FACTORS INFLUENCE SERVICE SECTOR EMPLOYEE'S CAREER DEVELOPMENT IN ADAPTING INDUSTRY 4.0

BY

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DECLARATION

We hereby declare that:

(1) This undergraduate FYP is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this FYP has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the FYP.

(4) The word count of this research report is 13,805 words.

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DEDICATION

We would like to dedicate this research to our family, our loved ones. Without their blessings and support, this research would not be possible.

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PREFACE

This research was carried out from October 2018 until April 2019 at University Tunku Abdul Rahman. This dissertation is under the subject of UKMZ 3016 Research Project, which is a compulsory subject in partial fulfillment of the requirement for the Bachelor of International Business (Hons). The title of this research project is "Factors Influence on Service Sector Employee's Career Development In Adapting Industry 4.0".

The rapid changes in today's real modern and technological business world which referring to the industry 4.0, a good outstanding of individual skillsets, capabilities, and personal factors are important for employees to enhance their career development in the rapid changing environment workforce. Research team had identified the four elements which are cognitive abilities, technological skill, interpersonal adaptability, and career self-efficacy that are the most significant factors. This can bring actual benefits to all employees to enhance their career development in adapting the fourth industrial evolution.

In addition, employees can understand more and have knowledge about the element of the personal requirements in the fourth industrial evolution workforce. Thus, this research will not only benefit to employees, but other fields such as fresh graduates, undergraduate students, teenagers, parents, government, and society in general as well in order for every aspect of individuals to enhance their own career development to create a better future in adapting the fourth industrial revolution.

ABSTRACT

The primary aim of this research study is to obtain an overview of an employee's perception, readiness, and skillsets towards the career development aspect in the fourth industrial revolution workforce.

The main objective of this research project is to determine the outstanding factors, skillset, readiness, and personal factors of an employee among a group of service sector employees located at Klang Valley Malaysia and to identify the most important skillset needed in the fourth industrial revolution workforce. Thus, it is used to help those employees, undergraduate students to understand and aware of what kind of skills or personal factors that fourth industrial revolution workforce required or whether are the employees or current generation workforce ready to adapt the fourth industrial revolution workforce.

The literature reviewed supported that the potential skill and personal between the elements of cognitive abilities, technological skills, interpersonal adaptability, career self-efficacy, and career development.

The questionnaire survey was distributed to 200 service workers at Klang Valley. Furthermore, the statistical method, Statistical Package for Social Science (SPSS) was used as a basis for this study. At the end of the research project, the main research question and research problem will fully addressed and justified. Recommendations for limitation are identified and implication for further research is proposed as well.

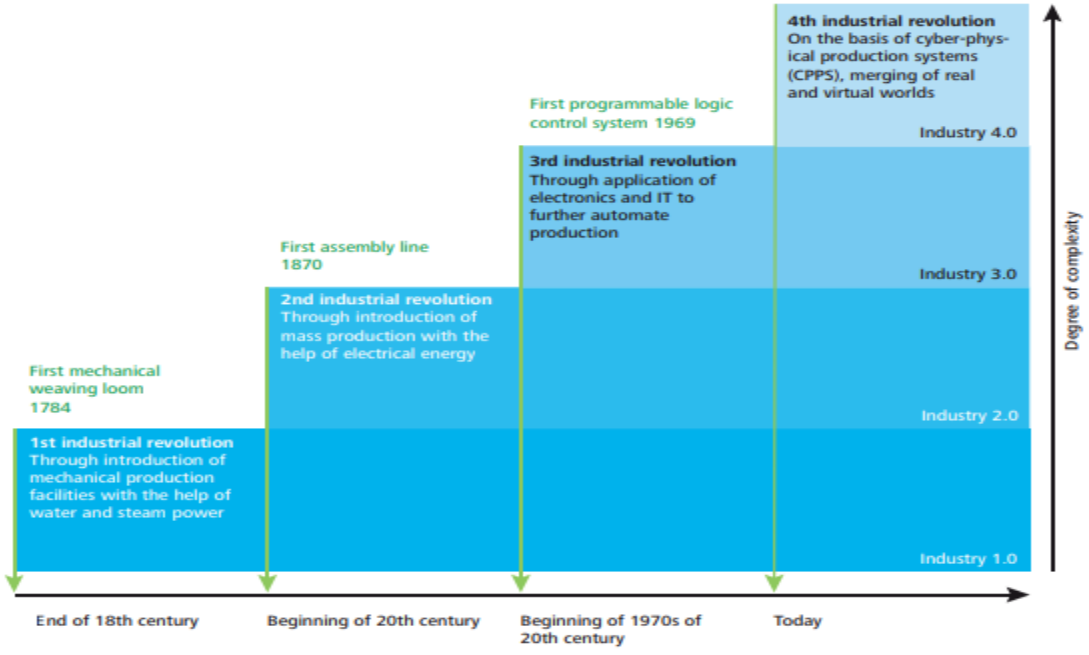
CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

How Fourth Industrial Revolution (Industry 4.0) influences the employees' career development in the workplace will be introduced in this chapter. The research background, statement of problem, research objective, justification and significant of study, research questions and hypothesis will be discussed.

1.1 Research Background

Figure 1.1: Definition of Industry 4.0



Source: Adapted from the research (Deloitte, 2015)

Industry 4.0 is rising in the present circumstance where the way of individuals' life have been affected by the disruptive technologies, for example, the Internet of Things, cyber physical systems, 3D printing, robotics, big data, virtual reality, nanotechnology, biotechnology, and artificial intelligence (World Economic Forum, 2016). According to Deloitte (2015), it stated that fourth industrial revolution is a further developmental stage in the entire value chain process of organizations in every industry. Besides, as refer to the chart 1.1 above, industrial processes have increasingly comprised modern information technology (IT), since the early 1970s the most recent trend in the industry 3.0 is the implementation of production automation that driven by the developments in electronics and IT (Deloitte, 2015).

However, industry 4.0 is considered as a new era which explosiveness of its development and disruptiveness of information technologies with applications of Cyber Physical Systems (CPS), which included end-to-end information communication technology (ICT)-based integration (Deloitte, 2015). The adoption of information communications technology by industry has blurred the boundaries between the real and virtual world because ICT is a merger between the physical and technological world. CPS are online networks comprising interaction between humans and technology and produce outputs or action which would not be possible without the present of both parties. In general, CPS are combinations of computation and physical processes with embedded computers then connect with one another via a network in monitoring physical procedures (Lee, as cited in Imran, Hameed & Haque, 2018). For instance, smart grid, autonomous automobile systems, medical monitoring, and robotics systems are CPS.

In addition, modern technology in industry 4.0 is no longer targeted in substituting workforce and assisting labour in doing work, but rather at substituting basic cognitive task and workers altogether (Hirschi, 2017). For example, AI system has the capability to expand its knowledge and insights such as its cognitive horizon that is far beyond what a human can perform themselves, which in turn, reaching new levels of

understanding (Skilton, 2017). Therefore, employees should be prepared to adapt the changes in workplace that would bring by the industry 4.0, especially on their career development because international workforces are currently at the beginning of fundamental changes and technological breakthroughs.

Moreover, the emerging of industry 4.0 will influence employees' career development in workplace (Marr, 2018). The innovation in IT raise firm's efficiency by substituting existing workers, rather than generating fresh merchandises requiring more workforce to generate them (Schwab, 2016). Hence, white and blue collar worker are being replaced by automation, machines, and software. For example, Amazon.com Inc. employed robots to help their workers move merchandise around its warehouses and recently automation is transforming Amazon's white-collar workforce (Soper, 2018). Also, tertiary sector workers such as telemarketing, data entry keyers, and order clerks are having a 98-99 per cent chance of being automated in the future (Scott, 2017). Therefore, the current changes in the international workforces are depicted by the automation in industry 4.0 (Schwab, 2016).

Furthermore, industry 4.0 is creating a demand for new jobs while it has also eliminated some of the jobs such as repetitive and routine occupations (The World Bank, 2018). Recently, more and more people are aware of the formidable challenges of the job losses and unemployment. Hence, employees have to acquire the necessary skills and capabilities in their workplace in order to adapt in industry 4.0 (Schwab, 2016). Consequently, workers who take advantages of these resources will set themselves up for success in their career in the workplace of industry 4.0. Nevertheless, one of the challenges in industry 4.0 is the shortage of skilled employees. Thus, employees are required to possess variety of skills and capabilities that complementary with advanced technologies in industry 4.0, if not they would be forge out by the workplace. (Salleh, Sulaiman, & Talib, 2010).

In conclusion, fourth industrial revolution is begin to intervene the employees in service industry. It is because the advance technologies that invented in industry 4.0 are causing the eliminating of repetitive and routine jobs such as clerical work, data entry, medical technician jobs, and nursing tasks, but it will also create many new jobs such as jobs that we cannot even imagine today like robotics surgery and automated medical diagnostic test. Therefore, employees should be well equipped with necessary skills and capabilities for their career development in adapting the fourth industrial revolution.

1.2 Problem Statement

Automation in factories and the uses of information technology in workplace are causing thousands of job losses in the labour market due to the machines are way far more efficient and effective in terms of cost and production than human leading to the ideology of "technological unemployment". According to Pat Cameron (2019), the core benefits of automation in business operations were cost reduction, productivity, availability, and reliability. Hence, the introduction of fourth industrial revolution impacted on the manufacturing industry the most due to the ability of artificial intelligent system in solving complex problems and detects error that posing a threat to mankind employment (Min, Suk, & Jeanne, 2018). According to World Economic Forum (2016), the global decline of manufacturing and production roles is driven by labour-substituting technologies such as additive manufacturing and 3D printing due to more resource-efficient sustainable product use. Thus, increasing the possibly of complete automation in this sector. However, the interesting part is the concern over the increasing unemployment rate in the service industry workforce whether will fourth industrial revolution further impact the service economy sector as well. According to the World Economic Forum (2016), there would be a large amount of skills disruption in the banking sector, industry, infrastructure and mobility that are mainly servicing industry on year 2015-2020. This was due to a significant percentage of the tasks

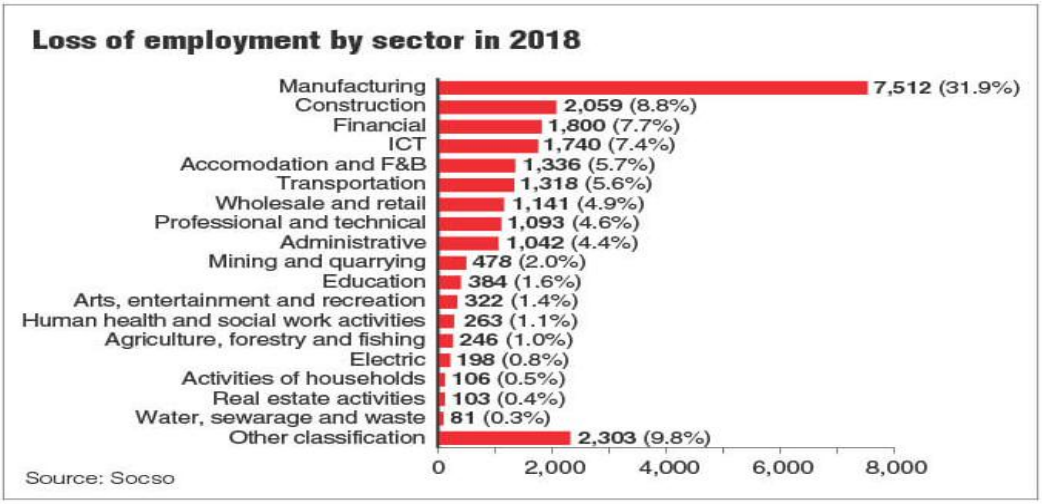
performed by those in high-paying jobs, such as portfolio managers, physicians, and senior managers, can be automated by using current technology which resulting in higher risk of service sector unemployment in the rise of fourth industrial revolution (Chui, Manyika, & Miremadi, as cited in Huang & Rust, 2018). Moreover, there is also a significant decline with flat global employment outlook in office and administrative roles such as business and financial operations, sales, and construction over the year 2015–2020 (World Economic Forum, 2018). Hence, experts highly believed that the fourth industrial revolution is changing the shift from decline of jobs in manufacturing to the service industry (Buera & Kaboski, 2012). Reasons are service economy is an industry that rely on a free flow of information through more efficient and rapid data processing which including financial services, namely insurance, banking and accounting (Harald, as cited in Nick, 2018). Thus, the fear of service sector employees of being replaced have already surfaced in the fourth industrial revolution.

As such, increasing the requirement and challenges on the career development of service sector employees in the career market due to the job disruption caused by the competition of man and machines. According to Career Research, higher unemployment rate affects employee wages and career trajectories due to laid-off workers' salaries at their new jobs tend to be lower than in their previous positions. Hence, increased of unemployment rate leads to wage reductions that can significantly diminish an employee's lifetime earning potential along with salaries, other intangibles, such as position titles and prestige, leading to an additional impact on the employee's career trajectory coupled with the financial implications. Furthermore, a weaker demand of employment signifies a poorer market sentiments and performance of the organization which leads to limited compensations, bonuses, perks, and promotions (Etornam, Francois, Patience, & Mathias, 2019). Therefore, reducing an individual's career prospect in terms of career development.

Nowadays, the unemployment rate is increasing in Malaysia at a worrying state especially in Klang Valley, a region that has contributed to one of the highest GDP to

our nation's economy. According to our HR minister Kulasegaran (as cited in The Star Online, 2018), the unemployment rate in Malaysia had surged to 50% in 2018 due to various factors including economic downturn, weaker job market sentiments, and lack of necessary skills among the employees at their workplace as the main factors and it is expected to be even worst in the future with the introduction of fourth industrial revolution to certain industries. According to The Edge Markets (2018), it found that the highest unemployment rate of the industry in Klang Valley is the manufacturing sector, followed by the service economy sector based on chart 1.2. Thus, the worrying part is in the rise of amidst concern with the increasing unemployment rate in service economy sector especially with introduction of fourth industrial revolution.

Figure 1.2: Loss of Employment by Sector in 2018



Source: Adapted from the research (The Edge Markets, 2018)

However, researchers also shows that the risk of unemployment in the service sector industry are avoidable although industry 4.0 is inevitable which is through the enhancement and augmentation of the human's physical, sensorial and cognitive

capabilities, communication capabilities, emphatic skills, soft skills, and computer literacy skills in adapting the fourth industrial revolution that many of the employees now lack of (Romero, Stahre, Wuest, Noran, Bernus, Fasth, & Dominic, 2016). Therefore, enhancing an individual skills in the workplace may be the solutions in terms of career development enhancement and minimizing the risk of unemployment in adapting the fourth industrial revolution.

1.3 Research Objective

The general objective of this research is to determine the factors influences on employees' career development in adapting the fourth industry revolution. The factors consist of cognitive abilities, technological skill, interpersonal adaptability, and career self-efficacy.

Specifically, the objectives of this study are:

1. To find out the key requirement on necessity skills and capabilities of employees for their career development in adapting the fourth industrial revolution.
2. To examine whether the employees are ready or well prepared for their career development in the fourth industry revolution.

1.4 Justification of Research

The primary purpose of this research is to discover the most important skillsets and whether employees are ready to adapt to the industry 4.0 especially designed for employees in service sector economy around Klang Valley and how does it impact on employee's career development in terms of their skillsets by competing in the fourth industrial revolution workforce.

Furthermore, this research also provides an insight for the employees regarding on the rise of industry 4.0 and its impact on the industry. Through examining the relationship between various criteria that had been gathered are valuable and useful to interpret, analyze and understand the entire query that employees are not aware about.

1.5 Significance of Research

This research provides important values for the employees who are looking job for their future employment in the fourth industrial revolution. It has provided them an overall idea and concept of the skillsets that are required in adapting the fourth industrial revolution. Hence, employees will be able to well prepare by understanding what is the significant qualifications, skills, and capabilities that are needed most on behalf of the industry 4.0 workforces.

Besides, there will be some questions asking about what the essential skillsets of employees and readiness in the fourth industrial revolution needed to possess in order

to enhance their career development. Therefore, the result of this study would state the most needed skillsets for employees in adapting industry 4.0.

Additionally, industry 4.0 requires humans and technology interacting and producing outputs or action which would not be achieved without the present of both parties. As a result, by letting the employee to know about what kind of specific skills and capabilities they may need to learn the most, it can make them to aware that they have to always update themselves due to fast moving technology business world today with the aim of sustaining and staying in the organization or even to get a job in an organization. In short, the overall result of this research would be beneficial to employees on their career development in the workplace of industry 4.0.

1.6 Hypothesis of Study

H1: There is a significant relationship between the cognitive abilities of service sector employees and career development in adapting the fourth industrial revolution.

H2: There is a significant relationship between the technological skill of service sector employees and career development in adapting the fourth industrial revolution.

H3: There is a significant relationship between the interpersonal adaptability of service sector employees and career development in adapting the fourth industrial revolution.

H4: There is a significant relationship between the career self-efficacy of service sector employees and career development in adapting the fourth industrial revolution.

1.7 Research Question

1) Are the employee ready or well prepared on their career development in the fourth industrial revolution?
2) Does the cognitive abilities skills affect the career development of employees in 4th industrial revolution?
3) Does the technological skills affect the career development of employees in 4th industrial revolution?
4) Does the ability of interpersonal adaptability affect the career development of employees in 4th industrial revolution?
5) Does the career self-efficacy affect the career development of employees in 4th industrial revolution?

1.8 Conclusion

The outline of this research topic are provided in this section. The significance of this study will bring advantages to employees in service sector economy and other relevant inexperience labour in Malaysia to enhance their career development and generate positive outcome and performance in their workplace in the future in order to attain career success.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

The career development of service sector employee in fourth industrial revolution are review by the factors (skills and capabilities of employees) and thus it will be emphasized and study which factors were outfit to the context of this study.

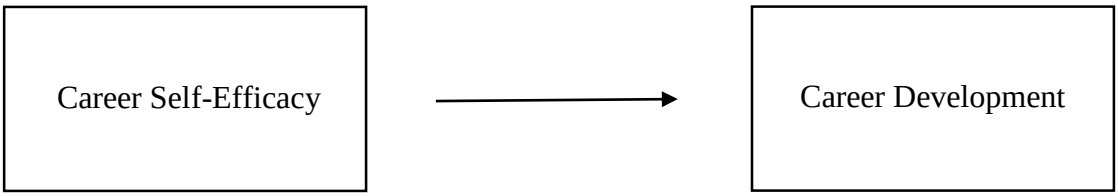
2.1 Review of the Literature

2.1.1 Cognitive Abilities

Cognitive Abilities Influence Career Development

H0: There is no significant relationship between the cognitive abilities of service sector employees and career development in adapting the fourth industrial revolution.

H1: There is a significant relationship between the cognitive abilities of service sector employees and career development in adapting the fourth industrial revolution.



Source: Adapted from the research (Wayne, Ryan, Krista, & Mary, 2015)

Cognitive abilities can be defined as the ability of an individual in the construct of conceptualizes it as a basic ability for abstract reasoning, problem solving, or adaptability (Deniz, Dilchert, & Chockalingam, 2012). Dearbom's study (as cited in David & Victoria, 2014) defined cognitive ability as the ability to learn or benefit by experience evidently including a depiction of nature of an individual and his responses to the varying condition.

Cognitive abilities is one of the most important skillset nowadays especially the higher-order thinking skills that comprises of advanced literacy, quantitative and arithmetical skills, critical thinking and complex data processing (World Economic Forum, 2018). These are the skillsets that usually possessed by Doctors, accountants, research analysts, writers and editors. However, the fourth industrial revolution workforce has strengthen the need of cognitive abilities skillset in the workplace of all industry in general especially to the service industry due to the involvement flow of information through more efficient and rapid data processing that is easily replaced by the machine learning or big data (Nick, 2018). Thus, threatening the career development of individuals in the workforce that currently doesn't required much cognitive abilities skillset. Frey and Osborne (as cited in Birgit et al., 2013) further stated that with the affordable computing pricing, problem-solving skills are becoming more important. Thus, indicated that a future workforce basically must deal with more cognitive tasks that computer unable to perform. In

addition, IBA Global Employment Institute (2017) further found employees' critical thinking are the most important skillset in the workplace, such as requiring sound judgment, respect to availability, and dealing with uncertain environments or conditions. These also includes the ability to act independently, to build networks, to organize themselves and to think abstractly that machines are incapable of.

World Economic Forum (2016) also found that some jobs are losing to disruptive labour market changes over the period 2015-2020, where two thirds are concentrated in the office and administrative job family that doesn't requires much of the cognitive abilities skillset. On the other hand, high-skilled jobs that frequently involved creative problem solving and complex social interaction are difficult to automate (Andreas, 2017). Furthermore, according to World Economic Forum (2016), cognitive abilities such as creativity and mathematical reasoning, and process skills such as active listening and critical thinking will be a growing part of the core skills requirements for many industries showing an increasing on the required skillset of cognitive abilities in 2020 by 15% on core work-related skills as compared to 11% in 2011 and became the most important skillset in the job market. Thus, resulting the increasing importance of cognitive abilities among the employees in terms of career development in the fourth industrial revolution.

According to Benjamin Bloom (as cited in Daberechi, Okedurum, Stephen, Ukenna, & David, 2018), cognitive abilities consist of two levels and six steps referred as the six problem solving skills: remembering, understanding, applying, analysing, evaluating and creating. Anwar Ali Yahya found that the introduction of automatic classification approach known as machine learning, has a positive significant relationship with performance relating to Bloom's Taxonomy theory. However, a machine learning is still constraint within its own capabilities in the sense of inability to experiencing authentic emotions and

building relationships, formulating questions and explanations across scales and sources, deciding how to use limited resources across dimensions strategically such as deciding what to do, making products and results usable for humans and communicating about them, and making decisions according to abstract values (Maya & Charles, 2018). These unable the machine learning in achieving the complete set of bloom's taxonomy which restraint on creativity and critical thinking. Thus, this then implies the need for higher learning institutions to be more deliberate in grooming their graduate students to be more skilled in problem solving such as brainstorming and creativity skills under cognitive abilities that are relevant in the marketplace (Daberechi, Okedurum, Stephen, Ukenna, & David, 2018).

Therefore, the fourth industrial revolution workplace does highlighted on the importance of cognitive abilities skillset among employees in the job market especially the employees in service industry in adapting the fourth industrial revolution in terms of career development.

2.1.2 Technological Skill

Technological Skill Influence Career Development

H0: There is no significant relationship between the technological skill of service sector employees and career development in adapting the fourth industrial revolution.

H1: There is a significant relationship between the technological skill of employees and career development in adapting the fourth industrial revolution.

Today, the way people reads, learns, processes information, and solves problems have been changed by advancement technologies such as the digital age of work, education, and entertainment takes place on the web (Howe & Nadler, as cited in Slutsky, 2016). Technological or digital literacy skill was defined as the capability to utilize digital technology, communication tools or networks to access, evaluate, and create information (Stambler, as cited in Slutsky, 2016). As a result, technological skill plays a vital part in daily duties in any workplace, especially the workplace of industry 4.0 (Mtebula, 2014).

Besides that, advancement of technology will influence on the future jobs, employment, and career development of employees. The rapid technological advancement such as robots and machines might replace the jobs of human, especially the repetitive and routine works, as well as alter the skills and capabilities that employees would need to possess in the future work environment (Employment and Skills Board, 2017). According to the World Economic Forum (2016), it founded that employees are in the stage of adapting in industry 4.0, hence employees should be prepared to cope, adapt, and

compete with all of the advance technology in order for career development in the workplace of industry 4.0.

Furthermore, technological advancement has a significant impact on the employees' career development, especially for employees with modern information technology skills, meanwhile there was a negative effect on the incumbent workers who lack of technological skill in the period of fundamental technological change in the workplace of industry 4.0 (Janssen & Mohrenweiser, 2015). Recent shifts in the diffusion of information and communication technologies in the workplace have been skill-biased. A number of empirical studies have suggested that skill-biased technological change favours skilled over unskilled labour by increasing productivity due to the new information technologies are complementary with skilled labour and thus they are having the advantages in the adoption phase of industry 4.0 (Violante, 2016).

Moreover, manual workers are replacing by advanced technology in industry 4.0, hence employees must continually seek to improve their technological skill to cope with the rapid changing of technology in the workplace (Gibbs, 2017). For instance, advanced technology has reduced the quantity of workforces required to maintain and function the high-tech factories, in turn it has risen the need for skilled workers. As a result, employees with high technological skill will have a higher probability to be employed by firms in industry 4.0. Not only that, advanced technology has removed the needs for unskilled and semiskilled works such as the middle management job like administrative works are replaced by software (Labour and Social Security Committee, 2017). Therefore, technological skill that possessed by service sector employees will have a dramatic impact on their career development in the workplace of industry 4.0 (Employment and Skills Board, 2017).

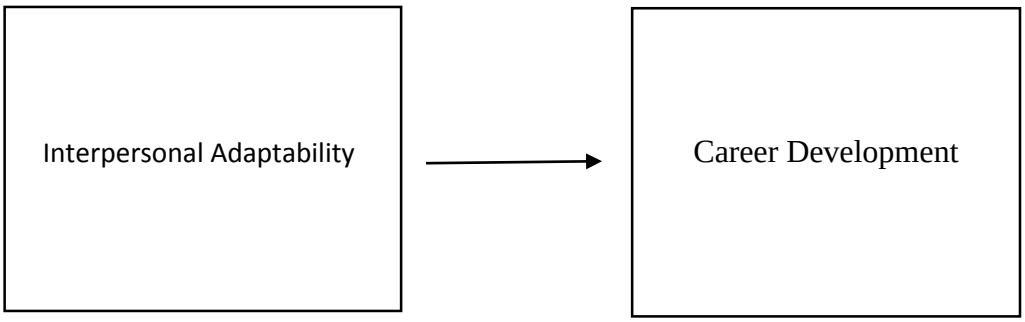
In conclusion, the fourth industrial revolution workplace does highlighted on the importance of technological skill of employees in the job market as it had become priority important to the service sector economy employees in adapting the fourth industrial revolution in terms of career development.

2.1.3 Interpersonal Adaptability

Interpersonal Adaptability Influence Career Development

H0: There is no significant relationship between the interpersonal adaptability of service sector employees and career development in adapting the fourth industrial revolution.

H1: There is a significant relationship between the interpersonal adaptability of employees and career development in adapting the fourth industrial revolution.



Source: Adapted from the research (Oliver & Lievens, 2014)

Adaptability describes the individual's capability, skill, readiness, as well as the motivation to fit and adapt different tasks, community, and environmental features (Holtkamp, 2014). Interpersonal adaptability is included individual's flexibility to act relatively dominant and friendly depending on the circumstances and adapt to a novel reporting structure within an organization (Powers, 2014). Hence, interpersonal adaptability of employees have been conceptualized as a distinctive component of individual adaptability that was necessary in adapting the workplace of industry 4.0 (Ployhart & Bliese, as cited in Oliver & Lievens, 2014). Thus, employees' ability of adaptation to the dynamic workplace in industry 4.0 will influence their career development (Levin, 2012).

Besides that, industry 4.0 increases the need for "essential human skills" commonly referred as "soft skills" that included creativity, complex problem solving, relationship building, communication, emotional intelligence, and critical thinking (Deloitte, 2018). Consequently, in order to succeed in the career development of industry 4.0 workplace, employees are required to possess the capabilities of courage, resiliency, adaptability, and resourcefulness. It is because with these capabilities the interpersonal adaptability of employees in adapting the dynamic workplace of industry 4.0 could be enhanced.

Furthermore, the complex working environment of industry 4.0 has affected the employees' career due to the rapid evolving and using of robots and process automation, big data to create smarter supply chains, and artificial intelligence (AI) for decision making (Deloitte, 2018). The speed of technological enhancement in industry 4.0 often exceed the speed at which the current and future employees can be trained. Therefore, adaptability skill of employees are considered as a vital capability for coping with rapid technology changes in the workplace, which in turn, could succeed in their career development.

Last but not least, according to Adaptability Theory (2017), employee's adaptive behaviours in addressing changing situations, for example, career exploration, planning, or decision making have been recognized as an influential aspect of successful employees' career development are defined as adapting responses. Additionally, this theory also involves the idea of 4Cs which included concern, control, curiosity, and confidence which are interchangeable. As such, the higher the career adaptability of an individual regardless of human skills, motivation, emotional quotient, or adverse quotient, the higher the readiness of an individuals to face any challenges regarding the adaptation of industry 4.0. Therefore, adaptability theory has supported the idea of career development in adapting the industry 4.0 which is an ever changing and competitive workforce environment.

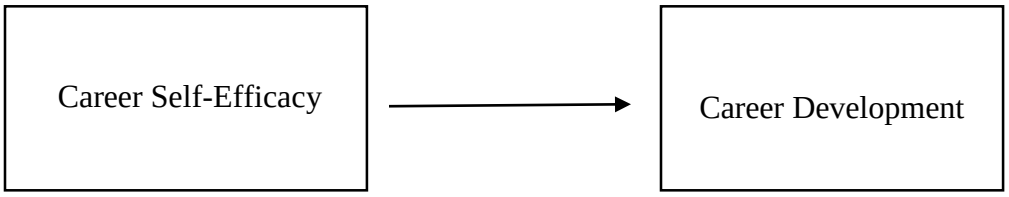
In conclusion, the fourth industrial revolution workplace does highlighted on the importance of interpersonal adaptability of service sector employees in the job market as it could assist them in dealing with uncertainty in the workplace of fourth industrial revolution in terms of career development.

2.1.4 Career Self-Efficacy

Career Self-Efficacy Influence Career Development

H0: There is no significant relationship between the career self-efficacy of service sector employees and career development in adapting the fourth industrial revolution.

H1: There is a significant relationship between the career self-efficacy of employees and career development in adapting the fourth industrial revolution.



Source: Adapted from the research (Makki, Salleh, & Harun, 2015)

Alfred Bandura's Self-efficacy Theory in 1977 was defined self-efficacy as a person's level of confidence in and believe about his or her abilities to effectively perform courses of action, carry out specified behaviours, complete assigned jobs, and accomplish desired performance results (Nasta, 2007). Besides, career self-efficacy reflects individual's judgments of own abilities in performing career behaviours regarding career development, choice, and adjustment. It is also about the self-assurance in individual's ability to execute career-related behaviour associated to career development (Betz & Hackett, as cited in Makki, Salleh, and Harun, 2015). Hence, career self-efficacy can determine individual self-confidence of capable completion of career-related

tasks that will lead to positive outcomes which will positively influence career development (Makki, Salleh, and Harun, 2015).

Besides that, career self-efficacy is a concept applied to workplace due to it can be defined as the workers' convictions of confidence about their capabilities to allocate the motivation, cognitive resources, or courses of action that needed to effectively execute a specific duty within a given circumstance (Mashigo, 2014). In addition, self-efficacy reflects an optimistic self-belief that personnel can perform novel or difficult tasks, or manage adversity in different domains of human functioning (Bandura, as cited in Admad & Safaria, 2013). Thus, career self-efficacy would be important to enhance the employees' career development in adapting the industry 4.0 due to their strong believe in themselves of completing career-related tasks and high willingness to take up those challenges tasks such as by investing more time on complicated problem-solving process that machine automation is unable to handle (Trailhead, 2019).

Moreover, employees' self-efficacy is also refers to an individual capability to obtain and maintain work. The level of self-efficacy that employees possess will have a direct impact on the work of them. This is because employees who have high self-efficacy are more likely to attempt challenging tasks and to use their efforts and motivational resources to successfully execute jobs and persevere while facing obstacles and difficulties in the workplace (Ahmad & Safaria, 2013). Hence, in the dynamic workplace of industry 4.0, it is necessary for employees to possess self-efficacy ability that could assist them in responding less defensively when they are receiving negative feedback or facing problems because they have optimistic self-belief in proficient completion of challenging career-related tasks that will positively influence their career development.

Not only that, according to Alfred Bandura's Social Cognitive Theory (2013), it organizes the cognitive, motivational, and environmental factors that shape people's career interests, choices, performance, satisfaction, and career self-management (CSM) and career self-efficacy is part of it (Mindi, Thompson, Jason, Dahling, Chin, & Robert, 2016). Consequently, this theory was extended to clarify how workers psychologically respond to job misfortune and recovery and how these responses are liable to contextual affordances that can diminish or worsen negative outcomes. This theory was highlighted to emphasize on the importance of career self-efficacy as stated by Alfred Bandura in concerning to the performance of individuals in workplace, especially in the competitive environment of industry 4.0. Furthermore, the importance of career self-efficacy includes human skills, motivation, learning experience, and self-confidence in terms of career development in adapting the industry 4.0 which the digital world lack of (Mindi, Thompson, Jason, Dahling, Chin, & Robert, 2016). Thus, it is considered as a required capability for employees in competing with machine or robots that are still unable to possess these aspects.

In conclusion, the fourth industrial revolution workplace does highlighted on the importance of career self-efficacy of service sector employees in the job market as it could assist them in completing career-related tasks in the dynamic workplace of industry 4.0 in terms of career development.

2.1.5 Career Development

Career Development – Dependent Variable

Career development refers to the systems of training, development programs, promotion, salaries and incentives of an organization possessed (Li, Tong, Wong, 2013). Career development can also be defined as activities that foster an individual's knowledge, skills and capabilities in relation to planning, developing and directing their career through informed choices towards success (Suzanne, Shelley, Mary, John, 2015).

Career development of an individual in the workplace can be different from time to time in terms of culture, skills, actions, and needs or wants, which have different meanings to individuals such as how they perceive, plan, react, or response to the job environment in order to achieve career success. For example, current trends of career development for millennial employees especially generation Y, perceived job hopping culture as part of their career development in order to achieve higher compensation packages and faster promotions (Dharmawansha & Thennakoon, 2014). While for some individuals like baby boomers, prefer to stay in the old company as a loyal employee with a hardworking culture in order to secure their job with promising salary, benefits, and promotions (Tatyana, 2017).Thus, the idea of career development can be quite different from individuals and way of doing so.

However, the idea of career development is changing due to the globalization and the fourth industrial revolution in the human workforce as some experts believe that it might cause a career skills disruption in the job market and increasing the need of individual skillset and competency in the career world. According to World Economic Forum (2016), technological changes might accompany by talent shortages, mass unemployment and growing inequality,

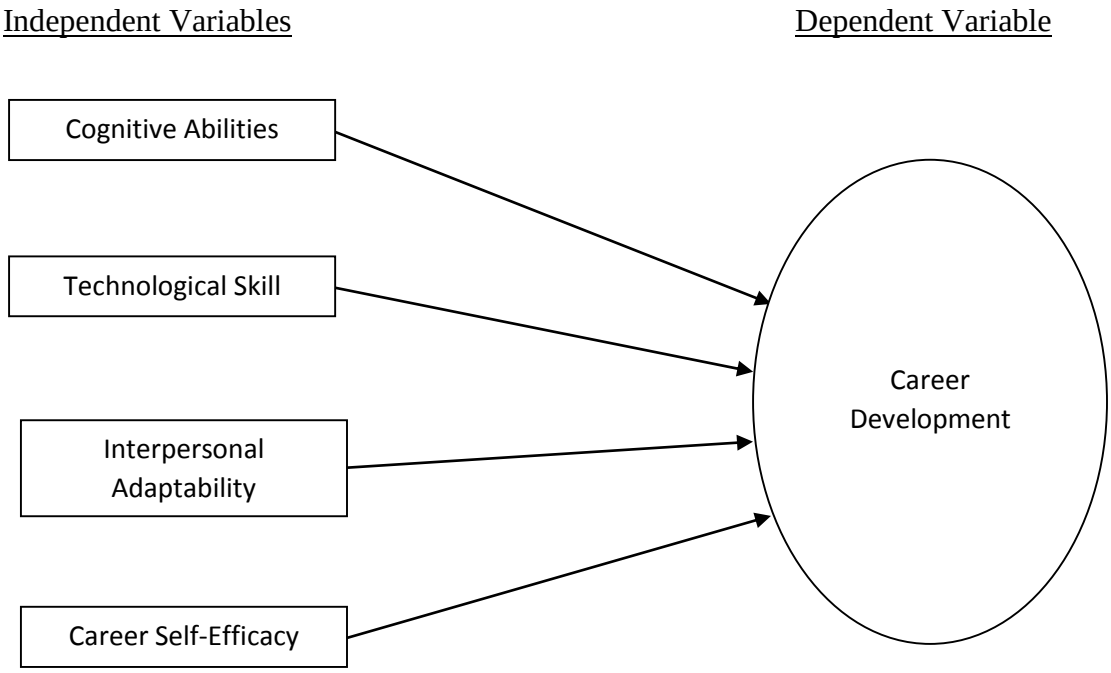
required to reskilling and upskilling existing workers. Thus, employees are require to keep on improving themselves by adapting with the latest and knowledge or skillsets in order to enhance their career. Therefore, the changes in the existing and future fourth industrial revolution workforce are expected to required more than just loyalty or academic competence, but expected with even more soft skills, creative problem solving and complex social interaction (Andreas, 2017).

Furthermore, the major concern on fourth industrial revolution such as the reaction and perception of humans being toward technological changes, economic regulation, job opportunities or threats in the markets shouldn't be ignore as well (Philip, Caroline, & Manuel, 2018). As all these factors should be included in the considerations by an employee on how to embrace such competitive and rapid changing environment or how are they going to respond in further developing their career in order to achieve success as human now are competing against technology as well instead of just human being. Maynard (as cited in Philip, Caroline, & Manuel, 2018) found that the discovery of new techniques of economising on labour, outrunning the pace at which we can find new uses for labour and this is driven by advances across a number of interdisciplinary fields and mutually reinforcing technologies such as machine learning and artificial intelligence (AI), Internet of Things (IoT), robotics, additive manufacturing, synthetic biology, and smart materials. While recognizing that digital innovation is likely to disrupt established models of education, employment and job market structures, the implications for labour supply and demand are widely contested. Thus, several skills in compromising the idea of career development are no longer just an advantage, but rather a necessity. According to Philip, Caroline, and Manuel (2018), digital skills for 'everyone' is justified in terms of inclusion (e.g. access to markets and to public services), and employment, where digital proficiency is seen in the same light as basic numeracy and literacy back in the age of civilization. Hence, there is an assumption that these technologies will diffuse across all sectors, which

requiring generalised 'reskilling' or 'upskilling' among the employees regardless in the current or future workforce.

Therefore, the career development in embracing the fourth industrial revolution doesn't just requiring an existing employee to enhance or improve on their skills, but also comes along with personal factors or motivation.

2.2 Research Framework



2.3 Hypothesis Development

There are four hypotheses in this research which will be tested in Chapter 4-Research Result. Therefore, these hypotheses will be tested using SPSS to find out the correlation.

H_A0: There is no significant relationship between the cognitive abilities of service sector employees and career development in adapting the fourth industrial revolution.

H_A1: There is a significant relationship between the cognitive abilities of employees and career development in adapting the fourth industrial revolution.

H_B0: There is no significant relationship between the technological skills of service sector employees and career development in adapting the fourth industrial revolution.

H_B1: There is a significant relationship between the technological skills of employees and career development in adapting the fourth industrial revolution.

H_c0: There is no significant relationship between the interpersonal adaptability of service sector employees and career development in adapting the fourth industrial revolution.

H_c1: There is a significant relationship between the interpersonal adaptability of employees and career development in adapting the fourth industrial revolution.

H_d0: There is no significant relationship between the interpersonal adaptability of service sector employees and career development in adapting the fourth industrial revolution.

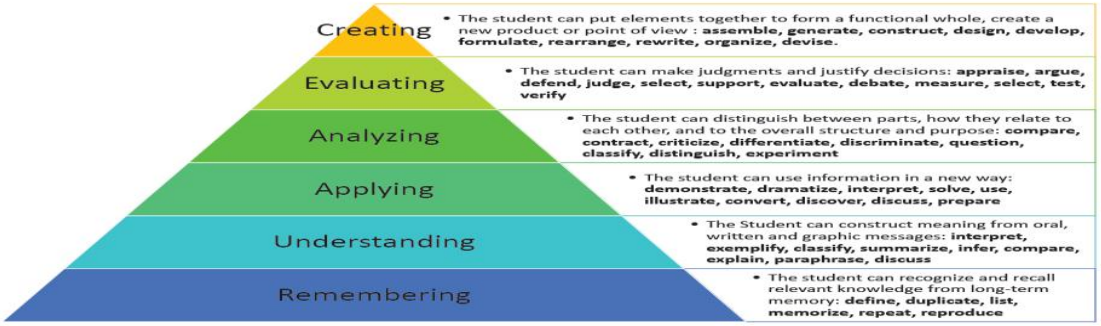
H_d1: There is a significant relationship between the interpersonal adaptability of employees and career development in adapting the fourth industrial revolution.

H_e0: There is no significant relationship between the four independent variables and career development of service sector employees in adapting the fourth industrial revolution.

H_e1: There is a significant relationship between the four independent variables and career development of service sector employees in adapting the fourth industrial revolution.

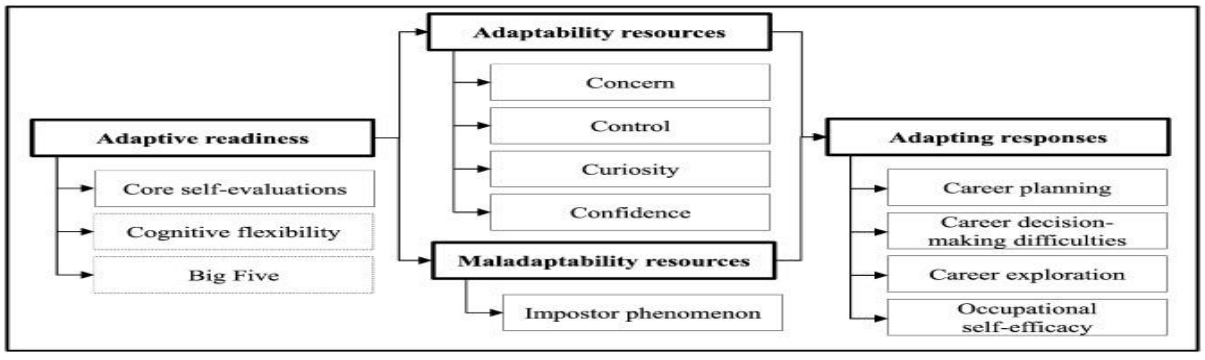
2.4 Theory Related in Supporting the Hypothesis

2.4.1 Cognitive Abilities (Bloom Taxonomy's Theory)



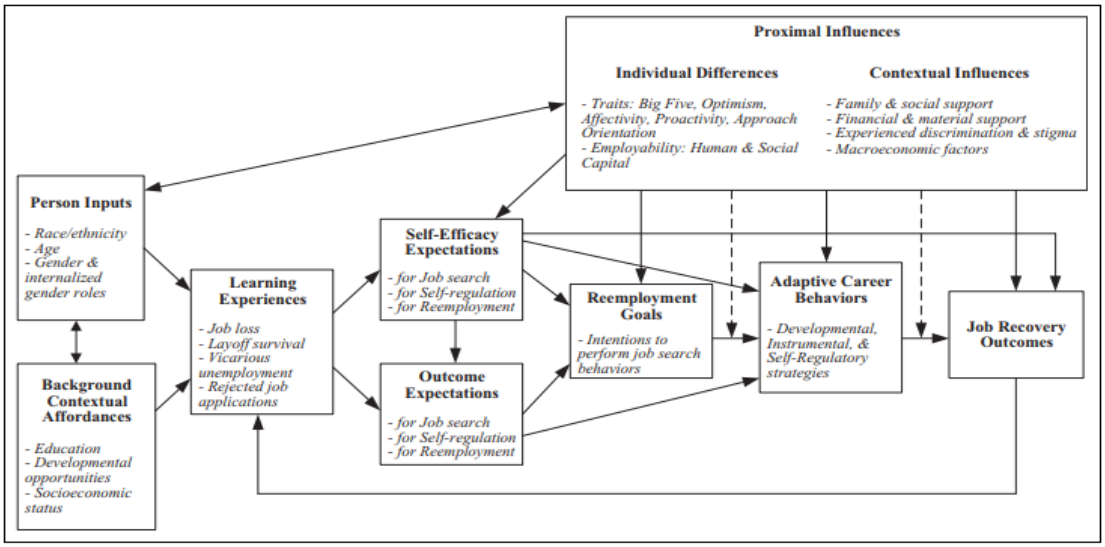
Source: Adapted from the research (Maya & Charles, 2018)

2.4.2 Interpersonal Adaptability (Adaptability Theory)



Source: Adapted from the research (Mirjam & Eva, 2017)

2.4.3 Career Self-Efficacy (Social Cognitive Theory)



Social cognitive career theory career self-management model applied to job loss and job recovery. Adapted from Lent and Brown (2013, p. 562).

Source: Adapted from the research (Mindi, Thompson, Jason, Dahling, Chin, & Robert, 2016)

2.5 Conclusion

In this chapter, the independent variables that were being studied are cognitive abilities, technological skills, interpersonal adaptability, and career self-efficacy while the dependent variable is the career development.

CHAPTER 3: METHODOLOGY

3.0 Introduction

The literature reviewed in Chapter 2 examined the variables that are related to the skills and capabilities of employees and the contribution of these variables to the improvement of career development in fourth industrial revolution that is firmly fixed in quantitative epistemology. In this chapter, the hypotheses as well as the research design, the sampling design, data collection methods, research instrument, construct measurement, data processing, data analysis and statistical analysis will be discussed.

3.1 Research Design

Research design offers the simple guidelines for researchers in conducting valid and reliable research task (Hair, Money, Samouel & Page, as cited in Lam, Lau, Ng, Shua, & Teh, 2011). Besides, it is refers as a "strategic framework for action that serves as a bridge between research questions and the execution or implementation of the research". Also it further indicates that the aim of a sound research design is to provide results that are judged to be reliable (Durrheim, as cited in Mashigo, 2014). In addition, the methods and procedures in collecting and analysing the needed information which are relevant to research problems will be identified by research design (Lam, Lau, Ng, Shua, & Teh, 2011).

In this research project, researchers have employed descriptive and quantitative research design. The descriptive research is known as a scientific method which involved describing and observing the characteristic of service sector employees towards their career development in adapting the industry 4.0 and it also clarify the problems that occur in the present working environment. Besides, the quantitative research is supported in this research which usually involves statistical analysis through the questionnaires.

3.1.1 Descriptive Research

Descriptive research's main purpose is to describe a population's or phenomenon's characteristics (Zikmund, as cited in Lam, Lau, Ng, Shua, & Teh, 2011). It is undertaken to determine and define the characteristics of the several variables of interest that existed in a phenomena (Sekaran, 2003). Hence, this research has employed descriptive study to describe the demographics of service sector employees towards their career development in the workplace of industry 4.0.

3.1.2 Quantitative Research

Quantitative Research explains phenomena according to numerical information which are assessed by mathematically based techniques, particularly statistics (Yilmaz, 2013). Additionally, it is considered as a type of empirical research testing a theory comprising variables which are measured with numbers and analysed with statistical methods to determine if the theory explains or predicts

the phenomena (Creswell, as cited in Yilmaz, 2013). In this research, quantitative research has applied because it seeks to create causal relationships between at least two factors by utilizing statistical methods to test the quality and significance of the relationships (Yilmaz, 2013). Also, questionnaire has been developed from past literature to quantify the beliefs towards the particular phenomenon of this research. Therefore, it is appropriate for testing the hypothesis of this research in seeking a better explanation for the occurrence of the phenomenon.

3.2 Data Collection Methods

In this research, primary data will be executed for the purpose of gaining a more clarify picture of the result. Therefore, questionnaire will be represented as the primary data in this research.

3.2.1 Primary Data

Primary data contains of data straightforwardly gathered from first-hand experience by the researchers who are investigating the particular purpose of the research (Sekaran, 2003). For instance, data that generated from historical documents, literary texts, experiments, surveys, observations, interviews, and focus groups are known as primary data.

Besides, researchers are able to gather the data which are more consistent with the research questions and research objectives through primary data (Lam, Lau, Ng, Shua, & Teh, 2011). The reason is researchers can gain the specific demographic data regarding the respondents, for instance, education, personality, marital status, and working experience which might not be accessible in secondary data. Other than that, survey questionnaire is relatively low-cost and rapid approach to gather information when contrasting with different methods, for example, experiment, literary texts, focus groups and so forth (Lam, Lau, Ng, Shua, & Teh, 2011).

In this research, self and personally-administered survey are distributed to the target respondents. In order to avoid respondents giving untrustworthy and inaccuracy information, the questions in the questionnaire were created in a simple and easy manner format. Therefore, using 5-point Likert Scale with anchor of (1) ―strongly disagree‖ to (5) ―strongly agree‖ is easy to manage and can decrease inconsistency in the results that may be differences and enhances credibility of the responses. Besides, in this research, responses were collected from the employees who working at various organization in the service sector economy across Klang Valley.

3.3 Sampling Design

3.3.1 Target Population

In this research, service sector employees who are working at Klang Valley are the target population of researchers. The reason of targeting them is because they are able to deliver a more valuable information about the rapid rate of changes in working environment by the industrial revolution. Besides, they are considered as the most suitable target respondent for this research because the working experience, knowledge, and occupation that they have possessed in workplace would help them in answering the questionnaire. Thus, researchers can gather a more accurate and truthful data from the targeted market.

3.3.2 Sampling Frames and Sampling Location

A list of people and items in the selected population that are to be interviewed in the survey are sampling frame (Turner, 2003).Thus, employees from service sector economy who are working in Klang Valley are the sampling frames of this research.

Besides that, Klang Valley is being chosen for conducting this research. The reason is the unemployment rate has increased in this particular location and the national commercial control of Klang Valley is extended with the spreading out of the service sector. Therefore, employees from service sector would be overwhelmingly gathered at Klang Valley. As a result, researchers can

accumulate valuable information for their research and the outcome will be more credible.

3.3.3 Sampling Technique

Stratified random sampling method was employed in collecting the questionnaire of this research. This sampling method divides the whole population into homogeneous groups known as strata (Kenton, 2019). After that, random samples are selected from each stratum. The target respondents of this research are employees. However, researchers found that there were almost impossible to include all the employees' population. Hence, researchers which then divide the population into strata and take a random sample from the strata. This research has decided to take a simple random sample of 185 service sector employees and run a survey.

3.3.4 Sampling Size

Research's sample size should be more than 30 and less than 500 because sample size that greater than 30 can safeguard the researchers in getting the benefits of central limit theorem (Hill, 2012). In this research, 200 service sector employees in Klang Valley will be chosen to fill up the questionnaire through internet or physical interaction. Also, respondents were requested to fill up all the given questions in the questionnaire. However, before proceed to the actual survey, a pilot testing will be carried out which contains of 30 respondents to exam on the accurateness and significant of this research.

3.4 Research Instruments

3.4.1 Questionnaire Design

Close-ended questionnaire is used in data collection of this research. There are numerous research questions have been created in early stage in order to generate questions that could help researchers in gathering data. It consist of demographic characteristics (gender, age, working experience, education level, and occupation) of target respondents, and each of the relationship between cognitive abilities, technological skill, interpersonal adaptability, and career self-efficacy with career development of service sector workforces.

Moreover, close-ended format of Likert Scale format is employed in the questionnaire of this research. This Likert Scale format is a choice from strongly disagree to strongly agree of the statement. It is considered as a simple approach in comparing with other format in generating particular opinion and it is effortless to construct the multiple-item measures (John, as cited in Lam, Lau, Ng, Shua, & Teh, 2011). Lastly, it is also fast and effective to gain the data from the target respondents.

Additionally, three parts which are Section A, Section B, Section C will consist in this questionnaire. In Section A, it concerns with the information about demographic characteristic of respondents. The questions involved were gender, age, working experience, education, and occupation. For Section B, it is designed to measure the independent variables of the research which are cognitive abilities, technological skills, career self-efficacy, and interpersonal adaptability as well as the Section C is intendent to measure the dependent variables which is the service sector employee's career development in industry

4.0. Thus, questionnaire is designed explicitly to examine how the service sector employee's career development in the workplace of industry 4.0 will be affected by the four factors in Section B and Section C.

3.5 Constructs Measurement

3.5.1 Scale Measurement

Ordinal scale is a rating scale that hold order but not distance and the numbers that have assigned preserve the order relationship (Kumar, 2011). Hence, an ordinal scale organises and categorises items according to their degree in an ordered relationship (Dalati, 2018). In the questionnaire's Section B and C of this research are the ordinal scale where respondents are demanded to rate their degree of agreement in a 5-Point Likert Scale. The 5-Point Likert Scale is used as a tool of measurement range from 1 (Strongly Disagree) until 5 (Strongly Agree). Therefore, respondents are given a wider choice of expression rather than just answering nominal scale question such as yes or no.

3.5.2 Origin of Construct

The list of constructs and variables used in the questionnaire will be showed in Table 3.1. Additionally, the adapted items and sources are included in the table below.

Table 3.1: Origin of Constructs

Constructs	Adapted Items	Sources
General Information		
Highest Education Level	- SPM/High School - Diploma/Pre-university/STPM/UEC - Bachelor Degree - Master Degree - Doctorate/PhD - Others	(Khadka, 2014)
Fields of Study	- Business - Economics - Accounting - Information Communication Technology - Medicine - Medical - Law - Culinary Arts - Others	(Khadka, 2014)
Occupation	- Manager - Clerk/Office Worker - Salesperson - Service Worker - Security Worker - Transportation - Consultant - Others	(Khadka, 2014)

Years of Working Experience	- 1 year - 2 Years - 3 Years - 4 years - 5 years and Above	(Khadka, 2014)
Employee's Capabilities Cognitive Abilities	- logical connections on the information - Predictions, identify trends and forecast possibilities - Identify obstacles, challenges, or problems - Solve critical problems by applying existing knowledge - Think creatively or outside the box	(Mtebula, 2014) (Wade, Wolanin & McGaughey, 2015) (McGarry, 2016)
Technological Skill	- Develop creative ways to cope with system constraints - Regularly incorporate technology skills at my workplace - Possess technology skills in selecting an ideal way to assess workplace - Computer literacy ability to use computer applications - Ability to address technology needs	(Slutsky, 2016)

Interpersonal Adaptability	- Importance to be flexible enough in dealing with others - Read others and understand how they are feeling - Open-minded person in dealing with others. - Try to be flexible when dealing with others at workplace. - Adapt his/her appropriate behaviour at workplace	(Powers, 2014)
Career Self-efficacy	- Manage to solve difficult problems at workplace - Confronted with an unforeseen situation at workplace - Deal efficiently with unexpected events at workplace - Overcome challenges at workplace	(Baker, Mendas & Velandia, 2016)
Employees' readiness Career Development	- Aware of the changes taking place in the job market - Explored the job growth trends affecting occupations in the future. - Researched the types of skills employers expect among employees - Developed a lifelong learning plan - Motivates me to do well on a job	(Graham, 2015)

	- Developed a timeline for accomplishing each of my career goals	

3.6 Data Processing

Data processing is the process of developing answers to questions through examination and interpretation of data by gathering and collecting information from respondents and convert it into numerical values to obtain information or knowledge (Balkishan, 2018). The purpose of data processing is also to explore the relationship between variables. The way of conducting a data processing can be done through questionnaire survey, gathering data, and input into the computer and analysed through computer software. Thus, Data processing incorporates few stages which include checking, editing, coding, and transcribing.

3.6.1 Data Editing

Data editing defined as the process involving the review and adjustment of collected survey data (Uma & Roger, 2016). The purpose is to control the quality of the collected data by ensuring the questionnaires collected are errorless and there is no missing data or misclassification of the data. Throughout the checking process, 15 incomplete questionnaires were eliminated due to the respondents did not complete the survey. Therefore, 185 questionnaires are valid in this research and are used for further analysis. Other than that, some respondents cannot understand some questions such as from the independent variable interpersonal adaptability of the questionnaire. For

instance, question 4 from the third independent variable "I am able to be flexible enough in dealing with others".

3.6.2 Data Coding

Data coding refers to the procedure of data categorizing and it consist of specifying alternative categories or classes into which the responses must be placed with code numbers to each category or class (Jan & Colin, 2009). The coding will then converts raw data into symbols, usually numbers that will enter into a computer database and tabulated (Jan & Colin, 2009). In this research, question in the questionnaires are codes with numerical numbers, for instance, education level was coded as 1- "Secondary school", 2- "Diploma", 3- "Degree", 4- "Master", 5- "PHD".

3.6.3 Data Transcribing

Data transcribing is the keying of coded data from collected questionnaire into computers (Jan & Colin, 2009). The data collected from respondents is key into SPSS software in order to make data analysis.

3.6.4 Data Cleaning

Data cleansing is the process of uncovering and correcting inconsistent records from a table or database (Jan & Colin, 2009). The purpose of data cleaning mainly is to identify imperfect, incorrect, and irrelevant parts of the data and then modifying the incorrect data. In this research, respondents were asked at whether they believe it is important to be flexible enough in dealing with others and the changing environment at workplace at Q1 of the questionnaire. Besides, at Q3, respondents were asked whether they are an open-minded person in dealing with others. Some respondents answered inconsistently between Q1 and Q3, for instance, some of them answered they are flexible in dealing with others but the numbers of respondents that are with open-minded are lower than the numbers of people that are flexible in dealing with others.

3.7 Data Analysis

Data analysis process is where the raw data collected from questionnaires uses mathematical operations to investigate their properties and translate into meaningful information (Jan & Colin, 2009). Data obtained via questionnaires will be analyze by using SPSS software. It can help researcher to transform raw data into practical information to draw conclusion smoothly and accurately.

3.7.1 Descriptive Analysis

Descriptive analysis relies on the observation as a means of collecting data and attempting to examine the situations in order to establish what the situation is or what can be predicted under the same circumstances (Nicholas, 2011). In this research, descriptive analysis was adopted to explain the factors on influencing the career development of service sector employees in adapting the fourth industrial revolution. The reason is descriptive analysis is able to provide numerical and graphical data by summarizing the raw data collected into useful information, then simplify massive amounts of data in a sensible way (Nicholas, 2011). Frequency and percentage were used to describe the demographic and general information of respondents while mean and standard deviation were used to explain the findings of skills that influence on the career development of service sector employees in fourth industrial revolution workforce.

3.7.2 Scale Measurement (Reliability Test)

According to Tavakol & Dennick (2011), validity and reliability are two fundamental elements in the evaluation of a measurement instrument. Instruments can be conventional knowledge, skill or attitude tests, clinical simulations or survey questionnaires. Instruments can measure concepts, psychomotor skills or affective values. Validity is concerned with the extent to which an instrument measures what it is intended to measure. Reliability is concerned with the ability of an instrument to measure consistently. It should be noted that the reliability of an instrument is closely associated with its validity. Cronbach's Alpha is used to evaluate the internal consistency in each item of the scale by determining how well these items in measuring a construct that are positively related to one another and maintain the stability of the research data. In this research, multiple items will be employed Cronbach's alpha in order to evaluate the construct and the rules of thumb of Cronbach's Alpha Coefficient are shown in the table 3.2.

Table 3.2: Rules of Thumb of Cronbach's Alpha Coefficient Range

Cronbach's Alpha	Internal Consistency
$\alpha \geq 0.90$	Excellent
$0.90 > \alpha \geq 0.80$	Good
$0.79 > \alpha \geq 0.60$	Acceptable
$0.60 > \alpha$	Poor

Source: Adapted from the research (Sekeran, as cited in Rengiah, 2013)

Reliability is about the stability and consistency of a measurement of a concept (Hejres, 2015). Thus, in order to ensure the finding of this research is adequate the Cronbach Alpha was conducted to test the reliability of questions. Alpha is commonly reported for the development of scales intended to measure attitudes and other affective constructs. The alpha value ranges between 0 and 1 with reliability increasing with the increase in value. Alpha (α) value below of 0.6 shows a poor internal consistency while 0.6 above is acceptable (Sekeran, as cited in Rengiah, 2013). Therefore, the higher the value of the Cronbach's alpha, the higher the reliability of a construct.

3.7.3 Inferential Analysis

3.7.3.1 Multiple Regression

Multiple regression analysis is a statistical technique that can be used to analyse the relationship between two or more independent variables and single dependent variable (Kumar et al., 2012). In this research, multiple regression analysis was utilized to demonstrated how much variance in employees overall skills and capabilities with their career development in fourth industrial revolution can be explained by the four independents variables. Variance could be explained by *r* square value while beta coefficient will show which independent variable contribute the most on employee's career development in industry 4.0. The general formula for multiple linear regressions is as followed:

$$Y= a + b1X1 + b2X2 + b3X3 + b4X4 + b5X5+ \ldots + bkXk$$

The equation in this research study constructed as below:

EOCD = a + b1 (CA) + b2 (TS) + b3 (IA) + b4 (CSE)

Whereby,

EOCD = Employee's overall career development

a = constant

CA = Cognitive Abilities

TS = Technological Skill

IA = Interpersonal Adaptability

CSE = Career Self-Efficacy

This equation can aid this research study to find out which independent variables is most influential factors in predicting the dependent variable.

3.8 Conclusion

In this chapter, the research methodology is well-described. The research method of the research include research design, data collection methods, sampling design, research instrument, construct management, data processing, and method of data analysis. This section will also provide assistance in the next chapter for analysis purpose.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

In this section, data analysis is aim to meet those research questions, objectives, and hypotheses of this research. There will have 185 of valid questionnaires were be used to conduct this data analysis. Respondents' demographic profile will be presented. Moreover, Cronbach Alpha reliability test will be used to determine the internal consistency of multi items scale and for statistical analysis, Multiple Regression will be conducted to determine the relationship between variables.

4.1 Descriptive Analysis

4.1.1 Respondent Demographic Profile

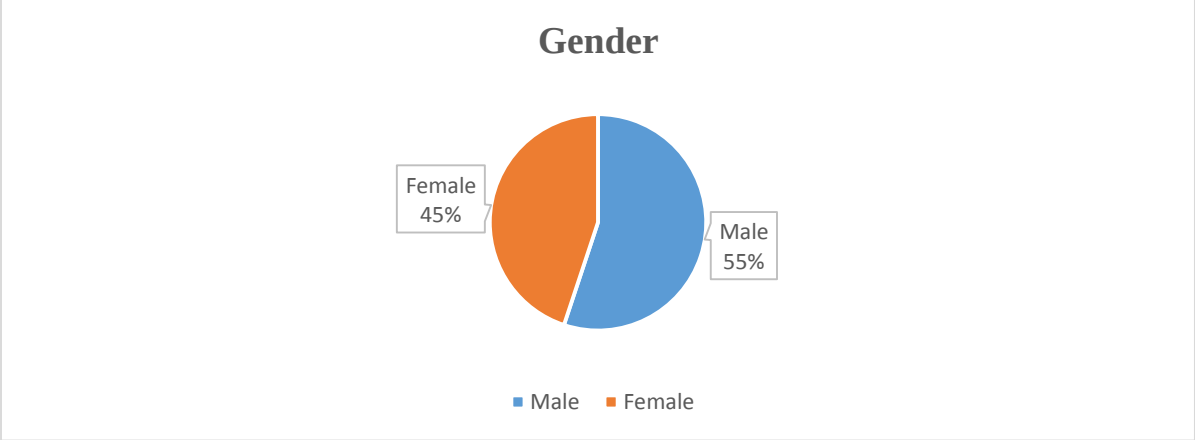
4.1.1.1 Gender

Table 4.1: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	102	55.1	55.1	55.1
	Female	83	44.9	44.9	100.0
	Total	185	100.0	100.0	

Source: Developed for the research

Figure 4.1: Gender



Source: Developed for the research

Gender of the respondents will be described in table 4.1 and figure 4.1. In the total amount of 185 targeted respondents, there will be 102 respondents who are male and 83 respondents who are female. Hence, the majority of respondents are male which consists of 55% while female consists of 45%.

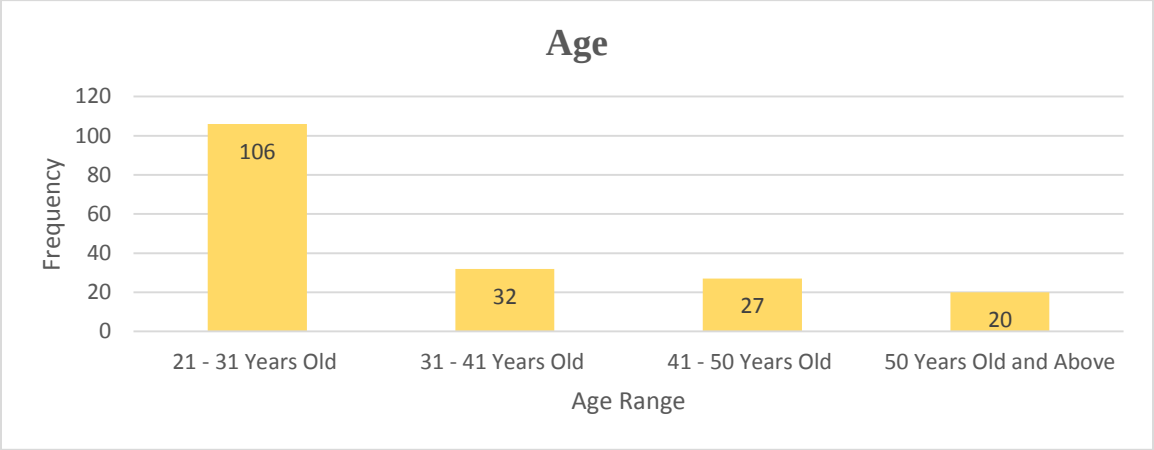
4.1.1.2 Age

Table 4.2: Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21-31 Years Old	106	57.3	57.3	57.3
	31-41 Years Old	32	17.3	17.3	74.6
	41-50 Years Old	27	14.6	14.6	89.2
	50 Years Old and Above	20	10.8	10.8	100.0
	Total	185	100.0	100.0	

Source: Developed for the research

Figure 4.2: Age



Source: Developed for the research

Age range of the respondents will be described in table 4.2 and figure 4.2. Based on the data collected, it has showed that majority of the respondents' age range is between "21 – 31 years old" which consists of 106 respondents (57.3%), followed by age range between "31 – 41 years old", "41 – 51 years old", and "50 years old and above" which are 32 (17.3%), 27 (14.6%), and 20 (10.8%) respondents in descending order respectively.

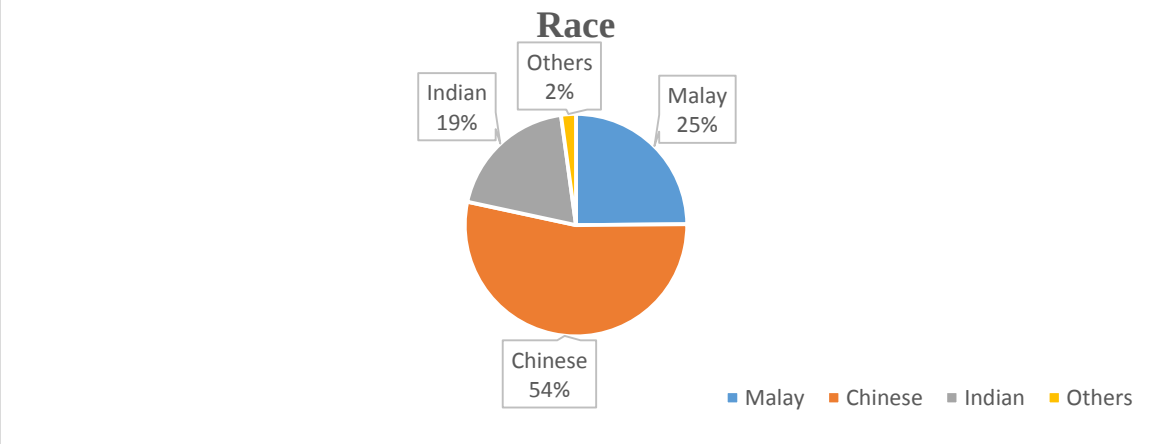
4.1.1.3 Race

Table 4.3: Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	46	24.9	24.9	24.9
	Chinese	99	53.5	53.5	78.4
	Indian	36	19.5	19.5	97.8
	Others	4	2.2	2.2	100.0
	Total	185	100.0	100.0	

Source: Developed for the research

Figure 4.3: Race



Source: Developed for the research

Race of the respondents will be defined in table 4.3 and figure 4.3. Refers to the data collected, it has showed that majority of respondents is Chinese which consists of 99 respondents (54%), followed by Malay respondents, Indian

respondents, and the others which are 46 (25%), 36 (19%), and 4 (2%) respondents in descending order respectively.

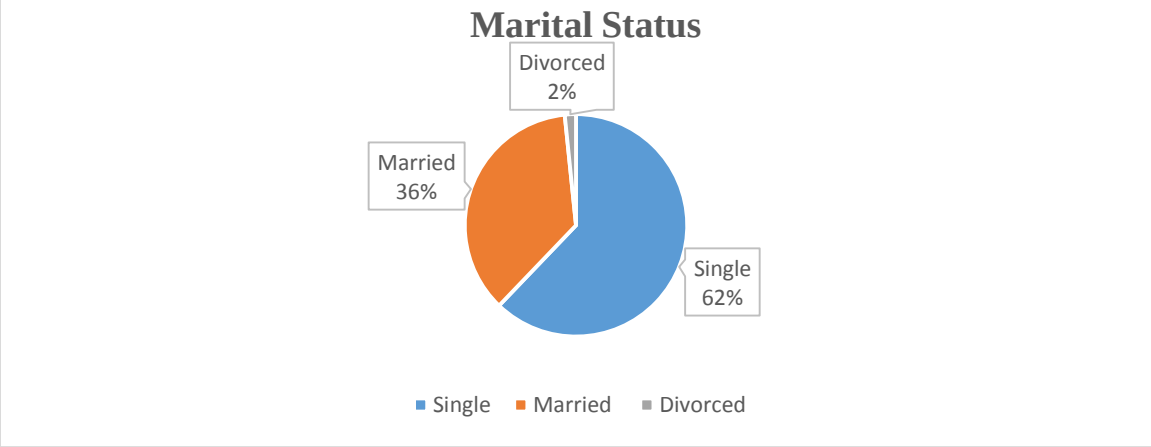
4.1.1.4 Marital Status

Table 4.4: Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	115	62.2	62.2	62.2
	Married	67	36.2	36.2	98.4
	Divorced	3	1.6	1.6	100.0
	Total	185	100.0	100.0	

Source: Developed for the research

Figure 4.4: Marital Status



Source: Developed for the research

Marital status of the respondents will be defined in table 4.4 and figure 4.4. Refers to the data collected, it has showed that majority of respondents is single which consists of 115 respondents (62%), followed by respondents who have married, and respondents who have divorced which are 67 (36%), and 3 (2%) respondents in descending order respectively.

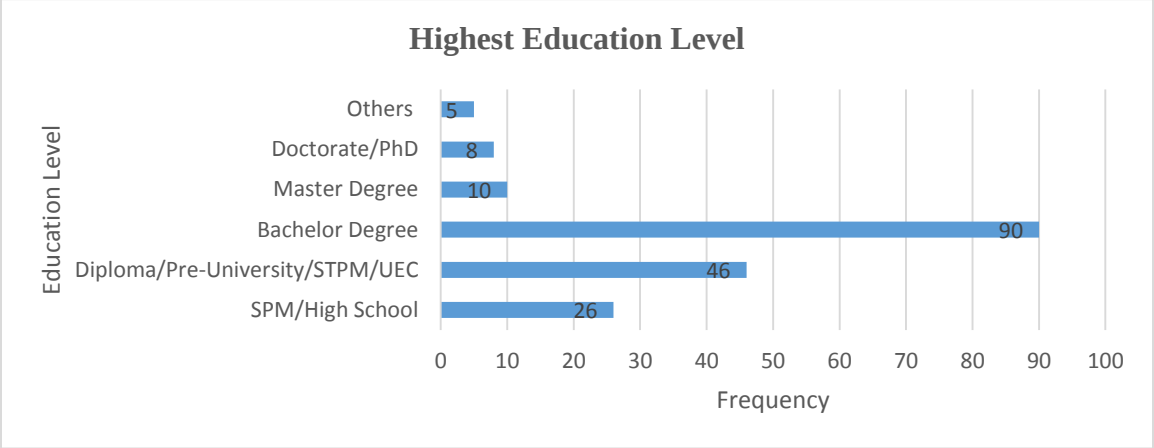
4.1.1.5 Highest Education Level

Table 4.5: Highest Education level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SPM/High School	26	14.1	14.1	14.1
	Diploma/Pre-University/STPM/UEC	46	24.9	24.9	38.9
	Bachelor Degree	90	48.6	48.6	87.6
	Master Degree	10	5.4	5.4	93.0
	Doctorate/PhD	8	4.3	4.3	97.3
	Others	5	2.7	2.7	100.0
	Total	185	100.0	100.0	

Source: Developed for the research

Figure 4.5: Highest Education level



Source: Developed for the research

The highest education level of the respondents will be defined in table 4.5 and figure 4.5. Refers to the data collected, it has showed that majority of respondents are graduated from bachelor of degree which consists of 90 respondents (49%), followed by respondents who are graduated from diploma/pre-university/STPM/UEC, SPM/high school, master degree, doctorate/PhD and others which are 46 (25%), 26 (14%), 10 (5%), 8 (4%), and 5 (3%) respondents in descending order respectively.

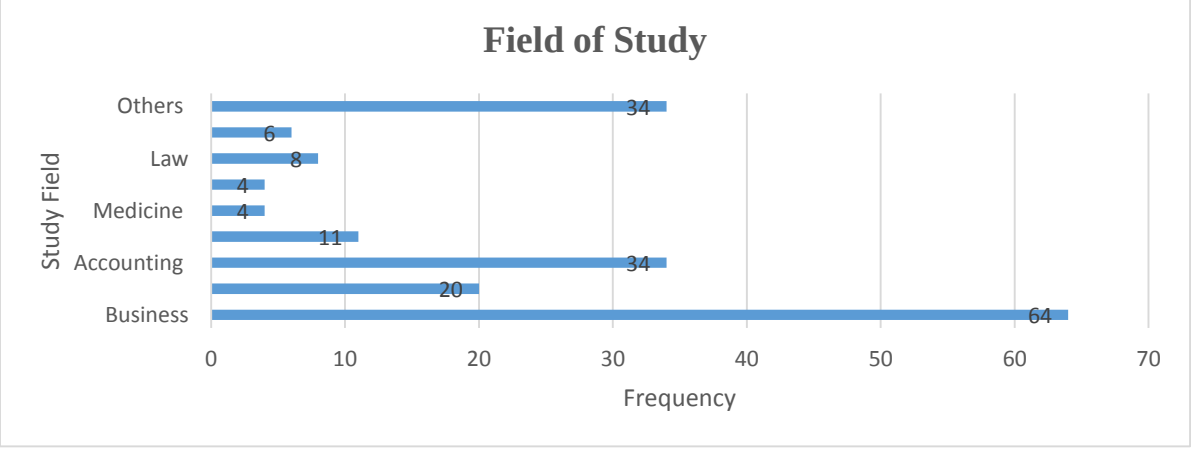
4.1.1.6 Field of Study

Table 4.6: Field of Study

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Business	64	34.6	34.6	34.6
	Economics	20	10.8	10.8	45.4
	Accounting	34	18.4	18.4	63.8
	Information Communication Technology	11	5.9	5.9	69.7
	Medicine	4	2.2	2.2	71.9
	Medical	4	2.2	2.2	74.1
	Law	8	4.3	4.3	78.4
	Culinary Arts	6	3.2	3.2	81.6
	Others	34	18.4	18.4	100.0
	Total	185	100.0	100.0	

Source: Developed for the research

Figure 4.6: Field of Study



Source: Developed for the research

The field of study of the respondents will be defined in table 4.6 and figure 4.6. Based on the data collected, it has showed that majority of respondents are studied in business field which consists of 64 respondents (35%). The second highest study field is accounting and the others which both also consist of 34 respondents (18.5%), followed by respondents who are studied in economics, information communication technology, law, and culinary arts which are 20 (11%), 11 (6%), 8 (4%), and 6 (3%) respondents in descending order respectively. Besides, both study field of medicine and medical are the lowest which comprises 4 respondents (2%).

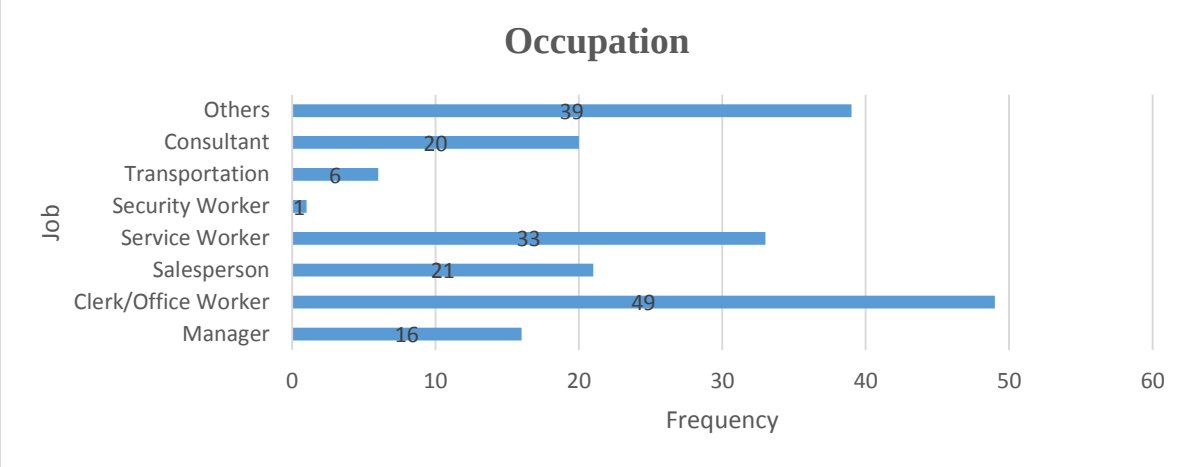
4.1.1.7 Occupation

Table 4.7: Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manager	16	8.6	8.6	8.6
	Clerk/Office Worker	49	26.5	26.5	35.1
	Salesperson	21	11.4	11.4	46.5
	Service Worker	33	17.8	17.8	64.3
	Security Worker	1	.5	.5	64.9
	Transportation	6	3.2	3.2	68.1
	Consultant	20	10.8	10.8	78.9
	Others	39	21.1	21.1	100.0
	Total	185	100.0	100.0	

Source: Developed for the research

Figure 4.7: Occupation



Source: Developed for the research

Respondents' occupation will be described in table 4.7 and figure 4.7. Based on the data collected, it has showed that majority of respondents are clerk or office worker which consists of 49 respondents (26%). The second highest respondents' occupation is the others that comprises of 39 respondents (21%), followed by service worker, salesperson, consultant, manager, transporter, and security worker which are 33 (18%), 21 (11%), 20 (11%), 16 (9%), 6 (3%), 1 (1%) respondents in descending order respectively.

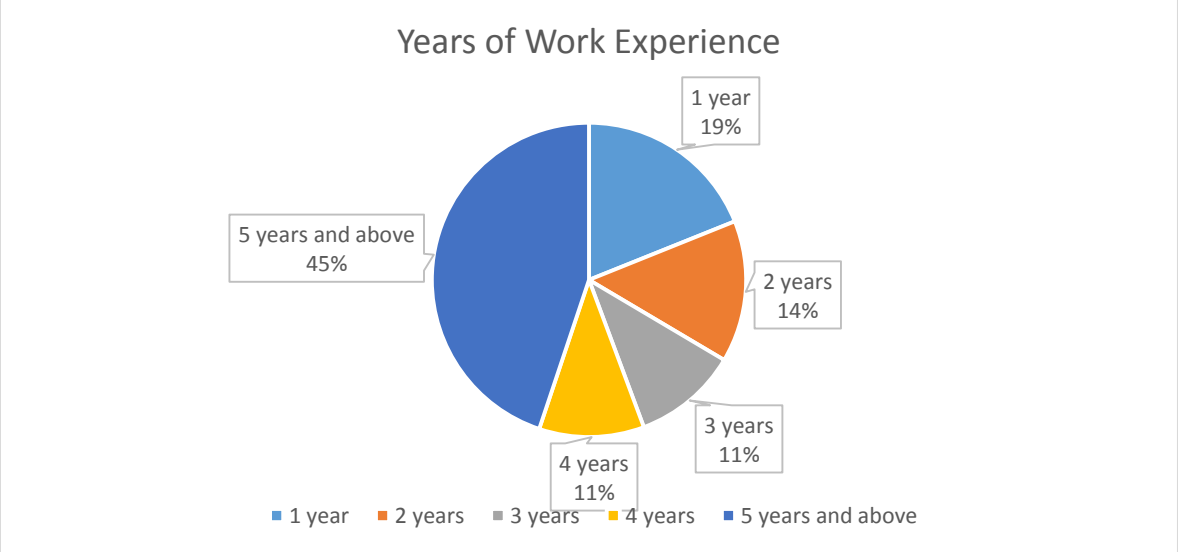
4.1.1.8 Years of Working Experience

Table 4.8: Years of Working Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	35	18.9	18.9	18.9
	2	27	14.6	14.6	33.5
	3	20	10.8	10.8	44.3
	4	20	10.8	10.8	55.1
	5 Years and Above	83	44.9	44.9	100.0
	Total	185	100.0	100.0	

Source: Developed for the research

Figure 4.8: Years of Working Experience



Source: Developed for the research

Years of working experience of respondents will be described in table 4.8 and figure 4.8. Refers to the data collected, it has showed that majority of respondents have working experience more than 5 years which consists of 83 respondents (45%). The second highest of respondents' working experience is one year which comprises of 35 respondents (19%), followed by respondents who have two years working experience which is 27 respondents (14%). In addition, both working experience of three years and four years are the lowest which consists of 20 respondents (11%).

4.1.2 Central Tendencies Measurement of Constructs

Table 4.9: Central Tendencies Measurement of Constructs

Variables	N	Mean	Standard Deviation
Cognitive Abilities	185	3.5751	0.6380
Technological Skill	185	3.7092	0.6007
Interpersonal Adaptability	185	3.8865	0.5072
Career Self-efficacy	185	3.7849	0.5467
Career Development	185	4.5016	0.7148

Source: Develop for the research

Table 4.9 reveals that the mean value for "Cognitive Abilities", "Technological Skill", "Interpersonal Adaptability", and "Career Self-efficacy" which were around 3.5 to 3.9 and it was representing the somewhat disagree and somewhat agree (Neutral) in the 5-point likert scale. As a result, majority of the

respondents are being neutral with their "cognitive abilities" which scored the mean of 3.5751 among the independent variables, continued with their "Technological Skill" which have scored the mean of 3.7092, "Interpersonal Adaptability" with a mean score of 3.8865, and "Career Self-efficacy" scored the mean of 3.7849. In short, the mean score between 3.5 and 3.9 were pointed out that employee were still confused and baffled about their capabilities and skills on career development in adapting the fourth industrial revolution.

4.2 Scale Measurement

4.2.1 Reliability Analysis

Table 4.10: Reliability Analysis

Construct	Cronbach's Alpha	Number of Items
Cognitive Ability	0.847	5
Technological Skill	0.783	5
Interpersonal Adaptability	0.687	5
Career Self-Efficacy	0.727	5
Career Development	0.825	6

Source: Develop for the research

Table 4.10 shows the internal consistency of the 26 items which were evaluated by Cronbach's Alpha analysis. In this project, 5 items related to "Cognitive Ability" were gained a Cronbach's alpha's coefficient of 0.847, "Technological Skill" that comprises of 5 items were gained a coefficient of 0.783, "Interpersonal Skill" that consists of 5 items have acquired a coefficient of 0.687, "Career Self-Efficacy" that includes of 5 items have developed a coefficient of 0.727, and "Career Development" that made up of 6 items were gained a coefficient of 0.825. To sum up, the reliability analysis for "Technology Skill", "Interpersonal Adaptability", and "Self-Efficacy" were indicated as an acceptable reliability, meanwhile, for "Cognitive Ability" and "Career Development" shown a good internal reliability within each items and it is reliable for analysis.

4.3 Inferential Analyses

4.3.1 Multiple Regression Analysis

Table 4.11: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.761[a]	.579	.569	.46904

a. Predictors: (Constant), Cognitive Abilities, Technological skill, Interpersonal Adaptability, and Career Self-Efficacy

Model summary is to test whether predictors (IVs) taken together as a set or group can predict the dependent variable. Refers to the table 4.15 above, the "*R*" column represents the value of multiple correlation coefficient. *R* can be used to measure the quality of the prediction of the dependent variable. In this case, the value of R is 0.761 indicates a good level of prediction. The "R Square" column represents the value of the coefficient of determination, which is the proportion of variance in the dependent variable that can be explained by the independent variables when taking as a group. Hence, the value of R^2 is 0.579 which specifies the independent variables account for 57.9% of the variance in dependent variable, Career development.

Table 4.12: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	54.409	4	13.602	61.828	.000[b]
	Residual	39.600	180	.220		
	Total	94.010	184			

a. Dependent Variable: Career Development

b. Predictors: (Constant), Cognitive Abilities, Technological skill, Interpersonal Adaptability, and Career Self-Efficacy

Based on table 4.16, *F*-ratio in the ANOVA table portray that the overall regression model was significant. It is because the table 4.16 shows that the independent variables statistically significantly predict the dependent variable, F (4, 180) = 61.83, $p < .001$. In brief, the overall regression analysis was statistically significant when taken the four independent variables together as a group to predict the dependent variable significant, career development by a service sector employee in adapting the fourth industrial revolution.

Table 4.13: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.116	.346		.334	.739
	CogAverage	.526	.075	.469	6.976	.000
	TechAverage	.243	.067	.204	3.618	.000
	InterAverage	.233	.073	.165	3.181	.002
	SelfAverage	.185	.082	.142	2.266	.025

a. Dependent Variable: Career Development

Coefficients test whether a given predictor was significant, so each of the independent variable was tested individually. Hence, *P* value < 0.05 is a significant independent variable of dependent variable. It is because a predictor that has a low *p*-value is likely to be significant because changes in the predictor's value are related to changes in the dependent variable. In contrast, a larger p-value suggests that changes in the predictor is not associated with changes in the dependent variable. Referring to table 4.17, "Cognitive Abilities" (0.000), "Technological Skill" (0.000), "Interpersonal Adaptability" (0.002), and "Career Self-efficacy" (0.025) are significant predictors of dependent variable because their *p*-values were less than 0.05.

Besides that, the standardized beta coefficients in the table above had shown that the important of each independent variable on the dependent variable. The outcome presented in table 4.17 shows that the majority contribute predictors on the overall employee's career development in fourth industrial revolution were the "Cognitive Abilities" (β = 0.469), followed by "Technological Skill" (β = 0.204), "Interpersonal Adaptability" (Beta = 0.165), and "Career Self-efficacy" (β = 0.142). To sum up, all of the four independent variables have significant and positive regression weights on the career development of service sector employees in adapting the workplace of fourth industrial revolution and the following equation was created.

EOCD = 0.116 + 0.526 CA + 0.243 TS + 0.233 IA + 0.185 CSE

4.4 Conclusion

This section concluded respondent's demographic profile by using descriptive analysis. Moreover, Cronbach's Alpha analysis was conducted to test the internal reliability of the 6 constructs. Lastly, inferential analysis has been interpreted by using multiple regression analysis to evaluate whether independent variables have significant influence towards the dependent variable.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.0 Introduction

This chapter presents the discussion and conclusion of the research results. The main objective of this research study is to identify the most important factors that leads to the career development of the service sector employees in adapting the fourth industrial revolution in the workplace. From the findings, there are four skills are required by the employees in adapting the fourth industrial revolution. The four types of skills are cognitive abilities, technological skills, interpersonal adaptability, and career self-efficacy. The further explanations for each of the research results will be performed in this chapter. Besides, this chapter also discuss about the recommendations, limitations of the study, and ideas for future study. Last but least is the conclusion part for the whole research study.

5.1 Discussion and Findings

5.1.1 Descriptive Analysis

In summary, there are 55% male and 45% female. Besides, the majority age range of respondents is between 21 – 31 years old which consists of 106 respondents (57.3%). In terms of race, majority of respondents were Chinese. Approximately 49% respondents are graduated from bachelor of degree. Moreover, the popular study field of respondents is business field with 35%.

Furthermore, based on the data collected, majority of respondents are clerk or office worker which consists of 49 respondents (26%). Lastly, majority of respondents have working experience more than 5 years which consists of 83 respondents (45%).

5.2.1 Multiple Regression Analysis

General Research Question: Are the employee ready or well prepared in their career development in the fourth industrial revolution?

General Research Objective: To examine whether the employees of service industry are ready or well prepared for their career development in the fourth industrial revolution.

Multiple regression analysis showed a better understand and more in-depth analysis, it analyzed how the four independent variables (dimensions of career development) are affecting the dependent variable (career development). It showed the rank of importance between the four independent variables. This multiple regression can be used to investigate the effect of four dimensions of career development on consequences of chosen outstanding employees.

R was the correlation coefficient between the observed value of the dependent variable and the predicted value based on the regression model. Refer to table 4.15, results obtained for R square is 0.579, which means that 57.9% of the dependent variable had been explained by the independent variables.

Multiple regression results had demonstrated the ranking of the sources in order to know which sources is the most important and which will have a greater impact on career development. The higher the Standardized Coefficient Beta, the higher the effect of four dimensions of career development towards service sector employees in adapting the fourth industrial revolution in terms of career development. Based on table 4.17, it shows the ranking within the four dimensions in Standardized Coefficient (Beta). As shown, the most important factors that influence on the career development in the fourth industrial revolution workforce is the cognitive abilities. Therefore, it was supported by the findings that cognitive abilities is one of the most important skillset among employees in the fourth industrial revolution (World Economic Forum, 2016).

5.2.1.1 Cognitive Abilities

Research Question 1: Does the cognitive abilities influence the career development of service sector employees in 4th industrial revolution?

Research Objective 1: To examine the cognitive abilities of service sector employees in terms of their career development in adapting the fourth industrial revolution.

Based on the results obtained in table 4.17 for coefficients in multiple regression analysis, researchers can conclude that there is a significant positive relationship between cognitive abilities and career development. The significant figure obtained is 0.000, which is less than 0.05. Therefore, reject the null hypothesis (H0) and accept the alternative hypothesis (H1).

Cognitive abilities is one of the most important skillset nowadays in adapting the fourth industrial revolution comprising of advanced literacy and writing, quantitative and statistical skills, critical thinking and complex information processing (World Economic Forum, 2018). Cognitive abilities skillset is important for service workers in general due to involvement flow of information through more efficient and rapid data processing that are easily replaced by the machine learning or big data (Nick, 2018). Thus, the possession of cognitive abilities skillset are vital among service industry's employees in career development in general due to the need to compete against the technological world. Furthermore, researches also shows that the development of fourth industrial revolution are unable to replace the high cognitive abilities workforce that involved a lot of research and development work. According to our findings in chapter 2, illustrating with the Bloom's Taxonomy theory referred as the six problem solving skills: remembering, understanding, applying, analyzing, evaluating and creating (Daberechi, Okedurum, Stephen, Ukenna, & David, 2018). The complete possession of all these levels enable high cognitive abilities skills as proposed by Benjamin Bloom. Hence, allowing an individual with higher-order thinking skills to perceive and process complex information along with creativity skill that machine learning are incapable of (Anwar Ali Yahya, 2018). Therefore, there is a positive relationship between cognitive abilities skill of an individual and career development among service employees in adapting the fourth industrial revolution.

5.2.1.2 Technological Skills

Research Question 2: Does the technological skills influence the career development of service sector employees in 4th industrial revolution?

Research Objective 2: To examine the technological skills of service sector employees in terms of their career development in adapting the fourth industrial revolution.

According to the coefficients in multiple regression analysis based on table 4.17, researchers conclude that there is a significant positive relationship between technological skill and career development. The significant figure obtained is 0.000, which is less than 0.05. Therefore, reject the null hypothesis (H0) and accept the alternative hypothesis (H1).

The research results can be supported by Janssen & Mohrenweiser, 2015, stated that there is a positive effect on the career development of employees who have hold the modern information technology skills, in contrast there has a negative effect on the incumbent workers who lack of technological skills. Recent shifts in the diffusion of information and communication technologies in the workplace have been skill-biased. Thus, skilled employees have the capability to impact the careers of incumbent workers during periods of fundamental technological change at the workplace of 4th industrial revolution. For instance, advanced technology has minimized the number of workers required to maintain and operate high-tech factories, in turn it has risen the need for skilled workers. In fact, the growth of technology skills of employees has contribute them to have a higher probability to be employed by firms or even further enhance their career (Gibbs, 2017).

According to the World Economic Forum (2016), founded that human are now at the beginning of adapting into the 4th industrial revolution, which includes of artificial intelligence, machine learning, robotics, nanotechnology, 3D printing, as well as the genetics and biotechnology. As the development of fourth industrial revolution mainly comprises of technological advancement field, thus, possessing a technological skills is no longer an advantage, but a necessity with further advantage in deep computer literacy skills due to the expected jobs created over time involved the technological field of algorithm, data scientist, data analyst and etc. Thus, the high-paid salary jobs are expected to dominate by the market of technology in the future which in result, may create more jobs regarding on technological field than we expected which even strengthen the importance of technological skill in the workplace. Therefore, a fourth industrial revolution workforce especially in service industry needs an employee who are highly technology literate in order for the enhancement of career development.

5.2.1.3 Interpersonal Adaptability

Research Question 3: Does the interpersonal adaptability influence the career development of service sector employees in adapting the fourth industrial revolution?

Research Objective 3: To examine the interpersonal adaptability of service sector employees in terms of their career development in adapting the fourth industrial revolution.

Based on the multiple regression analysis results in chapter 4, it shows that the interpersonal adaptability is significant positive relationship with career development. From the research results, the significant figure is 0.002 which is less than the p-value of 0.05. Hence, it can be concluded that there is a significant positive relationship between interpersonal adaptability and career development. Therefore, reject the null hypothesis (H0) and accept the alternative hypothesis (H1).

Fourth industrial revolution has generally increases the need for "essential human skills" commonly referred to as "soft skills" that include creativity, relationship building, communication, emotional intelligence, and critical thinking (Deloitte, 2018). Practically interpersonal adaptability due to the fourth industrial revolution has created a competitive and challenging workforce, particularly for service sector industry as each of the organization are striving to lower down the cost and thus, implementing systems such as AI in enhancing their operations and minimizing cost. Thus, human skills are more valuable and important than ever which is irreplaceable by the robots and might even leads to better career development of an individual due to interpersonal

adaptability also involves the interpersonal skills that were already one of the priority skills in the earlier 20th century workforce as communicating requires tactics and creativity among them.

Moreover, the speed of technological enhancement often exceed the speed at which the current and future employees can be trained. Hence, adaptability skill of employees are considered as an important ability in adapting to all of these changes at the workplace (difference needs of skillset, increasing competitiveness and challenges) of 4th industrial revolution by adapting any changes, challenges, or limitations by an individual in order for them to succeed in their career development. The research is further supported by the adaptability theory which emphasizing on the conceptualized of adaptive behaviors that address changing conditions, such as career exploration, career planning, or career decision making. As such, the higher the career adaptability of an individual regardless of human skills, motivation, emotional quotient, or adverse quotient, the higher the readiness of an individuals in facing any challenges in relating to the adaptation of fourth industrial revolution workforce with a better chance of success (Mirjam & Eva, 2017).

5.2.1.4 Career Self-Efficacy

Research Question 4: Does the Career Self-Efficacy influence the career development of service sector employees in adapting the fourth industrial revolution?

Research Objective 4: To examine the career self-efficacy of service sector employees in terms of their career development in adapting the fourth industrial revolution.

Based on the result in chapter 4 table 4.17, it shows that career self-efficacy is significant positive relationship with career development. From the research results, the significant figure is 0.025. Hence, researchers can conclude that there is a significant positive relationship between career self-efficacy and career development. This was due to the significant figure is 0.025 from table 4.17, implying that it is less than 0.05. Therefore, reject the null hypothesis (H0) and accept the alternative hypothesis (H1).

Based on literature review in chapter 2, according to Carol and Mashigo (2014), founded that self-efficacy could influence the work readiness in the career development employees. This is because individuals who have high self-efficacy are more likely to take challenging task and to use their efforts and motivational resources to achieve the goals and persevere while facing the obstacles and difficulties at the workplace (Ahmad & Safaria, 2013). Thus aligning with our result obtained in chapter 4 which there is a positive significant relationship between career self-efficacy and career development. Moreover, explaining on the basis of Bandura's Social Cognitive Theory, the importance of career self-efficacy that have been highlighted in this theory include Human skills, motivation,

learning experience, and self-confidence in terms of career development in adapting the fourth industrial revolution which the digital world lack of, especially in fourth industrial revolution workforce (Mindi, Thompson, Jason, Dahling, Chin, & Robert, 2016). Thus, the literature reviews are aligned with our findings which there is a significant positive relationship between career self-efficacy and career development.

5.2 Implications of the Study

The researches of this study is to figure out the variables which are cognitive abilities, technological skills, interpersonal adaptability, and career self-efficacy that influencing the career development of service sector employees in adapting the fourth industrial revolution. The exploration will be helpful for society, employees in general, organizations and businesses, and government to have better understanding towards the career development requirement as well as the employability in the fourth industrial revolution era.

5.3 Limitation

There are several limitations that constrain the researcher in conducting this research. For instance, there are insufficient sources of information and journal database of the topic for researchers to refer as we are still at the earlier stage of fourth industrial revolution. In addition, there were also limited information and journals published about the career development of employees in the service industry in Malaysia context as well.

Secondly, in order to get responds in a more efficient manner, researchers had sent out the questionnaires through online platforms and social media such as Facebook and WhatsApp. However, researchers were unable to get full responses from the respondents. The questionnaires that had sent out through social media, many were being ignored by the target respondents. Thus, this has caused the researchers unable to receive a complete data of 200 but a 185 respondents.

Moreover, the majority of respondents are age between 21-31 years old. As the service industry comprise a wide range of jobs, careers, and work fields regardless of age or nationality, thus, a majority of younger age group from 21-31 years old will affect the final result and hence, become invalid as the different ages of population should be balanced. Furthermore, nationality of target respondents is also one of the limitations as most of the respondents were from local, however, journals are mostly written based on other countries or more developed nations regarding on the research topic.

Lastly, distributing only 200 survey questionnaires is insufficient to represent the total population of Malaysia service industry employees. Therefore, this may leads to inefficiency of conducting a survey as well as causing similarity of demographic backgrounds among respondents.

5.4 Recommendations for Future Research

In order to obtain a more comprehensive view about factors (skillset) that influence on the career development in the fourth industrial revolution workforce, future researcher are suggested to gather data from extensive samples and distribution of questionnaires to different group of employees from different age groups or countries to obtain a comparable result as the progress of technological development are different from countries to countries as well as the skills and capabilities of each nation. Thus, this could help the future searchers to determine the most important skillset of service sector employees in career development aspect due to different nations and groups of employees tend to have different capabilities and view.

Apart from that, it is difficult for researchers to capture the response rate from target respondent through sending questionnaire via online platforms and social media due to some of the respondents will ignore it or may have less understanding on the questions which is consider a new topic. Hence, researchers may increase the reliability, accuracy, and efficiency of data collection by distributing questionnaire through hard copy or through face-to-face interview.

Based on figure 4.2, there were 57.3 % of respondents are age between 21-31 years old. Meaning that the studies and researches majority were conducted on the basis of younger generation employees. Thus, future researchers should therefore, consider emphasizing more on other age groups ranging from 31 and above due to the skillset and capabilities might be different from each age groups in adapting for fourth industrial revolution.

Last but not least, it is recommended that the future researcher should apply longitudinal study on this research topic as to increase awareness of the future generation workforce on the importance of skillset and capabilities from time to time in the job market for them to enhance their career development in the workplace that will improve economic growth of a country.

5.5 Conclusion

In conclusion, the general objective of this study is achieved and all the hypotheses are supported. Besides, this research study had achieved specific research objectives which included the cognitive abilities, technological skills, interpersonal adaptability, and career self-efficacy of service industry employees in terms of career development in adapting the fourth industrial revolution.

The findings have also contributed to the literature and provide a better understanding of the importance of the skillset that possessed by the service industry employees in adapting the fourth industrial revolution in order for them to enhance their career development. From here, employees of service sector can aware and get prepared on the necessity skillset requirements in the fourth industrial revolution workforce in terms of career development. Last but not least, the findings also provide the understanding of the changes, trends and increasing competitiveness of the job market by the service industry employees towards the fourth industrial revolution workforce and therefore, they can be ready and in terms of enhancing themselves in embracing the fourth industrial revolution.

REFERENCES

Ahmad, A., & Safaria, T. (2013). *Effects of Self-Efficacy on Students' Academic Performance*. Retrieved from http://www.journal.uad.ac.id/index.php/Psychology/article/viewFile/3740/2020

Anwar, A.A. (2012). *Automatic Classification of Questions into Bloom's Cognitive Levels Using Support Vector Machines*. Retrieved from https://repository.nauss.edu.sa/bitstream/handle/123456789/55435/Automatic%20Classification%20of%20Questions%20into%20Bloom%27s%20Cognitive%20Levels%20Using%20Support%20Vector%20Machines.pdf?sequence=1&isAllowed=y

Baker, B., Mendas, Y., & Velandia, C. (2016). *Career_Development Program*. Retrieved from https://www.slideshare.net/BenjaminBaker25/careerdevelopment-71154585

Balkishan, S. (2018). Processing Of Data and Analysis. *Biostatistics and Epidemiology International Journal, 1(1)*: 3-5.

Birgit, E., Mickael, P., Azucena, P.A., Evita, R., Lidija, A., Liga, P., Maria, C.S., Alison, G.L., Joan, S.P. (2017). Smart work: The transformation of the labour market due to the fourth industrial revolution (I4.0). *International Journal of Business and Economic Sciences Applied Research, Volume 10, Issue 3*.

Brown, P., Lloyd, C., & Souto-Otera, M. (2018). The Prospects for Skills and Employment in an Age of Digital Disruption. *SKOPE Research Paper No. 127*.

Buera, Francisco J. and Joseph Kaboski (2012), "*The Rise of the Service Economy," American Economic Review, 102 (6)*, 2540-2569.

Cameron P. (2019). *Advantages of Automation*. Retrieved from https://www.helpsystems.com/resources/guides/automated-operations-5-benefits-your-organization

Career Research. (n.d.). *Job Loss*. Retrieved March 2, 2019 from http://career.iresearchnet.com/career-development/job-loss/?fbclid=IwAR3TdnUhw76xTuib2FuPVJwnq2L1b8TqEtPXuYbq_Jwk4imVFsfbv1bNXSA

Daberechi P., Okedurum, Stephen I., Ukenna & David M. A. (2018). Influence of Bloom's Taxonomy on Problem Solving Skills of Business Graduate Students in a Typical Nigerian Private University. *Journal of Business Sciences, volume 2, issue 2* pp. 40-62.

Dalati, S. (2018). *Measurement and Measurement Scales*. Retrieved from https://www.researchgate.net/publication/324117390_Measurement_and_Measurement_Scales

David, G., Victoria, P. (2014). *Cognitive Ability, Character Skills, and Learning to Play Equilibrium: A Level-k Analysis. Discussion Paper No.8236*. Retrieved from http://ftp.iza.org/dp8236.pdf

Deniz, S.O., S.Dilchert, & Chockalingam, V. (2012). *Cognitive Abilities*. Retrieved from https://www.researchgate.net/publication/285935869_Cognitive_Abilities

Deloitte, (2015). *Industry 4.0 Challenges and Solutions for the Digital Transformation and Use of Exponential Technologies*. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/manufacturing/ch-en-manufacturing-industry-4-0-24102014.pdf

Deloitte. (2018). *Preparing Tomorrow's Workforce for the Fourth Industrial Revolution*. Retrieved from https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/gx-preparing-tomorrow-workforce-for-4IR.pdf

Dharmawansha, P., & Thennakoon, D. (2014). *An Exploratory Study on Job Hopping in Sri Lanka: A Study on Generation 'Y' Employees*. Retrieved from https://www.researchgate.net/publication/309409129_An_Exploratory_Study_on_Job_Hopping_in_Sri_Lanka_A_Study_on_Generation_'Y'_Employees

Employment and Skills Board. (2017). *Possible Impacts of Technology on Future Jobs and Skills*. Retrieved from https://www.essexesb.co.uk/files/8cf5e-Possible%20impacts%20of%20technology%20on%20future%20jobs%20and%20skills.pdf

Etornam, K., Francois, M., Patienec, A.N.B., & Mathias, K.W.D. (2017). *The Effect of Employee Turnover on the Performance of Zoomlion Ghana Limited*. Retrieved January 4th, 2019 from https://www.researchgate.net/publication/313143759_The_Effect_of_Employee_Turnover_on_the_Performance_of_Zoomlion_Ghana_Limited.

GIBBS, M. (2017). *How Is New Technology Changing Job Design?* Retrieved from https://wol.iza.org/uploads/articles/344/pdfs/how-is-new-technology-changing-job-design.pdf

Graham, K. (2015). *Collegiate Career Development: A Quantitative Study Comparing The Career Maturity And Internship Experience Of Graduating College Seniors*. Retrieved from https://repository.library.northeastern.edu/files/neu:rx914p98w/fulltext.pdf

Hejres, S. (2015). *Investigating the Effectiveness of Leadership Styles on Instructional Leadership and Teacher Outcomes.* Retrieved from https://bura.brunel.ac.uk/bitstream/2438/17160/1/FulltextThesis.pdf

Hill, R. (2012). *What Sample Size Is "Enough" In Internet Survey Research*? Retrieved from http://www.reconstrue.co.nz/IPCT-J%20Vol%206%20Robin%20hill%20SampleSize.pdf

Hirschi, A. (2017). *The Fourth Industrial Revolution: Issues and Implications for Career Research and Practice*. Retrieved from https://static1.squarespace.com/static/559a865ae4b00d130d5f6e4f/t/59f73dde085229e5438f97ce/1509375455371/Hirschi_2017_Fourth+Industrial+Revolution.pdf

Holtkamp, M. (2014). *Leadership skills and the role of adaptability and creativity in effective leadership: A literature review geared toward an integrative model*.

Huang, M. H., & Rust, R. T. (2018). Artificial intelligence in service. *Journal of Service Research, 21(2)*, 155-172.

IBA Global Employment Institute (2017). *Artificial Intelligence and Robotics and Their Impact on the Workplace*.

Imran, M., Hameed, W., & Haque, A. (2018). Influence of Industry 4.0 on the Production and Service Sectors in Pakistan: Evidence from Textile and Logistics Industries. *Social Sciences*, *7*(12), 246.

Janssen, S., & Mohrenweiser, J. (2015). The long-lasting effect of technological change on the careers of young workers: Evidence from changes of mandatory training regulations.

Jan, W. and Colin, D. (2009). Marketing Research. Juta and Company Ltd.

K. S. Taber. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education, Volume 48, Issue 6*, pp 1273–1296

Kenton, W. (2019). *Stratified Random Sampling*. Retrieved from https://www.investopedia.com/terms/stratified_random_sampling.asp

KHADKA, A. (2014). *"A Case Study on Retaining the Best Talents in Murugappa Group of Companies Chennai"*. Retrieved from http://docshare01.docshare.tips/files/25298/252981517.pdf

Kicheva, T. (2017). Management of Employees from Different Generations - Challenge for Bulgarian Managers and HR Professionals. *Journal of Economics, Issue 1*, pp. 103-12.

Kumar, R. (2011). *Measurement and Scaling Techniques*. Retrieved from https://xisspm.files.wordpress.com/2011/02/scaling.pdf

Labour and Social Security Committee. (2017). *The Impact Of The Fourth Industrial Revolution On The Jobs Market*. Retrieved from http://www.bollettinoadapt.it/wp-content/uploads/2017/11/the-impact-of-the-fourth-industrial-revolution-on-the-jobs-market.pdf

Lam, W., Lau, W., Ng, N., Shua, H., & Teh, S. (2011). *The Impacts of Organizational Change towards Employees' Performance In Banking Industry*. Retrieved from http://eprints.utar.edu.my/453/1/BA-2011-0900115.pdf

Levin, H. (2012). *The Importance of Educational Adaptability*. Retrieved from https://www.ets.org/Media/Research/pdf/session5-levin-paper-tea2012.pdf

Li, K, S., Tong, C., & Wong, A. (2014). The Impact of Career Development on Employee Commitment of Part-Time Faculty (PTF) in Hong Kong's Continuing Professional Development (CPD) Sector. *Journal of Education, Society & Behavioural Science, 4(1)*: 52-73.

Makki, B., Salleh, R., & Harun, H (2015). *Work readiness, career self-efficacy and career exploration: A correlation analysis*. Retrieved from https://www.researchgate.net/publication/308871996_Work_readiness_career_self-efficacy_and_career_exploration_A_correlation_analysis

Marr, B. (2018). *What The 4th Industrial Revolution Will Mean For Your Career*. Retrieved from https://www.forbes.com/sites/bernardmarr/2018/10/15/what-the-4th-industrial-revolution-will-mean-for-your-career/#4498e9a0c271

Mashigo, A. (2014*). Factors influencing work readiness of graduates: an exploratory study.* Retrieved from http://scholar.sun.ac.za/handle/10019.1/95884

Maya, B., & Charles F. (2018). Knowledge for the Age of Artificial Intelligence: What Should Students Learn? *Center for Curriculum Design.*

McGarry, K. (2016). *An Examination of Perceived Employability Skills between Employers and College Graduates*. Retrieved from https://repository.library.northeastern.edu/files/neu:cj82pq57h/fulltext.pdf?fbclid=IwAR3W6vd3iHucUx6jSs0Ngvyr0NZGqH7y5sFLdw3k1VP3joARP7YZzACOlgI

Mindi., N. Thompson, Jason J., Dahling, M.Y. Chin., & Robert C.M. (2016). Integrating Job Loss, Unemployment, and Reemployment With Social Cognitive Career Theory. *Journal of Career Assessment 2017*, Vol. 25(1) 40-57.

Min, X., Suk H.K., Jeanne, M.D. (2018). The Fourth Industrial Revolution: Opportunities and Challenges. *International Journal of Financial Research*, Vol. 9, No. 2.

Mirjam, N. & Eva, T.M. (2017). Two sides of the career resources coin: Career adaptability resources and the impostor phenomenon. *Journal of Vocational Behavior, Volume 98*, Pages 56-69.

Mtebula, C. (2014). *Employers' and Graduates Perception Survey on Employability and Graduateness: Products of the School of Construction Economics and Management at the University of the Witwatersrand.*

Nasta, K. (2007). *INFLUENCE OF CAREER SELF-EFFICACY BELIEFS ON CAREER EXPLORATION BEHAVIORS*. Retrieved from https://dspace.sunyconnect.suny.edu/bitstream/handle/1951/42318/KristenNastaMastersThesis.pdf?sequence=1&isAllowed=y

Nicholas, W. (2011). Research Methods The Basic. Routledge.

Nick, I. (2018). *What industries will AI impact the most in the next few years?* Retrieved January 24, 2019 from https://www.information-age.com/industries-ai-impact-123475559/

Oliver, T., & Lievens, F. (2014). Conceptualizing and Assessing Interpersonal Adaptability: Towards a Functional Framework. In *Individual Adaptability to Changes at Work* (pp. 78-98). Routledge.

Powers, C. L. (2014). The Importance of Adapting to Others: Interpersonal Theory as a Means to Examine Interpersonal Adaptability at Work. *Michigan State University. Psychology.*

Rengiah, P. (2013). Effectiveness of entrepreneurship education in developing entrepreneurial intentions among Malaysian university students.

Rice, S., Gillis, S., Leahy, M., & Polesel, J. (2015). Career Development: Defining and Measuring Quality.

Romero, D., Stahre, J., Wuest, T., Noran, O., Bernus, P., Fasth, F., and Dominic. (2016). Towards an Operator 4.0 Typology: A Human-Centric Perspective on the Fourth Industrial Revolution Technologies. In *International conference on computers and industrial engineering (CIE46) proceedings*.

Salleh, K., Sulaiman, N., & Talib, K. (2010). Globalization's Impact on Soft Skills Demand in the Malaysian Workforce and Organizations: What makes graduates employable? In *Proceedings of the 1 st UPI International Conference on Technical and Vocational Education and Training* (pp. 10-11).

Schwab, K. (2016). *The Fourth Industrial Revolution*. Retrieved from https://luminariaz.files.wordpress.com/2017/11/the-fourth-industrial-revolution-2016-21.pdf

Scott, P. (2017). *These are the jobs most at risk of automation according to Oxford University: Is yours one of them?* Retrieved from https://www.telegraph.co.uk/news/2017/09/27/jobs-risk-automation-according-oxford-university-one/

Sekaran, U. (2003). *Research methods for business*.

Slutsky, A. (2016). *Factors Influencing Teachers' Technology Self-efficacy*. Retrieved from https://digitalcommons.gardner-webb.edu/cgi/viewcontent.cgi?article=1166&context=education_etd

Skilton, M. (2017). *THE IMPACT OF ARTIFICIAL INTELLIGENCE ON BUSINESS*. Retrieved from https://warwick.ac.uk/fac/soc/impact/policybriefings/impact_of_ai_on_business_policybrief_final.pdf

Soper, S. (2018). *Automation comes for Amazon's white-collar workers | BenefitsPRO*. Retrieved from https://www.benefitspro.com/2018/06/15/automation-comes-from-amazons-white-collar-workers/?slreturn=20190224074003

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2, 53-55*. doi: 10.5116/ijme.4dfb.8dfd

The Edge Markets. (2018). *Job Cuts are rising but not yet alarming*. Retrieved from http://www.theedgemarkets.com/article/job-cuts-are-rising-not-yet-alarming?fbclid=IwAR2T_XXicM0SiEl6dSKufWIcu2llLupwtN55wFebaOfnanwAZarHG-CbVP0

The World Bank. (2018). *World Bank Group - International Development, Poverty, & Sustainability*. Retrieved from http://www.worldbank.org/en/search?q=The+Future+of+Jobs+and+the+Fourth+Industrial+Revolution

The Star Online. (2018). *HR Minister: 50% of workers retrenched in 2018 from Klang Valley*. Retrieved from https://www.thestar.com.my/news/nation/2018/12/16/hr-minister-50-of-workers-retrenched-in-2018-from-klang-valley/

Trailhead (2019). *Impacts of the Fourth Industrial Revolution*. Retrieved From: https://trailhead.salesforce.com/en/content/learn/modules/impacts-of-the-fourth-industrial-revolution/understand-the-impact-of-the-fourth-industrial-revolution-on-society-and-individuals

Turner, A. (2003). Sampling frames and master sample. *United Nations Secretariat Statistics Division*

Uma, S. and Roger, B. (2016). *Research Methods For Business: A Skill-Building Approach*. John Wiley & Sons Ltd.

Violante, G. (2016). Skill-Biased Technical Change. *The new Palgrave dictionary of economics*, *2*.

Wade, J., Wolanin, N., & McGaughey, T. (2015). A Study of Critical Thinking Skills in the International Baccalaureate Middle Years Programme. Retrieved from https://www.ibo.org/globalassets/publications/ib-research/myp/myp-critical-thinking-report.pdf

World Economic Forum. (2016). *The Future of Jobs Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*. Retrieved 26 December, 2018 from http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf?fbclid=IwAR0ysMCwivhfQSF5IzSUYmAPdDn55YeyLqrKHij3Q1psAg6b7s5ZHYvywxk

World Economic Forum. (2018). *The 3 key skill sets for the workers of 2030*. Retrieved from https://www.weforum.org/agenda/2018/06/the-3-skill-sets-workers-need-to-develop-between-now-and-2030

Yilmaz, K. (2013). Comparison of Quantitative and Qualitative Research Traditions: epistemological, theoretical, and methodological differences. *European Journal of Education*, *48*(2), 311-325

APPENDIX 1.1: SURVEY QUESTIONNAIRE

QUESTIONNAIRES

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF ACCOUNTANCY AND MANAGEMENT

Dear respondents,

We are final year students of Bachelor of International Business (Hons) from Universiti Tunku Abdul Rahman (UTAR). We are currently conducting a survey for our research entitles "**Factors Influence On The Career Development of Employees in Service Sector Economy In Adapting The Fourth Industrial Revolution. Are We Ready?"** As part of our thesis, the main objective of this thesis is to determine the outstanding skillset of an employee among a group of qualify applicants working with the companies in service sector economy and to identify the most important skillset needed and whether are they ready in the Fourth Industrial Revolution working industry.

Since your input is crucial for us to have a correct picture of the situation, we would like to seek your cooperation to respond truthfully. We would appreciate if you could spend several minutes to respond to this survey. Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate.

Your cooperation is highly appreciated. Again if there are any queries, we would be glad to provide you with further clarification. Thank you.

Yours Sincerely:

Chan Jun Ee	1502869	junee_97@hotmail.com
Chen Yau Yoon	1502606	yauyoonc@gmail.com

This questionnaire consist of three sections, which is section A, section B, and section C.

Section A: Personal Information

Guideline: Please tick on the box that is relevant to you.

1. Gender:

   Male ☐ Female ☐

2. Age:

   21 to 31 years old ☐ 31 to 40 years old ☐

   41 to 50 years old ☐ 50 years old and above ☐

3. Race:

   Malay ☐ Chinese ☐

   Indian ☐ Others: ☐ (Please Speficy)

4. Marital Status:

   Single ☐ Married ☐ Divorced ☐

5. Highest Education Level:

   SPM/High School ☐ Diploma/ Pre-University/STPM/UEC ☐

   Bachelor Degree ☐ Master Degree ☐

   Doctorate/PhD ☐ Others (Please Specify) ☐

6. Fields of Study (If any):

Business ☐
Economics ☐
Accounting ☐
Information Communication and Technology ☐
Engineering ☐
Medicine ☐
Medical ☐
Law ☐
Culinary Arts ☐
Others (Please Specify):

7. What is your occupation?

Manager ☐
Clerk/Office Worker ☐
Salesperson ☐
Service Worker ☐
Security Worker ☐
Transportation ☐
Consultant ☐
Others ☐

8. Years of Working Experience:

1 ☐ 2 ☐ 3 ☐ 4 ☐ >5 ☐

Section B: Independent Variables

Guideline: For each statement, circle the number which best describes your agreeableness on each statement.

Note: Respondents are required to fill up the questions provided below.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Cognitive Abilities

Cognitive abilities is the ability of an individual in the construct of conceptualizes it as a basic ability for abstract reasoning, problem solving, or adaptability.

Questions	SD	D	NA/ND	A	SA
1. I am able to make logical connections on the information that being gathered.	1	2	3	4	5
2. I am able to make predictions; identify trends and forecast possibilities.	1	2	3	4	5
3. I am able to identify obstacles, challenges, or problems.	1	2	3	4	5
4. I am able to solve critical problems by applying existing knowledge to generate new ideas, solutions, products, or processes.	1	2	3	4	5
5. I am able to think creatively or outside the box.	1	2	3	4	5

Technology Skills

Technology or digital literacy skills were defined as the ability to use digital technology, communication tools or networks to locate, evaluate, use and create information. Besides, it were also including the capabilities of using technological devices such as computer software and hardware, related communication practices such as social networking, emailing, game-playing, as well as develop relationship through the use of technology.

SD = Strongly Disagree, D = Disagree, NA/ND = Neither Agree nor Disagree, A = Agree, SA = Strongly Agree

Questions	SD	D	NA/ND	A	SA
1. I can develop creative ways to cope with system constraints and continue to work effectively with technology.	1	2	3	4	5
2. I am able to regularly incorporate technology skills at my workplace when it is appropriate to adapt in the 4th industrial revolution.	1	2	3	4	5
3. I possess technology skills that could assist me in selecting an ideal way to assess the workplace of 4th industrial revolution.	1	2	3	4	5
4. I possess computer literacy ability to use computer applications (e.g., word processing, databases, and spreadsheets) appropriate to pursue the enhancement of technology at workplace.	1	2	3	4	5
5. My ability to address technology needs will continue to improve if I could learn from universities.	1	2	3	4	5

Interpersonal Adaptability

Interpersonal adaptability refers to the individual's ability, skill, disposition, willingness, as well as the motivation to change or fit different tasks, social, and environmental features. It is also included of individual's flexibility to act relatively dominant and friendly depending on the situation, adjust to a new reporting structure within a team, and adjust selling strategy to match the demands of a customers. Thus, it has been conceptualized as a distinctive component of individual adaptability that is necessary in adapting at workplace of 4th industrial revolution.

Questions	SD	D	NA/ND	A	SA
1. I believe it is important to be flexible enough in dealing with others and changing environment at workplace.	1	2	3	4	5
2. I tend to be able to read others and understand how they are feeling at any particular moment.	1	2	3	4	5
3. I am an open-minded person in dealing with others.	1	2	3	4	5
4. I will try to be flexible when dealing with others at workplace.	1	2	3	4	5
5. I will adapt his/her appropriate behavior at workplace in order to get along with them.	1	2	3	4	5

Career Self-Efficacy

Self-efficacy is a concept that applied to workplace, it can be defined as the workers' convictions of confidence about their abilities to allocate the motivation, cognitive resources, or courses of action that needed to effectively execute a specific duty within a given circumstance. It is also about the self-assurance in individual's ability to execute actions associated to career choices of development at workplace of 4th industrial revolution.

Questions	SD	D	NA/ND	A	SA
1. I can always manage to solve difficult problems at workplace if I try hard enough.	1	2	3	4	5
2. When I am confronted with an unforeseen situation at workplace, I can usually find several solutions.	1	2	3	4	5
3. I am confident that I could deal efficiently with unexpected events at workplace.	1	2	3	4	5
4. I can successfully overcome challenges at workplace if I invest the necessary effort.	1	2	3	4	5
5. I can remain calm when facing difficulties at workplace because I can rely on my coping abilities.	1	2	3	4	5

Section C: Dependent Variable

Guideline: For each statement, circle the number which best describes your agreeableness on each statement.

Note: Respondents are required to fill up all the questions provided below.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Career Development

Career development is a term that encompasses all activities that foster an individual knowledge, skills and capacities in relation to planning, developing and directing their career through informed choices towards success.

Questions	SD	D	NA/ND	A	SA
1. I am aware of the changes taking place in the job market.	1	2	3	4	5
2. I have explored the job growth trends affecting occupations in the future.	1	2	3	4	5
3. I have researched the types of skills employers expect among employees.	1	2	3	4	5
4. I have developed a lifelong learning plan (the continuous learning of new skills).	1	2	3	4	5
5. I know what motivates me to do well on a job.	1	2	3	4	5
6. I have developed a time line for accomplishing each of my career goals.	1	2	3	4	5

========THE END========

THANK YOU FOR YOUR PARTICIPATION.

Appendix 2.1: SPSS output: Respondent Demographic Profile

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	102	55.1	55.1	55.1
	Female	83	44.9	44.9	100.0
	Total	185	100.0	100.0	

Age

	Frequency	Percent	Valid Percent	Cumulative Percent
21-31 Years Old	106	57.3	57.3	57.3
31-41 Years Old	32	17.3	17.3	74.6
41-50 Years Old	27	14.6	14.6	89.2
50 Years Old and Above	20	10.8	10.8	100.0
Total	185	100.0	100.0	

Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Malay	46	24.9	24.9	24.9
	Chinese	99	53.5	53.5	78.4
	Indian	36	19.5	19.5	97.8
	Others	4	2.2	2.2	100.0
	Total	185	100.0	100.0	

Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	115	62.2	62.2	62.2
	Married	67	36.2	36.2	98.4
	Divorced	3	1.6	1.6	100.0
	Total	185	100.0	100.0	

Highest Education Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SPM/High School	26	14.1	14.1	14.1
	Diploma/Pre-University/STPM/UEC	46	24.9	24.9	38.9
	Bachelor Degree	90	48.6	48.6	87.6
	Master Degree	10	5.4	5.4	93.0
	Doctorate/PhD	8	4.3	4.3	97.3
	Others	5	2.7	2.7	100.0
	Total	185	100.0	100.0	

Field of Study

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Business	64	34.6	34.6	34.6
	Economics	20	10.8	10.8	45.4
	Accounting	34	18.4	18.4	63.8
	Information Communication Technology	11	5.9	5.9	69.7
	Medicine	4	2.2	2.2	71.9
	Medical	4	2.2	2.2	74.1
	Law	8	4.3	4.3	78.4
	Culinary Arts	6	3.2	3.2	81.6
	Others	34	18.4	18.4	100.0
	Total	185	100.0	100.0	

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Manager	16	8.6	8.6	8.6
	Clerk/Office Worker	49	26.5	26.5	35.1
	Salesperson	21	11.4	11.4	46.5
	Service Worker	33	17.8	17.8	64.3
	Security Worker	1	.5	.5	64.9
	Transportation	6	3.2	3.2	68.1
	Consultant	20	10.8	10.8	78.9
	Others	39	21.1	21.1	100.0
	Total	185	100.0	100.0	

Years of Working Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	35	18.9	18.9	18.9
	2	27	14.6	14.6	33.5
	3	20	10.8	10.8	44.3
	4	20	10.8	10.8	55.1
	5 Years and Above	83	44.9	44.9	100.0
	Total	185	100.0	100.0	

Appendix 2.2: SPSS output: Descriptive Statistics

Variables	N	Mean	Standard Deviation
Cognitive Abilities	185	3.5751	0.6380
Technological Skill	185	3.7092	0.6007
Interpersonal Adaptability	185	3.8865	0.5072
Career Self-efficacy	185	3.7849	0.5467
Career Development	185	4.5016	0.7148

Appendix 2.3: SPSS output: Reliability Test

Cognitive Abilities

Case Processing Summary			
		N	%
Cases	Valid	185	100.0
	Excluded[a]	0	.0
	Total	185	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.847	5

Technological Skill

Case Processing Summary			
		N	%
Cases	Valid	185	100.0
	Excluded[a]	0	.0
	Total	185	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.783	5

Interpersonal Adaptability

Case Processing Summary			
		N	%
Cases	Valid	185	100.0
	Excluded[a]	0	.0
	Total	185	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.687	5

Career Self-efficacy

Case Processing Summary			
		N	%
Cases	Valid	185	100.0
	Excluded[a]	0	.0
	Total	185	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.727	5

Appendix 2.4: SPSS output: Multiple Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.761[a]	.579	.569	.46904
a. Predictors: (Constant), Cognitive Abilities, Technological skill, Interpersonal Adaptability, and Career Self-Efficacy				

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	54.409	4	13.602	61.828	.000[b]
	Residual	39.600	180	.220		
	Total	94.010	184			
a. Dependent Variable: Career Development b. Predictors: (Constant), Cognitive Abilities, Technological skill, Interpersonal Adaptability, and Career Self-Efficacy						

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.116	.346		.334	.739
	CogAverage	.526	.075	.469	6.976	.000
	TechAverage	.243	.067	.204	3.618	.000
	InterAverage	.233	.073	.165	3.181	.002
	SelfAverage	.185	.082	.142	2.266	.025
a. Dependent Variable: Career Development						