SIGNIFICANT IMPACT OF TECHNOPRENEURSHIP IN REDUCING THE POVERTY AMONG MALAYSIAN CITIZENS

TAN HUI YI

DECLARATION OF ORIGINAL WORK

I hereby declare that all the work of this thesis entitled "SIGNIFICANT IMPACT OF TECHNOPRENEURSHIP IN REDUCING THE POVERTY AMONG MALAYSIAN CITIZENS**"** is originally done by myself and no portion of the work encompassed in this research project proposal has been submitted in support of any application for any other degree or qualification of this or any other institute or university of learning.

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APPROVAL

I hereby declared that I had read through this thesis and in my opinion that this thesis is acceptable in terms of scope and quality which fulfill the requirements for the award of Bachelor's degree in Technopreneurship.

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This thesis is submitted in partial fulfilment of the requirements for the award of

Bachelor of Technopreneurship with Honours

Faculty of Technology Management and
TechnopreneurshipUniversiti Teknikal Malaysia Melaka

5 JULY 2023

DEDICATION

This research paper is dedicated to those who give their constant support, and never-ending encouragement throughout the study. To my family, for their unconditional love, encouragement, and belief in my abilities. Your support has been the foundation of my success, and I am grateful for your presence in my life. To my advisor and mentor, for their continuous guidance, inspiration, and patience. Your wisdom and invaluable insights have shaped my research and helped me navigate the direction along the way. Thank you for trying to push me toward my full potential and for always believing in me. To my beloved friends, for their understanding, and accompanied. Your presence brightens up my life, reminding me of the importance of enjoying the little effort and happiness in life. To those who participated actively in my study, and were willing to share their time and experiences. Your contributions have been vital and enriched the depth of this work. Your willingness to be a part of this research is greatly appreciated. To the academic community, for allowing an environment of intellectual curiosity and growth. Lastly, I dedicate this study to future scholars and researchers. May this work serve as a stepping stone and inspiration for those who will continue to explore and contribute to the relative field.

I take this opportunity to offer my deepest gratitude. This thesis is an achievement to our shared accomplishments and the power of collaboration.

ACKNOWLEDGEMENT

I would like to acknowledge and take this opportunity to thank my supervisor, : Prof. Madya Dr. Mohammed Hariri Bin Bakri who made this work possible. Also, I would sincerely grateful to my panel, Dr.Nur Atika Binti Atan who spend her precious time on checking and ensuring my works are complete and followed the guidelines. Their guidances and advices along the way has carried me throughout all stages of accomplishing my chapter 1 to 3. I would also grateful to my committee members for helping me out while I face difficulty.

Then, I would like to express my appreciation to my institution, Universiti Teknikal Malaysia Melaka (UTeM) for the genuine dedication and knowledge to fulfill my Final Year Project.

Finally, I would like to thank my family, especially my parents as a whole for their continuous support and understanding when undertaking mt research and writing my research.

ABSTRACT

This abstract explores the impact of Technopreneurship in reducing the poverty among Malaysian citizens of B40 with capability approach.

With that, the purpose of the study was to examine the impact of Technopreneurship in reducing the poverty among Malaysian citizens of B40. There are three objectives in the study: to identified factors of technopreneurship toward poverty reduction, to analyze the relationship between these identified factors with the success of poverty reducti and to analyze the identified factors impact the success of poverty alleviation in Malaysia. The study extended the Capability Approach with Social Enterprise to assess the poverty reduction impact made among the B40 in Malaysia.

Furthermore, the research design was a quantitative method that distributed with questionnaires to 384 sample size of B40 respondents in Malaysia. The findings of the study showed that all factors positively influenced in Technopreneurship impacted poverty among B40 in Malaysia. However, the research could be done greater with more specific geographical regions, conducted qualitative research and mixed-models as well as applied other theories and models.

In conclusion, the situation of poverty among B40 in Malaysia may be greatly improved by applying the factors in Technopreneurhsip.

Key Words: *Technopreneuship, Poverty Reduction, Technology, Entrepreneurship, technopreneurship education, economic, sociocultural capability, Malaysian citizens, Capability approach*

ABSTRAK

Abstrak ini menyelidiki impak Keusahawanan Teknologi dalam mengurangkan kemiskinan di kalangan rakyat Malaysia kumpulan B40 dengan pendekatan kebolehan. Keusahawanan

Dengan itu, tujuan kajian ini adalah untuk mengkaji impak Keusahawanan Teknologi dalam mengurangkan kemiskinan di kalangan rakyat Malaysia kumpulan B40. Terdapat tiga objektif dalam kajian ini: mengenal pasti faktor-faktor keusahawanan teknologi terhadap pengurangan kemiskinan, menganalisis hubungan antara faktor-faktor yang diidentifikasi ini dengan kejayaan pengurangan kemiskinan, dan menganalisis impak faktor-faktor yang diidentifikasi terhadap kejayaan pengurangan kemiskinan di Malaysia. Kajian ini meluaskan Pendekatan Kebolehan dengan Enterprise Sosial untuk menilai impak pengurangan kemiskinan yang dibuat di kalangan B40 di Malaysia.

Selain itu, reka bentuk penyelidikan adalah kaedah kuantitatif yang diedarkan dengan soal selidik kepada 384 responden kumpulan B40 di Malaysia. Hasil kajian menunjukkan bahwa semua faktor mempunyai impak positif dalam Keusahawanan Teknologi terhadap kemiskinan di kalangan B40 di Malaysia. Walau bagaimanapun, penyelidikan ini dapat diperbaiki dengan kawasan geografi yang lebih spesifik, penyelidikan kualitatif, model campuran, serta penggunaan teori dan model lain.

Secara keseluruhan, keadaan kemiskinan di kalangan B40 di Malaysia boleh dipertingkatkan dengan mengaplikasikan faktor-faktor dalam Keusahawanan Teknologi

Kata Kunci: *Keusahawan Teknologi, Pembasmian Kemiskinan, Teknologi, Keusahawanan, pendidikan teknousahawan, ekonomi, sosiobudaya, warganegara Malaysia, Pendekatan keupayaan*

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LIST OF ABBREVATION

CA	Capability Approach
TE	Technopreneurship Education
EC	Economic Capability
SC	Sociocultural Capability
SE	Social Enterprise
KMO	Kaiser-Meyer-Olkin
SPSS	Statistical Package for Social Sciences

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CHAPTER 1

INTRODUCTION

1.1 Background of the Research

This is a research focus on the significant impact of Technopreneurship in reducing the poverty among Malaysian citizens. “Technopreneurship” is a new term that combines ‘technology’ and ‘entrepreneurship’(Lalkaka,2002). It is now a term widely used in business to elaborate technopreneurship as a type of technology-based entrepreneurship. It requires individuals to be technological, imaginative, individuals to be technological, imaginative, and willing to consider and willing to take into consideration the risk to start-up business (CIIT, 2018). A technopreneur in this era is leading global business as they need to transform a new business model to fit in to the current economic status while examine and implement creative idea to operate the business differently (Yunos,2002).

Poverty in terms is a state of absolute economic deprivation whereby individuals are unable to survive and have access to the basic human life sustaining essentials such as food, clothing, shelter and protection. It refers to a situation whereby

individuals face lack of income or a shortage of wages (Singer, 2006).

In terms of minimizing the poverty gap in Malaysia, the responsible of technopreneurship should be highlighted. Technopreneurship is essential to improve the development or improvement of Malaysia's economic growth by aiding poverty and in Malaysia, as the world now is digitalized, technology has made everything seems effective, time efficient, and cost-effective including for start-up technopreneurs.

Despite of the government initiatives to mitigate the issue of poverty a in Malaysia, the rise of technopreneship in recent years act as the medium to continuously provide opportunities for everyone who tends to increase their living standards by the advancement of technology. （UNICEF, February 2021）Over the decades, the independency of Malaysia's economic development status has been fast paced, as the main economy boosted mainly from raw commodity exportations such as agriculture industry, focusing on industrialization at the same time put in effort on manufacturing exports to strengthen the growth of Malaysia's economic.

Yet, the awareness of most citizens is incapable to benefit fully from the economics progression as poverty and high unemployment rate persisted as unsolved issue in Malaysia, especially within low-income urban families (Yeong Pey Jung, 2020). Therefore, the innovation of Technopreneurship may be the most appropriate medium to resolve the persistent poverty in Malaysia, as it provides several opportunities to eliminate this issue whereby these solutions benefited especially those who are

from low-income group or crave to improve the quality of living.

Meantime, the role of technopreneurship in alleviating poverty in Malaysia is important. Technopreneurship through its innovation provides numerous benefits for communities including those who live under the normal standard of living, micro, small & medium enterprises and even individuals who struggle to live with a minimum income. In the perspective of economic development, technopreneurship has promoted wide range of job opportunities to boost the sluggish employment situation in Malaysia (Mohammad Delwar Hussain, 2017). Technopreneurship whose are represented by ICT and multimedia SMEs has create and improve goods, services and manufacturing processes in Malaysia (CIIT, 2019).

Meanwhile, a previous findings allocated the lasting intervention to poverty alleviation in developing countries and in entrepreneurship, which act as one of the most important elements of economic growth in nations (Acs et al., 2005; Gómez-Grass et al., 2010; Seuneke et al., 2013; Shane and Venkataraman, 2000; Thurik et al., 2008). Similarly, it appears to have positively impacted poverty reduction and sustainable development (Dhahri and Omri, 2018; Yanya et al., 2013). Reluctantly, the involvement of agriculture in sustaining economic growth and rural development in certain developed countries such as China has stated that the engagement of farmers into entrepreneurial activities through innovation has improved. They aimed to create employment opportunities for themselves and their communities. (Ge et al., 2015; Syed et al., 2012; Zhao and Tang, 2018). Thus, it is undeniable that technology-based activities can act as a tool to boost the economic development of Malaysia, which can impact

poverty reduction (Bruton et al., 2013)

1.2 The research problem

Eradication of poverty status in Malaysia remains a downturn although the Covid 19 pandemic is nearly the end. In December year 2020, a survey conducted by United Nations agencies namely UNICEF and UNFPA discovered that the socio-economic conditions for half the households in Kuala Lumpur are deteriorating continuously due to the crisis caused by the Covid 19 pandemic. (Zahid, 2021)

Although the beginning of the year 2023 has a reduction in Covid 19 shows positively sign in economic growth, however, the hardcore poverty in Malaysia remains as a tricky issue of all time until now. Despite of success and the prosperous of urban middle-class in Malaysia, the beginning of economic independence poverty in Malaysia was widespread at the rate of 49.7% in 1970 with the Malaysian government's initiatives continuously (Abidin & Rasiah, 2009). To eliminate poverty in Malaysia from the root issue, we need to reformulate social protection for the most vulnerable group in Malaysia.

Historically, absolute poverty has always been utilized as the first element to measure poverty in Malaysia. The percentage of households that holds a gross monthly income below the predetermined Poverty Line Income (PLI) (DOSM, 2019). Furthermore, poor households are usually those whose income is below the national average level (Lim, 1974). PLI is differed across strata and Peninsular Malaysia, Sabah and Sarawak. The table below shows the overview of PLI in Malaysia.

Table 1: **Poverty** Line Income, Malaysia, 2016

Region	RM/month		
	Total	Urban	Rural
Peninsular Malaysia	960	970	880
Sabah & W.P. Labuan	1180	1170	1220
Sarawak	1020	1070	940

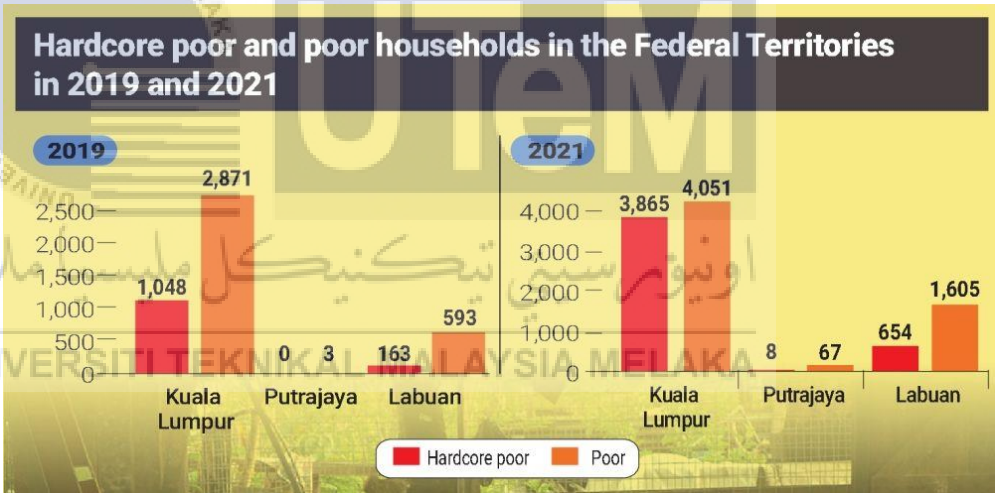


Figure 1: Poverty in Kuala Lumpur in 2019 and 2021

To be specified, the number of hardcore poor in Kuala Lumpur recorded by the Federal Territories Ministry rose almost

270% over two years from 2019 to 2021. According to the national poverty standard, hardcore poor family's monthly income is below RM 1169. Meantime, data from the Federal Territories Ministry pointed out that in year 2019 there were only 1048 families yet in year 2021 increased drastically to 3865 hardcore poor families within 2 years. In spite with that, the number of poor families resulted in a drastic increase of 41% from 2871 in year 2019 to 4051 in year 2021 whereby a poor household monthly income is stated as RM 2208. Additionally, since poverty issue has rooted deeply as a generational challenge in Malaysia, technopreneurship's initiatives to eliminate these issues are to solve timely. In fact, this could be the main reason Malaysia is still unstable and unsustainable in politic, social, and economic status.

Hence, poverty in Malaysia should be defined as a prevalence of social exclusion to be eradicated for a better future. Regardless of the lack of regular access to basic services such as education, healthcare, nutrition, housing, water supply and sanitation which are the important dimensions of poverty, the lack of technopreneurhsip involvement to economic development is one of the main elements to end poverty in Malaysia. This is especially predominant in the indigenous group (Orang Asli), particularly communities in Sabah and Sarawak. Undeniably, they are still suffering from hardcore poverty, despite the national proclamation of the complete elimination of hardcore poverty.

According to Alan E. Singer (2006), the most suitable elements for poverty alleviation in the world relies on entrepreneurial activities and the start-up of new enterprises

through entrepreneurship development. Furthermore, entrepreneurship shows an origin for economic change in new applications, innovation, and knowledge creation (Hussain, Bhuiyan & Bakar, 2014). To break the cyclic of poverty issue in Malaysia, an act within the participation of technopreneurship in economic development should be considered for Malaysia. Consequently, this research aims to determine the factors that could outline the significant factors of technopreneurship for poverty alleviation in Malaysia.

1.3 The objectives of the study

Following the description of the background of this study and the problem statement proposed above, the current research aims to answer three (3) questions linked to the relationship between the factors that influence technopreneurship towards poverty alleviation.

1. To identified factors of technopreneurship toward poverty reduction.

2. To analyze the relationship between these identified factors with the success of poverty reduction.

3. To analyze the identified factors impact the success of poverty alleviation in Malaysia.

1.4 The research questions

Following the description of the background of this study and the problem statement outlined above, the present research aims to answer three (3) questions that are linked to the relationship between the influence of technopreneurship in the alleviation of poverty the research aims to resolve the following

research questions:

1. What are the factors of technopreneurship toward poverty reduction?
2. Do these identified factors has a relationship with the success of poverty reduction?
3. To what extent do the identified factors impact the success of poverty alleviation in Malaysia?

1.5 Limitation of the study

There are several of limitations discovered in the research that have been experienced by the researcher. For instance, some articles, publications or journals may require access or payment to study the content makes it complicated and challenging for the researcher to gather information in this research. Additionally, the complexity of construct a systematic research is indeed a limitation to the researcher due to there are various format showed in the internet. Moreover, due to the limitation of time to complete the research, the conducted research may have lack of certain information, depth and breadth for readers to obtain important elements.

1.6 Significance of the Study

Given that the significance of Technopreneurship in reducing poverty among Malaysia citizens is remarkable to the research. Moreover, it is believed that the involvement of technopreneurship in poverty reduction will benefit the Malaysian citizens and boost the growth of Malaysia economy continuously.

By analyzing the contributions of Technopreneurship

towards these drastic issue in Malaysia, this study will benefit theoretical literature in the relevant field. Finally, the appropriate model designed for the study, which is to carry out the research will bring a significant impact on the study. It is undeniable that the study will contribute and brings a transformative change towards the current theoretically research.

1.7 Research Scope

This study mainly examines on the significance of Technopreneurship in reducing the poverty among Malaysian citizens. Thus, this study will target on Malaysian citizens as the main respondents. Accordingly, this study will be conducted in Peninsular Malaysia (geographical representation for 4 regions, namely Northern Region, Central Region, East Coast Region and Southern Region), East Malaysia (consisting of the Malaysian states of Sabah and Labuan, and Sarawak.

1.8 Concept and Operational definition

i. Technopreneurship

Concept definition: In a world of accelerating economic globalization, advances in science and technology process in a blink of eyes, whereby knowledge is defined as the core competence in accumulating wealth (Lalkaka,2002). The enhancements on ICT also boosted the use of social media, internet penetration, and literacy rates as well as investments in R&D sector. The rise of technological innovations has generated new opportunities and barriers to a nation's economic development. (Lalkaka,2002).

Operational definition: In Malaysia, "technopreneurs" are defined as

technology entrepreneurs who are represented by ICT sectors and technology-based entrepreneur. The innovations of technology have encouraged small and medium-sized business (SMEs) to utilize the resources and opportunity to establish and expand their business. This has made a significantly impact on eliminating the alleviation of poverty in Malaysia. Extensive involvement of SMEs in economic development of Malaysia have shown that they have the capability in generating high demand of employment opportunities, mobilizing the resources, creating a sustainable and balanced economic growth. Moreover, technopreneurship playing a significant complementary role to large firm and eventually strengthens the development of the economic in nation (APEC, 2001). Despite that, technopreneurial is defined as the human resources that able to optimize along with other resources such as land, labor and capital (McConnel and Brue, 1999). Entrepreneurship was studied by professionals from economy, society and psychology who barely cross (Leibenstein, 1987). Although entrepreneurism is well documented in the literature but technical entrepreneurs are lacking to be seen (Foo & Foo, 2000). Literature uses the terms "technology-based entrepreneurs", "technical entrepreneur" and "high technology entrepreneurs" to describe new ventures that combine entrepreneurial skills and technology (Florida and Kenney, 1988). For instance, the United States emphasizes labels like high-tech small firms or start-up technology-based firms as firm technology (are than 3% of total sales in R&D(Sung et al, 2003). As for technology-based business in Malaysia, technological advancement is enhanced by technopreneurs and steadily supported by scientific research from higher-level of institutions and government-sponsored laboratories (Abdul Hamid et al. 2003; Yusoff 2010; Yen & Chong 2007).. It benefits technopreneurs to discover and explore new profit opportunities or expand new profit generation. As from a Malaysian perspective, technopreneurs played well in

substantially contributing to economic growth such as providing job opportunities and fostering the growth of economy.

ii. poverty

Conceptual definition: Poverty is defined as an incapability to afford resources for a minimal style of living. (Black J,2002). On the other hand, poverty is described as with case and generic theories as concerned (Mat Zin, 2011). According to the case studies of poverty, individuals who faced difficulty to support themselves and to afford basic human needs without the support are counted as living in poverty.

Operational definition: While in generic theories of poverty, it is explained whereby individuals faced macroeconomy problems such as inadequate employment opportunities, low demand, and national income (Abdulai and Shamshiry, (2014). In Malaysia, hardcore poverty is describing household income is half or lesser than the poverty line. In other perspective, the critical threshold represents the minimum income at which one can barely achieve only a minimum standard of living to maintain health and well-being.

Table 1.2: The types of poverty

Perspective	Definition	Dimension
Relative poverty	Lacking a usual or socially acceptable level of resources or income as compared with others within a society or country	Economic income

Absolute Poverty	Lacking in basic human needs, which commonly includes clean and fresh water, nutrition, health care, education, clothing, and shelter	Economic Income
Hardcore Poverty	The Malaysian government introduced the concept of hardcore poverty to identify the poorest of the poor. A household is considered in the hardcore poverty group if its income is half of the poverty line or less. The conceptual framework of absolute poverty and hardcore poverty is implemented as a term of poverty eradication programs (Mat Zin, 2011)	Half of the poverty line or less

1.8 Structure of the Thesis

The thesis is structured into 5 themed chapters. In the first chapter, a brief introduction of the study has emphasized the background of the related topic which is the role of the technopreneurs in eliminating the poverty and among Malaysians. This chapter elaborated the significance of technopreneurship in benefiting the Malaysia's economic growth by reducing the poverty and unemployment issues.

The second chapter presents the literature review related to the issues of poverty in Malaysia, in addition provides an overview

of the role of technopreneurship in the study. It represents the research framework and the formulated hypothesis of the study.

Chapter three elaborates the research methodology used in this study, outlines the sample size and surveys to proceed with the study. In addition, the procedure has adopted the most appropriate data resources to construct the theoretical model of the study. Lastly, a brief explanation of the research method used in the study is presented for the purpose of data collection.

Chapter four represents the results of the whole study, according to the statistical data that were obtained. The discussions start by evaluating the statistical results, accordingly with factor analysis. Additionally, the feasibility analysis of the variables are written, followed by the relative findings in the field.

Chapter five briefly describes the conclusions and implementation of the study. Moreover, it discussed the main findings, along with comprehensive explanations with all the implications towards the knowledge contributed, practical situations involved and the theoretical framework. Limitations inherent are presented in the study as will as the recommendations for future findings and research and concluding the remarkable event.

1.10 Summary

This chapter provides a brief introduction on poverty reduction among Malaysia citizens, problem statements, research questions, research objectives, significance of the study, research scope, conceptual and operational definition, as well as the structure of

the overall thesis. Then, chapter 2 will focus on the specific research objectives in the scope of the study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter outlines a review of the previous literatures, by considering the relevant literature to the topic of this research in regards to the aims and objectives to the study as mentioned in chapter 1. Discussion on the chosen theory utilized in this research, involving both the chosen independent and dependent variables. Lastly, the final section of this chapter presents the outcome of the research framework, statistical work and hypothesis.

2.2 Overview of technopreneurship in eliminating poverty in Malaysia

The role of technopreneurship in the alleviation of poverty in Malaysia has been comprehensively researched, yet the declaration so far is controversial and contradictory due to technopreneurship is a newly introduced term used in the business methodology. (Boubtane et. al, 2013; Liu & Zeng, 2008; Maqbool et. al, 2013). These studies are conducted mainly to show clarification and better understanding to those who describe unemployment and poverty in Malaysia as the main cause of unsustainable economic growth.

Additionally, it summarizes that technopreneurship acts as the main channel to eliminate the continuity issue of poverty in Malaysia which forces Malaysian citizens to live in a low-cost living standard (Yeong, 2016). Intentionally, the focus of this article is to study the importance of

technopreneurship in eliminating hardcore poverty and minimizing the household income gap of Malaysia: The research ongoing among Malaysian citizens who live a low-cost living lifestyle. This chapter will give readers a significant insight into the relationship between technopreneurship, and alleviation of poverty in Malaysia.

Moreover, this study will delve into the factors influencing the never-ending poverty and unemployment rate especially among the Malaysia citizens who currently live in a low-cost living lifestyle. (Anton Eise de Vries,2019).

2.2.1 Differentiating Entrepreneurship and Technopreneurship

Entrepreneurship is a confusing term whereby both outcomes analytically and intractable hard to measure. It is difficult to differentiate the concept and the practice of entrepreneurship by most definers and commentators who involved with entrepreneurship (Adebayo and Atunwa, 2013). Entrepreneurship is likely to be described as a process of creating and growing enterprises to provide new services or products or by adding value to services or product. (Emery, Zuches and Flora, 2006). Additionally, entrepreneurship is defined as a high-end techno-economic activity by involving creativity, innovation towards the products, services, procedures and business organizations. They balance the level of entrepreneurialism is possessed by qualified individuals typically those who contributed significantly impact to the large-scale economies, such as national or any other geographical regions.

Intentionally, entrepreneurs are individuals who made changes in economic conditions by combining their own effort with other factors of production in search of economic rents(Henrekson, 2007) Entrepreneur seek for the right timing to identifies an innovation to seize business opportunity, mobilizes monetary status and qualified management skills while take into consideration of business risk to explore the market for new products, services or processes (UNDP 2003). Consequently, entrepreneurship has

resulted emergently by assuming the nature of business, size and scope, or the background of entrepreneurs. For instance, types of entrepreneurship in literature are categorized into academic entrepreneurship, social entrepreneurship, technological entrepreneurship, technical entrpreneurship(Jones-Evans, 1995) and many more in other fields.

The new verb "Technological entrepreneurship" appeared when the market introduced new products, services and processes with creativity and innovation. In such cases, new technological innovation or product is commercialized (Afolabi et al., 2013). Extensively, technopreneurship probes the relationship between entrepreneurship and technological innovation, and exploit how entrepreneurs examine and exploit organizational resources and utilize the technological systems by involving technology strategies to obtain opportunities with the enhancement of technology development (Najjari, Didehkhani, Mostaghimi & Hosseini, 2021). Regardless, technopreneurs are referred to technical entrepreneurs and defined as the founder or individuals who own the business of a technology-based business.

2.2.2 Overview role of Technopreneurship in economic growth.

Technopreneurship involves both technical skills and entrepreneurial activities to create a sustainable economic growth in Malaysia. It allows a new and versatile business mode (Suradi et al., 2017). Additionally, the innovative application of science and technology knowledge by individuals who develops and leads an entrepreneurial activity (Abbas, 2018: Fowosire et al., 2017: Selladurai, 2016). The achievement of economic development linked on making entrepreneurship as the sole base of innovation in science and technology (Fowosire et al., 2017, p. 2). Regardless, both technology and entrepreneurship are in need to show economic prosperity as they encourage and empower individuals to utilize commercial opportunities to benefit their business performance. (Nurdiyanto, 2018).

Fowosire et al. (2017) assert that engineers possess excellent technical skills yet lack of business skills and an entrepreneurial mindset which are

essentially important for successful business operations. Now, as the world are changing rapidly, technopreneurship which embodies both technology and entrepreneurship skills should be enhanced among Malaysian citizens, particularly universities student. Graduates who possess technopreneurship skills allow a competitive advantage in order to lead organizations to sustainable business growth (Prodan ,2007) in Malaysia. Consequently, economic growth takes place, and able to grow sustainably with the enhancement of tecnoprenuership skills apply in business operations. Thus, a strong and positive linkage between technopreneurship and business growth is formed.

A technopreneur usually refers as an individual who is innovative, creative, enthusiastic, curious, and able to strive in a world full of inconsistency and unexplored business paths (Toral, as cited in Abbas, 2018, p. 563).. Additionally, a technopreneur is able to bear the high risk in business operations, fearless to face any challenges in business while able to carry out integrated business models with the technology skills possessed (Dorf, R.C., & Byers 2005).. Initially, technopreneurs utilize technology to create innovative products and services through commercialization. Business operations which are operated by a technopreneur is described as "high growth and potential, high leverage of knowledge and intellectual property" (Fowosire et al., 2017, p. 4).

2.2.3 Determinants of technopreneurship

Technopreneurship plays a major role in contributing to economic development. It is the key element to the success of economic growth if it is utilized in the relevant field. Consequently, technopreneurship is not only influenced by the transformation of entrepreneurship to adapt to the emerging world, but also by direct investments in technology advancement, generation of new and market-relevant knowledge, and the sustainability of business operations to the emergence of innovative firms(John Adeoti, 2019). The figure below shows the determinant of entrepreneurship is categorized into individual factors and environmental factors, while box 1 shows the validate

hypothesis on the relationship of individual factors and entrepreneurship. There are several factors that enable to make technopreneurs to thrive in the global economy which include technology savvy, level and quality of education, risk tendency, attitudes towards innovation, and venture capital.

Individual related determinants	
Social And Demographic	**Perceptual**
• Age • Gender • Occupation • Income Level • Level and quality of education • Lack of opportunities for paid employment	• Perceived skills • Experience • Talent • Risk Tendency • Attitudes towards innovation • Knowing other entrepreneurs
Environment related determinants	
Environmental	
• Technology • Economic Development • Culture • Institutions • Macroeconomic environment	• Access to financial resources • Political stability • Supportive infrastructure • Government Policies and procedures

H1: Involvement in entrepreneurship is higher among males.

H2: The likelihood of entrepreneurial initiatives decreases with the age of entrepreneurs.

H3: Self-employed people have a greater likelihood of participating in entrepreneurial initiatives

H4: Higher levels of formal education are associated with higher levels of entrepreneurial activity.

H5: Knowledge, competence and perceived experience increase the likelihood of entrepreneurial activity.

H6: Knowing other entrepreneurs increases the likelihood of entrepreneurial activity.

H7: Higher risk aversion decreases the probability of entrepreneurial activities H8: Giving more value to the importance of individual innovation increases the probability of entrepreneurial activity.

Table 2.1: below reveals the validated hypothesis on individual determinants of entrepreneurship.

2.2.4 The connection between implementation of strategic planning and the involvement of technopreneurship skills in economic development.

The triple helix model (THM) highlights the three spheres of the participation of academia, industry and government in optimizing the knowledge and skills for economic development shows positive sign (Bomani et al., 2019; Walker, 2012). For instance, its existence increasingly shows in national, regional. And multinational innovation systems. The balanced THM is a comprehensive overlay of communications and negotiations among the institutional spheres of university, industry, and government (Etzkowitz, 2003). It can generate a knowledge infrastructure that involves three parties, takes the role of one another,r and takes part in the internal of these institutional spheres.

Traditionally, industries and government were the main contributors to industrial development. As the time passes by, universities slowly take part in emerging the Malaysia's economic development specifically in technology and science. Universities through training programs should train and educate quality groups of students, research groups, incubators, and science parks to be involved in entrepreneurial activities in the rapidly changing global environment (Fowosire et al., 2017). Initially, industry through industrial attachments or internships is slowly transforming and advancing its technological level as most students are given the opportunity to exposure to reality (Abbas, 2018; Ikhtiagung & Aji, 2019).

Moreover, governments tend to encourage the transition as the booster of an economic development strategy that gives an impact on the strategic planning of involving technopreneurship in economic growth. (Bomani et al., 2019; Walker, 2012).

2.3 Poverty line in Malaysia

Poverty line in Malaysia is characterized according to the differences in mean household size and cost of living among the three main regions of Malaysia- Peninsular Malaysia, Sabah, and Sarawak (Department of Statistics Malaysia, 2010). Consequently, the poverty line referred to consumption, and poverty status was evaluated with reference to gross household income rather than expenditure. Thus, once the households with income fall below the poverty line, individuals were defined as a living in a poverty (Department of Statistics Malaysia, 2010). Malaysian citizens income levels are below half the poverty line, they are addressed as living in "hard-core" or extreme poverty. In year 2009, the mean national poverty line was adjusted to RM 6.50 per capita a day.

A revised version was done to poverty line, whereby those whose income level is insufficient for minimum living standards or food needs are considered as poverty (Department of Statistics Malaysia, 2020). To clarify the disparity of cost of living and size of household among Peninsular Malaysia to, Sabah and Sarawak, there are two different Poverty Line Income (PLIs) were adopted. Half of the PLI was resulted by the absolute hardcore poverty line (Department of Statistic Malaysia, 2010).

Table 2.2: shows the poverty line in Malaysia.

Poverty Line	Peninsular Malaysia	Sabah and Labuan	Sarawak	Malaysia

National	4.1	4.9	4.5	4.2
Urban	4.0	4.8	4.6	4.1
Rural	4.4	5.0	4.5	4.5
poor	6.4	6.5	6.2	6.4

Table 2.3: The poverty line in Malaysia

Poverty Line	Peninsular Malaysia	Sabah and Labuan	Sarawak	Malaysia
Incidence of Poverty (%)	2.0	19.2	5.3	3.8
No of Poor Households (`000)	102.2	99.1	27.1	228.4
Mean PLI (RM monthly)	763(US$254)	1,048 (US$349)	912 (US$304)	800 (US$266
Mean Per Capita PLI 2 (RM monthly)	1 94 (US$64)	2 25 (US$75)	2 08 (US$70)	1 98 (US$64)

The strategy of employing Malaysian citizens for reducing poverty led to accommodating an effective poverty reduction as well as fasten the process of economic growth with a consistent improvement of its micro economy (Department of Statistics Malaysia, 2011).

2.4 Conceptual Framework

Research has widened the factors of technopreneurship in poverty reduction, whereby non-income factors are taking into consideration variables to maintain a minimum standard of living. Thus, the multidimensionality of poverty is no longer debatable (Aaberge and Brandolini, 2015) yet it is a concept that incorporates technopreneurship education, socio-cultural capability, and economic and human capability theory. Essentially, poverty is determined as the inability of individuals, households, or entire community to lead sufficient resources to capably a minimum standard of living. (May, 1999). On the other hand, poverty refers to human deprivation that happens in nonmetropolitan areas with an average population below 50,000 and where there are lack of access to public service and support for disabilities, and limited adoption of education and healthcare opportunities. In this research, we aim to study the factors that influence technopreneurship toward poverty alleviation.

2.5 Capability Approach (CA)

The CA concept was developed to examine the human welfare assessment Amartya Sen (1981). According to Robeyns (2005), the capability approach is a broad normative framework used for evaluating, measuring, and assessing the well-being of individuals to help create policies and programs to impact the socioeconomic transformation in societies. It is established on the concept of functioning and abilities (Naminse, E. Y. and J. Zhuang, 2018). The main causes of poverty can be wide and varied yet many scholars mentioned that the incidence of poverty is due to a lack of basic human capabilities to transform the opportunities of individuals(entrepreneurs) into profitable business startups. This significantly impacts the economic growth of an individual based on their capabilities to

achieve. Shepherd (2015), he identifies the need to discover entrepreneurial opportunities that enable people's capabilities to be built and create businesses that help alleviate poverty.

Consequently, CA addressed poverty as a multi-dimensional concept and tends to develop human skills and abilities for sustainable development and poverty alleviation (Robeyns, I., 2006). Thus, the capability is proposed to assess human well-being from the view of the expansion of people's capabilities. (Sen, 1981). Furthermore, CA mainly focuses on the living conditions of individuals and defines them as what one decides to achieve, by knowing what they can or cannot do or what they can or cannot be(Sen, 1985). This is in regard of the ability of individuals to achieve freedom of development in human welfare by enhancing their sociocultural capabilities. Therefore, the CA is the notion that an individual can potentially accomplish his desires and tend to live freely in diverse ways (Kuklys, W., 2011).

2.5.1 Technopreneurship Education capability

Technopreneurship education is determined as an attitude and capability to carry out innovative and beneficial processes, products, or services for oneself and others while being entrepreneurial is an internal attitude of individuals to be active or creatively empowered, and to strive to increase income business activities (Dolatabadi, R.V. and Meigounpoory, M.R., 2013). Furthermore, it is a process that provides to the individual to cope with commercial opportunities and insights, self-esteem, knowledge, and skill to foster their technology-based entrepreneurial skills. Consequently, technopreneurship education is a process with specific outcomes, such as capable to involve innovative ideas and transform a new business mode to carry out profitable activities (Pei, L.K., Noordin, K.A., Ting, Y.P. and Baharudin, A.S., 2015). The learners are engaged in a unified creative process (Gessler, M. and Howe, F., 2015). The technopreneurship education plays a vital role in fostering and formulating programs and policies of Technopreneurship education specifically among universities. The capabilities approach allows individual to enhance their multi-variate nature

of activities such as entrepreneurial activities to give rise of their well-being. (Sen, 1985).

According to Kolb's(1984) theory, technopreneurial learning is an experiential process whereby technopreneur implements knowledge on business operations through four different learning capabilities namely experiencing, reflecting, thinking, and acting. Entrepreneurship learning is when an organization adjusts its strategies to adapt to the entrepreneurial environment (Minniti & Bygrave, 2001) Moreover, another research according to Ibrahim et al., (2015) and Hattab (2015), a significant relationship between entrepreneurship education and entrepreneurship intention by the involvement of students in both practical and experiential learning experiences (Robinson et al., 2016) and through implementing experience and meaning of act (Hagg and Kurczewska, 2016).

The understanding of entrepreneurship has been revealed as a sustainable process of creating and managing to become an effective technopreneur, adopting technopreneurship education within the school curriculum can create new entrepreneurs to sustain and develop economic growth(John Adeoti, 2019). The more participation of the role in the economic growth of a country, the more it can enhance the development and progress of the nation (Dolatabadi, R.V. and Meigounpoory, M.R., 2013). The values of technopreneurship learners are defined with six indicators: independent, creative, action-oriented, risk-taking, leading, and responsible (Poženel, M. and Mahnič, V., 2016). Entrepreneurship education is in need to create entrepreneurial human capital for students, typically university students.

Consequently, entrepreneurship is about creating business plans and starting new ventures as an early stage of preparation for entrepreneurial activities in the future (Mário Raposo and Arminda do Paço, 2011). Any university has its own entrepreneurship programs and modules that are varied to raise and motivate its students towards career intentions. Colleges especially, should encourage an entrepreneurial culture and innovate the

necessary skills, creativities, innovations, motivations, attitudes, and behaviours to prepare their students to pursue techno-entrepreneurial opportunities, Additionally, entrepreneurship education programs, modules, and course materials are aiming to enhance entrepreneurial behaviours and influence their mindset while building self-efficacy and leadership, and self-esteem, foster their innovation and capability to think creatively to solve complex and unpredictable problems within business operations(World Economic Forum, 2009).

Meanwhile, education is the most noticeable path for the growth of individual opportunity and societal growth while entrepreneurship education is especially essential for a more robust and sustaining innovation, creativity, and desire to build a long-lasting value for the community (Santosh, 2014). Thus, we shall foster educational cultures within the companies, governments and communities to allow the entrepreneurship education for the generation to come. (Dick Meyer, President and CEO, AMD; cited by WEF: 2009). For instance, Sekolah Tinggi Manajemen Informatika dan Komputer (STMIK) Pontianak has created on its own techno-entrepreneurship education curriculum and syllabus for short semester course of entrepreneurship.

As for past literature, entrepreneurship learning is a learning process in terms of entrepreneurship that shows a positive impact on poverty reduction. Entrepreneurship education has a positive significant influence on the intention of a new start-up among participants (Kuttim et al., 2014) which leads to economic growth and poverty reduction in terms of job creation and social transformation (Kim-Soon et al., 2016).

2.5.2 Economic capability

Recently, a growing interest has discovered a long-lasting solution to poverty alleviation in implementing countries and in entrepreneurial activities. This study has been considered an important and strategic tool for economic development in nations (Gómez-Grass et al., 2010; Seuneke et al., 2013; Thurik et al., 2008) by adapting innovation, creativity, and increasing employment opportunities (Bruton et al., 2013) and show a significant

influence on poverty reduction and sustainable development (Dhahri and Omri, 2018; Yanya et al., 2013). Many studies have discovered that economic growth appear to have the potential in reducing poverty, by allowing people to start their own business venture or create employment opportunities for others. (Chliova et al., 2015; McMullen, 2011). According to Shepherd (2015), he outlined that intention of exploring entrepreneurial opportunities is extensively built on one's capabilities to create businesses to solve poverty reduction.

The literature found to show a positive linkage between economic factors and the reduction of poverty. For instance, a study on non-farm activities, household expenditure and poverty reduction in Vietnam is found, whereby the increased economic activities from non-farming activities benefit to reduce rural poverty (Hoang, et al,. 2014). Thus the urged in vibrant economic activities requires the robust of economic skills iis in need for economic development. These economic skills include of marketing skills, management strategies and the optimization of advanced technology towards sales improvement. (Martin and Javalgi, 2016).

Fosu(2010) shows the recent global declaration of the transformation of economic growth to poverty reduction in developing countries with an emphasis on the role of income inequality. Moreover, the average income growth has been the key driver for both declines and increases in poverty. For instance. Job opportunities through entrepreneurship development within a country helps in poverty reduction, by job creation in new startups pr any expansion of existing business vetures (Ali & Ali, 2003). In recent years, most countries in Asia tend to transform their economies through technological innovations. Meanwhile, this transformation has technologically benefited in production and exportation field such as their equipment and intermediate goods.

The economic capability is foreseen as the form on the income levels of citizens, whereby their accessibility towards information from the existing markets, and the capability to acquire knowledge and skills to change

resources to goods or services for economic development (Naminse, E. Y. and J. Zhuang,, 2018. 13(3). Meanwhile, a study proposed by Karnani 2011. 6(2) suggests that the government initiative to increase the economy's economic capability is through developments which able to reach the society.

Furthermore, the transformation in agriculture took part to relatively technologically advanced economies. Impressively, the growth experiences in the relative region have developed such as China and India to grow more rapidly than most developed countries (World Development Indicatiors, 2013). Nevertheless, the ongoing developing countries who are experiencing relatively high rates of economic growth realise that such growth had brought advantages to poverty. Thus, this study is to show that economic growth is impacting the poverty reduction positively.

2.5.3 Socio-cultural capability

Conceptually, poverty can be reduced through four factors, namely social, cultural, individual, and structural factors (Suharto 2009; Spicker, 2002 and Chambers, 1995). In the previous research addressed that the poor in urban areas have a greater opportunities of eliminating poverty, (Fields et.al ,2003 and Kedir and McKey, 2005). This is mainly due to the urban areas have various types of work that can be accomplish by anyone. For instance, people socio-cultural capability with better level of education is faster to get rid of poverty as they are capable to access greater employment opportunities while comparing those with lower levels of education. (Widyanti et.al, 2009, Awan et.al, 2011 and Bigsten et.al, 2003).

Subsequently, the poverty reduction is influenced by socio-cultural capability such as the level of education, the number of family members who is contributing to the economic status. According to Dartanto and Nurkgolis, 2013, if one fixed income is constant while the family members increase, it will influence one's chances of entering to the deepness of poverty. Significantly, some community capacity remains unexploited and, essential, poses the challenge of community engagement (Van Alstine, J. and S.

Afionis, Community and company capacity: the challenge of resource-led development in Zambia's 'New Copperbelt'. Community Development Journal, 2013). Accordingly, communities are believed to have the capability through the interaction of human capital, organizational resources and social capital to resolve collective issue and improve the community's well-being include poverty (Kwong, M. T. S. and M. W. C. Kan. 2017).

Society and cultural values are interrelated as they form the basic need of one's abilities to get higher entrepreneurial and economic aspirations. (Naminse, E. Y. and J. Zhuang, 2018. 13(3). Most rural communities adapt the social capital theory to restructure as the theory is easy to build other form of capital. (Wu, B., L. Liu, and C. J. Carter,2019) For each develop communities, the cultural heritage and values of individuals must be applied into developmental plans so that citizens can e=be familiar with the processes and procedures of development and fully utilized in the decision making and implementation stages. (Gonzalez, J.-F., et al. 2015). Nowadays, culture is defined as the belief systems, values, norms, behaviors, meaning, depository of knowledge and experience, the concepts of creation and philosophies of time among communities which later transferred to posterity. Thus, this study aims to study the impact of social-cultural capability towards the reduction of poverty.

2.5.4 Social Entrepreneurship

Social Entrepreneurship (SE) considered as an effective contributor in resolving the poverty dilemma. According to F.M Santos, 2012), it is well defined as entrepreneurial activity with an embedded social purpose. Social Entrepreneurship mainly plays the role of applying the expertise, talents and resources of entrepreneurs to the variety of issues and challenges developing countries is facing, which includes of education, health, personal safety and security, poverty alleviation, social advancement, environmental sustainability, and more.(D. A. Kirby and N. Ibrahim, 2011) Furthermore, the emergences is caused by the expansion need to address complex social issues like poverty, unemployment or social exclusion(Alvord et al., 2002). Social Entrepreneurship has become a global phenomenon that impacts societies by using innovative approaches to eradicate social issues. (H. Jiao, 2011).

Furthermore, in strengthening social inclusion and empowerment, Social Entrepreneurs improve the process of decision making for the poor by involving them into the planning and task handling or giving the equality of ownership via board representation (Doherty and Kittipanyangam, 2021).

Social entrepreneurs commonly seek to be an enabler for economic opportunities by giving access to financial services, at the same time providing localized social innovations, and supporting to create social value to benefit their beneficiaries through different types of methods. (Alvord et al. 2002) found out that successful SE interventions often appear as building local capacity, delivering resource packages, or organizing local moments. Moreover, SE was argued as an enabler for economic opportunities by giving access to financial services, at the same time providing localized social innovations, and giving support to the poor. (Sijabat et al, 2015). According to Cooney and Shanks, 2010, social entrepreneurs play an important role in engaging market-based transactions and allows the job creation market catering access to those facing poverty.

2.6 Research Frameworks

From the construct of the conceptual framework, a framework is proposed as the basis for this research as illustrated in figure 2.6. The three

constructs of cconceptual framework are technopreneurhsip education, economic, and socio-cultural capabilities. Based on the study, these are the three identified factors would influence the poverty alleviation in Malaysia.

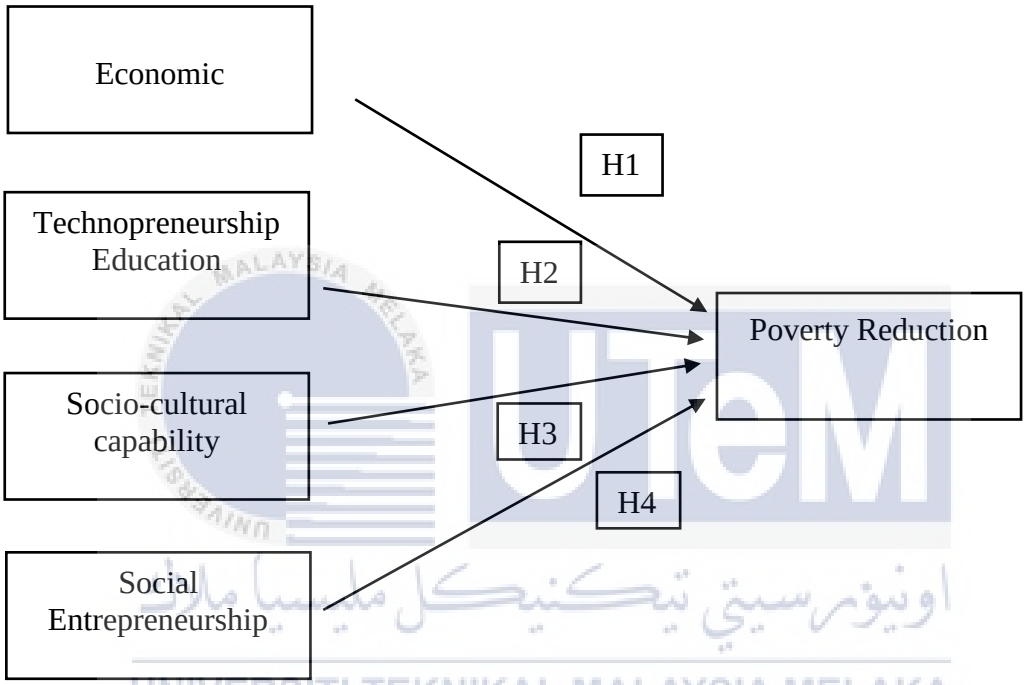


Figure 2.1: The Research Framework towards Poverty Reduction

2.7 Summary

In this chapter, the researcher presented an overview of the significant impact of Technopreneurship in reducing the poverty Malaysia citizens. The identified factors of technopreneurship and how it worked were outlined above. From the literature, there are mainly three constructs of the conceptual framework used as the independent variables, while poverty reduction is the

dependent variable. In regard to accomplishing the research objectives, this chapter proposed three hypotheses. In the following chapter, the research design, research instruments, population, sampling, and the analysis technique utilized is discussed.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

In this research, the researcher will choose the suitable framework or method of research method and techniques to further their study. This research aims to identify factors and to determine the factors of technopreneurship in poverty elimination. Additionally, it outlines the overview of work performance in regards to meet the objectives of the research, this chapter discusses the chosen methodology digestively. The chapter is divided into few sections that examine the research design, data collection, research instruments, population and sampling, lastly the data analysis procedure.

3.2 Research design

A comprehensive study was undergoing to take into consideration and describe the characteristics of the variables in a situation. The goal of a digestive study is for research to be convenient in adopting a profile or a brief description relative aspect of the phenomenon of interest from the view of an individual, organization or industry or any relevant perspective (Sekaran and Bougie, 2010). Thus, to execute the descriptive research, a questionnaire focuses on self-administered survey was optimized.

The developed hypotheses are then tested to enhance the understanding of the relationship between the independent variables and the dependent variables. In terms of collecting the data the cross-sectional method is used as data collection conducted only once. Hence, to accomplish

the objectives of the research, the research design was descriptive, casual research and the quantitative approach were deemed appropriate.

3.3 Research hypotheses

According to the research design of the study, research hypotheses were developed to investigate the relationship between the independent variables and the dependent variable. Independent variable in this research is technopreneurship education, economic and socio-cultural capability while the dependent variable is poverty reduction. The figure 3.1 shows the relationship between IV and DV of the study

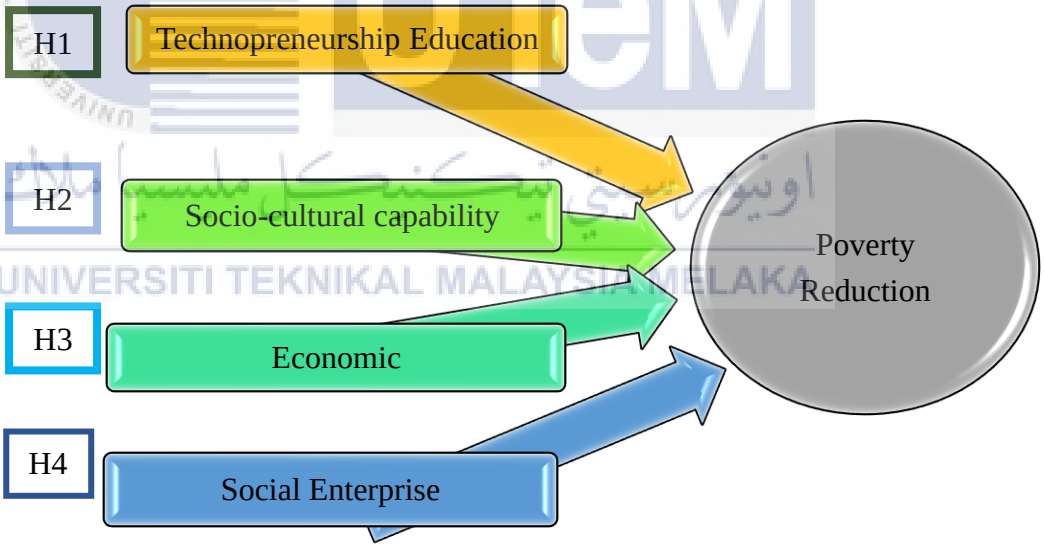


Figure 3.1: Research Hypotheses

3.3.1 Technopreneurship Education and Poverty Reduction

There shows a positively influenced among the technopreneurship education and poverty reduction. According to Naminse and Zhuang 2018, people acquire knowledge through education and training. A research in Romania, Europe found that to acquire knowledge through education is definitely will be succeeding economic development for individuals (Mihai, M., E. Ţiţan, and D. Manea, 2015). Furthermore, education provides the essential intellectual skills for individuals so that they are capable to utilize the opportunities around them to increase productivity and efficiency (Becker, W. A., J. V. Spencer, and J. L. Swartwood,1964.) and (Nasir, M. Z. and H. Nazli, 2000).

According to McMullan and Gillin (1988), a study revealed that about 87% of students who graduated with an entrepreneurship education background is most likely to start their own firms with minimum or no help from external sources. Consequently, this is to ensure that education indeed has over centuries-built skills and potential posses for any individuals who wish to improve their well-being thereby alleviating poverty at large. Based on the above literature stated, we proposed that there shows a positive influence between technopreneurship education and poverty reduction. Therefore, the hypothesis for technopreneurship education is proposed as below:

H1: Technopreneurship education has a positive influenced on poverty alleviation in Malaysi

3.3.2 Economic and Poverty Reduction

Economic growth positively impacts poverty elimination. The economic capabilities of a community can be viewed as in the form of the income levels of citizens or communities, their accessibility of information towards the established markets, and the ability to acquire knowledge and skills in order to transform resources at one's disposal goods and services for economic development. (Weaver et al., 2014).

Previous literature found that activities such as household

expenditures and poverty alleviation in Vietnam is to increase the economic activities to help reducing poverty in China.(Hoang et al., 2014). The influence of four capabilities on stages of the innovative process using 264 survey data information collected in China and realized that firms generally optimize management innovations facilitated by socio-cultural capability(Weaver et al., 2014). Thus, the hypothesis for economic is proposed as below:

H2: Economic shows a positive impact on poverty reduction in Malaysia

3.3.3 Socio-cultural capability and Poverty Reduction

It is found that the social and cultural environments of the individual is influencing among each other. Socio-cultural capability is a significant factor for technopreneurship to reduce poverty. According to a study, social and cultural environments of individuals may influence by innovation and entrepreneurial growth. (Shane,1993). As culture and traditions are tooted deeply in a society, therefore effort to alleviate poverty should be considered the culture of the people. (Appadurai, 2004).

Social capabilities a determined as the social structures in society whereby the connectivity of network with family, friends and peers at workplace, while culture is how one live their live in a particular place at a specific time. Furthermore, a study showed the effects of culture on group creativity and they found that culture impacts on group creativity and is influencing individuals' cognitive tasks in management (Yuan and Zhou, 2015). Nevertheless, social networks and cultural values act as key elements of innovation in business growth. Thus, the hypothesis for sociocultural capability is mentioned below:

H3: Socio-cultural capability shows a positive impact on poverty reduction in Malaysia.

3.4 Operationalization of constructs

This research utilized the quantitative method by using a survey to

collect information from targeted respondents. The questionnaire act as an efficient data collector to get the research constructs. According to Sekaran and Bougie(2010), questionnaires can be administered personally, mailed to targeted respondents, or electronically distributed such as through social media platforms.

Meanwhile, the advantages to use a survey basis to reach targeted respondents are it can include greater assurance of anonymity, avoid interview bias, and ability of a wide range of areas covered as it is cost-effective to the researcher since all responses are collected based on the convenience of the respondents. Yet, there are a few disadvantages of using questionnaires as survey instruments, such as it does not have access over the date of response, distributed questions may remain unanswered, and a low response rate (Sekaran and Bougie , 2010). In this research, the rating in the questionnaire was measured using a five-point Likert scale to gain detailed and specified data on technopreneurship education, economic and socio-cultural capability.

The Likert scale ranged from (1 = "Strongly Disagree" to 5 = "Strongly Agree"). The questionnaire was divided into 33 three sections: Section A, Section B, and Section C, as illustrated in Table 3.1. Moreover, first section, Section A consisted of demographic questions of respondents to collect targeted respondents' background information. Then, Section B consist of questions regarding the identification of technopreneurship factorsm while Section C outline questions on the poverty reduction in Malaysia.

3.3.1 Section A: Background of the respondents

No.	Items	Sources
1.	Gender	Moon and Hwang (2018)
2.	Please indicate your age	
3.	Please indicate your education level	
4.	Please indicate your occupation	
5.	Please indicate your range of income level	

6.	Please indicate your monthly recorded expenses.	
Total		6

3.3.2 Section B: Factors of Technopreneurship

	Items	Sources
	Technopreneurship Education	
1.	The use of technopreneurship education would be essential for poverty reduction.	Mihai, M E. Ţiţan,and D. Manea (2015)
2.	Applying technopreneurship education in college or university as an alternative will improve poverty reduction in Malaysia.	
3.	Technopreneurship education as an alternative to poverty reduction will enhance the living standards of Malaysian citizens.	
4.	Technopreneurship education as an alternative to poverty reduction will enhance entrepreneurial activities and new educational with career opportunities for people in Malaysia.	
5.	Technopreneurship education provides necessary intellectual skills individuals need to be able to access opportunities to increase productivity and efficiency.	Becker, W. A., J. V. Spencer , and J. L. Swartwood, 1964
	Economic	
1	Economic is most likely an important element of poverty reduction.	Namins e, E. Y. and
2	It is likely to foresee economic in the form of	

	the income level of communities to reduce poverty in Malaysia.	J. Zhuang (2018)
3	Economic is to indicate the ability to access information from the existing market	
4	Economic growth such as increasing employment rate and promoting local business can reduce poverty	Ndagubwa, E. A. and B. Hanyane, 2019
5	Economic capabilities among the citizens can be improved by business-like strategies such as minimizing cost, advancement of technology.	Cornelius, N. and J. Wallace, 2019
	Sociocultural Capability	
.	The application of sociocultural capability of an individual will enhance poverty reduction.	Carpiano, R. M.(2006)
.	The sociocultural capability of an individual is to strengthen to enable people to build bonds and relationships with each other on an individual basis or community level.	
.	Cultural values created from sociocultural capability is to be experienced among individual, nations, and business operations to seek market information and resources to support poverty reduction.	
.	Values of sociocultural capability are created to collect market information and resources to support economic development	Gonzalez, J.-F., et al, 2015)
	Social Entrepreneurship	
.	Effective Social Entrpreneurship activities able to multiply co-synergizing interventions	

	that reflect the poverty issues.	
.	Social Entrepreneurship allows job creation by engaging in market-based transaction such as fostering loyalty and building bonds with customer in a market to reduce the poverty issue.	Coone and Shanks (2010)
.	Social programs created by social entrepreneurs able to sustain quality of life status of the poor.	Simpson (2015)
.	Social entrepreneurs act as the key for economic opportunities to access to financial services and empowering the poor condition.	(Sijabat, 2015)
.	Social entrepreneurs view social issues as spaces of opportunity to create social value and sustain their business	(Mair & Marti, 2009)
.	Social enterprises are created to meet particular human needs such as job creation, human prosperity and human resources	(Eversole et al. 2013; Shaw & Carter, 2007)

3.3.3 Section C: Poverty Reduction

No.	Items	
1.	I will (or willingly to) put effort on the poverty reduction in Malaysia,	
2.	I will encourage (or willingly to encourage) people around me to foster the study of technopreneurship education in Malaysia.	
3.	I will acknowledge (or willingly to acknowledge) that the economy will influence poverty alleviation in Malaysia.	

4.	I will (or willingly to) hold socio-cultural capability to reduce poverty in Malaysia.	
5.	I will (or willingly to acknowledge) that social entrepreneurs will impact the poverty alleviation in Malaysia	

3.5 Population and Sampling

The level of analysis required in the study was the public. Intentionally, Malaysian citizens who are in the B40 categories were the chosen population. Since Malaysian citizens were the public, their intention in this study is mattered. Therefore, the targeted respondents of this research will be Malaysian B40s. According to the table of Krejcie and Morgan (1970), the sample size required was 385 in this study as the population of Malaysian B40 was around 29000000. As in the sampling technique, the study applied a convenience sampling technique which acts as a style of non-random or non-probability sample whereby participant of the aim population meets certain useful benchmark, namely geographical proximity, ease of accessibility, willingness to involve, or the availability on the given time are incorporated for the study, Convenience sampling is acknowledged as Accidental Sampling or Haphazard Sampling (Dornyei, 2007)

3.6 Data analysis procedure

The ongoing procedure of data analysis started by determining the sample size. For instance, a sample size of larger than 30 and less than 500 is the most appropriate size for most research.

The model was then analyzed for reliability and validity of the data. Later, data analysis will continue being measured on the correlations of the relationships among the independent variables and the dependent variable. It

is also an indication for the direction, strength and significance of bivariate relationships among all the variables in the study. Finally, the analysis of data was the regression analysis, whereby the predictors' significance of variables will be measured.

3.6.1 Reliability and validity of research instruments

In order to measure an assessment, the attempt was vital as it must be free of bias and distortion so that the entire assessment process is thoroughly sound. Moreover, the two important concepts which are used to define and measure bias and distortion in the study are reliability and validity.

According to Heale and Twtcross, 2015, validity defined as a tool to study the measurement of the actual items in need. It is also to refer the extent of an instrument perform as it is designed to perform. The validity is generally measured in degrees as it is nearly impossible for the instrument to be 100% valid. In the process, validation involves of collection and analyzing data in order to access the accuracy of an instruments. Furthermore, the overall study design is viewed in regards of external and internal validity. Commonly, internal validity is fully-accomplished once the design is a good test of the hypotheses, whereby external validity defined as the ability of the findings are to be generalized.

Next, reliability is defined as the consistency in measuring what an instrument is to measure (Heale and Twycross, 2015).The four most common techniques, namely test-retest, alternative form, split halves, and Cronbach's Alpha is for measuring reliability (Sekaran and Bougie, 2010). Among these, Cronbach's Alpha is the most efficient technique and it is appropriate adequate index of internal reliability whereby the best figure should be greater than 0.70. Data were interpreted using the Statistical Package for the Social Sciences (SPSS) v.21.0.

3.6.2 Factor analysis

Exploratory factor analysis (EFA) measured the variables which is

related to the hidden variable. It was conducted to evaluate the pilot test responses. An EFA is to conduct due to three reasons (Field, 2005). First, to obtain an intial idea of how the structure is and what is being studied as defined by the people involved. For instance, it is how the questions constructed and grouped conceptually in the questionnaire. Secondly, it is to evaluate the reliability of the questionnaire and gain the information on the number of questions as the questionnaire might be reduced. Furthermore, the EFA is a "multivariate statistical technique that examines the data on a relatively large set of variables and to produce into a smaller set of factor whereby they are linear combinations of the origin variables. Thus, the set of factors can obtain as much as possible of information from the data set.

While conducting EFA, there are two main steps are required such as extraction and rotation. Extraction process is to examine the factors underlying a number of variables (Miller et al., 2002). Consequently, most researchers uses the principal component analysis (PCA) as the reliable assessment of variables to avoid the errors. (Luck and Rubin, 1987).

Rotation is conducted to present the pattern of loadings to make it more convenient for interpretation. In the study, the researcher used PCA and the orthogonal model with Varimax rotation to perform EFA. The orthogonal rotation can gain high generalizability and replicability power by comparing to the oblique rotation. On the other hand, it is less complex as the factors are uncorrelated with one another (Tabachnick and FIdell, 2001).

3.6.3 Correlation analysis

Pearson Correlation analysis indicate the direction, strength and significance of bivariate relationship between the variables that are measured on an interval or ratio level in the research. In the study, this analysis was to determine whether independent variables show positive or negative relationships with dependent variable. Additionally, the indication of factors needed to be examined with this analysis to understand the technopreneurship most significant factors that may contribute towards the

poverty reduction in Malaysian citizens.

3.6.4 Multiple regression analysis

Multiple regression analysis was used to determine whether or not the relationship was a positively significant predictor. According to the initial analysis, a standard multiple regression was performed with all three independent variables and dependent variables. The results were tested for hypotheses of casual relationships developed in this research.

Multiple regression was appropriate for this research, as the method makes it possible to understand the prediction of the outcomes of variables when all predictors are known (Vogt, 2007). Possibly, the method wishes to understand the entire outcome of the variables while predictors are all well-known. (Vogt,2007)

3.7 Summary

This chapter explained the methodology utilized in the research. This research utilized the quantitative method to examine the factors of technopreneurship and to analyze the influence of their impacts on poverty reduction in Malaysia. The discussion of the optimization of each variable was adopted in the study to create the research instruments. Additionally, this chapter highlighted the specified targeted population and respondents involved in this study, which are the Malaysian citizens. Lastly, this chapter proposed the appropriate analysis utilized for the study, which included reliability analysis, multiple regressions and correlation analysis. The results of the analysis are presented in the next chapter, Chapter 4.

CHAPTER 4

RESULT AND DISCUSSION

4.1 Introduction

The analysis and results of this research are shown in this chapter. Firstly, a demographic analysis was undertaken on the background of the respondents. It was then developed by a second analysis where all the variables were analyzed by descriptive analysis to obtain the standard deviation and mean for every measured item in the questions. Continuously, the researcher conducted a reliability analysis, and Cronbach's Alpha was used to measure and determine each research variable's reliability. Later, the results of the correlation are shown in the chapter, and finally, the proposed hypotheses were tested by conducting the regression analysis, and the outcomes were discussed.

4.2 Rate of response

The questionnaire method was used throughout the process of data collecting. It was collected using an online platform to simplify compared to physical or face-to-face distribution. As the research's target respondents were Malaysian citizens, hence the questionnaires were distributed by various means using social media platforms. A total of 384 respondents' data were collected. As the sample required for a population of 800,000 according to the sample population table by Krejcie and Morgan (1970) was 384, therefore the researcher managed to obtain all the data needed.

4.3 Pilot test

Before collecting the data through a questionnaire, a pilot test was conducted by the researcher. Approximately 70 respondents among Malaysian citizens gave feedback and suggestions on the questionnaire. A total of 70 responses were collected to validate the pilot test. The reliability of a questionnaire was evaluated through the analysis of SPSS software. Genuinely, Cronbach's Alpha was determined through reliability analysis to further understand the internal consistency of responses in the process of collecting data by obtaining a value greater than 0.70. Table 4.1 presents the results of the pilot test computed by SPSS software and the reliability analysis of the 26 significant items among the questionnaire. The reliability analysis shows that the questionnaire collected by the researcher is highly reliable with a Cronbach's value of 0.961, which is greater than the acceptance value of 0.70.

Cronbach's Alpha	N of Items
.961	26

Table 4.1: Reliability statistics of pilot test

3.3 Frequency Analysis

In this part, the researcher will provide the demographic information collected from the respondents, which includes the respondent's gender, age, race, income level, educational level, and occupational level. The total amount of the respondents was 384 (N= 384)

Gender

Table 4.2 represents the gender of the respondents. From the results, it is known that 57.3% (or 220) of the respondents were female, and 42.7% (or 164) were male.

Gender	Frequency	Percent
Male	164	42.7
Female	220	57.3
Total	384	100

Table 4.2: Gender Analysis

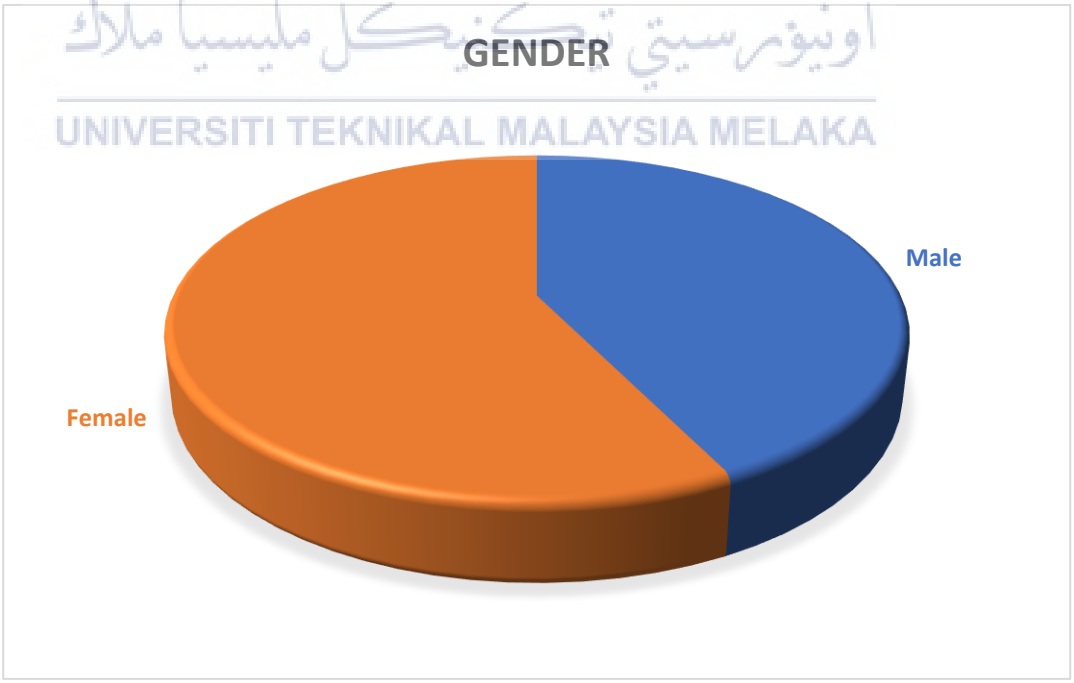


Figure 4.1: Gender analysis

Age

The respondents were categorized into five main groups: “20 years

and below", "21 years to 30 years old", "31 years to 40 years old", "41 years to 50 years old", Male Female 42 "51 years to 60 years old" and "61 years old and above". According to Table 4.2, which states the distribution of the respondents' ages, it can be represented that the highest category respondents fall at the 21Year Old – 30 Year Old for 37.8% (Or 145 respondents); the second highest category of respondents are 31 Year Old – 40 Year Old, at 32.6% which are 125 respondents; whereby the lowest category of respondents are 51 Year Old and above, which only have 6 respondents (1.6%).

Age	Frequency	Percent
Below 21 years	16	4.2
21 years – 30 years	145	37.8
31 years – 40 years	125	32.6
41 years – 50 years	92	24
51 years to 60 years	6	1.6
Total	384	100

Table 4.3: Age analysis of the respondents

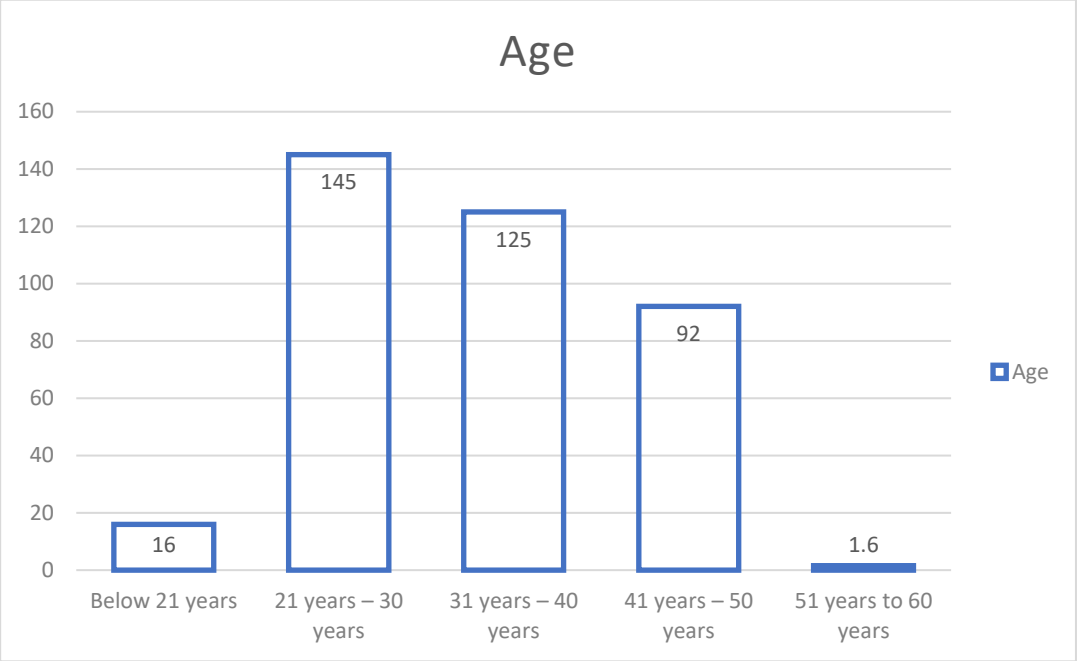


Figure 4.2: Age analysis

Ethic

Among the respondents, there are a total of 155 (37.2%) Chinese who have responded to the questionnaire. The second big group of respondents who responded to the questionnaire is Malay, which has 143(37.2%) of them, whereas Indian respondents have 85(22.1%).

Ethic	Frequency	Percent
Malay	143	37.2
Chinese	155	40.4
Indian	85	22.1
Kadazan-Chinese	1	0.3
Others	1	0.3
Total	384	100

Table 4.4: Ethic Analysis of respondents

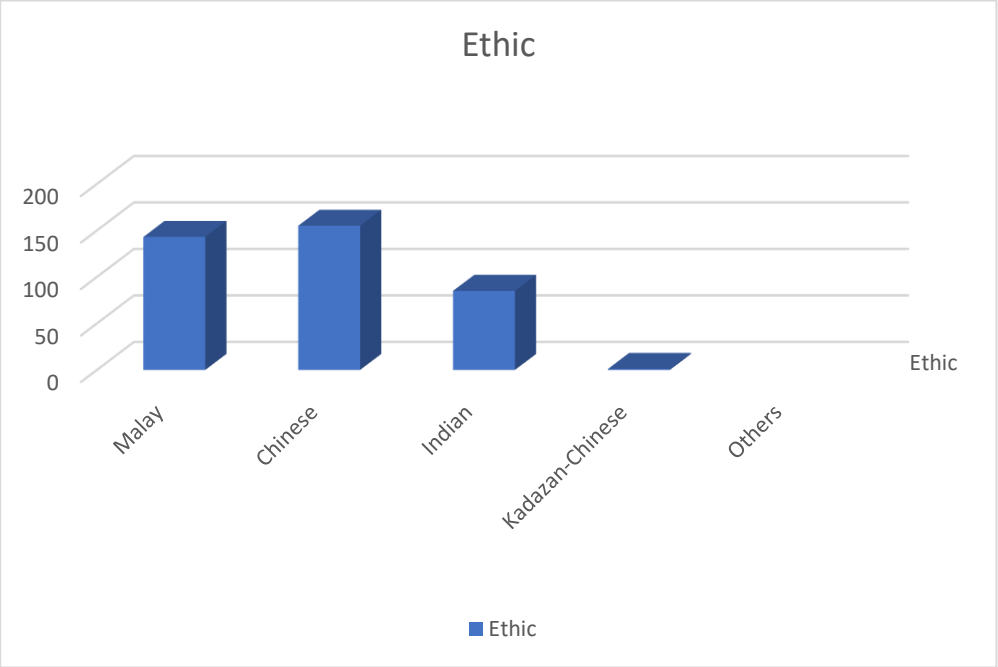


Figure 4.3: Ethics analysis

Education Level

The results of educational level are shown in Table 4.3. Among all the respondents, there are 197(51.3%) of them graduated with a Bachelor's Degree, 92(24%) of them hold a master's degree and only 1 (0.3%) of them are SPM holders.

Table 4.5: Educational level among respondents.

Education	Frequency	Percent
STPM/Matriculation/Diploma/ Foundation	59	15.4
Bachelor's Degree	197	51.3
Master's Degree	92	24
Doctor of Philosophy (PhD)	35	9.1
No University	1	0.3

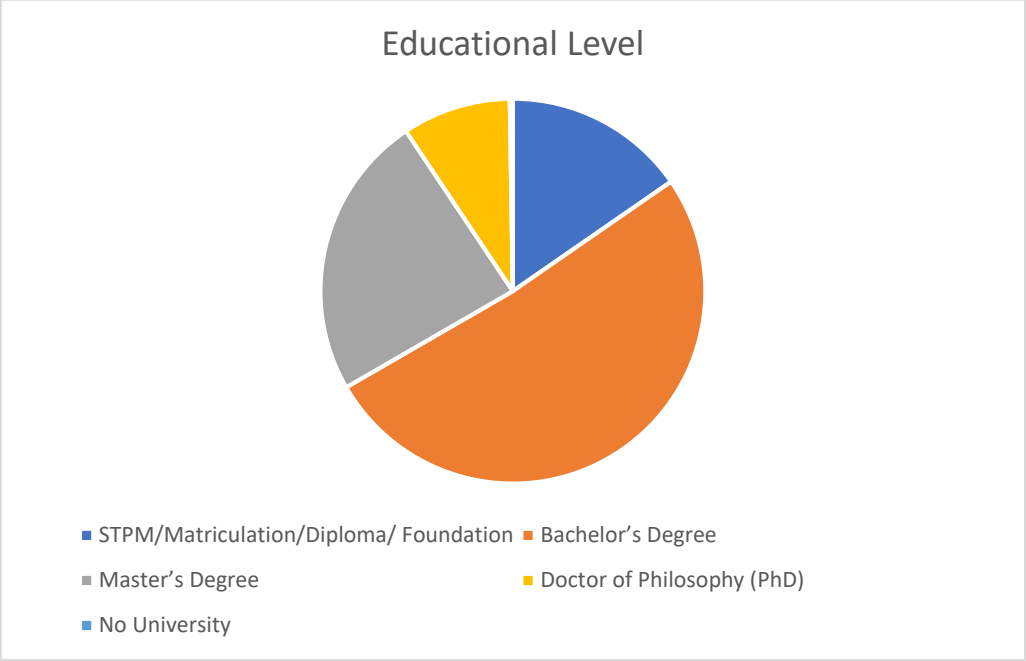


Figure 4.4: Education Level analysis

Occupation

Most of the respondents worked in the government sector, which is 183 (47.7%) of the total respondents. Among the respondents, the least sector is students, which only have 39 respondents, a total of 10.2%.

Table 4.6: Occupation of the respondents

Occupation	Frequency	Percent
Student	39	10.2
Private Employee	106	27.6
Government Employee	183	47.7
Semi-private Employee	57	14.8
Total	384	100

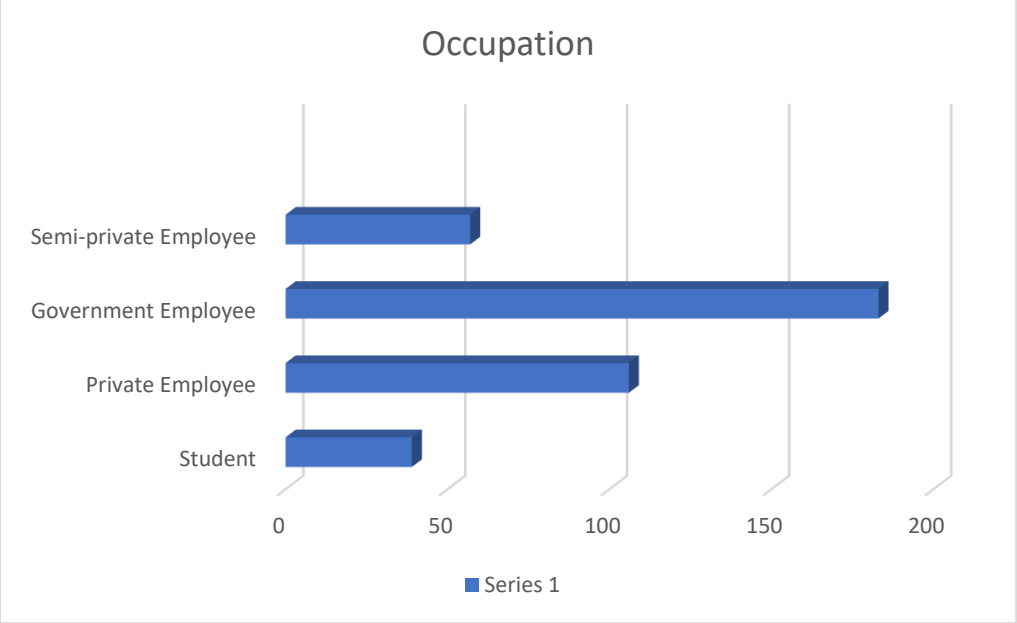


Figure 4.5: Occupation analysis

Income Level

In Table 4.5, the income level was categorized into six categories, which are "Below RM 1000", RM 1000 to RM 2000", "RM 2001 to RM 3000", "RM 3001 to RM 4000", "RM 4001 to RM 5000" and "RM 5001 or above". Among these categories, the highest category income level is "RM 3001 to RM 4000" which are 144(37.5%) respondents. Nevertheless, the lowest number of categories falls at "RM 1001 to RM 2000", which only have 8(2.1%) of them in total.

Table 4.7: Respondents' income level

Income Level	Frequency	Percent
Below RM 1000	31	8.1
RM 1001 – RM 2000	8	2.1
RM 2001 – RM 3000	76	19.8
RM 3001 - RM 4000	144	37.5

RM 4001 – RM 5000	73	19
RM 5000 or above	53	13.8
Total	384	100

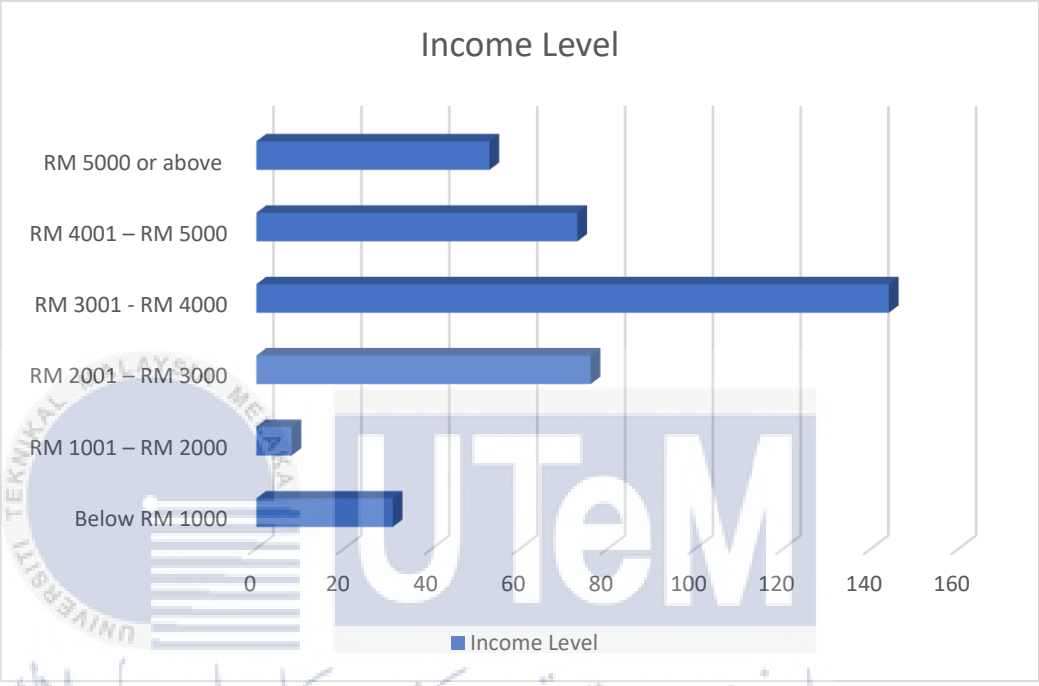


Figure 4.6: Income Level analysis

4.5 Normality Test

Exclusively, the variables are examined in the proposed model. A normality test was then conducted to access if the data meets the normality assumption. According to Hair et al., 2010; Kline, 1998, skewness and kurtosis are the main key indicators for the assessment. Generally, normal data exhibit skewness between, -2 and +2 while kurtosis exhibit -7 and +7. Based on the Table 4.13, all the IV and DV variables fall within an acceptable range for both skewness and kurtosis. Generally, the skewness values range from -.184 to -547, while kurtosis values are in between –.014 to -.408. The finding showed that all the variables' items match the study's

sample. In short, the finding indicates a normal distribution among the items.

Table 4.13: Normality Test for the role of Technopreneurship in reducing poverty

Descriptive Statistics					
	N	Skewness		Kurtosis	
			Std. Error		Std. Error
ROLE	384	-.184	.125	-.014	.248
TE	384	-.547	.125	-.330	.248
SC	384	-.469	.125	-.072	.248
SE	384	-.414	.125	-.408	.248
E	384	-.334	.125	-.142	.248
Valid N (listwise)	384				

4.6 Descriptive analysis of independent variables

Descriptive analysis refers to the characteristics of the data collected. Genuinely, in this part, the researcher summarizes the descriptive statistics on each variable in the study. Descriptive analysis presents the dimensions of the variables that are examined systematically. It was conducted in the study to develop the mean and standard deviation of the variables.

4.6.1 Technopreneurship Education

Table 4.8 shows the descriptive analysis results for technopreneurship education capability, with the mean ranges from 3.91 to 4.36. With that, the mean means that the majority of respondents agreed with the statements in the questionnaires.

Table 4.8: Descriptive data for Technopreneurship Education

Items	Mean	Std. Deviation
TE1: The use of Technopreneurship Education would be essential for poverty education	4.35	.673
TE2: Applying Technopreneurship Education in college or university as an alternative will improve poverty Reduction.	4.23	.717
TE3: echnopreneurship Education as an alternative to poverty reduction will enhance the living standards	4.33	.6597
TE4: Technopreneurship Education as an alternative to poverty reduction will enhance entrepreneurial activities and new educational with career opportunities for people	3.91	.88
TE5: Technopreneurship education provides necessary intellectual skills individuals need to be able to access opportunities to increase productivity and efficiency.	4.36	.6912

4.6.2 Economic Capability

In Table 4.9, the descriptive analysis is shown. The mean results for Economic Capability items varied from 3.99 to 4.38, indicating that respondents agreed with the statements in the items of Economic Capability.

Table 4.9: Descriptive Data for Economic Capability

Items	Mean	Std. Deviation
E1: Economic is most likely an important element of poverty reduction	4.16	.731
E2: It is likely to foresee economic in the form of the income level of communities to reduce poverty	4.3	.637
E3: Economic Capabilities is to identify the ability to access information from the existing market	3.99	.897
E4: Economic capabilities such as increasing the employment rate and promoting local business can reduce poverty	4.27	.753
E5: Economic capabilities among the citizens can be improved by business-like strategies such as minimizing cost, advancement of technology	4.38	.614

4.6.3 Sociocultural Capability

The descriptive analysis of Sociocultural Capability is shown in Table 4.10. Meanwhile, the mean results for Sociocultural Capability ranged from 3.85 to 4.38, showing that respondents agreed with the statements in the items of Sociocultural Capability.

Table 4.10: Descriptive Data for Sociocultural Capability

Items	Mean	Std. Deviation
SC1: The application of sociocultural capability of an individual will enhance poverty reduction.	4.19	.817
SC2: The sociocultural capability of an individual is to strengthen and enable people to build bonds and relationship with each other on an individual or community level.	3.95	.783
SC3: Cultural values created from sociocultural capability is to be experienced among individual, nations, and business operations to seek market information and resources to support poverty reduction	4.24	.765
SC4: Cultural values of sociocultural capability are created to collect market	4.62	.627

information and resources to support economic development		

4.6.4 Social Entrepreneurship

The descriptive analysis for Social Entrepreneurship is shown in the Table 4.11. The mean items ranged from 3.95 to 4.62, indicating that respondents agreed with the statements in the items of Social Entrepreneurship.

Table 4.11: Descriptive Data for Social Entrepreneurship

Items	Mean	Std. Deviation
SE1: Social Entrepreneurship allows job creation by engaging in market-based transaction such as fostering loyalty and building bonds with customer in a market to reduce the poverty issue.	4.19	.817
SE2: Effective Social Entrepreneurship activities able to multiply co-synergizing interventions that reflect the poverty issues.	3.95	.783
SE3: Social programs created by social entrepreneurs able to sustain quality of life status of the poor.	4.24	.765

SE4: Social entrepreneurs act as the key for economic opportunities to access to financial services and empowering the poor condition.	4.62	.627
SE5: Social entrepreneurs view social issues as spaces of opportunity to create social value and sustain their business	4.6	.751
SE6: Social enterprises are created to meet particular human needs such as job creation, human prosperity and human resources	4.04	.729

4.7 Descriptive analysis of the dependent variable

The descriptive analysis for dependent variable, which is the role of Technopreneurship in reducing poverty is shown in Table 4.12. The mean value is varied from 3.9 to 4.5, whereby the greatest mean value is PI2 "I will encourage (or willingly to encourage) people around me to foster the study of technopreneurship education in Malaysia" and the lowest mean value is PI1"I will (or willingly to) put effort on the poverty reduction in Malaysia".

Table 4.12: Descriptive Data for the role of Technopreneurship in reducing poverty

Items	Mean	Std Deviation
I will (or willingly to) put	3.9	.695

effort on the poverty reduction in Malaysia		
I will encourage (or willingly to encourage) people around me to foster the study of technopreneurship education in Malaysia	4.49	.634
I will acknowledge (or willingly to acknowledge) that the economy will influence poverty alleviation in Malaysia	4.45	.628
I will (or willingly to) hold sociocultural capability to reduce poverty in Malaysia	4.42	.624
I will (or willingly to) hold sociocultural capability to reduce poverty in Malaysia	4.23	.604
I will (or willingly to acknowledge) that social entrepreneurs will impact the poverty alleviation in Malaysia	4.26	.778

4.8 Factor analysis

This analysis is to reduce the amount of inter-correlated variables to few components by exposing the linkages between variables. As resulted, it

is used to determine the correlation between the DV and IVs variables. Furthermore, Evaluating data suitability, factor extraction and rotation, and interpretation are the three key elements while performing factor analysis, according to Pallant (2011).

The analysis is used to calculate the inter-correlated variables into factors through exposing the exist relationship between variables. Therefore, it can examine whether there exists correlation with each other within these variables. There are a total of 3 steps to complete the measurement.

First, prioritize sample size as an important factor to consider. There were different perspectives by the authors, as the smaller sample sizes lead to less accurate correlation coefficients. Then, the strength of intercorrelation between items should be exceeding 0.3(Pallant,2011). Additionally, software SPSS provides a statistical measure to assess factorability, namely Bartlet and Kaiser-Meyer-Olkin (KMO), whereby KMO index is between 0 and 1 as well as a Bartlett's test that generates $p>0.05$ indicating suitability for factor analysis (Pallant, 2011)

Secondly, according to Pallant 2011, it involves determining a minimum number of variables needed to describe the relationship between variables, which is named Factor extraction. Although there exist other techniques for this strategy, yet Principal Component Analysis (PCA) remains the common technique that allows flexibility to the needs of the researcher. Meanwhile, it is followed by simple solutions to minimize the elements or extend the given original information. Hence, there are three techniques to examine the number of factors, namely C the Kaiser criterion Catell's scree tes, Horn's parallel analysis and the Kaiser criterion. In PCA techniques, the Kaiser criterion discards components '/

;with eigenvalues lesser than 1, where the data is normalized. Then, Catell's scree test is more subjective as it involves visualization of interpreting eigenvalue curves on a scree plot and discovering the points of the curve changes direction horizontally, by considering all related factors

above the elbow, while Horn's parallel analysis generates numerous random matrices with dimension equivalent to the original data and examines the scree maps generated by matrices.

Thirdly, the researcher interprets the number of components that are identified. The items were simplified for the process of interpretation. Rotation can be done either in orthogonally or obliquely. Frequently, the orthogonal rotation used was Varimax, whereas the oblique rotation would be Direct Oblimin. This aims to reduce the number of variables with high factor loadings.

In this research, Principal Component Analysis (PCA) and Varimax rotation provided the following findings as shown in Table 4.13 shows that the KMO value is 0.921, indicating that the simple quality criteria for factor analysis are met. The factor loadings were generally high, with the lowest loading of 0.770.

Table 4.14: Factor Analysis Results

Items	Component			
	1	2	3	4
TE1	.846			
TE2	.841			
TE4	.878			
TE3	.867			
TE5	.878			
E3		.815		
E2		.864		
E1		.841		
E5		.863		
E4		.850		
SC1			.832	

SC4			.902	
SC2			.776	
SC3			.782	
SE2				.776
SE3				.770
SE1				.780
SE4				.827
SE5				.823
SE6				.819

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.921
Bartlett's Test of Sphericity	Approx. Chi-Square	12586.961
	df	1190
	Sig.	.000

4.9 Reliability Analysis Results

The immediate purpose of reliability testing was to allow assessment of the scale's internal consistency (Pallant, 2011). The pertains towards magnitude of cohesion exhibited bt each element inside the construct. Cronbach's Alpha coefficient is the most appropriate employed method for assessing reliability. According to Pallant (2011), he states that a Cronbach's Alpha coefficient of 0.7 or higher is acceptable. Table 4.14 shows the detail of Cronbach's Alpha for all item

Table 4.15: Reliability test's results

Variable	Cronbach's Alpha	Number of Items
Technopreneurship Education	.977	5
Economic Capability	.967	5
Sociocultural Capability	.896	4
Social Entrepreneurship	.954	6

4.10 The relationship between independent variables and dependent variable

4.10.1 Correlation Analysis

Correlation refers to a statistical measure to determine two or more variables change simultaneously. Meanwhile, correlation analysis is used to assess the strength and direction of the linear relationship for two variables; dependent variable and independent variables (Pallant,2011). The correlation analysis of the study has examined the relationship between each of the independent variables (Technopreneurship Education, Economic Capability, Sociocultural Capability and Social Entrepreneurship) and the dependent variable (the role of technopreneurship in poverty reduction). Furthermore, correlation coefficients exist if the value is within -1 and +1 for both negative and positive correlation (Pallant, 2011).

The symbol of correlation coefficient represents positive or negative correlations between two variables. If there exists positive indication, meaning if one variable rises, the other will eventually rise. Thus, a negative sign will affect the other variable, in such if one grows, the other variable may drop. Correlation coefficients are calculated by the strength of the

connection. According to Cohen's classification, correlations are categorized as weak when they fall within the range of r = 0.10 to 0.29, neutral if ranging from r = 0.30 to 0.49, and strong when they range between r = 0.50 to 1.0.

According to the results, the results showed that all the independent variables are positively influenced by the dependent variable. Meanwhile, there shows a significant correlation of the relationship between variables, whereas r = 0.50 to 1.00. As shown in Table 4.16. SC has the highest positive correlation with the role of technopreneurship at 0.868. while the lowest went to SC, 0.677, as presented in Table 4.16.

Table 4.16: Pearson's correlation Results

	TE	E	SC	FE	ROLE
TE	1				
E	.708**	1			
SC	.819**	.868**	1		
SE	.742**	.710*	.755**	1	
ROLE	.748**	.825**	.807**	.792**	1

TE: Technopreneurhip Education

EC: Economic Capability

SC: Sociocultural capability

SE: Social Enterprise

4.10.2 Multiple linear regression analysis

This research used multiple regression analysis to examine the independent variables, such as Technopreneurhip Education, Economic

Capability, Sociocultural capability and Social Enterprise and dependent variable.

Furthermore, R^2 indicates as the percentage of the independent variables that explains by the dependent variable. Based on the summary of model in Table 4.17, the R^2 is 0.882, which indicates that 77.8% of the variation in performance are explained by four independent variables investigated in the research.

Table 4.17: Model summary

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.882[a]	.778	.776	1.53463	.790
a. Predictors: (Constant), E, TE, SE, SC					
b. Dependent Variable: ROLE					

Meanwhile, ANOVA results are shown in table 4.18. There is sufficient evidence that at least one of the independent variables can predict the dependent variable. While the P-value equals 0.000, it indicants good model fit. In this research, it computed that the F value was 332.407 while the mean square was 783.058.

Table 4.18: ANOVA Results

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3132.233	4	783.058	332.497	.000[b]
	Residual	892.577	379	2.355		
	Total	4024.810	383			
a. Dependent Variable: ROLE						
b. Predictors: (Constant), E, TE, SE, SC						

Genuinely, the final outcomes of the coefficient analysis for the independent variables and the dependent variable were now provided. Based on the overall findings, the variables provided statistically significant factors that influence the role of technopreneurship in reducing poverty ($p<0.05$). Among the variables, E(Economic) shows the highest impact on the role of technopreneurship in eliminating poverty, which shows $\beta = 0.434$. Respectively, TE has beta value of $\beta = 0.143$, SC has a beta coefficient of $\beta = 0.064$, and SE shows a $\beta = 0.329$. This shows that SC (Sociocultural Capability) contributes the least to the role of technopreneurship to poverty reduction.

At the same time in table 4.17, the Durbin-Watson value is 0.790. It is an indicator of autocorrelation of residuals for regression analysis, though it may lead to miscalculation of the standard errors and gave impact to the judgment whether the predictor variable is significant. Then, the rule of thumb is to test whether statistics in the range of 1.5 to 2.5 are relatively normal, while values out of the range maybe a cause for concern. According to Field 2009, asserts that the values below 1 or above 3 are concerning.

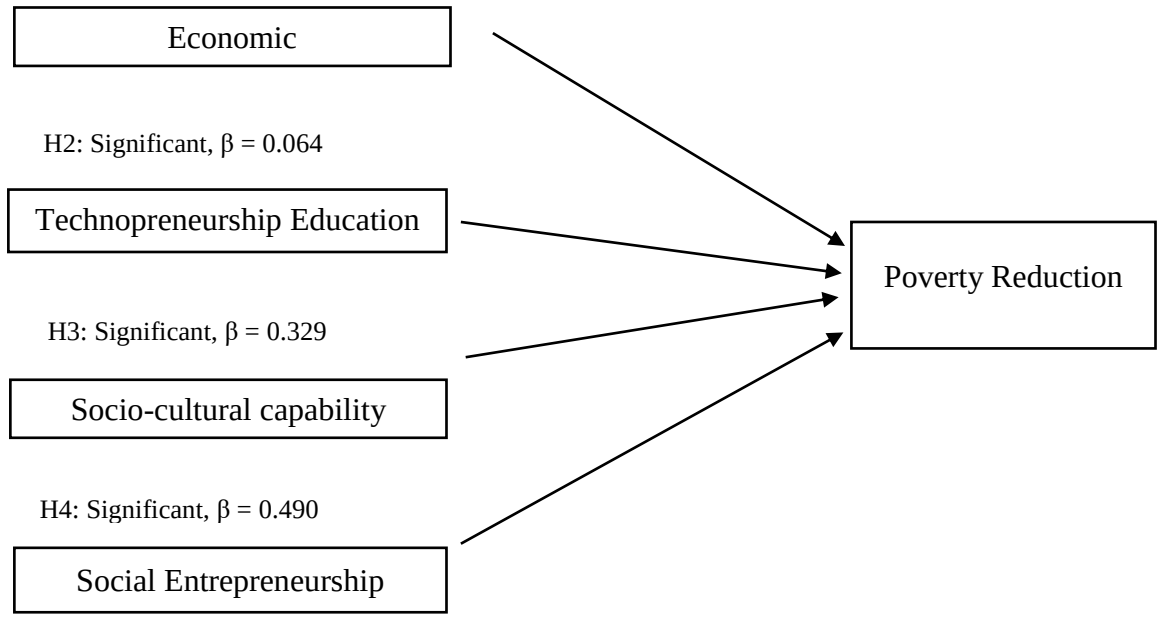
Table 4.19: Coefficient analysis of variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	1.885	.656		2.874	.004	.595	3.174			
	TE	.159	.050	.143	3.202	.001	.061	.256	.748	.162	.077
	SC	.093	.088	.064	1.056	.000	-.080	.266	.807	.054	.026
	SE	.310	.037	.329	8.289	.000	.236	.383	.792	.392	.201
	E	.490	.056	.434	8.753	.000	.380	.600	.825	.410	.212

Table 4.20: Hypotheses result

Hypotheses	Accepted	Not Accepted
H_1: Technopreneurship Education has a positive effect on reducing poverty in Malaysia.	√	
H_2: Economic has a positive effect on reducing poverty in Malaysia.	√	
H_3: Sociocultural capability has a positive effect on reducing poverty in Malaysia.	√	
H_4: Social Entrepreneurship has a positive effect on reducing poverty in Malaysia.	√	

H1: Significant, $\beta = 0.143$



4.11 Discussion of findings

As mentioned in Chapter 1, the study is to identify the factors that influence the poverty reduction in Malaysia based on the Capability Approach.

H1: Technopreneurship education has a positive effect on poverty reduction in Malaysia.

According to the Table 4.19, the significant value of Technopreneurship Education, 0.001 which is relatively lower than 0.05 ($p < 0.05$). The findings underscore a significant and positive relationship between PE and the role of Technopreneurship in reducing poverty in Malaysia. Mihai, M E. Ţiţan, D. Manea (2015) and Becker, W. A., J. V. Spencer, and J. L. Swartwood, 1964. Technopreneurship education is indeed essential for poverty reduction. Eventually by applying technopreneurship education in education field, it will improve the knowledge of the crowd in getting more job offer with higher pays. Technopreneurship education could enhance the living standards in Malaysia, as well as enhance the

entrepreneurial activities which allows job creation and job opportunities in Malaysia. It also provides necessary intellectual skills for individual in order to improve the competitive advantages. Hence, to reduce the poverty reduction, the role of technopreneurship in raising technopreneurship education should be increased.

H_2: Economic has a positive effect on reducing poverty in Malaysia.

Based on Table 4.19, the significant value of economic p =0.001, which is lower than 0.05 ($p<0.05$). The results of the study proved that economic capability is positively influenced the role of technopreneurship in reducing the poverty in Malaysia. It is aligned with Naminse, E. Y. and J. Zhuang (2018), Ndaguba, E. A. and B. Hanyane, 2019, Cornelius, N. and J. Wallace, 2019. Economic capability is important to reduce poverty as it can foresee the economic in the form of income level of communities to compute the future data needed to reduce the poverty. Furthermore, economic Ables to access information from the existing market, to enable the previous poverty rates and the possible ways to reduce poverty. Also, as the economic growth and strengthen, it can increase employment rate and promote local business such as local SMEs to reduce poverty. Meanwhile economic capable to improve business strategies such as lowering the cost of starting up a business and allow advancement of technology. Therefore, to reduce poverty using the power of technopeneurship, it is in need for economic capability to improve.

H3: Sociocultural capability has a positive effect on the role of technopreneurship in poverty reduction in Malaysia.

Based on Table 4.19, the significant value of socio-cultural capability p =0.002, which is lower than 0.05 ($p<0.05$). The results of the study proved that economic capability is positively influenced the role of technopreneurship in reducing the poverty in Malaysia. It is aligned with Carpiano, R. M, and Gonzalez, J.-F., et al, (2015). The application of sociocultural capability can strengthen individual's internal skill to build bonds and relationship with each other in the communities. At the same time, cultural values among individuals can positively impact the poverty

reduction by seeking market information and resources to support the poverty situation. Also, the values of sociocultural capability can create market strategies to support economic development. Hence, it is needed for poverty reduction in Malaysia in the role of technopreneurship.

H4: Social Entrepreneurship has appositive effect on the role of technorepreneurship in poverty reduction in Malaysia.

Based on Table 4.22, the significant value of economic p =0.001, which is lower than 0.05 ($p<0.05$). The results of the study proved that economic capability is positively influenced the role of technopreneurship in reducing the poverty in Malaysia. It is aligned with Cooney and Shanks (2010), Simpson (2015), Sijabat (2015) and Mair & Marti, (2009) and Eversole et al. 2013; Shaw & Carter, (2007). Social Entrepreneurship shows a significant positively impact on reducing poverty as it can reflect the poverty issue by multiplying co-synergizing and allows job creation by fostering loyalty among the individuals. It can create social program which allows sustainability the quality of the poor in Malaysia. Also, it can access to financial services industry to empower the poor communities. Particularly, it can create human needs such as human prosperity, improve human resources development to minimize the poverty gap. Thus, Social Enterprise is important to increase the role of technopreneurship.

4.12 Summary

The researcher managed to gather 384 respondents after the data-collecting process accordingly the sample size calculation of Krejcie and Morgan (1970). At first, the data were interpreted for frequency analysis to distribute the respondents' gender, age, educational level, occupation and income level. Later, all variables are carried out for descriptive analysis to determine the data for its mean and standard deviation. In the descriptive analysis, we can notice the normality of the data through the results of skewness and kurtosis. Next, the items in the variables underwent EFA to discover the items in the variables. Furthermore, the variables were analyzed for reliability analysis to discover the validity of the items in the variables.

Fifth, the relationship among the variables were determined by testing its correlation and multiple regression analysis. In this analysis, the researcher manages to determine the impact of the independent variables on the dependent variable. Finally, the results showed that all variables were positively significant to the technopreneurship is important to reduce poverty in Malaysia.

Firstly, the data were examined with frequency analysis process to identify the respondents' gender, age, ethics, income level and occupation. Eventually, a descriptive analysis was carried out to investigate the mean and standard deviation for all variables, with particularly of their skewness and kurtosis as the indicators of data normality. Meanwhile, the variables were tested using EFA to determine the existence of potential items in the variables. Later on, the reliability of the variables was observed to determine that the items are valid. Furthermore, the process of correlation analysis and multiple regression were used to determine the impact of the independent variables on the dependent variable. Lastly, the results of the study show that all factors positively influence the Technopreneurship in reducing poverty in Malaysia.

With that, the explanation of the results and the contributions of the overall finding, as well as the limitations of the research and recommendations for future studies are used for further discussion in the following chapter. In short, the difficulties to identified during the studies and suggestion on solving the issue and unavoidable challenges were faced by the researcher who intend to discover the topic further in the future.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

To determine the factors of technopreneurship in eliminating the poverty in Malaysia, this research analyzed a total number of 384 samples from the public in Melaka. This chapter present the summarizes from the findings of the study. Additionally, this chapter examines the contribution of the findings to the existing body of knowledge, practitioners, and policymakers, followed by identifying the limitations of the study and proposed suitable suggestions for future research. Finally, this chapter will end as the conclusions of the study.

5.2 Summary of the findings

From the outset, this study proposed three research objectives, which are then summary to meet the objectives of the research.

Research objective 1: To determine the Capability Approach factors that influenced the technopreneurship in poverty reduction.

In Chapter 1, the first research objective was to determine if Capability Approach factors that influenced the Technopreneurship for poverty reduction in Malaysia, according to the literature, there are four Capability Approach factors identified that can positively and significantly influenced Technopreneurship to reduce poverty, which are Economic capability, Socio-cultural capability, Social Entrepreneurship, and Technopreneurship Education (Amartya Sen, 1981).

Hence, an online questionnaire was developed based on the variables and adapted from previous authors (Naminse, E. Y. and J. Zhuang, 2018; Cooney and Shanks 2010). Meanwhile, the questionnaire distributed among the researcher's approaches as the sampling technique selected was convenience to others. The respondents were required to complete the questionnaire using the appropriate Likert scale for each item.

According to previous descriptive analysis, most of the respondents agreed with the statements of each item as the mean for all items was 3.00 and above. It proves that most of the respondents agreed with the items listed, whereby the factors of the role of technopreuenrship could reduce the poverty status in Malaysia.

Research objective 2: To analyze the relationship between Capability Approach and Technopreneurship in poverty reduction.

After collected all the data, the analysis was carried out by SPSS software. The correlation analysis was developed to determine the relationship between the independent variables and dependent variable. As mentioned above, the correlation analysis was used to explain the strength and route of a linear that exists between two variables, which are the dependent and independent variables (Pallant, 2011). In the study, the correlation analysis explored the relationship of the role of technopreneurship in minimizing poverty and each independent variable, namely Technopreneurship Education, Sociocultural Capability, Economic Capability and Social Enterprise.

Based on the results, the correlation between alll independent variables and the dependent variable were positive. Additionally, the strength of the relationship between the variables hve a high correlation. This shows that one independent variable increased, the dependent variable will alos increase positively.

Research Objectives 3: To examine the level of importance of the Capability Approach towards the successfulness of reducing poverty in

Malaysia.

According to the findings of the research, all independent variable shows a positive significant impact on reducing poverty in Malaysia. Below are the rankings of the factors according to its strength on influencing the role of technopreneurship in reducing the poverty in Malaysia.

Table 5.1: Ranking of factors.

Factor	Beta Value	Rank
Social Enterprise	0.490	1
Socio-cultural Capability	0.329	2
Economic	0.064	3
Technopreneurship Education	0.143	4

Based on the table, the highest ranking goes to Social Enterprise, with a beta value of 0.490 compared to other independent variables. As Social Enterprise has the ability to improve the job creation in Malaysia while creating social programs that enhance the fundamental status of the nation.

Meanwhile, the second highest ranking refers to Socio-cultural Capability. This sis because socio-cultural able to increase the global competence, interconnect individuals and organizations to essentially create international collaboration and business ventures. Not only that, it influences positively on effective communication internationally and improve market expansion as well.

5.3 Contribution of the findings

At the conclusion of the research, it has met the objectives as presented in chapter 1. Eventually, the contributions of the research are divided into knowledge, practice and policy maker.

5.3.1 Research contributions to knowledge

The Capability Approach factors in the study allowed the researcher to determine the factors that impacting the Technopreneurship to reducing the poverty in Malaysia. Additionally, the Capability Approach suggests that poverty is influenced by few key factors, namely Economic, Socio-cultural capability, and Technopreneurship Education. Finally, it is demonstrated that the poverty reduction are affected by the Capability Approach factors. This resulted that the performance of the project influences the Technopreneurship in reducing the poverty in Malaysia, through these main factors.

Apart from the Capability Approach factors, Social Entrepreneurship were added as the fifth factor as the researcher believed that SE plays an important role to reduce the poverty in Malaysia. At the end of the research, it is confirmed that Social Enterprise made a significant impact in embarking technopreneurship to reduce poverty.

A descriptive study was undertaken to ascertain and describe the characteristics of the variables of interest in specific situation. At the same time, the method applied was quantitative method to deem appropriation for the context of the study. In order to understand the relationship between the dependent variables and the independent variables, the hypotheses were developed and tested.

Additionally, researcher also utilized the analysis tool, SPSS to simplify the process of collecting data. It allows the researcher to get the results from analysis the data, such as frequency analysis, descriptive analysis, factor analysis, reliability analysis, and correlation analysis. With that, researcher managed to develop multiple linear regression analysis to test the hypotheses.

5.3.2 Research contributions to the practice

This study was carried out successfully by contributing the data to improve the poverty reduction in Malaysia. The findings resulted that all capability approaches and Social Enterprise have positive significant impact to mitigate the poverty in Malaysia. Therefore, Malaysia citizens, government, and concerned parties may use the knowledge as a guidance or reference to reduce poverty in nation.

Consequently, Malaysia citizens, CC may investigate all possible factors and determine suggestions to enhance the support from the crowd. For example, in economic development, it can contribute the poverty reduction by creating job opportunities, increase individual income levels, improving access to education and healthcare industries, at the same time foster the well-being in society.

Secondly, for technopreneurship education capability, it able to perform pilot test for targeted population, which is Malaysia citizens to reduce the poverty. Similarly, the research can receive feedbacks, reactions, comments and criticism from different type of targeted audiences which access to the platform. With that, the outcome could create a platform that is friendly, efficient, and effective for users. The same process for socio-cultural capability as it involves the condition of the poverty reduction approach.

To highlight more Social Enterprise, awareness of organizations should raise and practice more on developing a sustainable society, develop innovation on technology advancement and foster a culture of innovation within their operations. Furthermore, by improving social impact on the public, financial independence is important in order to generate revenue through the operations to reduce the poverty gap in Malaysia. This can lead to a more inclusive and sustainable approach.

Last but not least, technopreneurship can make a substantial impact on poverty reduction through telecommunications company. For example,

adopting apps that can generate revenue remotely and underserved areas, Also, the leading on telecommunication company may lead to job creation and innovation ecosystem that encourages technopreneurs to develop complementary services and solutions to the public.

5.4 Limitations of the research

The following limitations has restricted the overall findings in the study. Firstly, this study only focuses mostly on the public in Melaka, which is around 800,000 from the total population in Malaysia. Hence, the finding could not be generalized to cover the perspectives and acceptance of Malaysian in impacting the poverty reduction status.

Meanwhile, the study uses only the quantitative method since it was deemed appropriate for the context of the study. Therefore, the findings are more generalize and is not presented in-depth compared to a mixed-methods or study based on qualitative method.

5.5 Recommendations for future research

Given that the research is limited in Melaka, therefore, further studies should include number of other states in Malaysia in order to get a more standardize data. Thus, future studies can be more accurate in the final outcome to other populations in Malaysians.

Moreover, the research applied Capability Approach in determining the capability of reducing the poverty in Malaysia. Yet, the research did not utilize the moderator of the variables in the Capability Approach. Therefore, future research may use the entire model to have a more complete and refined findings could be success. Likewise, other theories and models are to adapt and determine the capability of the role of technopreneurship, such as human capability, TPB or others theories for future purpose.

Meanwhile, the future research may apply the qualitative and mixed-method to identify the role of technopreneurship in eliminating the poverty. With that, the detailed results could be achieved by utilizing the

mentioned methods. Lastly, there were numerous topics discussed regarding the poverty could be unfolded by future researchers. For example, the challenges and barriers of reducing poverty in Malaysia, or more effective recommendations to improve the role of technopreneurship.

5.6 Conclusion

Technopreneurship is significantly important to redue poverty among the public of Malaysia. Among the role of technopreneurship, it is undeniable that Technopreneurship Education has the most significant impact towards poverty reduction, as probably agreed by most Malaysians. It provides intellectual skills.

At the same time, in order to test the developed hypotheses in the study, ‘descriptive research was adopted by applying a self-administered questionnaire distributed to respondents. IN this study, a convenience sampling was selected, whereby 384 respondents responded the questions. Surprisingly, all the independent variables resulted in a positively significant to the role of technopreneurship in reducing poverty. Hence, the role of technopreneurship influenced by Technopreneurship Education, Economic Capability, Sociocultural capability and Social Enterprise.

It was contributed to the knowledge successfully in the field by utilizing the Capability Approach factors in the context of reducing the poverty among the role of Technopreneurship. Lastly, for Social Enterprise, it is hope that there are more social programs created to enhance the social status in the public.

The role of Technopreneurship is foreseen as an extremely potential element for the worldwide to minimize the poverty gap in the public. Not just by theoretically based on market analytics, but also, all the practically strategics needed to be applied in order to make changes of the poverty status

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Sample size determination APPENDIX A

Sample size determination by Krejcie and Morgan (1970)

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

No.	Items	
	Gender • Male • Female	
	Please indicate your age • Below 21 years • 21 years – 30 years • 31 years – 40 years • 41 years – 50 years • 51 years to 60 years	
	Please Indicate your Ethics • Malay Chinese Indians Others	
	Please indicate your education level • STPM/Matriculation/Diploma/ Foundation • Bachelor's Degree • Master's Degree • Doctor of Philosophy (PhD)	
	Please indicate your occupation • Student • Private Employee • Government Employee • Semi-private Employee	
	Please indicate your range of income level	
	Please indicate your monthly recorded expenses.	
Total		6

This Section is to identify the factors that influence the role of technopropreneurship in reducing poverty among the Malaysia Citizen. Please indicate to what extent you agree with the following statements by using the appropriate scale. (Tick in the spacing)

3.3.2 Section B: Factors of Technopreneurship

No.	Technopreneurship Education	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
TE1.	The use of technopreneurship education would be essential for poverty reduction.					
TE2.	Applying technopreneurship education in college or university as an alternative will improve poverty reduction in Malaysia.					
TE3.	Technopreneurship education as an alternative to poverty reduction will enhance the living standards of Malaysian citizens.					
TE4.	Technopreneurship education as an alternative to poverty reduction will enhance entrepreneurial activities and new educational with career opportunities for people in Malaysia.					
TE5.	Technopreneurship education provides necessary intellectual skills individuals need to be able to access opportunities to increase productivity and efficiency.					
	Economic Capability					
E1.	Economic is most likely an important element of poverty reduction.					
E2.	It is likely to foresee economic in the form of the income level of communities to reduce poverty in					

	Malaysia.					
E3	Economic is to indicate the ability to access information from the existing market					
E4	Economic growth such as increasing employment rate and promoting local business can reduce poverty					
E5	Economic capabilities among the citizens can be improved by business-like strategies such as minimizing cost, advancement of technology.					
	Sociocultural Capability					
SC1.	The application of sociocultural capability of an individual will enhance poverty reduction.					
SC2.	The sociocultural capability of an individual is to strengthen to enable people to build bonds and relationships with each other on an individual basis or community level.					
SC3.	Cultural values created from sociocultural capability is to be experienced among individual, nations, and business operations to seek market information and resources to support poverty reduction.					
SC4.	Values of sociocultural capability are created to collect market information and resources to support economic development					

	Social Enterprise					
SE1.	Effective Social Entrpreneurship activities able to multiply co-synergizing interventions that reflect the poverty issues.					
SE2.	Social Entrepreneurship allows job creation by engaging in market-based transaction such as fostering loyalty and building bonds with customer in a market to reduce the poverty issue.					
SE3.	Social programs created by social entrepreneurs able to sustain quality of life status of the poor.					
SE4.	Social entrepreneurs act as the key for economic opportunities to access to financial services and empowering the poor condition.					
SE5.	Social entrepreneurs view social issues as spaces of opportunity to create social value and sustain their business					
SE6.	Social enterprises are created to meet particular human needs such as job creation, human prosperity and human resources					

3.3.3 Section C: Poverty Reduction

No.	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
	I will (or willingly to) put effort on the poverty reduction in Malaysia,					

	I will encourage (or willingly to encourage) people around me to foster the study of technopreneurship education in Malaysia.					
	I will acknowledge (or willingly to acknowledge) that the economy will influence poverty alleviation in Malaysia.					
	I will (or willingly to) hold socio-cultural capability to reduce poverty in Malaysia.					
	I will (or willingly to acknowledge) that social entrepreneurs will impact the poverty alleviation in Malaysia					

Gantt Chart of Final Year Project (FYP) 1

WEEK/ ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FYP talk																
Search for FYP topic									MID SEMESTER BREAK							
Meeting with supervisor																
Topic discussion																
Title confirmation																
RO & RQ Construction																
Submission Chapter 1																
Submission Chapter 2																
Submission Chapter 3																
First draft of FYP 1																
Submission of FYP 1																
Presentation 1																
Revised of FYP 1																

Gantt Chart of Final Year Project (FYP) 2

WEEK/ ACTIVITIES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Prepare the questionnaire									M							

Discuss with FYP supervisor to check the questionnaire									I								
Prepare the Google form and start data collection									D								
Data analysis									S								
Report writing for Chapter 4									E								
Submission Chapter 4									M								
Report writing for Chapter 5									E								
Submission Chapter 5									S								
First draft of FYP 2									T								
Submission of FYP 2									E								
Presentation 2									R								
Revised of FYP 2									B								
									R								
									E								
									A								
									K								