



A STUDY OF METAVERSE ACCEPTANCE AMONG MALAYSIAN
UNDERGRADUATE MEDIA STUDENTS
BASED ON THE TECHNOLOGY ACCEPTANCE MODEL

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ALOYSIUS SIM JING XIAN

DECLARATION

I declare that the material contained in this paper is the end result of my own work and that due acknowledgement has been given in the bibliography and references to ALL sources be they printed, electronic or personal.

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APPROVAL FORM

This research paper attached hereto, entitled “A Study of Metaverse Acceptance Among Malaysian Undergraduate Media Students based on the Technology Acceptance Model” prepared and submitted by Aloysius Sim Jing Xian in partial fulfillment of the requirements for the Bachelor of Communication (Hons) Broadcasting is hereby accepted.

Supervisor

Dr. Tan Wooi Yee

Date: _____

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LIST OF ABBREVIATIONS

ABBREVIATION	MEANING
TAM	Technology Acceptance Model
PEOU	Perceived Ease of Use
PU	Perceived Usefulness
AT	Attitude Towards Technology Use
BI	Behavioural Intention

ABSTRACT

Facebook's shift to focus on metaverse development and its rebranding into Meta has brought about a wave of discussion on the possibilities of the metaverse in various industries. While the term "metaverse" has been used in several fictional works and throughout the development of virtual reality and augmented reality, Meta's vision is one that has triggered the metaverse trend. As with all technological advancements, researchers are interested in users' acceptance of this new technology. Current academic papers have discussed the metaverse technology in medicine, education as well as general day-to-day use. However, at the time of writing, there have been no academic discussions on how the metaverse is being accepted by undergraduate media students in Malaysia based on the Technology Acceptance Model (TAM). Hence, this study aims to investigate Malaysian undergraduate media students' awareness of metaverse development, examine their attitude toward metaverse technology and investigate the relationship between their attitude and behavioural intention to use metaverse technology based on the TAM. This study will employ a quantitative method by distributing 50 sets of questionnaires to undergraduate media students in universities within the Klang Valley through Google Forms. The collected data was analysed through Statistical Package for the Social Sciences (SPSS). Results found positive correlations between perceived ease of use and perceived usefulness, attitude towards technology use and behavioural intention. However, a weaker correlation exists between perceived ease of use and attitude toward technology use. The findings provide a precedent for educators and relevant corporations to understand media students' attitude of acceptance towards the metaverse.

CHAPTER I

INTRODUCTION

1.0 Introduction

This research is about Malaysian undergraduate media students' acceptance of the metaverse. The purpose of this research is to investigate Malaysian undergraduate media students' awareness of metaverse development, examine their attitude toward metaverse technology and investigate the relationship between their attitude and behavioural intention to use metaverse technology based on the TAM. Chapter I will discuss the background of the study, problem statement, significance of the study, research questions and objectives, and the structure of the research project.

1.1 Background

While many may regard the metaverse as a new technological concept after the rebranding of Facebook to Meta, the concept of metaverse can be dated back to the 1830s when Sir Charles Wheatstone invented the stereoscope. The stereoscope kickstarted a new world for the studies of binocular vision (Wade, 2002) and allowed the application of physics to the investigation of spatial vision. The encyclopaedia definition of metaverse formed by Mystakidis (2022) defines metaverse as a “post-reality universe, a perpetual and persistent multiuser environment”. Metaverse is a technology that is enabled and powered by existing immersive technologies including augmented reality (AR), virtual reality (VR) and mixed reality (MR) (Cheng et al., 2022). Being supported by the plethora of immersive technologies, the metaverse is speculated to be a quantum leap toward AR and VR as it will provide a revolutionary experience of virtual worlds (Bojic, 2022). Hence, the metaverse can be described as an interconnected social and networked immersive environments in incessant multiuser platforms which allow real-time coherent user communication and immersive

interactions with digital objects (Mystakidis, 2022). To illustrate the metaverse that is imaginable, the metaverse is expected to improve virtual socialising. For instance, recipients of a photo will be able to feel physically present through the virtual reality technology used in the metaverse (Bojic, 2022). The same can be illustrated when players are playing a game with friends as they will be able to feel present physically even though technically, they are in a virtual space. As metaverse technology is at the open development phase, tech giants have begun developing their own versions of the metaverse. Microsoft came up with their Altspace VR while Facebook rebranded into Meta and introduced Horizon. Second Life can be considered as one of the earliest versions of metaverse as it introduced 3D virtual worlds that allowed social interactions (Boulos et al., 2008).

While many metaverse platforms are under development, this paper will focus on Meta's definition and the intention of metaverse development due to its popularity and mindshare by the general public. In a founder's letter, Mark Zuckerberg described the metaverse as an immersive, embodied internet where users are in the experience itself instead of just spectating it (Zuckerberg, 2021). He also detailed that the essential quality of the metaverse is the feeling of presence, where one would feel truly present with another person or in another space. In the future, users would not be physically bound by geographical distance. Meta describes this future as a place where users would be able to teleport as a hologram to e.g., the office without having to get on the usual commute or even a concert with friends (Zuckerberg, 2021). Furthermore, the metaverse would allow physical things to be merely holograms instead and users would be able to travel across different experiences on different devices, for instance through augmented reality (AR) glasses to be present in the physical world, virtual reality (VR) to be immersed fully and phones and computers to join in from pre-existing platforms. Hence, the metaverse vision that Meta has can be described as a futuristic media convergence where the virtual and physical world are interconnected.

The development of the metaverse is bound to bring changes and impacts to the media industry. At present, the metaverse has been and is being used in various media campaigns and events. Brands like Nike and Louis Vuitton have started to embrace the metaverse by acquiring virtual goods companies (Nike, 2021) and starting non-fungible tokens (NFT) collections (Bodenès, 2022). Furthermore, during the pandemic where physical events could not be held, DJ Marshmello (Webster, 2019) and rapper Travis Scott (Tassi, 2020) leveraged metaverse technology to hold concerts on the gaming platform Fortnite. A recent notable use of the metaverse in the media landscape is Karen X Cheng and McDonald's collaboration to create a metaverse experience to celebrate the lunar new year (Vismaya, 2023) . Karen X Cheng created a metaverse space that showcased a 3D sculpture as well as artworks created by Asian American Pacific Islander (AAPI) artists. The metaverse experience was set up on Spatial which allowed users to take part in exclusive events through their avatars.

Seeing how metaverse technology is already being leveraged by many media corporations, the research aims to investigate the acceptance of undergraduate media students in Malaysia toward the metaverse as they are the media practitioners of the future.

1.2 Problem Statement

With the potential and ongoing impacts on the media industry that are part and parcel with metaverse development, it is imperative to analyse the users' acceptance of this new technology. This analysis will provide the factors and the weight of these factors that influence the acceptance of a new piece of technology i.e., the metaverse. Existing research focused on the acceptance of metaverse usage in general social use (Toraman, 2022), education (Misirlis & Munawar, 2022), and medicine (Almarzouqi et al., 2022). TAM is commonly utilised as the framework to capture factors that affect technology adoption (Charness & Boot, 2015).

While there has been significant research done to tertiary student populations internationally, there is a research gap in Malaysia as most research was carried out to overseas population. As the behaviours and attitudes of tertiary students in Malaysia might differ from the tertiary student population of other countries, it is crucial to investigate the weight of the factors in the TAM framework on the metaverse acceptance of tertiary students in Malaysia. Simultaneously, this research will be able to predict the potential behavioural intention of the sample population.

Moreover, there are no existing studies that targets media students despite the capabilities of the metaverse for creative creation for media and advertising. It is necessary to assess media students' acceptance towards the metaverse as they will be the future media practitioners. Hence, there exists a need to study media students' acceptance during the preliminary stage of metaverse's penetration into the Malaysian market to understand possible adoption patterns when metaverse is fully implemented in the country.

1.3 Significance of Study

The current study will contribute significance by providing insights of undergraduate media students in Malaysia toward the metaverse development in terms of acceptance and potential use. With this insight, the media industry as well as metaverse developers will have valuable data on how accepting the sample population is, how much the factors weigh in contributing to acceptance or rejection, and the potential usage cases. This data will serve in the designing and development of metaverse services that will cater to the sample population.

Furthermore, the results will predict whether media students in Malaysia consider the metaverse to be a worthwhile skill to adopt for education and career progression. Thus, it is imperative to study the behavioural intentions of undergraduate media students in Malaysia

toward the metaverse as it directly contributes to the media industry as well as metaverse developers like Meta.

1.4 Research Objectives

Below are the developed research objectives of this study:

1. To investigate Malaysian undergraduate media students' awareness of metaverse development
2. To examine Malaysian undergraduate media students' attitude toward metaverse technology
3. To investigate the relationship between Malaysian undergraduate media students' attitude toward metaverse technology and their behavioural intention to use metaverse technology

1.5 Research Questions

Below are the research questions derived from the objectives of this study:

1. Are Malaysian undergraduate media students aware about metaverse development?
2. What is Malaysian undergraduate media students' attitude toward metaverse technology?
3. What is the relationship between Malaysian undergraduate media students' attitude toward metaverse technology and their behavioural intention to use metaverse technology?

1.6 Chapter Layout

The research consists of five chapters as described below:

Chapter I will introduce the topic of research through the background of study, problem statement, significance of the study, research objectives as well as research questions.

Chapter II will consist of the literature review where literature regarding the definitions, underlying theory, and findings from existing research will be synthesised and summarised. Also, the hypothesis will be formed in this chapter followed by a conclusion to end the chapter.

Chapter III will describe the research methods that will be employed in this study. It will include research design, data collection methods, sampling design, research instrument, data analysis and the conclusion to end off the chapter.

Chapter IV will then present the discussions and analysis of the questionnaire results in relevance to the objectives and hypotheses through figures and tables. Descriptive analysis, reliability testing, correlation and significance analysis will be carried out and elaborated in this chapter. A conclusion will briefly summarise the findings.

Chapter V will serve to conclude the entire research by listing out the theoretical and managerial implications followed by limitations and recommendations for future studies. Finally, a conclusion will end off this research paper.

CHAPTER II

LITERATURE REVIEW

2.0 Introduction

The literature review will serve to define and synthesise literature regarding the metaverse, its development, and potential impacts as well as the TAM that will be used to analyse responses from the questionnaire in later chapters.

2.1 The History of the Metaverse

An article published by Forbes about the brief history of the metaverse captured its fictional and non-fictional development (Marr, 2022). Among the fictional mentions that described a metaverse was in 1935 when Stanley Weinbaum, an American science fiction writer published a novel titled *Pygmalion's Spectacles* where the main character explores a fictional world through a pair of goggles that gave sight, sound, taste, smell, and touch. However, the actual term “metaverse” was first seen in a novel titled “*Snow Crash*” by Neil Stevenson. The term was used to describe a virtual place where the characters escaped from a totalitarian reality. The fictional concept of the metaverse continued to be exploited in *Ready Player One*, a movie about an immersive virtual world that allowed for an escape from reality.

The actual development of the metaverse, after the stereoscope was the invention of the first VR machine called the Sensorama machine in 1956 (Marr, 2022). It created a simulation of riding a motorcycle through the combination of 3D video, audio, scents, and a vibrating chair. The Massachusetts Institute of Technology (MIT) joined the metaverse development with *Aspen Movie Map*, a computer-generated tour of Aspen, Colorado. In the 1990s, Sportsvision broadcasted the first live NFL game with a yellow yard marker and pioneered the idea of overlaying graphics over real-world views (Marr, 2022).

The 2000s brought with it a rekindled interest in VR since the Sensorama was founded half a century ago. A prototype of the Oculus Rift VR headset was created by Palmer Luckey (Marr, 2022). It featured a 90-degree field of vision and used computer processing power. Oculus VR was then acquired by Facebook in 2014 as tech companies like Sony, Samsung and Google started launching their own VR headsets (Marr, 2022). By 2016, Microsoft's own VR headsets HoloLens introduced mixed reality where augmented reality (AR) and virtual reality (VR) are combined to allow holographic images to be created and put into the real world (Marr, 2022). This was exemplified by IKEA in 2017 where they released the Place app which allows users to view how pieces of IKEA furniture would look like in their spaces (Marr, 2022).

As mixed reality has become readily available on smartphones, Apple added LiDAR cameras to the Pro line of the devices to provide better depth scanning and AR. Finally, the major event that took the media industry by storm in 2021 was the rebranding of Facebook to Meta. This rebranding signalled the company's shift to focusing on the creation of a metaverse to advance how people communicate and interact virtually.

2.2 Descriptive definitions about the metaverse

As the metaverse paradigm is an ongoing development, a descriptive definition would be more effective than a single dictionary definition. Among the most comprehensive definitions of the metaverse is written in a journal article from Cornell University, it describes breaks down the development of the metaverse into a three-stage spectrum named the 'digital twins-native continuum' (Lee et al., 2021). The three stages in the digital twins-native continuum include (i) *digital twins*, (ii) *digital natives*, and (iii) *coexistence of physical-virtual reality* which is also known as surreality. *Digital twins* is the starting point where the digitisation of physical environments takes place as virtual counterparts of the

physical environments will be duplicated. Hence, changes in the physical environments will be mirrored in their virtual counterparts.

Digital natives describe when users utilise their avatars to work on new creations in the virtual worlds. This second stage focuses on native content creation where content creators, represented by their own avatars, craft digital creations in the virtual worlds that can be linked to the physical world. These new creations will build new virtual worlds as well and will gradually lead to the final stage of *surreality* where physical and virtual realities will co-exist. Ultimately, the metaverse could become “a self-sustaining and persistent virtual world that co-exists and interoperates with the physical world with a high level of independence” (Lee et al., 2021).

Uspenski and Guga (2022) stated that there is no single fixed definition of the metaverse. Uspenski and Guga’s paper dissects the term “metaverse” etymologically where ‘meta’, a Greek word, means ‘beyond’ and ‘adjacent to self’. In the realm of epistemology, the word ‘meta’ connotes something that is beyond yet self-encompassing of its own kind. When combined with the word ‘verse’, ‘metaverse’ indicates what is beyond and encompassing of all universes. Thus, the metaverse can be defined as “an open and shared sum of all virtual reality spaces, which are computer-generated, inter-connected, immersive, and participatory”. However, just etymology alone will not be sufficient to define and describe what exactly the metaverse is. The metaverse is commonly referred to as social VR where people can interact and connect with each other and the surrounding virtual space through an interconnected network of virtual realities and experiences. In a sense, social VR allows users to immerse in virtual environments. The metaverse transcends phone screens and relies on technical immersive devices to allow for the merge of the real world and virtual world. Hence, the metaverse utilises different technologies like VR, AR, different means of

connectivity and is simultaneously open to new technologies that are evolving in sync with the real world (Uspenski & Guga, 2022).

In essence, these two descriptive definitions of the metaverse portray it as a collection of technologies that will allow users to exist and immerse in both the physical and virtual environment simultaneously.

2.3 Latest developments of metaverse relevant to the media industry

Nearly a year after Facebook's rebranding stunt that gave birth to Meta, latest metaverse developments have been unveiled in a recent Meta Connect 2022 conference. Among the updates were the release of Meta Quest Pro, a high-end VR headset that would scale up the capabilities of virtual and mixed reality (Meta, 2022). The Meta Quest Pro is essentially a full-colour mixed reality device with high resolution outward-facing cameras, which allow a seamless connection between the physical and digital realms. The VR headset was designed to be a productivity tool for people who utilized VR in their work as it comes with an upcoming partnership with Microsoft to create new work and productivity software. A glimpse of how this would revolutionise work would be being able to attend a Microsoft Teams meeting with an avatar.

Another development that was announced is the Meta Horizon Worlds that will allow users to connect with friends who are socializing in the VR realm (Meta, 2022). Meta is also working together with YouTube to create an opportunity for friends to watch YouTube videos together in the metaverse through Meta Horizon Home. Meta Avatars that were introduced to Facebook and Instagram users have also been improved to be more expressive and detailed. These avatars are being brought outside of the VR realm into apps like Messenger and WhatsApp.

In Meta's Reality Labs, several research updates were announced and among them were the use of artificial intelligence and electromyography to create more intuitive, human-centered interfaces, and technologies to build and manipulate 3D objects in the metaverse which are Neural Radiance Fields (NeRFs) and inverse rendering (Meta, 2022). NeRFs possesses the ability to reconstruct the appearance of 3D objects from multi-angle 2D pictures which generates the finest of details. Inverse rendering however captures the geometry and appearance of objects directly and uploads a digital duplicate of the object into VR or AR. The properties of the digital duplicates respond to lighting in a virtual environment. This technology is worthy to be mentioned as it holds the potential in revolutionising media production which will in turn impact the education structure for media students. For instance, movie production sets might not need to be built physically ever again as everything will be built on the metaverse.

To realise this merged world of reality and virtuality, the tech team at Meta is developing wrist-based interaction using electromyography (EMG). According to Johns Hopkins Medicine (2021), EMG is a medical procedure that detects neuromuscular abnormalities by measuring muscle response or electrical activity in response to a nerve's stimulation of the muscle. The application of this technology will give rise to personalised AI that will work together with future devices to detect and reconstruct our environments while understanding the usage context. The combination of personalised AI and EMG utilises neuromuscular signals from users' wrists as input to facilitate a truly human-centred interface. Essentially, this interface will not require users to learn a completely new control system as it intends to learn from and adapt to the user's behaviours. To illustrate this innovation, Meta gave a use case of how users will be able to check messages with a few subtle gestures instead of having to fish out their phones. In relation to the media industry, this innovation could change the way people watch content be it films or short-form content.

Last but not least, photorealistic avatars called Codec Avatars 2.0 are being developed to include robust facial expressions, together with Instant Codec Avatars that are faster and easier to make. While avatars have existed when game developers used the term to represent players' in-game characters (Paez, 2020), Meta's Codec Avatars 2.0 aims to deliver photorealistic representations of users that can interact with others. Meta describes the avatar technology as the most powerful remote connection technology which affords a genuine sense of social presence despite the physical distance. This is because Codec Avatars 2.0 can be automatically generated and controlled in real time to simulate how users in real life look and move. Hence, users would be able to traverse to different events virtually e.g., from attending a formal meeting to a casual family gathering. Improvements made to Codec Avatars 2.0 include making it more expressive on top of being able to understand non-verbal cues and tones. While Codec Avatars 2.0 bring with it a plethora of advancements, it takes a long time to generate. Hence, Instant Codec Avatars are being developed. This version of avatars can simply be generated by scanning the user with a phone in good lighting. With the development of such advanced avatars underway, casting actors for shoots could be revolutionized through this technology.

2.4 Past studies of metaverse acceptance

A survey of metaverse prospects based on the TAM was carried out in Palestine to test the respondents' intention toward using the metaverse, to discern the factors that affect their intentions, and the relationship between the intentions and factors. The study aimed to understand how Palestinian users' potential usage behaviour will affect their use of the metaverse (Aburbeian et al., 2022). The respondents of the study were tested through a questionnaire for the following nine variables: self-efficiency, social norm, perceived curiosity, perceived pleasure, price, perceived usefulness, perceived ease of use, behavioural intention, and attitude toward technology use. The results of the study revealed that a majority of the variables positively correlate to each other except for self-efficiency and social norm, price and self-efficiency, and price and attitude toward technology use (Aburbeian et al., 2022).

In detail, perceived curiosity, perceived pleasure, and self-efficiency positively influence perceived ease of use. This implies that metaverse technology has the potential to deliver pleasure and curiosity to create a sense of ease of use. Perceived usefulness was found to be positively influenced by perceived pleasure, social norm and perceived ease of use. This means that the usefulness of the metaverse relies on social norms, the level of pleasure it can deliver and its ease of usage. Furthermore, the study discovered that the metaverse being a social norm will significantly influence perceived usefulness, which suggests that society's opinion will affect user engagement in the metaverse. Similarly, perceived usefulness and perceived ease of use has positive influences attitude toward the use of Metaverse technology; this means usefulness and ease of use are determinants of whether users will have a positive or negative behavioural intention toward the metaverse. Finally, the study found that a low cost of using the metaverse must exist to bring a positive user behavioural intention (Aburbeian et al., 2022).

A similar study was carried out in Istanbul using the TAM combined with the Planned Behaviour Theory (PBT) (Toraman, 2022). According to the results, a significant positive correlation was found between perceived usefulness, perceived ease of use, attitude toward use, and metaverse adaptation intention. Moreover, there is also a significant positive correlation between subjective norm and attitude toward use and perceived behavioural control. The hypotheses established in this study are depicted in Figure 1.0.

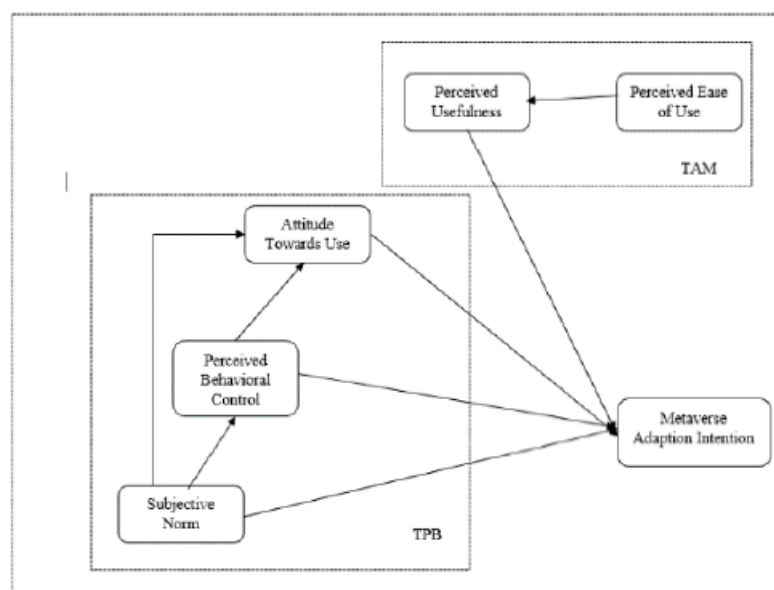


Figure 2.1 Conceptual model of Toraman's study

The results of the study revealed that five of the hypotheses were accepted whereas three of the hypotheses were rejected as a significant relationship was not found between the variables. In detail, perceived behavioural control did not have any positive relations to intention of using metaverse technology. There was no relationship found between subjective norm and intention. The same can also be said for the relationship between perceived behavioural control and attitude towards use (Toraman, 2022).

Another study was carried out to understand university students' behavioural intention to utilise MetaEducation based on the TAM (Misirlis & Munawar, 2022). The study was

done to a population of students from the HAN University of Applied Sciences in The Netherlands. The selected TAM variables were attitude, perceived usefulness, perceived ease of use, self-efficacy of metaverse technologies in education and subjective norm. The results of the study found respondents to be hesitant to use MetaEducation technologies. The hypothesis drawn showed that self-efficacy and subjective norm positively influence attitude and perceived usefulness. On the contrary, a relationship does not exist between perceived ease of use and attitude, and perceived usefulness and attitude.

2.5 Technology Acceptance Model (TAM)

TAM was developed and introduced by Davis in 1986 that acts as a framework for assessing framework for attitudes toward new technology (Charness & Boot, 2015). TAM is based on the Reasoned Action Theory (GET), which is frequently used to explain human behaviour. According to GET, human behaviour is carried out for certain reasons (Toraman, 2022). According to Davis, perceived usefulness (PU) and perceived ease of use (PEOU) are the two main factors that form users' attitudes towards technology adoption and use. Consequently, users' attitudes will form their behavioural intention and actual usage or rejection of a particular technology (Davis, 1989). Thus, the two responding variables of the TAM are attitude toward technology use (AT) and behavioural intention (BI).

Perceived Usefulness (PU)

PU refers to the degree to which an individual thinks that using a system would enhance their job performance. In context, PU will measure how useful media students perceive the metaverse to be in relation to their studies and the media industry.

Perceived Ease of Use (PEOU)

PEOU is defined as the degree to which a person thinks that using a certain technology would bring little to no complications or effort. In terms of this study, PEOU will seek to investigate and demonstrate the respondents' perception of how easy it is to operate and utilise metaverse technologies.

Attitude Towards Technology Use (AT)

AT refers to the acceptance or rejection of the usage of a particular technology. AT will gauge the respondents' acceptance or rejection of metaverse usage in the media industry.

Behavioural Intention (BI)

BI is a gauge on how willing a person is to use a particular piece of technology. BI measures the willingness of the respondents to adopt metaverse technologies in existing and future workflows.

2.6 Hypotheses

When four of these variables are strung together, the TAM explains that when a user perceives a new technology as useful, they will form a positive attitude that will in turn increase the intention to utilise that technology. Thus, the following are the proposed hypotheses for this study:

H1: PEOU positively influences PU

H2: PEOU positively influences AT

H3: PU positively influences AT

H4: AT positively influences BI

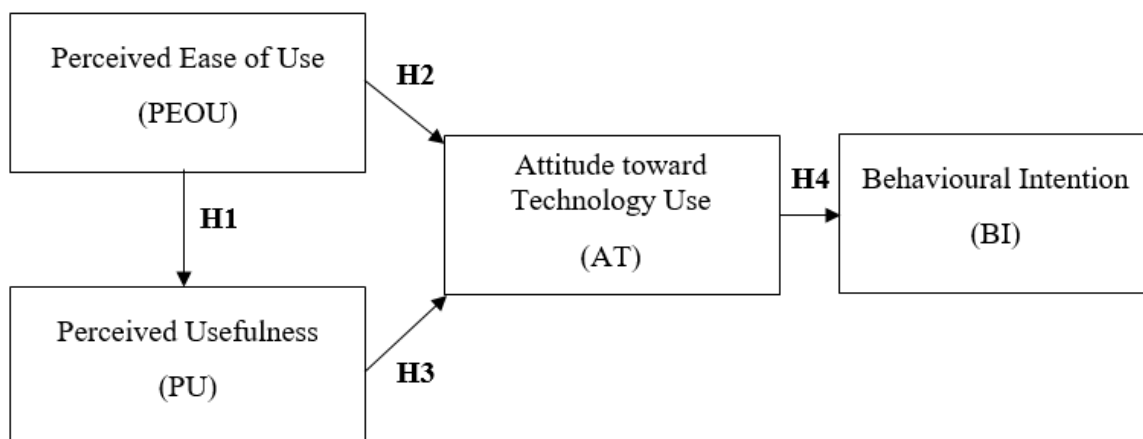


Figure 2.2 Theoretical Framework

2.7 Conclusion

The information written in the literature review serves to lay out a comprehensive view for this study. TAM has been established as the theory to hypothesise the study.

CHAPTER III

METHODOLOGY

3.0 Introduction

This chapter details the methods of research in sections such as: research design, data collection method, sampling design, research instrument, data collection, processing, and interpretation.

3.1 Research Design

Akhtar (2016) defines research design as a conceptual blueprint for research which contains the outline and measurement and analysis of data. Research design also involves the decision of whether the research will employ a qualitative, quantitative or mixed method (Creswell & Creswell, 2017). Other than selecting a method for the study, research design also initiates inquiries that provide specific direction for procedures in a research study. This study will employ the quantitative research method as it is commonly utilised to study attitudes and behaviours (Allen et al., 2013).

3.1.1 Quantitative Research

Quantitative research is implemented in this research as it aims to offer objective insights through dealing with numbers and data to assess information. In other words, it is a method that researches on phenomena and their relationships with an emphasis on numbers and measurable data (Kumar, 2018). It also represents complex problems through variables (Allen et al., 2013). Since this study is based on the TAM, the quantitative research method is appropriate to analyse the relationship between variables within the theory and assess whether the study supports or rejects the theory. According to Antonius (2003), quantitative research method allows the testing of hypotheses through statistical analysis of its numerical

data. Furthermore, quantitative research can allow for replication to ensure the findings are accurate as it is based on measurable values that are less susceptible to misinterpretation.

3.2 Data Collection Method

3.2.1 Primary Data

The main source of data of this research will be primary data. Primary data is referred to as the original data source where data is personally gathered by the researcher for a particular research objective (Persaud, 2010). To put into perspective, primary data is data that is collected by the researcher from the intended respondents while secondary data are those that are collected and produced by a third party (Ajayi, 2017). The crucial difference between the two sources of data is that primary data is original, raw data while secondary data is formed out of the analysis and interpretation of primary data. Persaud (2010) also detailed the different ways of collecting primary data, i.e., self-administered surveys, interviews, field observations, and experiments. In this research, data will be collected through a questionnaire disseminated to the target population through Google Forms.

3.3 Sampling Design

3.3.1 Target Population

In research, target population refers to the total set of units for which survey results will be utilised to draw conclusions. It defines the units intended to be generalised by the findings of the study (Cox, 2008). The target population of this research is Malaysian undergraduate media students who are either pursuing a bachelor's degree or diploma from any university in Malaysia. The undergraduate students' age is fixed between 18 to 26 years old as this age group falls within the Generation Z which is the "most technologically adept generation and are highly connected to the social media web" (Mahapatra et al., 2022). Hence,

this target population is appropriate for this study as they are mostly up to date with ongoing technological advancements.

3.3.2 Sampling Frame and Sampling Location

A sampling frame is a set of source materials from which the sample for the research is selected and acts as a means for choosing members of the target population to fill out the research survey (Turner, 2003). The sampling frame applied in this research specifies that respondents must be undergraduate students who are pursuing a media-related bachelor's degree or diploma. The sampling location will encompass universities within the Klang Valley, Malaysia.

3.3.3 Sampling Size and Sampling Elements

The questionnaire will be distributed to 50 Malaysian undergraduate media students. A smaller sampling size is decided upon due to time constraints allocated for this research. According to a study conducted by Yahoo, Singapore's Generation Z rose as the most metaverse aware in the Asia Pacific region (Bernado, 2023). However, the study only included respondents from Australia, New Zealand, Japan, Taiwan, Hong Kong and Singapore. Hence, the sampling elements for this study focuses on Malaysia's Generation Z undergraduate media students to discern whether the awareness is comparable to that of Singaporean Generation Z. On top of that, media students are selected as the sampling elements as the metaverse has the potential to impact the media industry and its processes.

3.3.4 Sampling Technique

The common types of sampling techniques comprise of probability sampling and non-probability sampling. Probability sampling, also known as random sampling, is when every component in the target population has an equal chance of being included in the sample (Taherdoost et al., 2016). In social science and policy research, probability sampling is rarely

used due to its higher cost and samples that are not fully representative caused by non-response bias (Lehdonvirta et al., 2021). Instead, non-probability is more commonly employed by social scientists and policy researchers in online surveys for its lower cost and fast turnaround (Lehdonvirta et al., 2021). Non-probability sampling is also common in student research as it focuses on small samples that may not be necessarily representative but good reason must be given for choosing some cases over others (Taherdoost et al., 2016).

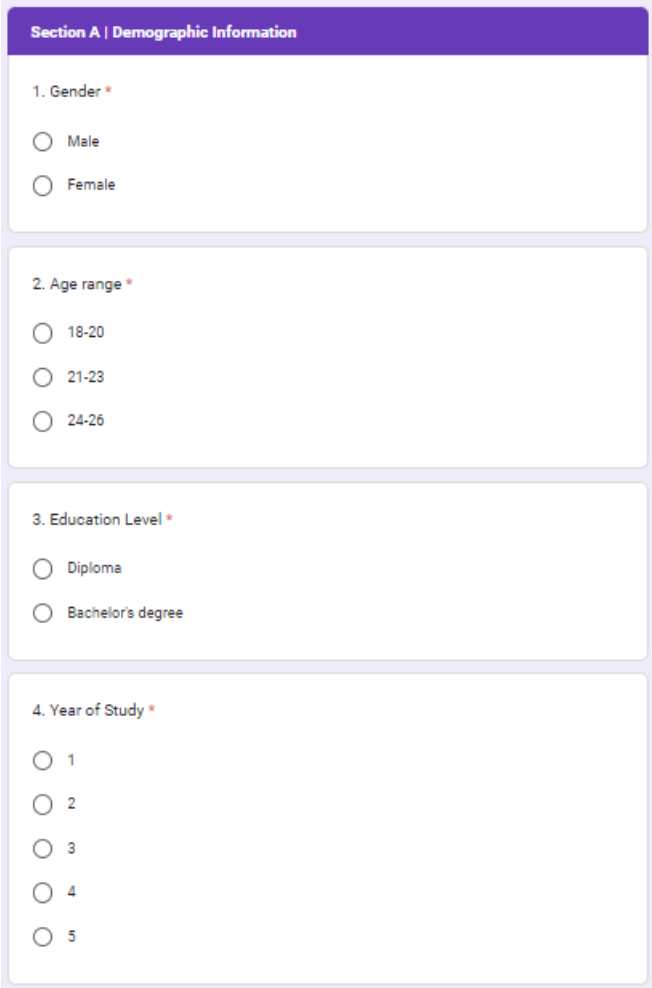
Therefore, non-probability sampling is employed in this study. In specific, convenience sampling is utilised as it allows researchers to collect samples from an easily accessible community which in this case are undergraduate media students in Malaysia. To execute convenience sampling, the questionnaire was distributed as a Google Forms and sent to potential respondents through social media platforms including WhatsApp and Instagram Direct Message.

3.4 Research Instrument

3.4.1 Questionnaire Design

The questionnaire begins with a description of the study to inform the respondents about the research objectives. Following the questionnaire are six sections A, B, C, D, E and F. Section A features multiple-choice questions designed to collect the respondents' demographic information.

Section A: Demographic Information



The image shows a digital questionnaire interface for 'Section A | Demographic Information'. It consists of four vertically stacked question boxes, each with a title and three radio button options. The first question is '1. Gender *' with options 'Male' and 'Female'. The second is '2. Age range *' with options '18-20', '21-23', and '24-26'. The third is '3. Education Level *' with options 'Diploma' and 'Bachelor's degree'. The fourth is '4. Year of Study *' with options '1', '2', '3', '4', and '5'. The interface has a purple header bar and light purple borders for each question box.

Section A | Demographic Information

1. Gender *

Male

Female

2. Age range *

18-20

21-23

24-26

3. Education Level *

Diploma

Bachelor's degree

4. Year of Study *

1

2

3

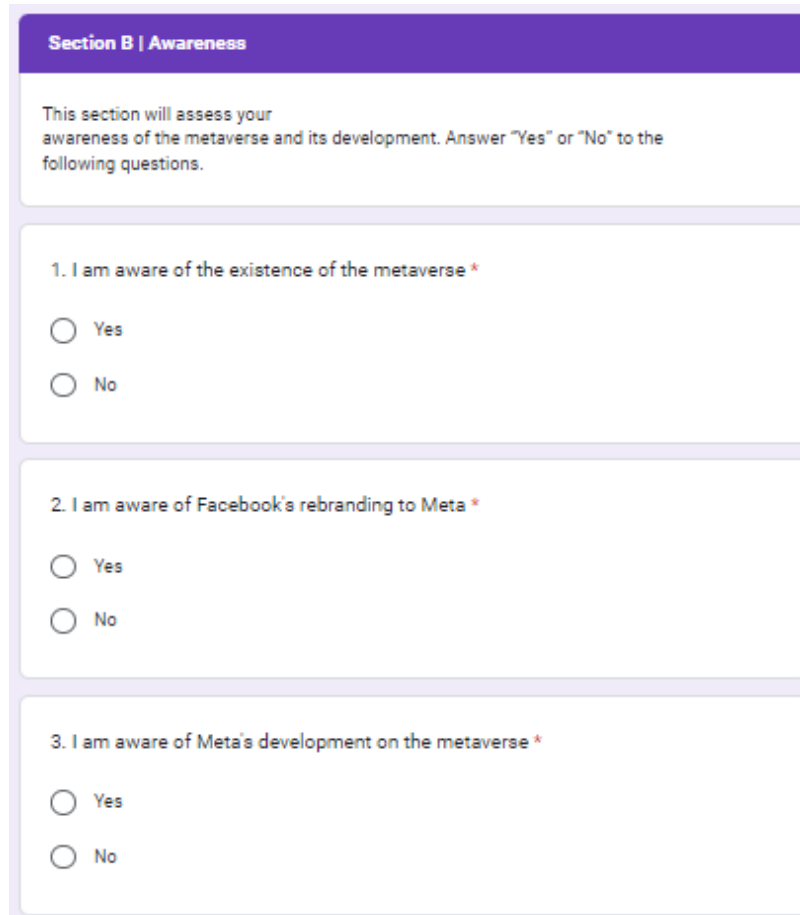
4

5

Figure 3.1 Questions on Demographic Information

Section B also contains multiple-choice questions which aim to assess the awareness of respondents about the metaverse.

Section B: Awareness (Yes/No questions)



Section B | Awareness

This section will assess your awareness of the metaverse and its development. Answer "Yes" or "No" to the following questions.

1. I am aware of the existence of the metaverse *

Yes

No

2. I am aware of Facebook's rebranding to Meta *

Yes

No

3. I am aware of Meta's development on the metaverse *

Yes

No

Figure 3.2 Questions on Awareness

Questions under Section C until Section F utilises a Likert scale where 1 represents strongly disagree, 2 represents disagree, 3 represents neutral, 4 represents agree and 5 represents strongly agree. Section C features eight questions revolving around respondents' PU of the metaverse.

Section C: Perceived Usefulness (PU)

Section C | Perceived Usefulness

This section will assess your perceived usefulness of the metaverse in relation to the media industry. On a Likert scale of 1 to 5 where 1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree, choose a score that represents your perception.

	1 - strongly disagree	2 - disagree	3 - neutral	4 - agree	5 - strongly agree
1. The metaverse can make the video production process more efficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The metaverse can allow actors to act remotely with photorealistic avatars	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. The metaverse can bring a new way of consuming media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The metaverse can allow for virtual sets to be built through 3D scanning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. The metaverse will positively change the way we shoot content (e.g., movies, commercials, short films etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. The metaverse will open up more jobs in the media industry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. The metaverse will provide new and effective formats of advertising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. The metaverse has the potential to attract more reach and engagement in advertising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 3.3 Questions on PU

Section D contains two questions about respondents' PEOU of the metaverse.

Section D: Perceived Ease of Use (PEOU)

Section D | Perceived Ease of Use

This section will assess your perceived ease of use of the metaverse in relation to the media industry. On a Likert scale of 1 to 5 where 1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree, choose a score that represents your perception.

*

	1 - strongly disagree	2 - disagree	3 - neutral	4 - agree	5 - strongly agree
1. Learning how to use the metaverse technologies will be easy for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The metaverse will be easier to operate than current video production processes. (e.g. editing, building physical sets, setting up lighting, directing actors)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 3.4 Questions on PEOU

Section E also comprises of two questions which assesses the respondents' AT.

Section E: Attitude towards technology use (AT)

Section E | Attitude toward Technology Use

This section will assess your attitude toward the usage of the metaverse. On a Likert scale of 1 to 5 where 1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree, choose a score that represents your behaviour.

*

	1 - strongly disagree	2 - disagree	3 - neutral	4 - agree	5 - strongly agree
1. The metaverse will be the future of media production and consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The metaverse is just a trend that will fade away in a few years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 3.5 Questions on AT

Lastly, Section F posts three questions which aim to investigate the BI of the respondents.

Section F: Behavioural intention (BI)

Section F | Behavioural Intention

This section will assess your behavioural intention in learning and using the metaverse. On a Likert scale of 1 to 5 where 1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree, choose a score that represents your behaviour.

*

	1 - strongly disagree	2 - disagree	3 - neutral	4 - agree	5 - strongly agree
1. I intend to learn how to use the metaverse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Assuming I have access to the metaverse, I intend to use it in media-related works or assignments in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Metaverse education should be included in the syllabus for media degrees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 3.6 Questions on BI

3.5 Data Analysis

The data collected through the questionnaire will be analysed with IBM's Statistical Package for the Social Sciences (SPSS). SPSS is a more powerful statistical analysis software compared to Excel which is essentially a spreadsheet software, as SPSS contains built-in data manipulation tools like recoding and transforming variables (Padamkar, 2020). The data and hypotheses will be analysed with descriptive analysis, reliability test and Pearson correlation coefficient.

3.5.1 Descriptive Analysis

Data collected through the questionnaire does not serve as descriptive research when it stands alone because it is not purposeful. This is where descriptive analysis simplifies data and makes it meaningful by characterising a phenomenon through identifying patterns in data to answer research questions (Loeb et al., 2017). Descriptive analysis essentially describes and summarises the basic features of data. When teamed together with graphics analysis, it forms the basis of quantitative data analysis (Trochim, n.d.).

3.5.2 Reliability Test: Cronbach's Alpha

The definition formed by Bolarinwa (2015) explains reliability as the extent to which the result generated from a phenomenon or measurement can be replicated. In the case of this study, reliability is the degree to which the questionnaire and chosen theory produce the same results on repeated trials. Cronbach's alpha is commonly used to test consistency and reliability for analysis done through SPSS (Litwin, 1995). According to Bolarinwa (2015), the reliability coefficient ranges from 0 to 1 where 0 signifies a questionnaire that is unreliable and 1 represents an thoroughly reliable questionnaire. Also, a reliability coefficient of 0.70 and above is considered satisfactory reliability in SPSS.

3.5.3 Pearson Correlation Coefficient

The Pearson Correlation Coefficient is a statistical technique that calculates the linear relationship between pairs of variables (Chen & Anderson, 2023). "r" stands for the Pearson correlation coefficient which determines how closely the two variables are connected. The correlation coefficient is between +1.0 and -1.0, as the researcher noted. According to Obilor and Amadi (2018), perfect negative and positive correlation coefficients are represented by -1.0 and +1.0, respectively, while 0 indicates there is no correlation between any two variables. Whether the correlation coefficients are negative or positive, lower than 0.40 is regarded low, between 0.40 and 0.60 is considered moderate, and above 0.60 is considered high.

3.5.4 Multiple Linear Regression Analysis

Regression analysis estimates relationships between variables which have reason and result relation (Uyanık & Güler, 2013). It allows researchers to have a better grasp of the significance of relationships between variables. Since this study has more than one independent variable, multiple linear regression will be conducted to determine the significance of the correlations between the independent and dependent variables based on the theory. Hence, the analysis will determine the significance of independent variables (PEOU, PU, AT) on the dependent variable (BI), and reveal Malaysian undergraduate students' acceptance toward metaverse technology.

3.6 Conclusion

This chapter concludes with a discussion of the methodology used for this research study, including the research design, data collection system, sampling strategy, research instrument, data processing, and data interpretation. The specifics of the results will be looked at and described in more detail in the sections that follow.

CHAPTER IV

DATA ANALYSIS

4.0 Introduction

This chapter analyses the results from the 70 sets of questions from tables and charts generated in SPSS.

4.1 Descriptive Analysis

4.1.1 Demographic Profiles

4.1.1.1 Gender

		1. Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	44	62.9	62.9	62.9
	Male	26	37.1	37.1	100.0
	Total	70	100.0	100.0	

Table 4.1 Gender

1. Gender
70 responses

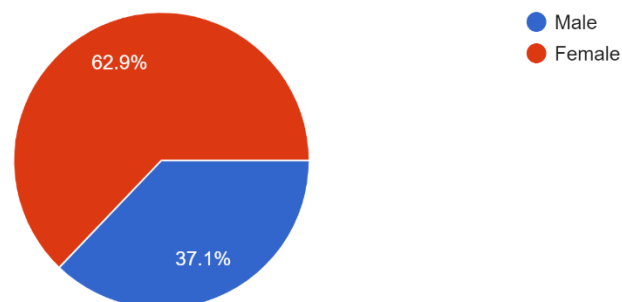


Figure 4.1 Gender

According to table 4.1, the survey respondents comprise of more females compared to males. The number of female respondents is 44 (62.9%) whereas the number of male respondents is 26 (37.1%). In total, the survey has garnered 70 respondents.

4.1.1.2 Age Range

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-20	1	1.4	1.4	1.4
	21-23	57	81.4	81.4	82.9
	24-26	12	17.1	17.1	100.0
	Total	70	100.0	100.0	

Table 4.2 Age

2. Age range
70 responses

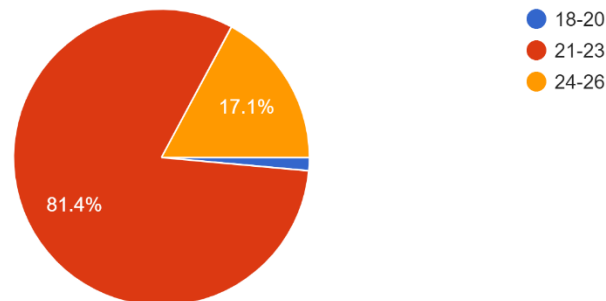


Figure 4.2 Age

Among the 70 respondents, a large majority (81.4%) fall into the age range of 21 to 23 years old. 17.1% are in the age range of 24 to 26 years old. Only 1.4% of respondents are aged between 18 to 20 years old. All respondents fall into the common age range of undergraduate media students.

4.1.1.3 Education Level

3. Education Level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's degree	70	100.0	100.0	100.0

Table 4.3 Education Level

3. Education Level

70 responses

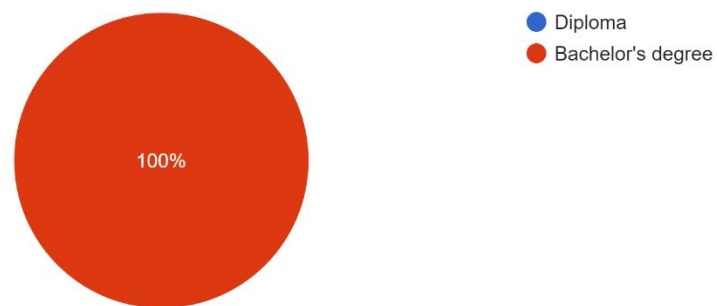


Figure 4.3 Education Level

As visualised in Figure 4.3, all of the respondents who participated in the survey are currently pursuing a bachelor's degree in media.

4.1.1.4 Year of Study

4. Year of Study

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.4	1.4	1.4
	2	7	10.0	10.0	11.4
	3	37	52.9	52.9	64.3
	4	22	31.4	31.4	95.7
	5	3	4.3	4.3	100.0
	Total	70	100.0	100.0	

Table 4.4 Year of Study

4. Year of Study

70 responses

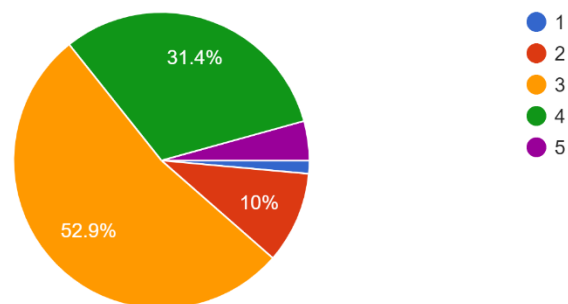


Figure 4.4 Year of Study

According to Table 4.4, Year 3 students take up slightly more than half (52.9%) of the total respondents followed by Year 4 students, taking up 31.4%. 10% of respondents are from Year 2, 4.3% from Year 5 and 1.4% from Year 1.

4.1.2 Awareness

4.1.2.1 Metaverse Awareness

1. I am aware of the existence of the metaverse

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	9	12.9	12.9	12.9
	Yes	61	87.1	87.1	100.0
Total		70	100.0	100.0	

Table 4.5 Awareness of existence of metaverse

1. I am aware of the existence of the metaverse

70 responses

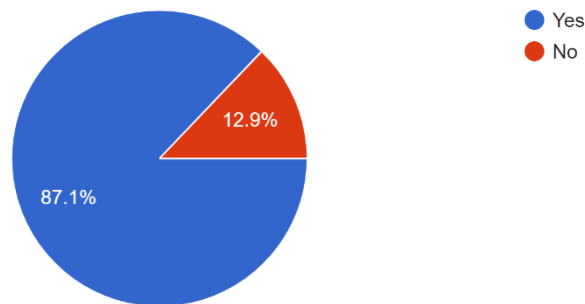


Figure 4.5 Awareness of existence of metaverse

As displayed in Table 4.5 and Figure 4.5, 61 respondents (87.1%) are aware of the existence of the metaverse whereas only 9 respondents (12.9%) are unaware of its existence.

4.1.2.2 Awareness of Facebook's Rebranding to Meta

2. I am aware of Facebook's rebranding to Meta

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	5	7.1	7.1	7.1
	Yes	65	92.9	92.9	100.0
Total		70	100.0	100.0	

Table 4.6 Awareness of Facebook's rebranding to Meta

2. I am aware of Facebook's rebranding to Meta
70 responses

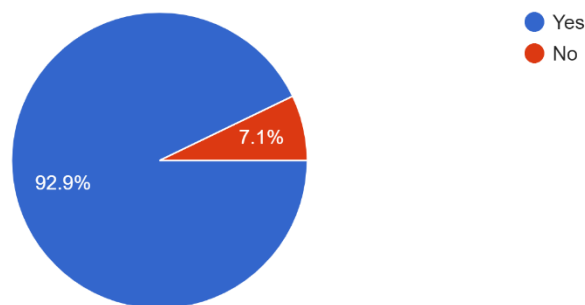


Figure 4.6 Awareness of Facebook's rebranding to Meta

According to Table 4.6 and Figure 4.6, a large majority of respondents (92.9%) are aware of Facebook's rebranding into Meta, and only a small percentage (7.1%) are unaware of the rebranding.

4.1.2.3 Meta Development Awareness

3. I am aware of Meta's development on the metaverse

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	19	27.1	27.1	27.1
	Yes	51	72.9	72.9	100.0
Total		70	100.0	100.0	

Table 4.7 Awareness of Meta's development on the metaverse

3. I am aware of Meta's development on the metaverse
70 responses

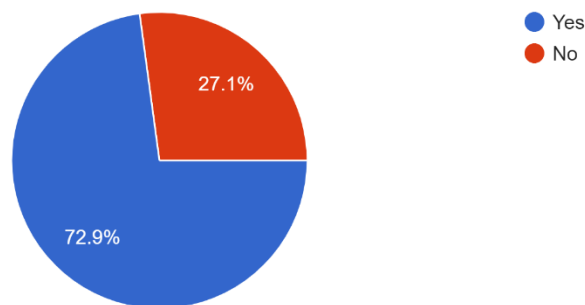


Figure 4.7 Awareness of Meta's development on the metaverse

In terms of Meta's development on the metaverse, Table 4.7 and Figure 4.7 presents that 51 respondents (72.9%) are aware whereas 19 respondents (27.1%) are unaware.

4.1.3 Central Tendencies Measurement of Constructs

		N	Sum	Mean	Std. Deviation
PU	[1. The metaverse can make the video production process more efficient]	70	189	2.70	0.688
	[2. The metaverse can allow actors to act remotely with photorealistic avatars]	70	190	2.71	0.819
	[3. The metaverse can bring a new way of consuming media]	70	290	4.14	0.708
	[4. The metaverse can allow for virtual sets to be built through 3D scanning]	70	219	3.13	0.612
	[5. The metaverse will positively change the way we shoot content (e.g., movies, commercials, short films etc.)]	70	263	3.76	0.924
	[6. The metaverse will open up more jobs in the media industry]	70	198	2.83	0.932
	[7. The metaverse will provide new and effective formats of advertising]	70	224	3.20	0.672
	[8. The metaverse has the potential to attract more reach and engagement in advertising]	70	218	3.11	0.790
					3.198
PEOU	[1. Learning how to use the metaverse technologies will be easy for me]	70	226	3.23	1.079
	[2. The metaverse will be easier to operate than current video production processes. (e.g. editing, building physical sets, setting up lighting, directing actors)]	70	236	3.37	0.966
					3.300
AT	[1. The metaverse will be the future of media production and consumption]	70	191	2.73	0.833
	[2. The metaverse is just a trend that will fade away in a few years]	70	273	3.90	1.024
					3.314
BI	[1. I intend to learn how to use the metaverse]	70	259	3.70	0.953

[2. Assuming I have access to the metaverse, I intend to use it in media-related works or assignments in the future]	70	268	3.83	1.021
[3. Metaverse education should be included in the syllabus for media degrees]	70	203	2.90	0.801
			3.476	0.925

Table 4.8 Descriptive Analysis

All constructs were rated through a 5-point Likert-scale which ranges from strongly agree, agree, neutral, disagree and strongly disagree. According to Table 4.8, the construct that has the highest mean is BI with a mean of 3.476. The scale of BI construct inclines toward “Neutral” and “Agree”. On the contrary, the construct with the lowest mean is PU with a mean of 3.198 which leans slightly to “Neutral”. Overall, the average degree of the four constructs span between the “Neutral” and “Agree” spectrum.

4.2 Reliability Test

Variables	Items	Cronbach's Alpha
PU	8	0.816
PEOU	2	0.530
AT	2	0.184
BI	3	0.860

Table 4.9 Reliability Test (Cronbach's Alpha)

The four constructs were tested for internal reliability with Cronbach's alpha. As shown in table 4.9, Cronbach's alpha for the four constructs ranges from 0.184, AT, and 0.860, BI. Cronbach's alpha for PU and BI are the highest at 0.816 and 0.860 respectively. The constructs with lower Cronbach's alpha are PEOU and AT at 0.530 and 0.184 respectively. According to (Le and Nguyen, 2014), constructs with Cronbach's alpha above 0.60 are considered reliable. Hence, constructs PU and BI are considered reliable whereas PEOU and AT fall under low reliability.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.865	.870	15

Table 4.10 Overall Cronbach's Alpha

However, according to Table 4.10, the overall Cronbach's alpha of the survey is 0.870 which is above 0.8 and thus falls under high reliability.

4.3 Pearson's Correlation Analysis

		Correlations			
		PU	PEOU	AT	BI
PU	Pearson Correlation	1	.497**	.424**	.596**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	70	70	70	70
PEOU	Pearson Correlation	.497**	1	.140	.428**
	Sig. (2-tailed)	<.001		.248	<.001
	N	70	70	70	70
AT	Pearson Correlation	.424**	.140	1	.421**
	Sig. (2-tailed)	<.001	.248		<.001
	N	70	70	70	70
BI	Pearson Correlation	.596**	.428**	.421**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	70	70	70	70

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

Table 4.11 Correlation Matrix

Referring to Table 4.11, the p-value in the two-tailed Pearson correlation analysis for independent variables (PEOU and PU) and dependent variable (AT and BI) is less than 0.001 which implies a significant relationship between the variables. However, the p-value between PEOU and AT is 0.248 which signifies a correlation between the two variables as correlation is only significant if it falls below 0.01 as low stated in the footnote of Table 4.11.

In general, the independent and dependent variables demonstrate positive relationships as the r values are positive correlation coefficients. According to a library guide published by Kent State University (2023), an r value that falls within 0.3 and 0.5 denotes a correlation that is of moderate strength. Table 4.11 shows that PEOU and PU demonstrate a moderate relationship with an r value of 0.497.

In terms of independent and dependent variable correlations, PU has a moderate relationship with AT with an r value of 0.424, but PEOU has a weaker relationship with AT

with an r value of 0.140. PU also demonstrates a slightly stronger relationship with BI with an r value of 0.596 as it leans close to 0.6. PEOU displays a moderate relationship with BI with an r value of 0.428. Similarly, AT also shows a moderate relationship with BI with an r value of 0.421.

Among all variables, the relationship between PU and BI is the strongest as they have the highest r value of 0.596. This indicates that PU of the metaverse is a strong positive influence on BI. Contrarily, the strength of the relationship between PEOU and AT is the weakest with an r value of 0.140. Hence, this presents a positive but weak linear association between PEOU and AT.

4.4 Multiple Regression Analysis

4.4.1 R Square

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.647 ^a	.418	.392	1.92228

a. Predictors: (Constant), AT, PEOU, PU

Table 4.12 R Square

Ozili (2022) sought to prove that R-square ranges for social science research should not be the same as the acceptable range for pure science research which rejects R-squares lower than 0.6. The paper details that R-square between 0.10 and 0.50 is acceptable in social science research in the condition that some or most variables are statistically significant. According to the table, R-square of the study is 0.418 which indicates that 41.8% of the result is imperative to determine the regression line. To contextualise it, the metaverse acceptance of undergraduate media students in Malaysia is impacted by the independent variables at a percentage of 41.8%.

4.4.2 Test of Significance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	175.261	3	58.420	15.810	<.001 ^b
	Residual	243.882	66	3.695		
	Total	419.143	69			

a. Dependent Variable: BI

b. Predictors: (Constant), AT, PEOU, PU

Table 4.13 Anova

As presented in table 4.13, the F-value is 15.81 and the p-value (Sig) is less than 0.001 which signifies as a statistically high and significant p-value.

4.4.3 Multiple Linear Regression Analysis Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.292	1.583		-.185	.854
	PU	.242	.071	.404	3.398	.001
	PEOU	.287	.159	.197	1.811	.075
	AT	.396	.185	.222	2.135	.036

a. Dependent Variable: BI

Table 4.14 Multiple Linear Regression Analysis Coefficient

Multiple linear regression analysis is a statistical technique used to measure relationships between a dependent variable and multiple independent variables (Yang, 2021). With reference to Table 4.14, the standardised coefficient beta of PU is it the highest at 0.404 compared to PEOU which in contrast, has the lowest standardised coefficient beta of 0.197.

This implies that PU has a stronger influence toward BI whereas PEOU poses a weaker influence toward BI. AT ranks in between PEOU and PU with a standardised

coefficient beta of 0.222. Overall, all independent variables are positively related as none of them generated a negative standardised coefficient beta.

Additionally, an equation can be formed from the unstandardised beta values as so: BI of using the metaverse = $-0.292 + \text{PU } 0.242 + \text{PEOU } 0.287 + \text{AT } 0.396$. This demonstrates that there is an increase of 0.242, 0.287 and 0.396 in BI.

4.5 Hypothesis Testing

H1: PEOU positively influences PU

Table 4.11 proves the significance and positive correlation between PEOU and PU through a p-value lower than 0.001 and an r value of 0.497. Thus, H1 is supported in this study by proving the existence of a positive and moderately significant relationship between PEOU and PU.

H2: PEOU positively influences AT

As shown in Table 4.11, the p-value for PEOU and AT is 0.248 which is higher than 0.001, rendering it an insignificant relationship. The r-value of the two variables is 0.140, signifying a weak correlation between PEOU and AT. Hence, H2 is not supported in this study.

H3: PU positively influences AT

The p-value shown in Table 4.11 for PU and AT is less than 0.001, and the r-value is 0.424 which denotes a positive and moderately significant relationship between the two variables. Therefore, this supports H3.

H4: AT positively influences BI

According to Table 4.11, the p-value is lower than 0.001 and the r-value is 0.421. This implies a positive and moderately significant relationship exists between AT and BI and renders H4 supported.

4.6 Conclusion

In conclusion, descriptive analysis was utilised to examine respondents' demographic profile through diagrams and tables. The central tendencies were used to measure both independent and dependent variables. Additionally, reliability tests were done to confirm the reliability of the constructions by retrieving the value of Cronbach's alpha. The Pearson Correlation was used to gauge the relationship between the constructs. Finally, multiple regression analysis was used to investigate the relationship between the independent and dependent variables. All these contributed to the hypothesis testing which supported H1, H3 and H4, and rejected H2.

CHAPTER V

DISCUSSION, CONCLUSION, AND IMPLICATIONS

5.0 Introduction

With reference to the findings in Chapter 4, Chapter 5 will provide a detailed discussion of the relationship between the independent and dependent variables. Also, the findings, implications, limitations, and suggestions for future research will be included before concluding the entire study.

5.1 Summary of Statistical Analysis

5.1.1 Descriptive Analysis

The questionnaire of 15 questions was disseminated to 70 undergraduate media students where 62.9% are female and 37.1% are male. Majority respondents' age falls into the range of 21 to 23 years old. All respondents' education level is at the bachelor's degree level. 52.9% of the respondents are Year 3 students, followed by 31.4% of respondents from Year 4, 10% of the respondents from Year 2, 4.3% of respondents from Year 5 and finally 1.4% from Year 1.

Awareness information specified that 87.1% of the respondents are aware of the metaverse's existence. 92.9% of them are aware of Facebook's rebranding to Meta, and 72.9% are aware of Meta's development on the metaverse technology.

Among the 4 hypotheses generated from the TAM, H1, H3 and H4 were supported whereas H2 was rejected. This denotes that PU and AT are significantly correlated with BI which signifies the acceptance of metaverse technology, and PEOU lacks significant correlation with metaverse acceptance.

Results of descriptive analysis that measured the central tendencies demonstrated a generally neutral outlook toward metaverse technology as the calculated means for PEOU, PU, AT, and BI range from 3.198 to 3.476. This implies that majority of undergraduate media students in Malaysia are in the dilemma position on whether they would accept metaverse technologies and utilise them. This could be due to the fact that majority students have no actual exposure to such technologies.

5.1.2 Scale Measurement – Reliability Test

Cronbach's alpha reliability test was performed to assess the reliability of the 5-point Likert scales for the independent and dependent variables. A Cronbach's alpha of 0.6 and above signifies internal reliability. The results presented PU and BI to have higher Cronbach's alpha of 0.816 and 0.860 respectively, denoting higher reliability. However, PEOU and AT rendered lower Cronbach's alphas of 0.530 and 0.184 respectively and are thus considered low in reliability. However, the overall Cronbach's alpha of the survey (0.870) falls under high reliability.

5.1.3 Pearson Correlation Analysis

To test the correlation strengths between the independent and dependent variables, Pearson Correlation analysis was carried out. The results revealed that all the variables have positive relationships signified by the positive r-values. Magnitude of the correlations are at the moderate level as the r-values fall within the $0.3 < r < 0.5$ range. However, PEOU and AT have a lower magnitude of correlation with an r-value of 0.140. Moreover, the p-values of the variables are less than 0.001 which proves significance except for PEOU and AT. PEOU and AT have a p-value of 0.248, denoting that the positive relationship is weak.

5.1.4 Multiple Regression Analysis

The multiple regression analysis generated an R-square of 0.418 which is justified by the significance of the variables as tested in the ANOVA test that generated a p-value of less than 0.001. To put the R-square into context, it means that metaverse acceptance of undergraduate students in Malaysia is impacted by the independent variables at 41.8%. Furthermore, with a higher standardised coefficient beta ($B=0.404$) PU has a stronger impact toward BI compared to PEOU which has a low standardised coefficient beta ($B=0.197$). AT sits in the middle of PU and PEOU and delivers moderate impact with a mid-range standardised coefficient beta ($B=0.222$).

5.2 Discussion of Major Findings

H1: Perceived ease of use (PEOU) positively influences perceived usefulness (PU)

Based on the findings in Table 4.11, PEOU and PU have a positive relationship that is proven through a p-value lower than 0.001 and a positive r-value of 0.497. The r-value is the highest among the other variables.

Hence, this signifies that the students' PEOU can positively influence their PU toward metaverse technology. This partially verifies the first part of the TAM and agrees with previous similar studies that are based on the same model. Previous studies on metaverse acceptance confirms that PEOU is directly related to PU (Aburbeian et al., 2022) and in turn two of these variables also positively influence the students' BI (Akour et al., 2022) which dictates whether they intend to use metaverse technology. This is also proven in the regression analysis where PU has a beta value of 0.404 and PEOU has a beta value of 0.197. This result describes that when the students' regard a piece of technology to be easy to use, they will also perceive it to be useful to their line of work which in the context of this study is relates to media creation.

H2: Perceived ease of use (PEOU) positively influences attitude towards technology use (AT)

Results show that the p-value for PEOU and AT is higher than 0.001 at 0.248 connotes an insignificant relationship. On top of that, an r-value of 0.140 represents a weak correlation between PEOU and AT. Hence, H2 is rejected as it cannot be proven that PEOU positively influences AT. This strays away from the TAM where PEOU is projected to positively influence AT.

However, a similar study that investigated tertiary students' acceptance toward MetaEducation found the same result as it also failed to discover a strong correlation between PEOU and AT (Misirlis & Munawar, 2022). The study credited this result to the students not being completely aware of metaverse technology and its capabilities yet, causing an inability to discern the ease of use of the metaverse.

H3: Perceived usefulness (PU) positively influences attitude towards technology use (AT)

PU and AT have a p-value that is less than 0.001 and an r-value of 0.424 which together implies a positive and moderately significant relationship. Therefore, PU has positive impacts on AT.

Aburbeian and Owda's study (2022) is also in agreement with this finding as the study found a positive correlation between PU and AT. When students perceive the metaverse technology to be useful in their work process as media students, their AT using the technology will be positive which signifies a willingness to utilise metaverse technology.

H4: Attitude towards technology use (AT) positively influences behavioural intention (BI)

Based on Table 4.11, the p-value is lower than 0.001 and the r-value is 0.421. This implies a positive and moderately significant relationship exists between AT and BI. Students' AT will in turn affect their BI.

Toraman's (2022) study based on the TAM and Planned Behaviour Theory (PBT) generated the same finding where smart device users aged 18 and above were the target respondents. Hence, the similar target audience produced the same result as this current study. This result details that students will willingly utilise metaverse technology when they are in acceptance of it.

5.3 Implications of the Study

This study incurs both theoretical and managerial implications.

5.3.1 Theoretical Implications

The findings have relatively confirmed previous research studies on metaverse acceptance and is in line with the studies that target students at the tertiary level. Therefore, this research is valuable for future research since there is a lack of metaverse acceptance research on Malaysian undergraduate students in the media studies landscape.

5.3.2 Managerial Implications

With the plethora of metaverse technologies that are being introduced by companies like Meta as described in the literature review, it is a possibility that these technologies will serve to revolutionise existing creative media processes. At the same time, Malaysia's mass communication and media education is developing at a fast pace and has garnered more students than ever (Idid, 2019). According to a news article published by the New Straits

Times (Mustapha, 2022), technical and vocational education and training (TVET) schools are urged to adopt and adapt to metaverse technology. Hence, this research is valuable to educators understand the acceptance level of undergraduate media students in Malaysia toward metaverse technologies.

In recent news, CelcomDigi and SK Telecom have partnered up to develop Malaysia's metaverse ecosystem (Ignatius, 2023). Seeing that metaverse technology is penetrating the Malaysian market, this research serves as a precedent for market analysis of undergraduate media students as the target audience of metaverse users. From the results obtained through this study, PU is the most significant construct that influences students' AT i.e., their decision to use metaverse technologies as well as their BI when using these technologies. Hence, by understanding the factors that influence students' metaverse acceptance, companies can develop services and features that cater to this group of users.

5.4 Limitations

This study is not fully representative of the entire population of undergraduate media students in Malaysia as the sample size of 70 respondents is not large enough to include every undergraduate media student's perception. Also, as the survey was disseminated through Google forms, it is hard to verify the authenticity of the demographic that answered the survey. Thus, the inferences and conclusions obtained from this study cannot be applied to all Malaysian undergraduate media students as the scope of data collected is limited.

Furthermore, metaverse technology is considered rather new in Malaysia although it has already been utilised in other first world countries. Hence, although the respondents' awareness toward metaverse technology is considered high from the survey, the extent of their knowledge is not quantified objectively in this research. The knowledge disparity could be a limiting factor to the research. Also, the limited number of existing studies in Malaysia provides minimal reference and basis to strengthen this research as locality could affect the results.

All in all, the limitations listed here will serve to pivot future research to a better direction by improving its accuracy, reliability, and validity.

5.5 Recommendations for Future Study

Future studies can employ a larger sample size of respondents and diversify the demographics of undergraduate media students to improve the representation of the Malaysian undergraduate media student population. Moreover, the studies can be conducted when the metaverse technology becomes more apparent and widespread in Malaysia's media landscape. Researchers could expose the target population to metaverse technology first before conducting the research through questionnaires. By then, research could present different insights about metaverse acceptance amongst university students pursuing media and predict their behaviour intentions more accurately.

In addition, future studies can conduct research on the potential impacts of the metaverse to the media industry of Malaysia and how that would affect the media education in Malaysian universities. This could provide valuable insights to update the syllabi of media courses and better equip media students with future-proof skills. Moreover, future research can consider using E.M. Roger's Diffusion of Innovation Theory (DOI) to investigate how metaverse gains momentum and diffuses through the undergraduate student population in Malaysia.

5.6 Conclusion

Metaverse technology has gradually become an apparent piece of technology in recent years, especially since Facebook's rebranding stunt that turned it into Meta today. With the possibilities that are could be achieved through metaverse technologies, it is certain that it will or has already begun to impact the media industry. Thus, it is imperative to delve deeper into the research of the acceptance of this technology among the undergraduate media students in Malaysia who will be future media practitioners.

According to the findings of the study, it has been proven that positive correlations exist between PEOU and PU. Positive relationships are also present between PU and attitudes toward use. These relationships contribute toward influencing the BI of undergraduate media students in Malaysia. These insights will serve scholars, educators, metaverse companies and students to better learn and utilise metaverse technologies to benefit the media landscape of Malaysia.

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APPENDICES

APPENDIX A – COVER LETTER AND SURVEY QUESTIONS

Research Survey on Metaverse Acceptance among Malaysian Undergraduate Media Students

Dear respondents,

I am Aloysius Sim, a final year student from Universiti Tunku Abdul Rahman (UTAR) currently pursuing Bachelor of Communication (Hons) Broadcasting. As a partial requirement to complete my studies, I am conducting a final year research project which aims to investigate and examine Malaysian media students; acceptance toward the Metaverse.

This questionnaire consists of **six (6) sections** and will take around **5-10 minutes** to complete. Kindly answer **ALL questions** in ALL sections. Your responses will be kept strictly **PRIVATE and CONFIDENTIAL**. Your input will be highly valuable for this research.

Thank you in advance for your participation in this questionnaire.

aloyssiussim@1utar.my [Switch account](#)



Not shared

* Indicates required question

If you understand the statement above, please click "Agree" to proceed with the questionnaire in the next section. *

Agree

Section A | Demographic Information**1. Gender ***

- Male
- Female

2. Age range *

- 18-20
- 21-23
- 24-26

3. Education Level *

- Diploma
- Bachelor's degree

4. Year of Study *

- 1
- 2
- 3
- 4
- 5

Section B | Awareness

This section will assess your awareness of the metaverse and its development. Answer "Yes" or "No" to the following questions.

1. I am aware of the existence of the metaverse *

Yes

No

2. I am aware of Facebook's rebranding to Meta *

Yes

No

3. I am aware of Meta's development on the metaverse *

Yes

No

Section C | Perceived Usefulness

This section will assess your perceived usefulness of the metaverse in relation to the media industry. On a Likert scale of 1 to 5 where 1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree, choose a score that represents your perception.

★

	1 - strongly disagree	2 - disagree	3 - neutral	4 - agree	5 - strongly agree
1. The metaverse can make the video production process more efficient	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The metaverse can allow actors to act remotely with photorealistic avatars	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. The metaverse can bring a new way of consuming media	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The metaverse can allow for virtual sets to be built through 3D scanning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. The metaverse will positively change the way we shoot content (e.g., movies, commercials, short films etc.)

6. The metaverse will open up more jobs in the media industry

7. The metaverse will provide new and effective formats of advertising

8. The metaverse has the potential to attract more reach and engagement in advertising

Section D | Perceived Ease of Use

This section will assess your perceived ease of use of the metaverse in relation to the media industry. On a Likert scale of 1 to 5 where 1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree, choose a score that represents your perception.

*

1 - strongly disagree

2 - disagree

3 - neutral

4 - agree

5 - strongly agree

1. Learning how to use the metaverse technologies will be easy for me

2. The metaverse will be easier to operate than current video production processes. (e.g. editing, building physical sets, setting up lighting, directing actors)

Section E | Attitude toward Technology Use

This section will assess your attitude toward the usage of the metaverse. On a Likert scale of 1 to 5 where 1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree, choose a score that represents your behaviour.

*

	1 - strongly disagree	2 - disagree	3 - neutral	4 - agree	5 - strongly agree
1. The metaverse will be the future of media production and consumption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The metaverse is just a trend that will fade away in a few years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section F | Behavioural Intention

This section will assess your behavioural intention in learning and using the metaverse. On a Likert scale of 1 to 5 where 1 – strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, 5 – strongly agree, choose a score that represents your behaviour.

*

	1 - strongly disagree	2 - disagree	3 - neutral	4 - agree	5 - strongly agree
1. I intend to learn how to use the metaverse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Assuming I have access to the metaverse, I intend to use it in media-related works or assignments in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Metaverse education should be included in the syllabus for media degrees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>