating to future of work (Chakchouk, 2022) as well as graduate employability in collaboration with various global universities (Marinoni, Van't Land, et al., 2020; UNESCO-UIS, 2018)).

⁴ Asia Pacific Economic Cooperation in collaboration with various stakeholders worldwide conducted a global Digital Skills Gap Index 2021 to address the issue of skills mismatch in response to the changes pertaining to future of work (Wiley, 2021).

⁵ The World Bank also plays a role in conducting conventional research in addressing issues relating to socio-economic global matters (IOE, 2017).

⁶ McKinsey Global Institute provides support in the form of white paper reports and contemporary global research relating to future of work and the global trends and changes relating to the concept of future of work among other global topics (Bughin et al., 2018; Dondi, M; Klier, J, Panier, F & Schubert, 2021; Lund, Madgavkar, Manyika, & Smit, 2021).

⁷ Coursera is a platform for universities worldwide to upgrade their education programmes and provide collaborative support in form of an online platform of skills development courses that are designed to meet the contemporary needs of the global market, particularly focused on digital skills among other skillsets. These skills have been compiled within a Global Skills Index (Coursera, 2020).

Furthermore, the youth labour force participation rate is decreasing with only 40% employed and the remaining 60% remain unemployed (ILO, 2020) which is particular to developing countries such as northern Africa and Arab States. Although more youth are enrolling in higher education, more youth are experiencing unemployment compared to adults and the trends show a potential of young people not being fully harnessed (International Labour Organization (ILO), 2020; PMO, 2023). The supply of labour is also related to the concept of sustainable development in which labour supply must match with labour demand. Studies on the future of work have identified contemporary trends for employment opportunities within the digital sector in which there will be a growing demand for professionals, developers, analysts, and specialists within this sector (WEF, 2025). These jobs require a contemporary skillset for the future of work such as digital skills, problem-solving skills, critical thinking skills and self-management (Abdul Aziz, 2022; Fajaryati et al., 2020b). Myriad studies have shown a variety of different skillsets which may differ corresponding to context. This changing demand and supply trend shows that academicians and education experts require a redesign of their current programme curriculum in order to cater for the changing demands for future of work (Pauceanu et al., 2020).

The skills that are required for future of work are investigated in this study based on the concept of employability. The background concept of employability remain under debate as numerous studies and researchers have come up with different multi-faceted meanings to the term employability (Sharma, 2020). The term employability was reported to date back in 1988 which included seven operational versions of employability namely: dichotomic employability, socio-medical employability, manpower policy employability, flow employability, labour market

performance employability, initiative employability and interactive employability (Sharma, 2020). Different theoretical and empirical approaches have been used globally to assess employability. There is some evidence to suggest that the dimensions of employability lie within three main areas: (1) capital components, (2) career management; and (3) contextual components (Fakunle & Higson, 2021).

The capital components lie within human capital, social capital, individual behaviour, and individual attributes (Clark, 2017; Bui, Hong & Nguyen, Hoa & Cole, Doug., 2019). Firstly, human capital is a concept which measures the productivity of humans objectively in terms of investigating trends of successes and analytical work on the utilization of human capital with particular emphasis on the outcome of education and healthcare (World Bank, 2021). Secondly, social capital is defined as the social networks and the valuable interchanges commencing from them that allow people to work collectively to achieve common goals (Eriksson, Santosa, Zetterberg, Kawachi, Ng, 2021). Social capital can be (1) personalized or movable or it can be (2) Generic or fixed for the purpose of common good of society (Malik; 2015). For example, public libraries can help facilitate social capital by incorporating values within a social and community setting by combining expertise, resources, spaces, services, and outreach to meet present and future community needs (Sorensen, 2021). Thirdly, individual behaviour and attributes has been categorized by Luthen, (2002) as a form of psychological capital which entails characteristics such as self-confidence, self-evaluation, resilience, loyalty, integrity, sympathy, empathy, confidence among other attributes (Lisá, Hannelová, & Newman, 2019; Abdul Razak, 2021; Fakunle & Higson, 2021). In contrary to this discussion, Islamic literature attributes the word capital to economic development rather than human development (Hanapi & Saniff, 2015). Islamic finance uses this word frequently in studies to with reference to the

Islamic capital market(Al-Jayyousi et al., 2022). However, capital is rarely used in reference to human development. This is because in Islamic-based development, humans are a means of development rather than the outcome of the development process (Hanapi & Saniff, 2015; Salleh, 2021). On the contrary, a growing amount of literature on Islamic finance are exploring the concepts of intellectual capital⁸ as an indicator towards enhanced market performance over economic performance which signifies the importance of capital for the purpose of employability (Farooque et al., 2023). This study will further attempt to explore this area of debate from an Islamic perspective in the preceding chapters.

Career management is considered under a different dimension which look at an individual's ability to navigate through the world of employment and the skills required to build personal development (Fakunle & Higson, 2021). This means intrapersonal skills such as self-leadership, self-awareness, self-management, entrepreneurship, goal achievement, self-actualization, and independence (Dandi, Klier, Panier & Schubert, 2021; S. I. Marin-Zapata et al., 2021).

Contextual components refer to competence-centred and employment-centred influence and perspectives from the employer's viewpoint (Fakunle & Higson, 2021). Evidence from studies of Fakunle & Higson (2021) notes that this particular dimension has been reported to be underrepresented within recent systematic literature reviews particularly among non-western countries and certain target groups such as international students. Other research gaps that were apparent within his study include the lack of comparison between target groups and the different perspectives on

⁸ Intellectual capital includes employees' knowledge, skill, experience, customer relationships and professional competencies(Farooque et al., 2023). It can be assumed that intellectual capital comprise of human and social capital as well as individual attributes and behaviour which is synonymous to the capital components.

employability from different worldviews such as Islamic and conventional worldviews (Fakunle & Higson, 2021).

Lastly, different dimensions of employability were interpreted by various authors. For example, Astin's work readiness model portrays the subjective notions of employability concurring to the input, environment and output (Chigbu & Nekhwevha, 2022). In addition, employability has recently been conceptualized to be synonymous with the term 'work readiness' which have similar meanings to the dimensions on career management and contextual components (Chigbu & Nekhwevha, 2022; Kyrousi et al., 2022). For example, work readiness refers to the employers perception towards the employability of a candidate in terms of their role clarity, ability to conduct tasks well, and their motivations towards doing work (Kapareliotis et al., 2019; Kyrousi et al., 2022).

The second issue addressed by the International Labour Organization (ILO) is sustainable development. The United Nations addresses the issue of unemployment under the fourth and 8th Sustainable Development Goals. The fourth goal is "quality education" which ensures inclusive and equitable quality education and promote lifelong learning opportunities for all. This goal is in support of the concept of graduate employability (Maina, 2021; Marinoni, Van't Land, et al., 2020; UNESCO-UIS, 2018). The eighth goal is decent work and economic growth which is to promote inclusive and sustainable economic growth, full and productive employment, and decent work for all. (Sach et. Al; 2021). This goal further supports the concept of future of work by enhancing education and training by the year 2020. It operationalizes global strategy for youth employment and promotes inclusive and sustainable economic growth (Sachs et. al; 2021). This issue thus links education with work in which the

concept of graduate employability has been linked with the concept of future of work within this study.

The term future of work refers to the dynamic changes pertaining to nature or work, work environment and human resources is referring to the industrial revolution starting from 4.0 onwards. Four factors have been studied to have an impact on the future of work which are: (1) technological progress within a knowledge-based economy; (2) flexible labour and capital market; (3) demographic, social and environmental changes; (4) globalization and glocalization (Banga & Willem Te Velde, 2019; Beno, 2020). For example, issues such as patent, copyright, security, employability, skills mismatch, inequality, individualism among other potential ethical issues remain underrepresented in recent systematic reviews conducted on future of work and artificial intelligence (Abdul Rahman & Ibrahim, 2019; André et al., 2018; Linthorst & de Waal, 2020; Chakchouk, 2022).

Other ethical issues may refer to the socio-cultural issues on the adoption of artificial intelligence that may contribute to ethical dilemmas (André et al., 2018; Feher & Katona, 2021, Mesko et. al, 2021). In response to issues on skills mismatch and employability, more studies have emphasized the need for character skills or soft skills (Madden, 2020; Abdul Rahman & Ibrahim, 2019), social and emotional skills which cannot be replaced by AI to be equip among graduates (Hite & McDonald, 2020; Lund, Madgavkar, Manyika, Smit, et al., 2021). Consequently, more studies found the need to re-evaluate and re-direct the curriculum of higher education to accommodate relevant future ready skills (Ahmad Saufi, 2022; Chakchouk, 2022). Higher education need to be up to date with the current socio-economic changes of future of work.. For example, reports have shown an increase in remote work of up to 20 – 25%,an acceleration of e-commerce and online learning and the growing automation of jobs

(Lund, Madgavkar, Manyika, Smit, et al., 2021). In this regard, initiatives such as career counselling and online coaching resources after graduation are suggested to enhance graduate employability (Lund, Madgavkar, Manyika, & Smit, 2021). Other suggestions from ILO reports show the need for higher education to provide less entry to automatable jobs with more requirements for skill-related alternatives in order ease labour market transitions for graduates (ILO, 2020).

These issues were further discussed during a keynote which encompass the following problematic areas: extensive social inequality, routine activities being replaced by machines (including teaching and learning), power and control possessed by people with access to Big Data, the quality of life of humans eroded due to the issue of anthropocentrism versus techno centism and a loss of spiritual connectedness towards the creator (Allah SWT) and dehumanizing values such as trust, sustainability, ethics and regulation (Feher & Katona, 2021; Jailani, 2019). These issues can also be harnessed by graduates in Islamic field of knowledge provided they are equipped with relevant skills which should be underpinned by Islamic-based principles (Azahari, Ahmad, Ibrahim, & Abdul Rahman, 2024; Mohd Raffi et al., 2022). In this regard, this shows that higher education plays an important role in inculcating employable skills as well as moral Islamic principles within the graduates in order to prepare them to meet the demands and challenges of future of work. So far there do exist studies that have attempted to upgrade employability skills for graduates disciplined in Islamic knowledge (Nawai, 2021) with limited inculcation of Islamic principles or values with the skills.

The COVID-19 pandemic, a dominant global issue, cannot be overlooked in this study conducted at its outset due to its impact on unemployment. The pandemic had reportedly accelerated the industrial revolution such as career shock and a need

for more resilience on human capital, social support, and skills variety (McDonald & Hite, 2020). As a result of the pandemic, 42% of jobs were reported to have become redundant while various career and work remain dynamic and at risk to changes in time, social space, agency and meaning. Consequently, a quarter of workers had to work remotely, e-commerce was accelerated, online learning among other digital platform systems emerged, and lastly automation of jobs (Lund, Madgavkar, Manyika, & Smit, 2021). The pandemic instigated a renewed recognition of community interconnectivity where different stakeholders are required to consider and reinforce via a systematic (online) approach (McDonald & Hite; 2020). Subsequently, this study refers to several global actors on the best practices to counter these issues.

1.2.2 Global initiatives towards graduate employability and future of work

Recent trends in research on future of work have shown some compelling statistics that pose a threat towards graduate employability. For example, 65% of American workers believe AI will significantly alter their job roles by 2035 (Giannini, 2023) while findings from global organizations show that youth were particularly vulnerable within the job market (International Labour Organization (ILO), 2020).

According to the Future of Jobs Report for 2025 by World Economic Forum⁹, figure 1.2 shows the fastest growing and declining jobs that are predicted to occur by 2030.

⁹ The **World Economic Forum (WEF)** is an international non-governmental organization based in Switzerland. It is a well known and influential think tank that address contemporary issues relating to economic development, sustainability, digital transformation and future of work. WEF derives data from reputable sources such as IMF, World Bank and UN agencies (Schwab, 2025).



Figure 1.2 Fastest Growing and Declining Jobs by 2030

Source: (WEF, 2025)

Figure 1.2 shows that jobs of low to middle income groups are at risk of being replaced by AI and automation. Graduates that lack skills for jobs in big data, fintech, security management among other technological related skills are at risk of becoming unemployed. Other skills that were reported to be growing in demand are human-centred skills such as resilience, flexibility, agility, leadership and social influence (WEF, 2025).

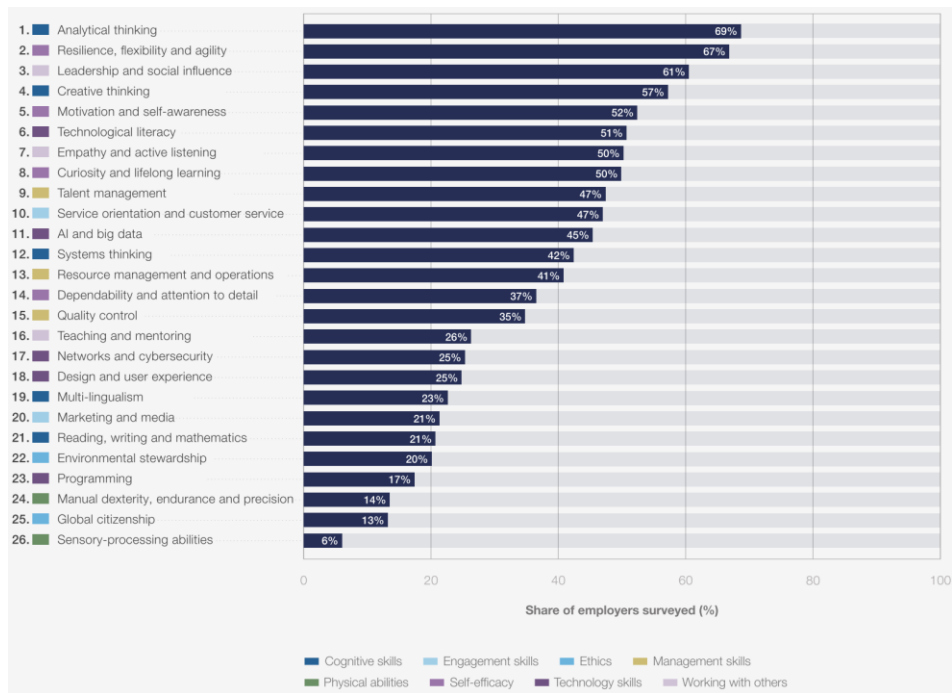


Figure 1.3 Core Skills in 2025

Source: (WEF, 2025)

Reports on future of work as shown in Figure 1.3 illustrate the need for more than half of existing employees to be upskilled to meet the needs for future of work (WEF, 2025). This shows that without these skills, graduate employability will also be affected due to issues of bias and social injustice caused by AI deployment (Santoni de Sio et al., 2024). In response to this, personalized learning such as leveraging Generative AI within the curriculum system can be adopted by education systems to upgrade their digital skills (Giannini, 2023; Namoun et al., 2024). This also calls for more demand for skills that span across different disciplines (Marku, 2024).

In response to these issues, this section will explore the global initiatives towards enhancing graduate employability based on factors such as labour supply, sustainable development and COVID-19 (International Labour Organization (ILO), 2020). Apart from higher education, these initiatives can also be benchmarked from the global level which stem from global organizations such as the United Nations, UNESCO, and OIC.

For example, a recent report by Wiley (2021) has highlighted the importance on minimizing the global digital skills gap to accommodate the labour supply for the future of work. The top rankings of participating countries have been recorded as follows: Chinese Taipei rank highest (8.3) in establishing digital skills institutions, Sweden ranks the highest (9.3) in digital responsiveness, United Arab Emirates rank the highest in government support (10.0) as well as supply, demand and competitiveness (8.7), United Kingdom ranks highest (9.3) in data ethics and integrity, and finally United States rank highest (6.9) in research intensity (Nadarajah, 2021; Wiley, 2021). Brunei Darussalam has also participated within the study, albeit have not been able to achieve among the top rankings for this study.

Another initiative to counter the issue of labour supply can be seen under the Organization of Islamic Cooperation (OIC). The OIC is another global organization that facilitates the development of Islamic universities. Research on the member states of this organization have found a significant gap in the literacy ratio between developed and underdeveloped member states. The study concluded by recommending more financial aid and skilled experts to train young scholars in developing analytical thinking and research skills (Haq & Awan, 2020). The World Bank created a Human Capital Index to measure productivity of youth in response to COVID-19 pandemic (World Bank, 2021). In comparison, initiatives by Islamic global actors remain overshadowed due to scarce studies that contribute Islamic theory in response to COVID-19 pandemic from a tangible perspective (Shabana, 2021).

In response to the issue of COVID-19, the United Nations Educational, Scientific and Cultural Organization (UNESCO) have collaborated with the International Association of Universities to implement various collaborative strategies for higher education in response to COVID-19. For example, researchers identified a

need to advance mobility and online learning by adapting flexibly and deftly to the technological changes using strategies such as Education Technological Models, connectivism, learner analytics among other technology enabling tools for graduates to upgrade their skills (Baynes, 2021; Guàrdia et al., 2021; Siemans, 2021). In the regional context, universities in Malaysia use an Integrated Cumulative Grade Point System within their education system which assesses employability skills together with the syllabus of learning (Majid, 2019; UiTM, 2016). Malaysia also implements a post-graduation programme called SLIM programme to assist in job-readiness training. However, recent studies still show a low perception towards acquiring the employability skills needed from the said program (Puad & Desa, 2020). Moreover, talent experts Malaysia have noted a peak in graduate employability in 2019 at 86.2% which reduced to 84.4% in 2020 (Abdul Aziz, 2022).

In response to sustainable development, as previously mentioned the United Nations have introduced the Sustainable Development Goals which are being integrated within all aspects of development including education and work. All member countries under the United Nations contribute and remain committed towards achieving these goals. An example of an initiative in Iceland shows that higher education has integrated several of these goals within their curriculum including the first, second, third, fourth, sixth and thirteenth goal (Pálsdóttir & Jóhannsdóttir; 2021). However, no mention was made of how the university has integrated the 8th SDG (decent work) within the curriculum which show a lack of alignment of universities with the goals for future of work. This shows a lack of the integration of the SDG within the curriculum. A research gap exists on integrating the sustainable development paradigm into Islamic higher education curricula, guided by Islamic principles, to enhance graduate employability (Al-Jayyousi et al., 2022).

Last but not least, UNESCO also plays an important role in ascertaining that the standard of global education is at par with the current changes in technology. Issues in higher education include monitoring mechanisms of artificial intelligence within education systems (UNESCO, 2023a), inclusiveness and equity of all social groups in education (Global education monitoring report Team, 2023), building employability skills and resilience within education assessment systems (UNESCO, 2023b). However, these initiatives were more focused towards groups such as upskilling veteran educators with digital skills and enhancing the employability of TVET graduates. There were no initiatives targeted for graduates in Islamic education.

1.2.3 Graduate employability and future of work in Brunei Darussalam

Brunei Darussalam has a relatively high unemployment rate at **4.90%**, ranking second highest among its Asian counterparts as shown in Figure 1.4 (International Monetary Fund, 2024). Another source discloses that Brunei is ranked third highest in the jobless forecast for the year 2024 with the aim of merely maintaining an unemployment rate below 4.9% in order to stabilize their economy (SEASIA, 2024).

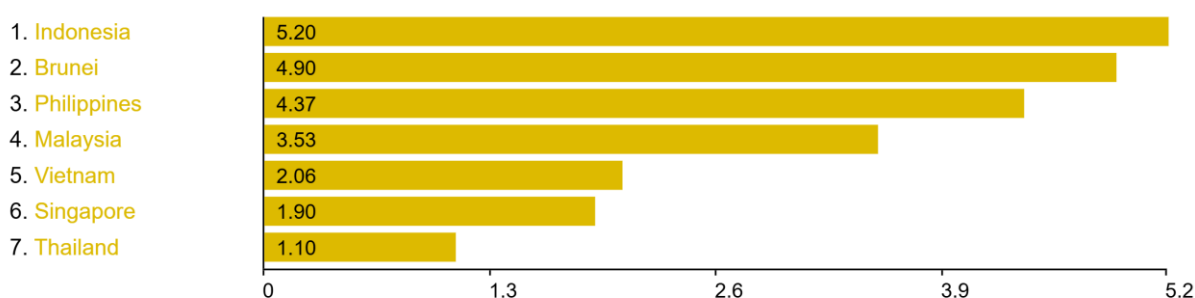


Figure 1.4 Unemployment Rate (2024) according to ASEAN Ranking

Source: (International Monetary Fund, 2024)

The percentage of unemployed youth comprise of 54.1% among middle school graduates while 21.7% were among tertiary graduates (DEPD, 2019b, 2019a). In combination, it makes up a total of 75.8% of graduates that remain unemployed.

Graduates generally prefer government employment to high skilled work within industrial sectors (Rizzo & Cheong & Chian; 2016). As a result, high skilled sectors rely upon skilled foreign workers. These sectors include manufacturing, construction and domestic personnel sectors(MOE & MPEC, 2024). This is due to the lack of skills of locals to appropriate jobs within the market leading to a skills mismatch (Othman. 2021; Musa, 2020;).

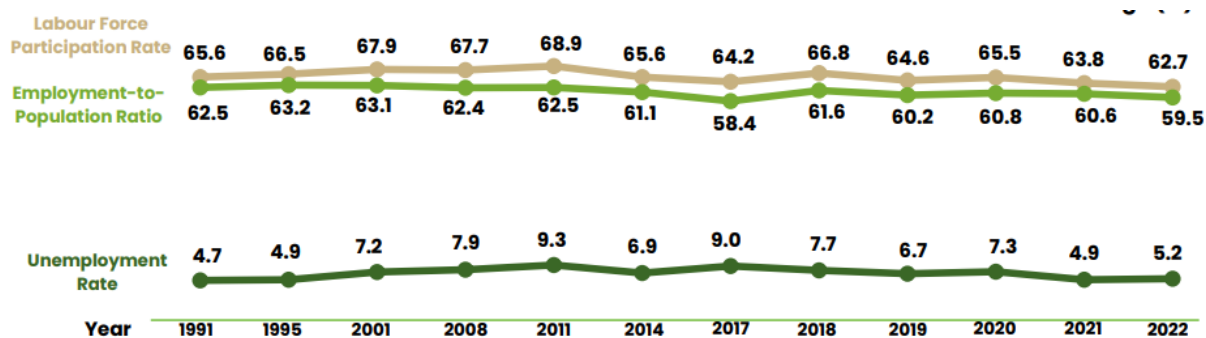


Figure 1.5 Unemployment Rate in Brunei Darussalam

Source: Adapted from (Department of Statistics & Ministry of Finance and Economy, 2022)

Figure 1.5 show that from 2021 to 2022, local workers decreased by 1.0% (1,600 persons), primarily in the government sector, dropping from 64,600 to 62,700. Non-local workers declined by 0.5% (300 persons), mainly in manufacturing and household employment (Department of Statistics & Ministry of Finance and Economy, 2022). This figure shows the disparity in population employed between high skilled sectors and government sectors.

The International Labour Organization (ILO) have identified five factors leading to skills mismatch which are: (1) overeducation versus undereducation; (2) over skilling versus under skilling, (3) horizontal versus vertical mismatch, (4) skills shortages versus obsolescence or skills gaps and (5) mismatch in low and middle income countries (ILO, 2020; Mcguinness et al., 2017).

Firstly, the factor of overeducation versus undereducation means graduates are not employed due to being either overqualified or underqualified for the post (ILO, 2019). For example, there are many initiatives in Brunei's education system that introduced programmes that promote STEM/ STEAM subjects¹⁰ with the aim of providing them with employable skills. Examples include Artisan Bridging Programme which is catered for the TVET institution to build technical skills and STEP which is Science, Technology and Environment Partnership which provides skills development. In addition, the TVET Platform for South East Asia in Brunei Darussalam has shifted from supply-driven approach towards a demand-driven approach (SEAMEO VOCTECH, 2020). Consequently, Brunei Darussalam ranks second highest in providing government support for digital skills at 8.5 and has the highest STEM female graduates at 50% as reported by the Global Digital Skills Gap Index 2021 (Wiley, 2021). The government has also introduced the Digital Economy Masterplan 2025 as a catalyst for Brunei to become a 'Smart Nation' in order to adapt to future of work. The blueprint outlines several milestones to be achieved in the near future to digitalize the government sectors. (MTIC, 2019). Yet, unemployment still

¹⁰ STEM comprise of Science, Technology, Engineering and Mathematics subjects which was later upgraded to include Art. Therefore, Science, Technology, Engineering, Art and Mathematics subjects are also known as STEAM subjects (MOFE, 2019) Despite this inclusion, numerous recent conventional research sources still rely on the four main subjects of STEM as a focus in the study of employability and future of work (Bennett et al., 2020; Guàrdia et al., 2021; Lund, Madgavkar, Manyika, & Smit, 2021; Ng, 2020; Rampersad, 2020).

occurs among these graduates in Brunei despite acquiring the necessary STEM credentials.

Secondly, the factor of over-skilling describes the situation where a worker possesses more skills than the current job requires while under-skilling describes the opposite situation (ILO, 2019). A study has shown that the situation of under-skilling is particularly apprehended among TVET students in Brunei Darussalam according to reports on their perceptions towards future of work as negative and ambiguous while their understanding towards the future-ready skills as confused or ignorant (Adnan et al., 2021). These findings insinuate a lack of supply readiness (MPEC, 2020) in understanding and applying the relevant skills required for future of work (Hanafi Baha, 2022). While there are many initiatives in Brunei Darussalam to ensure that TVET students' skills are developed and enhanced, there still exist issues in acquiring the right skills for the future of work which may be due to too much emphasis on qualification over practice or training (Hanafi Baha, 2022).

Thirdly, horizontal and vertical mismatch refer to those employed within an occupation which does not match with their qualification or are disparate to their main discipline of study (ILO, 2019). This factor has been investigated in Brunei in terms of graduates mindsets and aspirations not aligned with the expectations of the employers within the industry (Musa & Basir, 2019; Musa & Idris, 2020). Similarly, news reports alleged some discrepancies existing within the i-Ready Apprenticeship Scheme, a platform under MPEC in support of the 8th SDG that assists fresh graduates by recruiting them with an allowance on a contract-basis within the government. Interns still complain of a mismatch between qualifications and job posts while 63% became unemployed again upon completion of the contract (Brunei Darussalam Voluntary National Review Report, 2020, Haris, 2020). Contracts are normally

discontinued based upon the suitability of the candidate for the post. Due to this, interns are often 'let go' after fulfilling their term, offering only a temporary fix to their unemployment issue (Haris, 2020).

Fourthly, skills obsolescence is a consequence of skills being underutilized or redundant as time goes on due to the changing requirements of work particularly technological and economic changes (ILO, 2019). Skills gap refer to the extent a worker lacks the necessary skills required to perform tasks (ILO, 2019). Education and training sectors were recorded to have the widest digital skills gap at 45.6% followed by government institutions at 42.5% (Wiley, 2021). This factor is being addressed under Brunei Institute of Leadership and Islamic Finance which offers learning solutions, events and services for human capacity development in the areas of Islamic Finance and Leadership (BILIF, 2022). The institute is collaborated with various stakeholders locally and globally mostly with focus on the Islamic Finance and Leadership industry. The institute seeks to address skills gaps and provide upskilling and reskilling opportunities in the public and private sectors with the aim of becoming a globally-recognized learning institution in Islamic Finance (Bakar, 2018). From the purview of this research, it can be seen upon observation of the opportunities advertised under the programme that it does not focus on graduates only but is open to public figures such as future leaders, experts, and innovators. Consequently, the programmes and courses are levied with a costly fee which hinders accessibility for vulnerable groups such as unemployed graduates.

Lastly, the factor on mismatch among low to middle income countries has also been associated with overeducation. Data has shown that developing countries tend to have more overqualified labour with a lack of suitable jobs to match their qualification criteria compared to high income developed countries (Mcguinness et al., 2017). This

issue does also exist in Brunei in which Brunei's labour market still tend to outsource and rely heavily on foreign worker skills within certain sectors of the industry. For example, a news report showed that a significant number of graduates from Polytechnic Institute were replaced with foreign workers due to an incongruence between their knowledge and skills for the job (Haris, 2020; Othman, 2021). This shows that there still remain a lack of strategic alignment between the goals and objectives of these programmes with relevant industries due to lack of networking and collaboration between higher education and stakeholders within the industry (Othman, 2021; Cheong et al., 2020; Musa & Idris, 2020). The MPEC (2020) have also confirmed that Brunei will still need 13,000 skilled workers in the energy and construction industries for the next five years.

To sum up the factors pertaining to mismatch, it can be surmised that the existing initiatives on graduate employability tend to focus too much on the TVET institutions with emphasis on the employability of STEM students for the future of work (Bennett et al., 2020; Guàrdia et al., 2021; Lund, Madgavkar, Manyika, & Smit, 2021; Ng, 2020; Rampersad, 2020).

To this point, research that highlights the role and employability of STREAM¹¹ students within the future of work remains under-represented which threaten the marketability of STREAM programmes as well as the role of STREAM graduates. STREAM graduates include graduates who are educated under subjects which include Islamic field of knowledge (Agustina et al., 2022). STEM graduates are generally

¹¹ STREAM is a new framework comprising of science (S) content surrounds the intersecting aspects of technology (T), religion (R), engineering (E), arts (A), and mathematics (M). A recent source defines this acronym as a framework that equip students with higher-order thinking skills as well as strengthen students' faith in Allah through the learning process of Biology (Agustina et al., 2022).

considered more employable than graduates in Islamic related field with one study showing 80% of employers prefer STEM without Islamic sciences such as Halal Science (Mohd Raffi et al., 2022). For example, the rate of graduate employability for graduates in the field of engineering were reported to be as high as 97.4% while graduates in health studies was reported at 94.4% (A. Othman, 2022a). Meanwhile, the rate of graduate employability for graduates specializing in technology and computer increased from 59.5% in 2019 to 72% in 2020 (UTB, 2023). In contrast, the rate of graduate employability for STREAM graduates disciplined in Islamic knowledge was reported at only 56% in 2020 with only a slight improvement at 66% in 2022 (OCEAN, 2023). Graduates in business and entrepreneurship studies have a high employability rate of 89.3% (A. Othman, 2022b), but they are better suited to creating their own businesses. In contrast, graduates in Islamic field of knowledge should be prioritized for employment, as their expertise can support Brunei Darussalam's development under the objectives of Shariah as stated under the objectives of Manpower blueprint (MOE & MPEC, 2024).

Within the context of Brunei Darussalam, there are a total of four higher education institutes (HEI) (Ministry of Education, 2022a). One out of the four are categorized as STREAM and the remaining three focus on supplying STEM graduates. The HEI supplying STREAM graduates is an Islamic HEI¹² which offers distinctive programmes aimed at supplying graduates specializing in various Islamic disciplines. The programme exclusively heralds the Quran and Sunnah and uses a trilingual medium of delivery including Arabic, English and Malay Language (Ministry of Education, 2022b). The HEI also offers an internship programme under the title of *At-*

¹² The Islamic Higher Education Institute is referred to anonymously throughout the research in order to support the purpose of adhering to research ethics in maintaining the anonymity of the subject of research. The main purpose is to ensure participant anonymity and maintain data integrity throughout the study (Pietilä et al., 2020).

Tamayyuz programme which is a collaborative work-based learning programme offered at the local, regional, and global level. As such, in order to accommodate the research gap on focusing on STREAM graduates, the study adopts *At-Tamayyuz* internship programme as a focus in this study.

1.2.4 *At-Tamayyuz* internship programme

The *At-Tamayyuz* Programme is a higher education programme offered by an Islamic university in Brunei Darussalam. It offers a number of underlying programs, such as study abroad, student exchange, internship, and community outreach. The programme was first established in the 2009/2010 academic session and continues to this day. Undergraduate students with a CGPA of 3.551 or higher in their first four semesters are eligible to apply, subject to several requirements, including interviews and assessments of their involvement in extracurricular activities. Selected students study at partner universities abroad under a full scholarship (CPKL, 2010, 2019).

The objective of *At-Tamayyuz* internship programme is to produce graduates with holistic skills, to expose them to local and global work experience, enhance communication skills, inculcate within the 21st Century Skills¹³ via activation and broadening collaborative efforts with other universities via a number of memorandum of agreement (CPKL, 2010).

Table 1.1 Categories of *At-Tamayyuz* Programme

| No. | Categories | <i>At-Tamayyuz</i> Programme | Objectives | Target Group |
|-----|------------|------------------------------|------------|--------------|
| | | | | |

¹³ 21st Century Skills were previously connoted as the contemporary skills under the Education Sector before the advent of the 4th Industrial Revolution. Although these skills still remain relevant today, they do not include the most recent development pertaining to technology which are the digital skills which are being promoted and prioritized for the future of work. The term employability skills is now often used in tandem with 21st Century Skills (Juana-Espinosa, 2021).