IMPACT OF TECHNOLOGY BASED EDUCATION ON STUDENTS' PERFORMANCE DURING COVID 19 PANDEMIC

HEMAARASI SIVAKUMAR

VERIFICATION BY SUPERVISOR

I hereby declare that I had read this thesis and, in my opinion, this thesis is adequate in

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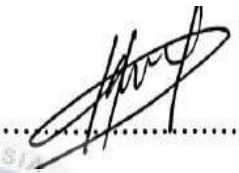
(Innovation Technology)

Signature: 

Name of supervisor: Dr Hazmilah Binti Hasan

Date: 30.1.2023

Signature: 

Name of Panel: Dr Nabil Hasan Saleh Al-Kumaim

Date: 30.1.2023

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HEMAARASI SIVAKUMAR

Report submitted in fulfilment of the requirement for the degree of Bachelor of Technology Management (Hons) in Innovation Technology

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DECLARATION OF ORIGINAL WORK

HEMAARASI SIVAKUMAR B061910476

"I hereby declare that this thesis and the work presented in it are my own except for the quotations and summaries that have been duly knowledge."

Signature: .....

Name: HEMAARASI SIVAKUMAR

Date: 30.1.2023

DEDICATION

This research paper is dedicated to my beloved parents. A special feeling of gratitude to my loving parents for being the sources of my inspiration and motivation. I will always appreciate them for giving us strength and continually provide their endless love, support, and guidance. To my supervisor, friends and classmates who shared their knowledge and encouragement to finish this research.

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ABSTRACT

This article aims to discuss the use of technology media in the education system among students to meet the needs of teaching and learning in line with the country's progress. This research gives a great reference for education sector, especially schools which makes this one of the main platforms in teaching and learning system. This study uses primary data collection which is questionnaire. Implementation of the data collection was conducted through questionnaire distribution method to the respondents by random sampling involving the full quantitative analysis by using computer software namely Social Science Statistics Package (SPSS). The target sample for this study was 300 respondents. The result shows that youths exposed to information technology are more motivated to engage in virtual partnership through social media and willing to learn grammar and vocabulary. Besides, the impact of technology-based education on student performance. The advancement of using this technology is important to enable the country to be in tandem with developed countries and to produce highly knowledgeable human capital to contribute to the progress in the country's education and socio-economic system.

Key words: *Technology, Education, Student Performance, Covid 19 Pandemic.*

ABSTRAK

Artikel ini bertujuan mengkaji penggunaan teknologi media dalam sistem pendidikan dalam kalangan pelajar untuk memenuhi keperluan pengajaran dan pembelajaran seiring dengan kemajuan negara. Kajian ini memberi manfaat kepada pendidikan khususnya sekolah yang menjadikan ini sebagai salah satu platform utama dalam sistem pengajaran dan pembelajaran. Kajian ini melihat sejauh mana penggunaan dan penguasaan pelajar dalam teknologi sebagai bahan bantu belajar untuk memperoleh maklumat tanpa sempadan. Kajian ini menggunakan pengumpulan data primer iaitu kaedah soal selidik. Pelaksanaan pengumpulan data kajian ini dijalankan menerusi kaedah edaran soal selidik kepada pihak responden secara persampelan rawak mudah yang melibatkan sepenuhnya analisis kuantitatif dengan menggunakan perisian komputer iaitu Pakej Statistik Sains Sosial (SPSS). Sampel sasaran bagi kajian ini terdapat 300 orang responden. Dapatan kajian ini menunjukkan golongan remaja yang terdedah dengan teknologi maklumat lebih terdorong untuk melibatkan diri dalam perkongsian maya melalui media sosial serta mempelajari tatabahasa dan perbendaharaan kata. Selain itu, mengkaji impak penggunaan teknologi dalam pembelajaran. Kemajuan penggunaan teknologi ini adalah penting bagi membolehkan negara berada seiring dengan negara-negara maju dan dapat melahirkan modal insan yang berpengetahuan tinggi untuk menyumbang kepada kemajuan dalam sistem pendidikan dan sosio ekonomi negara.

Kata kunci: *Teknologi, Pendidikan, prestasi pelajar, Covid 19 pandamik.*

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LIST OF ABBREVIATIONS

UTem	Universiti Teknikal Malaysia Melaka
SPSS	Statistical Package for Social Science
LO	Learning Outcomes
LA	Learning Activities
AT	Assessment Task
TP	Technology Platform
SP	Students' Performance

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CHAPTER ONE

INTRODUCTION

1.0 INTRODUCTION

This chapter will discuss the background of the research regarding to the technology-based education on student performance during Covid 19 pandemic. The Covid 19 pandemic has had a major impact and change in the educational process. There is problem statement which explains the problem that require to be solved. Then followed by the research questions and research objectives. Next, scope of the study refers to the aspects of this study being investigated. Limitation in the meantime will also be discussed about the boundaries and constraints faced. Next, significant of study will be conducted to explain on the timeline and implications. Summary will be explored this chapter where it summarizes the result and the findin

1.1 BACKGROUND OF STUDY

Since the world faced the COVID-19 pandemic in 2019, this pandemic has already taught us various new norms in facing the life to come. This norm makes human beings more meticulous to continue their daily lives and develop human capital in ensuring the progress of an organization and a country. The education sector indeed has a huge stakeholder involving the number of schools, teachers, and students. The education system in Malaysia, starting from preschool education to post -secondary education, has a clear goal, which is to provide educational opportunities to all its citizens. However, many things have changed because of COVID - 19. The global crisis due to the spread of this epidemic has made the task of teachers increasingly challenging as they must adapt to new norms of life and habits that require teaching and facilitation processes to be implemented online. Online teaching and facilitation processes is the latest learning trend in the COVID-19 pandemic era that challenges teachers to adapt to these new teaching norms (Kuppusamy et al. 2021). To prioritize lifelong learning skills, there is no choice but to take advantage of online educational technology and applications. The current educational context requires teachers to master and have communication and information technology (ICT) literacy in other words, the world of education is in the virtual world. teaching and facilitation processes does not only occur in the school area as usual but is more done at home or known as PDPR. The COVID-19 pandemic has had a major impact and change in the educational process. The reluctance to do online learning is a reason for learning to be ineffective. It is since online learning is seen as something that is difficult to implement, requiring several components to be able to do it such as ease of internet access, willingness to learn (teachers, students, and materials) and parental cooperation (Fauzi and Khusuma, 2020). Apparently, the aspect of 'being a student' becomes a very important element in any method of teaching and learning whether face to face in school or online.

All educators need to improve their knowledge, competencies, abilities, skills, attitude change and readiness in accepting the new norms in education especially online learning. This readiness will be seen as changes in aspects of teaching, assessment and knowledge delivery that challenge educators as they need to have a paradigm shift to embrace new global education scenarios and prepare information technology literate

generation. This is important in preparing them (students) to face the challenges of the Industrial Revolution 4.0 and be ready to become the digital generation.

The teaching and learning environment are clearly different as almost all teaching and facilitation methods are conducted online such as Google Classroom, Google Meet, YouTube, Zoom Cloud Meeting, and various online quizzes and courses such as Massive Open Online Courses (MOOC). In addition, other mediums such as GC, ZOOM, YOUTUBE Video, WhatsApp, Telegram and Email have also become mediums in teaching and learning in low quantities. Most graduates feel virtual learning helps them learn beyond four walls. Nevertheless, there are many challenges faced especially by school students and university students such as the findings of a study by Norfarahi et al. (2020).

According to Nabil et al. (2020) meanwhile, challenges related to online teaching and technical problems showed that students felt burdened when pursuing online learning. Challenges related to Mental Problems and Health showed that students expressed feeling depressed during the COVID-19 pandemic due to five factors including too many online assignments, internet connection limited, unfamiliar with new learning norms, lack of educational resources and anxiety of developing covid disease 19.

Based on the findings as above, a study was conducted to study the Impact of Technology-Based Education on Student Performance During Covid 19 Pandemic Since 2019 -2021.

1.2 PROBLEM STATEMENT

Coronavirus disease (COVID-19) is a disease that is caused by a new severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Diseases such as the severe acute respiratory syndrome (SARS) and the Middle East respiratory syndrome (MERS) reported in 2002 and 2012 respectively were caused by viruses like SARS-CoV-2. However, SARS-CoV-2 has a wider spectrum than the previously reported similar viruses and therefore the difficulty in the treatment and management of COVID-19. Medical diagnoses and research have shown that persons infected with COVID-19 can be symptomatic or asymptomatic in the early stages of infection depending on the individual's immune system. It is reported that symptoms of the disease include dry cough, fever, tiredness, shortness of breath, headache, and general body weakness due to inducement of other ailments in the body (Zhong, et al., 2020). The novelty of SARS-CoV-2 and its recondite genetic nature result to difficulty in treatment of COVID-19 and the development of preventive vaccines.

COVID-19 was first reported in the city of Wuhan, China in 2019 and has continued to ravage the whole world since then. On 11th of March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic based on the rate at which it was spreading and devastating human lives around the world. As of 23 April 2020, about 2 million people have been confirmed to be infected with the disease across the world with more than 182 000 confirmed deaths related to the disease. On January 25, 2020, the first case of COVID -19 was discovered in Malaysia (Asita Elengoe, May 31, 2020). A spike in cases led the Malaysian government to implement measures such as physical separation rules, social gathering restriction, appropriate mask use, Movement Control Order (MCO), Conditional Movement Control Order (CMCO), Extended Movement Control Orders and border closures between mid-March and August – 2020 in effort to contain the disease's spread. All sectors geopolitical to healthcare to cultural events as well as education have been affected by Covid 19 pandemic.

Covid 19 is the biggest obstacle that these national education systems have ever met. Most educational institutions throughout the world have been taken the initiative to stop face to face teaching and learning in order to stop the spread of the virus. So that

students and teachers are facing difficulties by the current pandemic where they could not get to access any source of face-to-face classes. Thus, the implementation of technology - based learning in education has influenced student achievement as students have been exposed to the use of technology in their daily lives as well as in the field of education in the pandemic era of Covid 19. Meanwhile, there is requirement to study the role of technology in teaching and learning process during pandemic and determine the impact of technology-based education on student performance.

1.3 RESEARCH QUESTIONS

The research question is the essential process where it provides the focus and framework about the direction of the study. Research question is fundamentally the key components as it can guide and provide a concise and more understanding guideline of this study.

This research attempts to provide answer to the following question:

- What is the available technology platform in teaching and learning process during pandemic?
- What is the role of technology in teaching and learning process during pandemic?
- What is the impact of technology-based education on student performance?

1.4 RESEARCH OBJECTIVES

The objective to examine the impact of technology-based education on student performance among students to meet the needs of teaching and learning in line with national progress. Thus, research studied has developed in order to stay focus and guide throughout the study.

The objectives of this research are as follow:

- To identify the available technology platform in teaching and learning process during pandemic.
- To explore the role of technology in teaching and learning process during pandemic.
- To determine the impact of technology-based education on student performance.

1.5 SCOPE OF STUDY

The focus of this analysis is to examine the impact of technology-based education on student performance among students to meet the needs of teaching and learning. The study was conducted in a secondary school, namely SMK BUKIT GAMBIR. The study population was Form 5 students a total of 300 students. The sample is representative of the Form 5 population comprising of the Science and Humanities stream selected as the sample of this study. Sample size determined with reference to the determinant table sample size Krejcie and Morgan (1970).

1.6 LIMITATION

There are several limitations encountered in this study that may influence the results. The first is time constraints. The next initial limitations are that data collection may be time consuming as the researcher have to collect everything targeting respondents from a large sample size in order to produce an accurate and reliable sample results. Researcher has some difficulties to find as much as information and details related to her study in a given timeframe. Besides, that the impact on findings is the use of secondary data obtained by others. As a result, the quantity of data points used in this investigation is limited.

1.7 SIGNIFICANT OF STUDY

This research may help students in evaluating or assessing themselves as to what learning approach is more effective for them. Teachers may be guided on what teaching technique or platform to use for the students to effectively teach when class. They will have the understanding on the effectiveness of the technology-based learning. It's also be able to help determine the best way in applying these learning techniques.

1.8 SUMMARY

Throughout this chapter, researcher had explained on some elements in this research which are background of the study where it about Covid 19 pandemic. Followed by the problem statement which defines the need of this research. Meanwhile, three research questions and three research objectives will be discussed further. The scope of research focus to examine the impact of technology-based education on student performance among students to meet the needs of teaching and learning based on the form 5 student in SMK Bukit Gambir. Limitation at the same time, it took quite some time to gather the data and information when completing the report. The significant of study is may help students in evaluating or assessing themselves as to what learning approach is more effective for them during pandemic.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter will discuss in depth the technology-based education which providing the reader with the academic status quo about technology education on student performance during Covid 19 pandemic. Besides this chapter also will discuss the important of education, philosophy of education, and landscape of education in Malaysia. Other than, this chapter also include the model of theoretical framework based on the objectives that want to achieve. To conclude, this chapter present current research about the impact of technology-based education on student performance.

2.1 DEFINITION OF CONCEPTS

2.1.1 TECHNOLOGY

Technology based education is the integration of instructional technology into the learning environment of schools. It refers to educational settings that apply advanced technologies such as computer and the internet in the teaching and learning process. In it, technology is defined as "a system created by humans that uses knowledge and organizations to produce objects and techniques for the attainment of specific goals" (Volti 2009, p.6).

Technology is also embodied in people, materials, cognitive and physical processes, facilities, machines, and tools (Lin, 2003). Technology is the effort to organize the world for problem solving so that goods and services can be invented, developed, produced, and used (Thomas P. Hughes, 2004).

2.1.2 EDUCATION

Education is a word we hear very familiar in everyday life, because education is considered the most significant activity in any society. Education is characterized as a learning cycle for the person to achieve information and comprehension of the higher explicit items and explicit. The information acquired officially coming about an individual has an example of thought and conduct as per the training they have acquired. **(**Dewey, J. (1986**).**

According to (Scheffler.et al 1960), there are three kinds of definitions of "education". The first type is called the descriptive. It is a statement that proposes to denote or explain the nature of the meaning of the word called "education" by using a variety of words to explain either what the phenomenon is or how the term is to be understood. The second type of definition of "education" is the programmatic which comes to advocate for or prescribe a belief of what education should be or should do. The third type of definition is the stipulative and its purpose is technical and utilitarian.

2.1.3 STUDENT PERFORMANCE

According to U.S. Department of Education, student performance defined as academic progress of a single student, such as formative and summative assessment data, coursework, instructor observations, student engagement and time on task, and similar information.

A student performance is a specific statement about what a student should be able to do as the result of instruction. In most cases it would or should be a short period of instruction and would involve the student completing some simple tasks correctly. Whatever the task is, it must be something that can be evaluated by observing the student or having the student responds to a test question (Newmann 1996).

2.1.4 COVID 19 PANDEMIC

According to World Health Organization (2020) The COVID-19 pandemic also known as the coronavirus pandemic or coronavirus outbreak is an ongoing 2019 global coronavirus pandemic caused by severe acute respiratory syndrome coronavirus. The outbreak was initially detected in mid-December 2019 in Wuhan city, and was recognized as a pandemic. Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus (World health Organization, 2019).

The Covid-19 pandemic has caused economic paralysis and affected the lives of communities around the world. The main objective that will be discussed in this article is the Malaysian government’s approach in dealing with the Covid-19 pandemic to ensure that the country's socio-economy is not affected where it could affect national security (Brust M, 2021).

2.2 IMPORTANT OF EDUCATION

According to Dewan Bahasa dan Pustaka, education is an activity or process of teaching and learning for the purpose of educating and imparting certain expertise, knowledge, and ideology to its students. Education is very important to produce knowledgeable and skilled individuals. The role of education is very important to produce a line of intellectuals and experts in the country. The field of education is indeed important to the people in the context of making Malaysia a developed country by 2020. There are several benefits of education provided by the government to the people.

Al-Shuaibi (2014) important of education is the practice of gaining knowledge and information that are capable of leading one to a positive future. Therefore, education is to produce knowledgeable people and information. With the existence of knowledgeable people, then the people's lives will be better. This is because those who are educated will get a good job with a decent salary. With a lucrative income, then the people can buy better necessities and their lives will be happier. Knowledgeable people can also be a catalyst towards national development.

In addition, educated people can also develop the country (Kumar and Ahmad (2008). History has shown that developed countries have knowledgeable people. For example, Japan, South Korea, and the United States. These knowledgeable people can create new things to develop the country. Therefore, with the existence of knowledgeable people, then Malaysia will also be a developed country one day.

Besides, it is very well-known that having self-confidence is always generated from education. It is a great blessing for us to have self-confidence, which leads to many advantages and success in life. According to Saterlie, M. E. (1988), education helps people grow as individuals. For example, it helps us manage specific tasks, tackle life's challenges, and maintain positive stands. Additionally, having self-confidence is typically based on proper education; paving the path for us to success. Accordingly, self-confidence makes us aware of how well we perform a task or a range of actions. In short, being educated is undoubtedly being self-confident and successful in life.

In short, Education is very important in our daily lives.

2.3 PHILOSOPHY OF EDUCATION

Education encompasses the process of teaching and learning specific expertise, as well as something invisible but deeper with the impartation of knowledge, judgment, skills and wisdom. One of the fundamental goals of education is to teach culture across generations. Education often takes place under the guidance of educators, but students are also able to educate themselves. Education can take place in formal or informal situations and any experience that has a formative effect on the way a person thinks, feels, or acts can be considered educational. The education system in Malaysia is supervised by the Ministry of Education Malaysia (MOE). Malaysian education can be obtained from government - run schools, private schools or on their own. The education system is centralized mainly for primary and secondary schools.

Philosophy of Education, formerly called the National Philosophy of Education (FPN), is an education policy that has been implemented in Malaysia. The Philosophy of National Education (FPN) is the core of the education system in Malaysia since 1988. For information, FPN has been structured based on the Malaysian Constitution and based on national ideology that implements Rukun negara, New Economic Policy and National Education Policy (Joseph, C. Ed.2017). Based on the National Education Philosophy, every educational activity is held to achieve the main essence of FPK which is to produce balanced human beings in terms of Physical, Emotional, Spiritual, Intellectual and Social. This philosophy was formulated in 1988 by Education experts. This effort is to produce Malaysian citizens who are knowledgeable, skilled, virtuous, responsible, and able to achieve personal well -being, as well as contribute to the harmony and prosperity of the family, community and country. For example, all schools in Malaysia must support the National Education Philosophy in order to realize the dreams and aspirations of the Malaysian nation.

2.4 LANDSCAPE OF EDUCATION IN MALAYSIA

The Education Landscape in Malaysia before the Covid 19 pandemic teaching and learning system was conducted in schools face to face. With the spread of the Covid 19 virus, the Malaysian Government has decided that the movement control order is PKP in all states in Malaysia. The implementation of the Movement Control Order (MCO) announced by Prime Minister Tan Sri Muhyiddin Yassin is an ongoing effort since early 2020 to break the chain of transmission of the COVID-19 epidemic. MCO was enforced in four phases for 47 days, from 18 March 2020 to 3 May 2020. Therefore, all educational institutions under the Ministry of Education Malaysia were instructed to close schools to address the spread of Covid 19 infectious disease. the 'crash' of technology and the Industrial Revolution (IR) 4.0 which has demanded all parties to be more proactive and responsive to the environment**.** Minister of Higher Education, Datuk Seri Noraini Ahmad said, that the COVID-19 pandemic, had opened the eyes of all corners of the world on the importance of new educational methods such as digitization compared to conventional educational methods.

The outbreak of the Covid-19 pandemic in March last year changed the landscape of the country's education and it posed a big challenge to the Ministry of Education (MOE) after face-to-face teaching and learning sessions had to be stopped. On the other hand, all learning sessions are more focused at home. According to Senior Minister of Education Datuk Dr Radzi Jidin Posted on: March 6, 2021 @ 11:18 am via metro.com.my, the country's education landscape has changed as soon as face -to -face teaching and learning sessions are used to use online learning methods. Dr Radzi said, facing the new environment, digital education is an important instrument that needs to be focused on by the MOE, without neglecting the constraints and problems faced by all parties such as poor internet access and the lack of devices for students. He said, for this stage, the focus of the MOE is to prepare and train teachers to have in -depth expertise and knowledge to enable them to become familiar with the delivery of digital learning. Owning this device is the main challenge, how do we want to implement if students do not have a device. Teachers' expertise in digital education, should also be focused so that they know how to use technology. In short, the Covid 19 virus has changed the landscape of Education with technology and the Industrial Revolution (IR) 4.0.

2.5 TECHNOLOGY PLATFORM IN EDUCATION

The use of technology in education needs to be enhanced especially in the delivery of information in the current learning system to secondary school students by educators. Such a need is important to be in line with the era of progress nowadays which is the digital era where students tend to think more creatively and innovatively. The use of technology in this learning can also improve work outcomes for high quality and new students. This media technology is one of the intermediaries between each other to convey information. This media technology can be an effective teaching aid for teachers in improving the quality of learning and student performance. Examples of technological media used in the teaching and learning process are Facebook, Telegram, Youtube and so on. Facebook can be a platform for teachers and students to enhance a more friendly and open learning process. Through the Facebook social site, teachers and students can access information more easily and quickly, especially information related to current issues, education, and learning.

In addition, students can also share academic materials such as journals, articles and scholarly reading materials to friends and teachers. Rahimi & Zawawi (2005) in the study said that indirectly the method it can improve the teaching and learning system towards a better quality by facilitating the effectiveness of information delivery. Web - based teaching and learning is one of the mediums that can increase the level of student learning and can smooth the teaching process. This web -based learning method can help students complete assigned tasks in each time efficiently. Teaching and learning methods with the online web will make students more positive and able to learn information literacy skills by using the internet.

Apart from Facebook, Web, YouTube, according to Joia, L. A., & Lorenzo, M. **(2021),** there are several platforms that can be used in the implementation of learning during the pandemic era namely Google Classroom (GC), and zoom. The digital platform that is often used is the zoom cloud meeting. The use of zoom cloud meeting in learning makes teachers and students in the classroom because with this application teachers and students face to face via laptop or mobile phone. Another widely used digital platform is Google Facilities. There are three google facilities that can be used during learning,

namely Google Classroom, Google Form, and Google meet. Google Classroom is an application created by google that aims to make it easier for teachers and learners to implement learning. This Google Classroom helps teachers easily manage learning and convey information accurately and accurately to learners. Next there is the google form. Google Forms is one of several applications with a form display model as a worksheet that can be used by both individuals and groups. The use of google forms in learning is very easy. Ease of use and evaluation make google form used. The advantage of this google form is the existence of various templates for making quizzes, can use various types of exams made according to the wishes of teachers, can even add videos and images, and the results of responses from learners can be saved automatically. The results of the data obtained from the google form are displayed in detail and make it easier for teachers to conduct assessments. The last Google service is Google Meet. Google meet is an application that is very similar to zoom cloud meeting. The most visible difference between google meet and zoom cloud meeting is the screen display when doing learning. The use of google meet and zoom cloud meeting are both equally suitable in learning.

2.6 ROLE OF TECHNOLOGY

According to Kanika Budhwar 2017, in the world that we currently live in, technology is a vital factor. With each passing day a new software or gadget is being brought into the market that serves to improve our lives in one way or another. Technology plays a major role in every field and one such field where its presence is utmost is in education sector. With the advancement in technology, education among the people has begun to proliferate and there is continuous research and development going on in introducing advanced technologies to make education easier, joyful, and accessible.

Information and communication technology (ICT) is a boom for students today as it has a significant and positive effect on student achievement. ICT basically includes television, computers, internet etc. when used appropriately it can strengthen, expand, and raise quality of education. The use of computers and the internet for enhancing the quality of education by making learning more relevant to life has been seen as an ideal by educational institutions. The citizens of tomorrow who are our students now are going to

live in the age of the electronic media. ICT can boost creativity and problem-solving capability in students. (Kanika Budhwar, 2017).

Educational technology is a complex and integrated process involving people, procedures, ideas, equipment, and organization for analyze the problem, find a way solving, executing, evaluate, and manage problem solving concerned all aspects of human learning. Technology education can be seen as a discipline, field of work, and profession (Williams, 2001). Educational Technology in a sense narrow is an educational medium namely the result of technology as an aid in education to succeed, efficient, and effective. Technology education emerges as an issue along the way with the development of life human beings and the need for education and learning.

In the context of more education generally, educational technology is development, application, and assessment of technical systems and aids to improve and enhance the quality of human learning, with thus the aspects include theoretical considerations which are research results, devices and technical equipment or hardware and software, aspects are used to design, perform educational assessment with a systematic approach.

2.7 RESEARCH FRAMEWORK

Eventually, the purpose of this study is to find the impact of technology-based education on student performance, the researcher there for has chosen to use contructive theory for this study. Before start the research, explore what theories and models other researchers have already developed is vital. Constructive alignment is a design for teaching in which what it is intended students should learn and how they should express their learning is clearly stated before teaching takes place. Teaching is then designed to engage students in learning activities that optimize their chances of achieving those outcomes, and assessment tasks are designed to enable clear judgments as to how well those outcomes have been attained" Kandlbinder, P. (2014).

According to Kandlbinder, P. (2014). the constructive alignment approach recognizes knowledge is constructed by the activities of the learner rather than being

directly transferable from teacher to students. Learning takes place through the active behavior of the students, it is what they learn, not what the teacher does**.** Alignment occurs when the learning activities that ask students to engage in help them to develop the knowledge, skills, and understandings intended for the unit and measured by the assessment. A constructively aligned unit capitalizes on the powerful effect of assessment on students learning experiences. If assessment drives students learning, then students are most likely to achieve the intended outcomes if the assessment is aligned with the intentions.

The framework of constructive alignment:

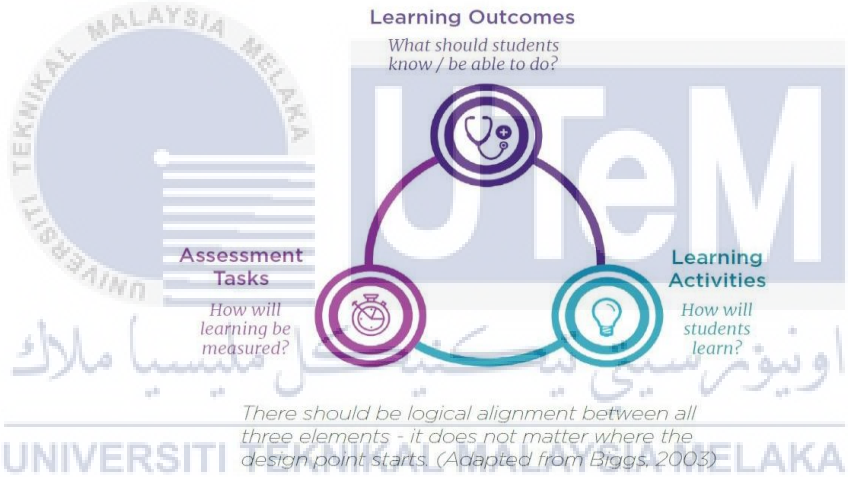

Figure 1.0 Constructive alignment.

(Source from Biggs,2003)

2.7.1 DEPENDENT VARIABLE

The dependent variable in this research is student performance. Based on the literature review, proposed model can explain and offer a better prediction on student performance by using technology platforms during covid 19 pandemic.

2.7.1.1 Students' Performance

According to Jaggars, S. S., & Xu, D. (2016), student performance defined as academic progress of a single student, such as formative and summative assessment data, coursework, instructor observations, student engagement and time on task, and similar information. A student performance is a specific statement about what a student should be able to do as the result of instruction. In addition, increased implementation of technology will increase students' comprehension of content and development of skills in such areas as analytical reasoning, problem solving, information evaluation, and creative thinking. Technology provides students with easy-to-access information, accelerated learning, and fun opportunities to practice what they learn. It enables students to explore new subjects and deepen their understanding of difficult concepts.

2.7.2 INDEPENDENT VARIABLE

The independent variables are proposed as determinants of the changes in the dependent variables. An independent variable is the variable that manipulate or vary in an experimental study to explore its effects. It is called "independent" because it is not influenced by any other variables in the study. Hence, this research uses selected model from the contructive alignment which are included three elements learning outcomes, learning activities and assessment tasks. The researcher includes this element to determine students' performance.

2.7.2.1 Learning outcomes

According to Biggs, 2014, learning outcome is measurable statement that articulate at the beginning what students should know, be able to do or value as a result of taking a course or completing a program. Learning platforms have been widely introduced into higher education, to support access by students and teachers to course materials and many more. Furthermore, learning outcomes are assessment tools that measure the students' achievement at the end of a course or program and the statements that help teachers and students to understand the importance of knowledge, skills, and values of a particular course.

2.7.2.2 Learning activities

Learning activities students apply knowledge of plasma electrolyte levels to diagnoses of kidney disease, (Biggs, 2014). In addition, learning activity is the process of appropriation of scientific knowledge occurs through the solution, by the students, of the learning tasks, since it is in the learning task that the child is allowed to discover the conditions of the origin of scientific knowledge, (Miller, 2019, p. 73). Learning activities such as Kahoot. Kahoot is a student-response gamifying tool that lets teachers create multiple-choice quizzes and polls and is a great way to incorporate fun and games in the classroom! It provides quick, real-time results and gives students instant feedback on their devices without anyone being called out individually.

2.7.2.3 Assessment task

According to Biggs, 2014, assessment task means test students' abilities to apply knowledge of plasma electrolyte levels to diagnoses of kidney disease. In addition, assessment task is an individual piece of assessed work. Example of assessment task which is Quiziz, Kahoot and many more.

2.7.2.4 Technology platform

A technology platform typically includes analytics, database and data management, tools for application development and extension, integration, and intelligent technologies such as artificial intelligence (AI), machine learning, and the Internet of Things (IoT). According to Guijas, 2018, an example of a computing platform is a modern laptop running Windows as an operating system.

2.8 PROPOSED FRAMEWORK

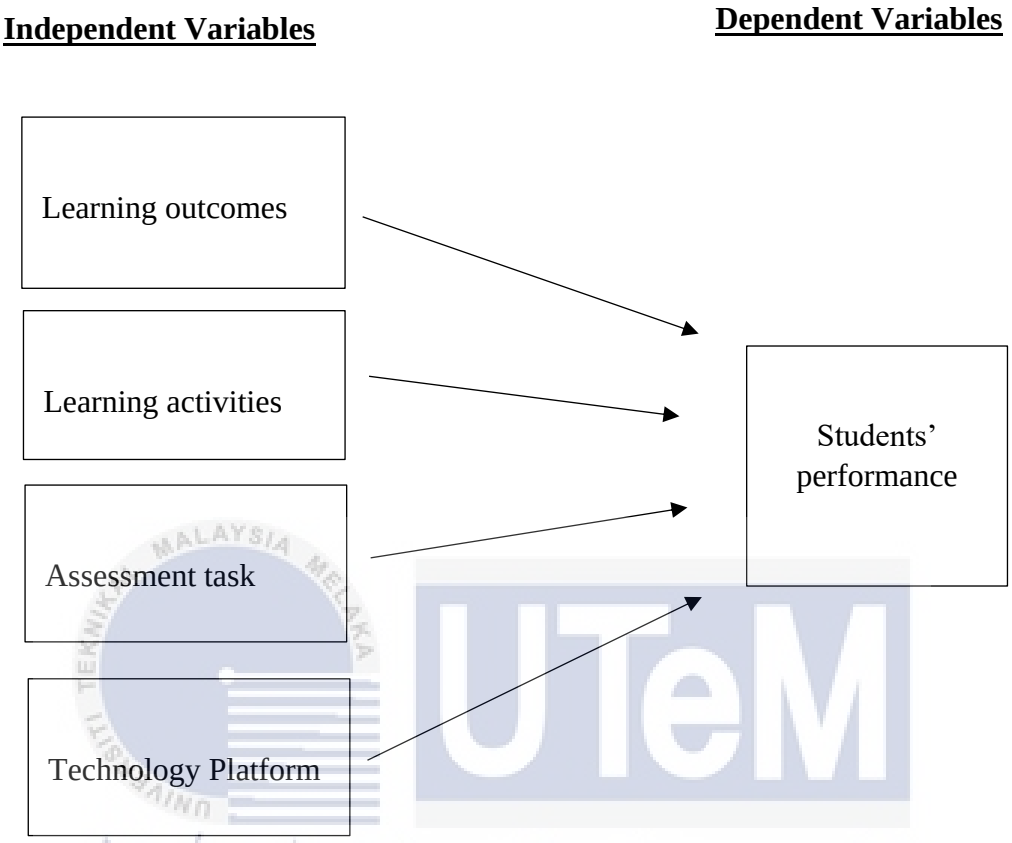

Figure 2.0: Proposed Research Model.

2.9 HYPOTHESIS OF STUDY

There are several hypotheses that could be generated according to the proposed research framework as shown above. The hypotheses were as follows:

Learning outcomes.

H1: The learning outcomes have a significant effect on students' performance using technology platforms during covid19.

Learning activities.

H2: The learning activities have a significant effect on students' performance using technology platforms during covid19.

Assessment task.

H3: The assessment task has a significant effect on students' performance using technology platforms during covid19.

Technology platform

H4: The technology platform has a significant effect on students' performance using technology platforms during covid19.

2.10 SUMMARY

In the nutshell, there are a few of independent variables existed in this research framework such as learning outcomes using technology platforms, learning activities by technology and assessment task by interactive learning tools. The researcher clarified the study process in this chapter where it concentrated on students' performance during Covid 19 pandemic. The researcher has developed some testing of hypotheses to determine the relationship between these independent and dependent variables.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

This chapter will be focused on the research method of the study to use in order to execute the research objectives. The method of data collection in the research will determine the method of the data analysis. The research methodology is mainly used as an approach for data collecting and analyzing. Therefore, this study would include research design and the research strategies. The research process will also be presented in this research as a clear process flow of the study. The purpose of this chapter is to explain the structure of process and the method to approach data. Data collection and sampling are the method used for collecting data.

3.1 Research Design

A research design is the detailed outlines for the gathering and analysis of information and data based on the research questions and objective of the research. The research design refers to intended to provide an appropriate framework for a study. According to Leavy, P. (2017), research design is a general plan on how the researcher will answer the research questions or problems based on the study. The research provides an overview of which study design to propose, ways of gathering information or data from respondents, selecting potential respondents, analyzing the information gathered and communicating the findings (Kumar, 2018).

A research design can be defined as a plan for proposed research. According to Kumar, 2018 stated that functions of research design serve functions such as outlining the procedures for carrying out a study and ensuring the relationship of the independent variables to the dependent variable has its impact. Therefore, a research design is essential if more detailed data collection and analysis information is to be obtained using exploratory, descriptive, and explanatory. The research design that the researcher would like to apply in this study which is "Descriptive Research."

3.1.1 Descriptive Research

According to Williams (2007), descriptive research refers to a research method that can determine the situation in current phenomenon. Nassaji (2015) states that the goal of descriptive research is a drawing and classifying the phenomenon. In other words, descriptive research is a type of research that aims to obtain information to systematically describe situation or population. More specifically, it helps answer the what, when, where, and how questions regarding the research problem, rather than the why. Descriptive research is quantitative in nature as it attempts to collect information and statistically analyze it. Descriptive research is a powerful research tool that permits a researcher to collect data and describe the demographics of the same with the help of statistical analysis. Therefore, observation and survey tools often used to gather the information. In this study, the researcher would like to apply descriptive research to describe the impact of

technology-based education on students' performance by collecting data or information from a questionnaire. Descriptive research can be either qualitative or quantitative method.

3.2 Research Methods

The purpose of this research is to examine the impact of technology-based education on students' performance. A research method is often divided into two main types which are quantitative and qualitative methods and mixed method (Muijs,2012). The method used in this research is quantitative method.

3.2.1 Quantitative Research

Quantitative research is a research strategy that focuses on quantifying the collection and analysis of data. In this study, the researcher chooses quantitative method which is a set of questionnaires will be provided to the sample population to collect data. According to Williams, C. (2007), noted that quantitative research is the process of collecting, analyzing, interpreting, and writing the results of a study, while qualitative research is the approach to data collection, analysis, and report writing differing from the traditional, quantitative approaches. The relationships between variables which are measured numerically and analyzed using a range of statistical and graphical techniques are all in the concept of quantitative research.

The quantitative research is a way to learn about a particular group of people, known as a sample population. Quantitative approaches provide objectivity in that hypotheses are tested by collecting data and applying statistical criteria to the measures. The objective of quantitative is to seek precise measurement and analysis of target concepts such as uses surveys and questionnaires.

3.3 Data Collection

A collection of data is an important process that needs to consider in research. Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes. According to Creswell, J. W, 2014, data collecting technique include setting the boundaries for the study, collecting information through unstructured or semi structured observations and interviews, documents, and visual materials, as well as establishing the protocol for recording information. The main purpose of data collection is to gather information in a measured and systematic manner to ensure accuracy and facilitate data analysis.

In consequence, primary and secondary data are the type of data sources. The method of data collecting primary data is original information collected for the first time. On the other hand, secondary data is information that has been collected previously and that has been put through the statistical process. Data analysis is important in research because it makes studying data a lot simpler and more accurate. In a nutshell, researcher used both type of data sources which are primary and secondary data in completing the research.

3.3.1 Primary Data

According to Manalastas-Cantos, 2021, the primary data is the genuine works of research or raw data that characterize an official opinion and position. Primary data refers to the first-hand data gathered by the researcher by own self. The primary source is the first-hand data collected from the survey, questionnaires, and observations reported by the individuals who conducted the research (Hox, J. J., & Boeije, H. R. (2005). Observation is a systematic and selective method of seeing and hearing an interaction as it occurs. It is a systematic approach with people, events, and objects. A self -contained survey was used to collect data using a structured questionnaire. A structured questionnaire is a set of questions designed to collect data from targeted respondents. Questionnaires were given

to respondents who considered to have the knowledge and motivation to complete themselves.

3.3.2 Secondary data

Data or any information which collected from any published source is defined as secondary data. Secondary data is information that has been collected previously and that has been put through the statistical process. Secondary data are basically second-hand pieces of information. Secondary data are analyzed data which were originally collected for some other purpose and process. There are three main types of secondary data such as document, survey and multiple source (Saunders, Lewis and Thornhill, 2015). Secondary data is necessary a new survey that can adequately capture past change cannot be conducted. The following methods for collecting secondary data are such as books, newspapers, articles, journals, websites and many more. According to this research, researcher used to collect data from journal about technology-based education, websites and many more.

3.4 Research Location

The study was conducted in a secondary school, namely SMK BUKIT GAMBIR. The sample is representative of the Form 5 population comprising of the Science and Humanities stream selected as the sample of this study. According to the information the research gets from school management in that school, there is 479 students in Form 5. Researcher will be conducting this research in the school because it is the one of the biggest schools in Tangkak district. Another reason is the school were conduct technology-based education during Covid 19 pandemic. Researchers believe that SMK Bukit Gambir is a suitable place to conduct this research because the teaching and learning process during the covid 19 pandemic is carried out face to face and the learning process depends on technological tools. So, this is the reason the researcher has chosen to collect the data needed in this study. Based on the data collected in this study will allow the researcher to make an accurate analysis and achieve the objectives of the study.

3.5 Research Strategy

This research strategy defined on how researchers will answer their research questions as meeting to its research objectives. Research strategy is a general plan of an action whereby is developed to achieve a goal. Research strategy provides the overall direction of the research including the process by which the research is conducted. A survey was chosen as a research strategy since this research study on the impact of technology-based education on student performance. Survey strategy is generally popular in using set questionnaires as they allow data from large population to be collected. In the part of questionnaires, questions such as what, how, when, agree or disagree are conducted for data collection purpose. Through this survey questionnaire, it is easy in asking target group a list of questions as to find out the impact of technology-based education on student performance.

3.6 Population

A population distribution is a statement of the frequency with which the units of analysis or that together make up a population are observed or are expected to be observed in the various classes that make up a variable. The researcher will be conducting this research in SMK Bukit Gambir as it is the one of the biggest schools in Tangkak district. In this research, the research chooses Form 5 students of SMK Bukit Gambir. According to school management there is 479 students in Form 5. The aim of this study is to study the impact of technology-based education on student performance, the population of interest will most likely be anyone who shared the same interest. The total number of respondents is 300 and the sample size chosen is 280.

Table for Determining Sample Size from a Given Population

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.

Figure 3.1: Krejcie & Morgan Table

(Source: Krejcie & Morgan, 1970)

3.7 Sampling

According to Walliman, 2010, sampling is a process of choosing a small group of cases from out of a large group. Sampling method is the most important aspect in order to manage systematically in a few research activities. There are two sampling technique that relevant in collecting the data which is probability or non-probability. Probability sampling is commonly used in quantitative research which uses a random method to pick a representative sample from the population to ensure the objectivity in selecting the sample. Non-probability sampling whereas focus on a sample that do not have predetermined chance of being selected as subjects. The method choice depends on the purpose of the study.

For this study, the researcher will be using probability sampling based on the goal of this research and some limitation of the study. Probability sampling procedures are

synonymous with quantitative type research. This type of sampling procedure is implemented by selecting the sample subjects at random, is the subjects in the sample have all the characteristics found in the study population. Before the probability sampling procedure is performed, the researcher needs to identify the size of the population and obtain a list of subjects in the population. Based on the list of subjects, the selection of respondents was done according to random sampling method.

Simple random sampling is best suited to this research due to its accuracy results and easily accessible. Simple random sampling is a type of probability sampling in which the researcher randomly selects a subset of participants from a population. Each member of the population has an equal chance of being selected. The function of simple random sampling is to choose individuals became sample who will be representative of the population. Random selection is a process of selecting random respondents who share the same interest. Researcher has determined the number of respondents to answer questionnaire that was distributed.

3.8 Time Horizon

According to Saunders, Lewis and Thornhill (2015) mentioned that time horizon described on the 'snapshot' refers to cross-sectional whereas 'diary' viewpoint refers to longitudinal. Time horizon indicates the methods used in the quantitative and qualitative analysis within a certain period. In other word Time horizon is defines the time frame for the research. According to Saunders et al. (2007), time horizons are needed for the research design independent of the research methodology used. There are two types of time horizons namely Longitudinal and Cross-sectional. Longitudinal studies are repeated over an extended period. Cross sectional studies are limited to a specific time frame. This research is also limited to a specific time frame and hence the cross-sectional time horizon is used.

3.9 Questionnaire Design

Questionnaire is generated as to know further regard to the requirement of the research. The questionnaire in this study was developed to collect data from the sample of the study after reviewing some of the previous literature addressing for each variable. Structure questions had been selected and it had shortened time by allowing respondents rated the answer based on questions. In this research questions topics are taken from the literature review as associated with the impact of technology-based education on students' performance. Questionnaires are created in the form of self-structure questions. The questionnaire consists of 4 section which is Section A, Section B, and Section C. This questionnaire will be distributed to the respondents which is Form 5 students in SMK Bukit Gambir.

Section A is demographic information of the respondent which are gender, age, classes. Section B is about technology platform in teaching and learning process. In this section, respondents are required to answer the questions based on their opinion towards the available technology platform. Respondents are also required to answer the following questions by using Likert scale. Section C is about the impact of technology-based education on student performance. There are three parts consisted in categories of impact which are learning outcomes, learning activities, and assessment task. All item measured using Likert-type scale varying from 1 (strongly disagree) to 5 (strongly agree). By doing this type of questionnaire, data can be collected quickly from the respondent.

Section	Questionnaire Design
Section A	Demographics
Section B	Technology platform in teaching and learning process
Section C	Impact of technology-based education on student performance

Table 3.2: Questionnaire Design.

Strongly Disagree ← → **Strongly Agree**				
1	2	3	4	5

Table 3.3: Sample of 5-Likert Scale.

3.10 Data Analysis

The data analysis is a method of sorting out the outcome of a research. Since this research is conducted through questionnaire method, the collected data will be analyzed using Statistical Package for Social Sciences version 27 (SPSS). SPSS is Windows software that can be used to perform data and analysis data. The Statistical Package for the Social Sciences version 27 (SPSS) is a comprehensive software that allow one to import data into a spreadsheet environment, analyses the data, generate tables, and include variety of graphs and charts (Rovai, Baker & Ponton, 2013). The function of Statistical Package for the Social Sciences (SPSS) is to assist researcher to analyze variables in in the study. For this study, the researcher has selected SPSS Statistical Package for Social Sciences version 27(SPSS) as a method for evaluating the statistical data collected by Pearson's Correlation Analysis and Multiple regression.

3.10.1 Pearson's Correlation Analysis

Pearson correlation is to identify the relationship between two variables, which are independent variables and dependent variables. In this research study, the independent are learning outcomes, learning activities and assessment task. Meanwhile, the dependent variable is students' performance. The perfect positives correlation is when the coefficient values in +1. The values can be 0 to 1 and can either be in positive or negative value.

Strength of the relationship	Coefficient, r	
	Positive (+ve)	Negative (-ve)
Very weak	0.00 to 0.19	- 0.00 to 0.19
Weak	0.20 to 0.39	- 0.20 to 0.39
Moderate	0.40 to 0.59	- 0.40 to 0.59
Strong	0.60 to 0.79	- 0.60 to 0.79
Very strong	0.80 to 1.00	- 0.80 to 1.00

Table 3.4 Strength of the correlation coefficient

3.11 Validity and Reliability

Validity and Reliability are concepts used to evaluate the quality of research. Validity is defined as the extent to which a concept is accurately measured in a quantitative study. According to Amsteus, M. N. (2014), validity performs a necessary position in research as it refers to the conceptual and scientific soundness of a research study. The purpose validity is to increase the accuracy and usefulness of searching by eliminating as much a possible confusing variable that allows for greater confidence in the discovery of a given thing learn. There are several types of validity namely internal validity, external validity, construct validity and statistical inference validity. Briefly, validity is associated with a multi-faced process and collection of evidence over time.

Moreover, reliability refers to how consistently a method measures something. If the same result can be consistently achieved by using the same methods under the same circumstances, the measurement is considered reliable. In other word, reliability is a measure of the stability or consistency of test scores. According to Joppe, 2000 reliability refers to the extent which results are consisted over time and an accurate representation of the total population. To achieve the reliability of the research, there will overcome with 2 threats in reliability:

i. Participant Error

Participant error is any factor that alters the way in which a participant performs. To overcome this threat, the researcher will ask participant to complete the questionnaire whenever they have a free time.

ii. Participant Bias

Participant bias is any factor induces a false response. Researcher will send the questionnaire to participant randomly in order to have fair answers.

3.12 Pilot Test

The researcher needs to do a pilot test before making an actual survey. The pilot test is test in a small population. The purpose of the pilot test is to sharpen up the questionnaire in order to ease the respondents to answer the question. The pilot test is going to be collected in this study before distributing the questionnaire to the respondents. The researcher will select 30 respondents to conduct the pilot test. After the test, the researcher identifies some problem to the questionnaire such as unclear question, unclear content, or difficult question. Thus, the respondents unable to answer the question. Hence, the researcher jots down the unclear part and redesign actual survey to distribute the new questionnaire to more clear and valid.

3.13 Summary

In this chapter, the research methodology is a process of how the research is to be carried out. Essentially, the procedures by which researcher focused on describing, explaining, and identifying the methods to conduct the research. The researcher uses quantitative method in this research because the researcher wants to research about the impact of technology-based education on students' performance. There are few sections to be discussed in this research such as research design, research methods, data collection, research location, research strategies, time horizon, questionnaire design, validity and reliability and data analysis. In next chapter, the questionnaire survey will be conducted and the results of the data collection will be analyzed.

CHAPTER FOUR

DATA ANALYSIS

4.0 Introduction

In this chapter, the analysis of quantitative research regarding to the technology-based education on student performance during Covid 19 pandemic was discussed. The data was collected in order to make analysis as to meet with the objective that have been set in this research. The data analysis was conducted using statistical package for social sciences (SPSS) version 27. There were four main sections that will be discussed in this chapter. It included pilot test analysis result, analysis of respondent's demographic information, descriptive analysis, Person's correlation between independent variables and dependent variable, multiple linear regression analysis and the last hypothesis testing.

4.1 Pilot Test

Normally, pilot test is the first step to take before distributing the questionnaires to respondents. The purpose of conducting is to test the validity and reliability of the questionnaires. Google form and questionnaires were distributed to 30 respondents in orders to have their feedback regarding on the impact of technology-based education on students' performance during Covid 19 pandemic. The Cronbach's Alpha Coefficient normally ranged between 0 and 1. The closer the Cronbach's Alpha Coefficient to 1.0 refer to the greater the internal consistency of the items in the scale. Table 4.1 shows the reliability test result conducted. Sum up all variables for pilot test is 0.778. the reliability Coefficient of 0.70 or higher is considered "acceptable."

4.1.1 Learning Outcomes

Reliability Statistics

Cronbach's Alpha	N of Items
.809	3

Table 4.1: Reliability Statistics Result for Learning Outcomes

(Source: from SPSS output)

The pilot test's result in terms of Cronbach's Alpha is 0.809. Throughout this test, learning outcomes is selected as a factor on the questionnaire. As a general acceptable level of reliability result is above 0.7, the pilot test is considered logical with the question created.

4.1.2 Learning Activities

Reliability Statistics

Cronbach's Alpha	N of Items
.794	3

Table 4.2: Reliability Statistics Result for Learning Activities

(Source: from SPSS output)

The pilot test's result in terms of Cronbach's Alpha is 0.794. Throughout this test, learning activities is selected as a factor on the questionnaire. As a general acceptable level of reliability result is above 0.7, the pilot test is considered logical with the question created.

4.1.3 Assessment Task

Reliability Statistics

Cronbach's Alpha	N of Items
.795	3

Table 4.3: Reliability Statistics Result for Assessment Task

(Source: from SPSS output)

The pilot test's result in terms of Cronbach's Alpha is 0.795. Throughout this test, assessment task is selected as a factor on the questionnaire. As a general acceptable level of reliability result is above 0.7, the pilot test is considered logical with the question created.

4.1.4 Technology Platform

Reliability Statistics

Cronbach's Alpha	N of Items
.204	3

Table 4.4: Reliability Statistics Result for Technology Platform

(Source: from SPSS output)

The pilot test's result in terms of Cronbach's Alpha is 0.204. Throughout this test, technology platform is selected as a factor on the questionnaire. the pilot test is considered poor and that the questions need to be revised or replaced.

4.1.5 Student's Performance

Reliability Statistics

Cronbach's Alpha	N of Items
.671	3

Table 4.5: Reliability Statistics Result for Student's Performance

(Source: from SPSS output)

The pilot test's result in terms of Cronbach's Alpha is 0.671. Throughout this test, student's performance is selected as a factor on the questionnaire. The pilot test is considered moderate, but acceptable.

4.1.6 Total Variables

Reliability Statistics

Cronbach's Alpha	N of Items
.778	15

Table 4.6: Reliability Statistics Result for Total Variables

(Source: from SPSS output)

The pilot test's result in terms of Cronbach's Alpha is 0.778. Throughout this test, total variables are selected on the questionnaire. As a general acceptable level of reliability result is above 0.7, the pilot test is considered logical with the question created.

4.2 Reliability Analysis

In this study, reliability and validity of the measurement were tested in this research. Reliability is conducted in order to calculate all the variables which are related to each other. The internal consistency of alpha values was expressed strong and highly acceptable started from value 0.7 to 1.0 whereas values below 0.6 were described as poor reliability (Taber, 2018).

Based on the table 4.7 below showing that there five variables such as Learning outcomes, Learning activities, Assessment task, and Technology platform. In contrast with one dependent variable which is student's performance. All these variables have been tested with 159 respondents in the research. It shows that as Learning outcomes, learning activities, Assessment task, and Student's performance have achieved the same internal consistency which are acceptable in Cronbach's Alpha but Technology platform considered poor and that the questions need to be revised or replaced.

Variables	Cronbach's Alpha	Number of Items	Result
LO	0.809	3	Acceptable
LA	0.794	3	Acceptable
AT	0.795	3	Acceptable
TP	0.204	3	Poor
SP	0.671	3	Acceptable

Table 4.7: Summarized Reliability Statistics Result

4.3 Descriptive Analysis of Demographic

In related to the descriptive analysis, several 189 respondents were being analyzed. The demographic profile for respondents is based on their gender, race, stream and did you ever use online learning platform during this pandemic.

4.3.1 Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	78	41.3	41.3	41.3
Female	111	58.7	58.7	100.0
Total	189	100.0	100.0	

Table 4.8: Statistics gender of respondents

(Source: from SPSS Output)

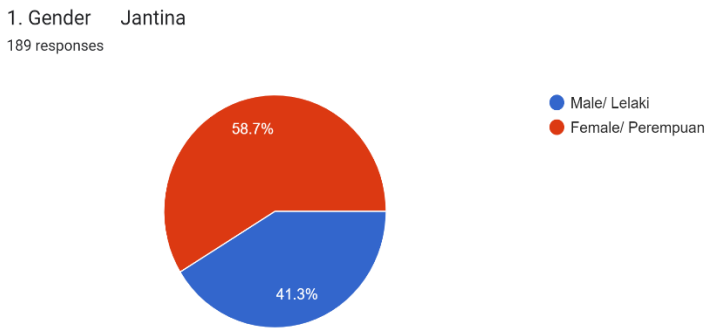

Figure 4.1: Gender of respondents

Based on the table 4.8 above shows that the gender from the collected data where male is 78 respondents which equivalent to 41.3% whereas female is 111 respondents which equivalent to 58.7%. The questionnaires are being distributed by using random sampling method therefore causes the percentages between the male and female is uneven.

4.3.2 Race

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Malay	111	58.7	58.7	58.7
Chinese	29	15.3	15.3	74.1
Indian	49	25.9	25.9	100.0
Total	189	100.0	100.0	

Table 4.9: Statistics race of respondents

(Source: from SPSS Output)

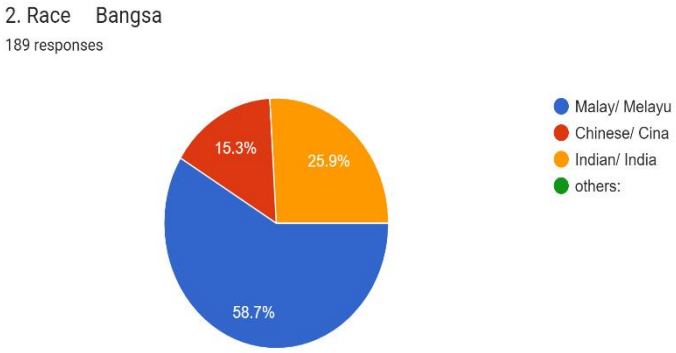

Figure 4.2: Race of respondents

Based on the table 4.9 above, the result shows that the highest race of respondents is Malay with the frequency of 111 respondents (58.7%), followed by Indian which is 49 respondents (25.9%) and lastly is Chinese is 29 respondents (15.3%).

4.3.3 Stream

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Science	128	67.7	67.7	67.7
Arts	61	32.3	32.3	100.0
Total	189	100.0	100.0	

Table 4.10: Statistics stream of respondents

(Source: from SPSS Output)

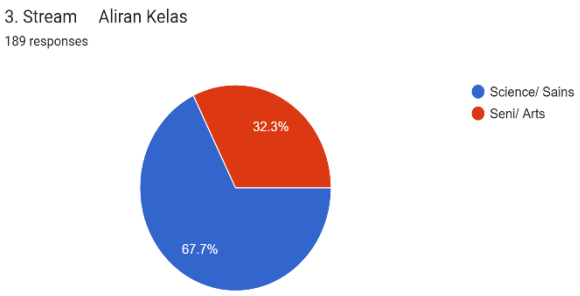

Figure 4.3: Stream of respondents

Based on the table 4.10 above, the result shows that the highest students of the stream are science stream students which is 128 with 67.7% and the other stream is Arts which 61 students with 32.3%.

4.3.4 Did you ever use online learning platform during this pandemic?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	185	97.9	97.9	97.9
No	4	2.1	2.1	100.0
Total	189	100.0	100.0	

Table 4.11: Statistics of respondents use online learning platform during this pandemic

(Source: from SPSS Output)

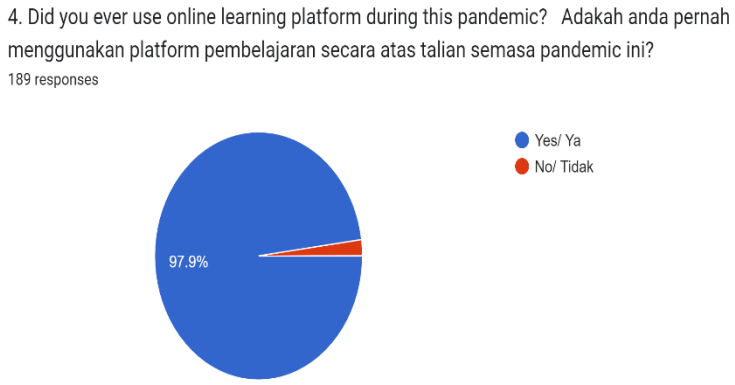

Figure 4.4: Did you ever use online learning platform during this pandemic?

Based on the table 4.11 above shows that the respondents use online learning platform during Covid 19 pandemic. From the collected data, there are 185 respondents with 97.9% who use the online platform during Covid 19 pandemic before as compare to 4 respondents (2.1%) who have not been use the online platform.

4.4 Descriptive Analysis

Descriptive analysis is used to describe basic features of data where it involves the summarize of the data. The data were gathered for both independent and dependent variable in the sense of interval size.

	N	Minimum	Maximum	Mean	Std. Deviation
LO	189	1.33	5.00	4.7354	.63625
LA	189	2.00	5.00	4.7055	.69422
AT	189	1.33	5.00	4.7284	.68439
TP	189	1.00	2.00	1.0317	.12930
SP	189	1.00	2.00	1.0353	.14151
Valid N(listwise)	189				

Table 4.12: Descriptive Analysis for All Interval Scale Variable

(Source: from SPSS Output)

According to the table 4.12 above indicated that descriptive analysis of the mean and standard deviation for each variable among 189 respondents. Likert scale was being used to analyze the variables and the mean result for all is above 1.0. Learning outcomes has the highest mean with 4.73, followed by assessment task with 4.72, and learning activities with 4.70. By contrast, technology platform and students' performance turned out to be the lowest as its mean is only 1.03. In the table 4.13 described that majority respondents agreed that learning outcomes and learning activities have impact technology-based education during Covid 19 pandemic. Besides, in term of standard deviation, learning activities stands out to be the highest which is 0.69. assessment task with the score of 0.68 and learning outcomes with the score of 0.63. Next, technology platform and student's performance scored closely which are 0.12 and 0.14.

4.5 Pearson's Correlation Coefficient

Samuels, 2015 state that Pearson Correlation Coefficient Analysis is a technique that measure the relationship between two or more independent variables and dependent variable. Technically, the reason of this analysis is used because it is suitable in measuring quantitative data. Researcher analyzed the independent variables such as learning outcomes, learning activities, assessment task and technology outcomes to dependent variable which is students' performance. According to Hinkle, Wiersma, and Jurs in 2003 have exhibited the value of the correlation in table 4.13.

Correlation Values	Correlation Strength
0.0 to 0.3	Little
0.3 to 0.5	Low positive
0.5 to 0.7	Moderate positive
0.7 to 0.9	High positive
0.9 to 1.0	Very high positive

Table 4.13: Values of the Correlation Coefficient

		LO	LA	AT	TP	SP
LO	Person Correlation	1	.715**	.780**	-.508**	-.421**
	Sig.(2-tailed)		.001	.001	.001	.001
	N	189	189	189	189	189
LA	Person Correlation	.715**	1	.853**	-.402**	-.561**
	Sig.(2-tailed)	.001		.001	.001	.001
	N	189	189		189	189
AT	Person Correlation	.780**	.853**	1	-.402**	-.561**
	Sig.(2-tailed)	.001	.001		.001	.001
	N	189	189	189		189
TP	Person Correlation	-.508**	-.402**	-.476**	1	.100
	Sig.(2-tailed)	.001	.001	.001		.171
	N	189	189	189	189	189
SP	Person Correlation	-.421**	-.561**	-.590**	.100	1
	Sig.(2-tailed)	.001	.001	.001	171	
	N	189	189	189	189	189

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.14: Pearson Correlation Coefficient Analysis

(Source: from SPSS Output)

From table 4.14 above illustrated result of Pearson correlation coefficient analysis for four independent variables and dependent variable. By referring to the table above, the result has shown all the independent variables were strongly linked to the dependent variable.

At first, the correlation coefficient for learning outcomes and students' performance stated -.421 where the p- value .001 in align with significant level which is 0.01. In this case, learning outcomes and students' performance is said to have a low negative relationship.

Furthermore, the correlation for both learning activities and students' performance is -.561. The p-value occurs to have lesser than .001where the significant level is at value of 0.01. In this case, learning activities and students' performance this result proves that have a moderate negative relationship.

Next, the correlation value between assessment task and students' performance is -.590 where the significant level is at the line of 0.01 where p-value is lesser than .001. This result shows both variables have a moderate negative relationship.

Finally, the correlation value for technology platform in related with the students' performance is 0.1. The level of significant is at line of 171 proving the p-value is more than 0.01. This outcome states that there is a little relationship between technology platform in related with the students' performance.

4.6 Multiple Linear Regression

Multiple linear regression is a statistical technique tool that is used in this research in order to explain the relationship between two or more independent variables to one continuous variable. Consequently, four independent variables such as learning outcomes, learning activities, assessment task and technology platform with the students' performance as a dependent variable. The following tables showed the result of data analysis.

Modal Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.635[a]	.404	.391	.11047

a. Predictors: (Constant), L0, LA, AT, TP)

Table 4.15: Model Summary of Multiple Linear Regression

(Source: from SPSS Output)

According to the table 4.15 above, the value of R is 0.635 which is 63.5% indicates that four of the independent variables are correlated and influence the students' performance. Meanwhile, R square is 0.404 which like a total variation of 40.4% in the students' performance can be determined by four of the independent variables such as learning outcomes, learning activities, assessment task and technology platform. Further, it can be clarified that 100% - 40.4% = 59.6% is caused by other impact that might affecting on the students' performance.

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.519	4	.380	31.122	.000[b]
	Residual	2.246	184	.012		
	Total	3.765	188			

a. Dependent Variable: SP

b. Predictors: (Constant), LO, LA, AT, TP

Table 4.16: ANOVA of Multiple Linear Regression

(Source: from SPSS Output)

Based on the table 4.16 ANOVA, the F-value is 31.122. The significant level was reported to be 0.000 brought up a significant relationship between learning outcomes, learning activities, assessment task and technology platform as the p-value is smaller than 0.01 ($p<0.05$).

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.983	.129		15.327	.000
	LEARNINGOUTCOME	.011	.021	.050	.528	.598
	LEARNINGACTIVITIES	-.045	.023	-.219	-1.978	.049
	ASSESMENTTASK	-.114	.026	-.550	-4.408	.000
	TECHNOLOGYPLATFORM	-.246	.073	-.224	-3.352	.001

a. Dependent Variable: SP

Table 4.17: Coefficient of Multiple Linear Regression

(Source: from SPSS Output)

As stated in table 4.17 above, every one of the independent variables provides an input which is to determine the student performance in learning outcome, learning activities, assessment task and technology platform. With that said, the strongest predictor is technology platform, β= -0.246, t (189) = -3.352, p = 0.001 (< 0.05). Unstandardized beta (β) is the reason showed technology platform is the highest negative value opposed to other independent variables. Resultantly, technology platform has the biggest effect on a negative relationship with the student performance because p value is smaller than significant value. It showed that technology platform is the most significant factor with student performance.

Assessment task was placed as the second strongest predictor where β = -0.114, t (189) = -4.408, p = 0.000 (<0.05). Similarly, the unstandardized beta of assessment task would be in the second in terms of negative value in contrast with the most of independent variables. Coming from the report, assessment task showed to be the second highest factor of a negative significant relationship to determine the student performance because p value is smaller than significant value.

Then, followed by the third strongest predictor is learning activities of use, β = -0.045, t (189) = -1.978, p = 0.049 (< 0.05). On account of the unstandardized beta, β for learning activities recorded to be the third highest value. Learning activities showed to be the third highest factor of a negative significant relationship to determine the student performance because p value is smaller than significant value.

Finally, the lowest predictor is learning outcome, β = -0.011, t (189) = 0.528, p =0.598 > 0.05. Due to the coefficient of unstandardized beta, β of learning outcome reported to be the lowest negative value among the rest variables. According to significant value of learning outcome is more that alpha (0.05) which the learning outcome and learning activities has no significant relationship that determine the student performance.

From the finding, it has been concluded that three of the independent variables has its own significant which make differences for predictor towards the student performances. Based on the analysis from multiple regression, three of the independent variables have a significant relationship where technology platform, learning activities and assessment task has determined the student performance.

4.7 Hypothesis Testing

The purpose of hypothesis testing is to analyze whether accepting or rejecting the hypotheses. In order to examine the relationship between the variables such as independents and dependent, four hypotheses will be carried out.

Hypothesis	**Regression Analysis P- Value**	**Result**
IV 1: Learning Outcomes		
There has no significant relationship between learning outcomes and student's performance during Covid 19 pandemic.	0.598 ($p > 0.05$)	Rejected
IV 2: Learning Activities		
There is a significant relationship between learning activities and students' performance during Covid 19 pandemic.	0.049 ($p < 0.05$)	Accepted
IV 3: Assessment Task		
There is a significant relationship between assessment task and students' performance during Covid 19 pandemic.	0.000 ($p < 0.05$)	Accepted

IV 4: Technology Platform		
There is a significant relationship between technology platform and students' performance during Covid 19 pandemic.	0.001 ($p < 0.05$)	Accepted

Table 4.18: Hypothesis Testing Result

4.8 Summary

In summary, this chapter has discussed on the result and data that has been developed using SPSS software. This software was chosen by the researcher for the purpose on making data analysis on 189 respondents to research about technology-based education on students' performance during Covid 19 pandemic. Primarily, reliability research was used mainly to assess the reliability of questionnaire which involved independents factors (learning outcomes, learning activities, assessment task and technology platform) and one dependent factor (students' performance). 30 respondents have been chosen ahead to make pilot test and the result showed that this research has reached its validity test and reliability standard. Moreover, a detailed review of demographic background of respondents is performed using descriptive analysis. In the meantime, the relationship for both independents variables and dependent variable appeared to have connection by using Pearson's correlation coefficient analysis. Then, multiple regression modeling was used to evaluate the hypothesis.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

In this chapter, the researcher will be discussed on the summary of findings in related with the research objectives based on the data analyzed. Implication of research along with the limitation of research will also be explained briefly by the researcher in this chapter. Besides, recommendation for the future research will be suggested and draw a conclusion from the data analyzed.

5.1 Summary of Findings

5.1.1 Learning Outcomes and Students' Performance

From the result on chapter 4, the finding proved that was no significant relationship between learning outcomes and students' performance. The reason is because p value is bigger than significant value for learning outcomes where it is 0.598. Learning outcome have been widely introduced in Bloom's revised Taxanomy. Learning outcome is a wide process for a student to understand, apply and create in their life studies. Student performance cannot be clearly visualized because the learning outcomes takes a period to evaluate a student. Blended learning had no effect on achievement learning and learning motivation, learning outcomes together have a significant effect on the Students' Achievement. (Rafiola, R., Setyosari, P., Radjah, C., & Ramli, M. (2020).

5.1.2 Learning Activities and Students' Performance

From the result on chapter 4, the finding proved that was a significant relationship between learning activities and students' performance. The reason is because there is a significant value for learning activities where it is 0.49. Learning activities such as 21st century activities can be conducted in a class to have a effective classroom management. Learning activities that encourage more students-style learning that will increase academic performance. Therefore, the result of finding is statistically validated with a prior study which it stated that learning activities is the third determinant which significant influence on students between effective online session classes and students' performance.
(Anderson, L., Evertson, C. and Brophy, J. (2021).

5.1.3 Assessment Task and Students' Performance

From the result on chapter 4, the finding proved that was a significant relationship between assessment task and students' performance. In respect to the result above, assessment task has a connection in affecting on students' performance. The reason is because there is a significant value for assessment task where it is 0.000. The assessment is a key component of learning because it helps students to learn. Through student involvement in the assessment process, students learn to take responsibility for their own learning. Therefore, this analysis matched with past research where it stated assessment task has a significant connection to the students' achievement (Kimani, G. N., Kara, A. M., & Njagi, L. W. (2013).

5.1.4 Technology Platform and Student Performance

From the result on chapter 4, the finding proved that was a significant relationship between technology platform and students' performance. Correspondingly, the technology platform has a relationship that affects students' performance. The reason is because there is a significant value for technology platform where it is 0.001. Technology platform helps students to engage themselves in learning process. New technology provides students with better resources to have a effective learning process. According to Paul, J., & Jefferson, F. (2019), there was a statistically significant difference between the academic performance of online classes using technology platform and the frequency of use of educational resources from the e-learning platform.

5.2 Implication of the Research

Analyses of data were carried out to meet with the research objectives which is to examine the impact of impact of technology-based education on student performance during covid 19 pandemic. All the objectives were accomplished by the researcher in using descriptive analysis, Pearson's correlation and multiple linear regression and hypothesis test in the relationship on learning outcomes, learning activities, assessment task and technology platform that influence the students' performance. In summary, in short, respondents prefer technology in education. All the factors have reached the objectives in related students' performance. From the view of theoretical contribution, this research found that the research framework was an appropriate modified Constructive alignment considering students' performance. This framework was formulated suitable for research-based information technology and was ease in identifying accurate factors (Bilgihan, Karadag, Cobanoglu, & Okumu, 2013).

5.3 Limitations of the Study

Several limitations existed while progressing this research. Time constraint is one of the limitations throughout the research. The time taken to gather data from all the respondents really took up some time. It took approximately one-month period to obtain the respondents' answers. the respondents will become limitation of the research due to different stream of classes. this only focus on Sekolah Menengah Kebangsaan Bukit Gambir students only, if the target audience is different there will be different outcomes of the results. Due to the pandemic, analysis only must distribute the questionnaire thru Google form. Some of the respondents which is students might not participate answering the questionnaire. Although the questionnaire distributes via WhatsApp group and social media account but final total received the total respondents answer is just 189 respondents out of 200 targeted. Thus, analytical results presented in this study here might tend to be bias to all the stream classes.

5.4 Recommendations for Future Research

In the future, other antecedents should be encouraged to explore more. Next, qualitative research methods such as face to face interviews are recommended in obtaining detailed opinions from the public in the future. By using semi structured interviews or even Delphi method to gather data from the respondents as to seek their opinions on the technology-based education on students' performance. This study was carried out using simple random sampling which is categorized under non-probability sampling method. Hence, the use of probability sampling is encouraged in order to specify the target sample in a precise and acceptable way.

Next, addressing limitations in the research. The research will not be free from limitations and these may relate to formulations of research aim and objectives, application of data collection method, sample size, scope of discussion and analysis and more. researcher can propose future research suggestions that address the limitation of the study. Other than data or independent variables, in the future use more iv or data to collect data for the research.

In addition, constructing the same research in a new context, location, and/or culture. It is most likely that addressed the research problem within the setting of specific context, location and/or culture. Now researcher specific this research for Form 5 students, in future use for others classes of students, or teachers.

5.5 Conclusion

In short, this report aims to provide everyone with an in-depth knowledge of technology in education. From the findings of this study, the researcher can conclude that there is a significant relationship between all factors which are learning outcomes, learning activities, assessment task and technology platform to the students' performance. Therefore, this research provides valuable insight into the impact of technology-based education during the Covid 19 pandemic and provides a conceptual basis in this future field of study.

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APPENDICES

APPENDICES A

Research Flow Chart

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1.2 Problem Statement

1.3 Research Questions

1.4 Research Objectives

1.5 Scope of Study

1.6 Limitation

1.7 Significant of Study

1.8 Summary

1.9 Synopsis

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2.4 Landscape of Education in Malaysia

2.5 Technology Platform

2.6 Role of Technology

2.7 Research Framework

2.8 Proposed Framework

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2.10 Summary

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3.5 Research Strategy

3.6 Population

3.7 Sampling

3.8 Time Horizon

3.9 Questionnaire Design

3.10 Data Analysis

3.11 Validity and Reliability

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4.2 Reliability Analysis

4.3 Descriptive Analysis of Demographic

4.4 Descriptive Analysis

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4.6 Multiple Linear Regression

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CHAPTER 5: CONCLUSION AND RECOMMENDIATIONS

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5.2 Implication of the Research

5.3 Limitations of the Study

5.4 Recommendations for Future Research

5.5 Summary

APPENDICES B

QUESTIONNAIRE

Hello! I am Hemaarasi A/P Sivakumar final year student from Universiti Teknikal Malaysia Melaka (UTeM) studying Bachelor of Technology Management with Honors (Technology Innovation). I am conducting a research study entitled " TECHNOLOGY BASED EDUCATION ON STUDENTS' PERFORMANCE.

The aim of this study is to discuss the use of technology media in the education system among students to meet the needs of teaching and learning in line with the country's progress. This research gives a great reference for education sector, especially schools which makes this one of the main platforms in teaching and learning system.

This questionnaire contains three sections, and it may take approximately 5-10 minutes of your time to complete. Please read question carefully before answering them. All your personal information is kept strictly secret, and all responses will be used solely for research purposes. Your assistance in completing this survey is much appreciated.

The data collected is used for academic purpose only.

Data yang dikumpul digunakan untuk tujuan akademik sahaja.

For further information and clarification, please contact:

Untuk maklumat lanjut dan penjelasan, sila hubungi:

Name: HEMAARASI SIVAKUMAR

Email:

No. Phone:

Supervisor: Email: Dr Hazmilah Binti Hasan

Address: Faculty of Technology Management and Technopreneurship,

Universiti Teknik Malaysia Melaka (UTeM), Jalan TU 62, 75350 Ayer Keroh,

Melaka

Fax:

SECTION A: GENERAL INFORMATION / ***BAHAGIAN A: MAKLUMAT AM***

The impact of technology-based education on student performance. The advancement of using this technology is important to enable the country to be in tandem with developed countries and to produce highly knowledgeable human capital to contribute to the progress in the country's education and socio-economic system.This section lists some questions about your personal information. Please tick (/) on the space given.

Kemajuan penggunaan teknologi ini adalah penting bagi membolehkan negara berada seiring dengan negaranegara maju dan dapat melahirkan modal insan yang berpengetahuan tinggi untuk menyumbang kepada kemajuan dalam sistem pendidikan dan sosio ekonomi negara. Bahagian ini menyenaraikan beberapa soalan tentang maklumat peribadi anda. Sila tandakan (/) pada ruangan yang diberi.

1. Gender */ Jantina*

Male ☐ Female ☐

2. Race */ Bangsa*

Malay ☐ Chinese ☐ Indian ☐

3. Stream / *Aliran*

Science ☐ Arts ☐

4. Did you ever use online learning platform during this pandemic?

Adakah anda pernah menggunakam platform pembelajaran secara atas talian semasa pandemic ini?

Yes ☐ No ☐

SECTION B / BAHAGIAN B

This section is to collect your data on factors that influencing technology-based education on students' performance. Kindly answers all questions and circle the appropriate options/ number for each statement. Each number is a representative of the following scale:

Bahagian ini adalah untuk mengumpul data mengenai faktor-faktor yang mempengaruhi pendidikan berasaskan teknologi terhadap prestasi pelajar. Sila jawab semua soalan dan bulatkan pilihan / nombor yang berkenaan bagi setiap kenyataan. Setiap nombor adalah wakil kepada skala yang berkenaan:

1. **Strongly Disagree** / *Sangat Tidak Setuju*
2. **Disagree** / *Tidak Setuju*
3. **Neutral** / *Neutral*
4. **Agree** / *Setuju*
5. **Strongly Agree** / *Sangat Setuju*

LEARNING OUTCOMES / *HASIL PEMBELAJARAN*

NO	QUESTION					
1	What are students enable to know and to do *Apakah yang pelajar boleh ketahui dan lakukan.*	1	2	3	4	5
2	The teachers, and students involved in identifying learning outcomes at your school? *Guru-guru dan pelajar yang terlibat dalam mengenal pasti hasil pembelajaran di sekolah anda?*	1	2	3	4	5
3	Learning outcomes identified at the subject, discipline, program, examination or other. *Hasil pembelajaran yang dikenal pasti pada mata pelajaran, disiplin, program, peperiksaan atau lain-lain.*	1	2	3	4	5

SECTION C/ BAHAGIAN C

LEARNING ACTIVITIES */ AKTIVITI PEMBELAJARAN*

NO	QUESTION					
1	I feel the learning activity is very fun and active. *I merasakan aktiviti pembelajaran yang sangat menyeronokkan dan aktif.*	1	2	3	4	5
2	I enjoyed using a mobile phone, laptop, or other devices to attend the class. *Saya seronok menggunakan telefon bimbit, komputer riba atau peranti lain untuk menghadiri kelas.*	1	2	3	4	5
3	Learning activities are appropriate to the level of intelligence, maturity, inclination, multiple intelligences and learning styles of the students. *Aktiviti pembelajaran bersesuaian dengan tahap kecerdasan, kematangan, kecenderungan, kecerdasan perlbagai serta gaya pembelajaran murid.*	1	2	3	4	5

SECTION D/ BAHGIAN D

ASSESSMENT TASK */ TUGASAN PENILAIAN*

NO	QUESTION					
1	Did you satisfied with the performance that the teachers give on task. *Adakah anda berpuas hati dengan prestasi yang diberikan oleh guru atas tugasan.*	1	2	3	4	5
2	I felt that it was my choice to do the task. *Saya merasakan bahawa tugas itu adalah pilihan saya.*	1	2	3	4	5
3	I really enjoyed doing the assignments given by the teacher during the online learning sessions. *Saya sangat seronok melakukan tugasan yang diberikan oleh guru dalam sesi pembelajaran atas talian.*	1	2	3	4	5

SECTION E/ BAHAGIAN E

TECHNOLOGY PLATFORM */ PLATFORM TEKNOLOGI*

This section is to collect your data on impact of technology-based education on student's performance. Kindly answers all questions and circle the appropriate options/ number for each statement. Each number is a representative of the following scale:

Bahagian ini adalah untuk mengumpul data mengenai impak pendidikan berasaskan teknologi terhadap prestasi pelajar. Sila jawab semua soalan dan bulatkan pilihan / nombor yang berkenaan bagi setiap kenyataan. Setiap nombor adalah wakil kepada skala yang berkenaan:

Choose Yes/No
Pilih Ya/ Tidak

NO	QUESTION		
1	Do you have any previous experience with online learning? *Adakah anda mempunyai pengalaman terdahulu dengan pembelajaran dalam talian?*	Yes	No
2	Do you support the use of gadgets during learning? (Phones, laptops). *Adakah anda menyokong penggunaan gajet semasa pembelajaran? (Telefon, komputer riba).*	Yes	No
3	Do you support the use of online applications that can help you in online learning sessions. *Adakah anda menyokong penggunaan aplikasi atas talian dapat membantu anda dalam sesi pembelajaran atas talian.*	Yes	No

SECTION F/ BAHAGIAN F

STUDENT'S PERFORMANCE / PRESTASI *PELAJAR*

NO	QUESTION		
1	Due to online learning, I am confident that academic achievement continues to increase. *Dengan pembelajaran atas talian saya yakin pencapaian akademik terus meningkat.*	Yes	No
2	I actively participate in every discussion in online session. *Saya mengambil bahagian secara aktif dalam setiap perbincangan sesi atas talian.*	Yes	No
3	I enjoyed homework and activities because it can help me to improves my skills in every subject. *Saya menggemari kerja rumah dan aktiviti kerana ia dapat membantu saya meningkatkan kemahiran saya dalam setiap mata pelajaran.*	Yes	No

THANK YOU!!!

Thank you for you cooperation in answering these questions.

APPENDICES C

Gantt Chart of Final Year Project (FYP) 1

Bil	Activity	Week														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Discussion & finalize the topic															
2	Prepare, identifying the RO and RQ															
3	Identifying the variables, developing the framework															
4	Research the sources of secondary data															
5	Determining the methodology to be used in the research															
6	Drafting the research proposal															
7	Submit the draft to supervisor															
8	Re-draft the research proposal															
9	Correction and submission the final draft for supervisor's review															
10	Proposal presentation and proposal defence															

APPENDICES D

Gantt Chart of Final Year Project (FYP) 2

Bil	Activity	Week														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Questionnaire Development															
2	Revised for Questionnaire															
3	Distribute Questionnaire															
4	Data Collection															
5	Data Analysis															
6	Chapter 4 – Data Analysis															
7	Chapter 5 – Conclusion & Recommendations															
8	Final Edit for FYP report 2															
9	Proposal Presentation															
10	FYP Report Submission															