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A Literature Review on The Technology Acceptance Model

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Abstract

In this era of innovation, the importance of new technology is essential in a rapidly changing society. The acceptance of new technology has been under debate since the 1970s. Over the decades, many theories and models have proposed addressing consumer adoption issues. As we move towards a society based on technology, different approaches have been applied to understand the conditions that affect technology usage. This paper uses a literature review to present all technology acceptance studies from 2014 to 2021, 8 years. The results show that technology acceptance studies were primarily carried out in many other countries around the world. This study identified similar variables such as Perceived usefulness, behavioral intention, behavior usage, adoption, attitudes, subjective norms, and social influence. Several theories, including Innovation Diffusion Theory (IDT), Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), Decomposed Theory of Planned Behavior (DTPB), and UTAUT model, were used in technology acceptance studies. Based on different countries' acceptance of technology, implications for theoretical and managerial aspects are prominent in user engagement in using the platform.

Keywords: Technology Acceptance Model, Literature Review, Behavioral Intention, Behavior Usage, Adoption

Introduction

The technology acceptance model is the most widely used theory to explain an individual's acceptance of an information system. This study examined a wide range of literature in this field. The various studies in this area were evaluated in order to comprehend the changes made to this model. Following that, the paper attempts to forecast future trends in the technology acceptance model. This paper investigated a developed technology acceptance theory/model chosen for a significant research study.

Literature Review

Technology

Economic activity will get easier with technology internet. In fact, according to Wikipedia, the internet is more like the dissemination of knowledge and information compared with books and libraries. Technology is a common denominator of the different technologies available to help people live a more straightforward and better life in creating, changing, storing, communicating, and disseminating information (Irwansyah and Moniaga, 2014).

Technology acceptance theories and models

Theories/models that serve as the foundation for technology acceptance can be represented as follows:

Theory of Reasoned Action (TRA)

TRA was introduced by Fishbein and Ajzen (1975) in the social psychology field. It is used widely to explain the behavior of human beings. This theory reports that the behavior is examined using an individual's intention to perform in the behavior. Two factors had been used to examine the intentions. The first is the individual's behavior through attitude. Secondly, via the people's point of view in the social environment, this is referred to as subjective norm (Fishbein and Ajzen, 1975).

A relationship between the five factors, with actual and intended behavior playing the primary role of output. According to the model, technology acceptance is psychological and thus depends on the person's behavioral traits. This theory also defines attitude as a person's positive or harmful behavior. According to Davis et al (1989); Ajzen (1991); Taylor and Todd (1995), TRA reported that behavioral intention (BI) is concurrently decided by attitude. The model has been studied using different parameters and the differential between the intended utilization and utilize.

Attitude towards behavior describes the general feeling against the target behavior or the individual assessment. It reflects a positive or negative relationship to a person's evaluation regarding the behavior. Convictions about a person's behavior and the choices resulting from that behavior produce a specific attitude toward the behavior. Consequently, the theory explained that intend to carry out behavior will be higher when there is a positive rating to the performed behavior (Yoon et al., 2019).

In this way, a normative belief depicts the view of the impact of the assessment between the group of references. Besides, the motivation needs to accompany an individual level that needs to show compliance with the need of the antecedent (Tan et al., 2019). Subsequently, the theory determined that individuals always act depending on what people think they have to do. Individuals from their circle might impact their aim to practice several behaviors. TRA has been broadly used to observe an individual's behavior. The theory hypothesizes that individual behavior is affected by subjective norms, also including attitudes. Procter et al (2019) observed that attitude had a predominant influence on Behavioural Intention. Teo and Zhou (2014) also revealed that explorers more about the beliefs and attitudes by using the TRA model. He discovered that attitude is greatly affected by the Intention to Use.

Technology Acceptance Model (TAM)

The model introduced by Davis (1989) is the most widely used in information system research, as it produces good validity (Alzubi et al., 2018). TAM is an adaptation of the theory developed by Fishbein and Ajzen (1975). According to Davis (1989), TAM is a model which describes the causes of acceptance of computers and includes five essential constructs, namely Actual Use (A), Attitudes Towards Using (A), Behavioural Intention (I), Perceived Ease of Use (PEAU) and Perceived Usefulness (PU) (Rodrigues et al., 2016). TAM is adapted from TRA (Theory of Reasoned Action), which discovered two strong beliefs; PU and PEOU. These beliefs are known as the determinants of attitude towards using informational technologies and usage intention (Taylor and Todd, 1995). To handle information technology behavioral usage and intentions (Davis et al., 1989), researchers use TAM as both PU and PEOU are significantly crucial in predicting the users' behavior on the recognition of technologies (Camilleri & Camilleri, 2019). Figure 1 shows the relationship between these two beliefs.

TAM aims to provide a parsimonious explanation of the determinants of adoption of technology user behavior information on accepting the use of information technology itself (Davis, 1989). TAM focuses on using information technology by developing it based on the perception of usefulness (Perceived Usefulness) and ease (Perceived Ease of Use) in information technology (He et al., 2018). The perception of usefulness is how a person believes that using a particular system will improve his work performance. In contrast, the perception of ease refers to the degree to which a person believes that using a particular system will make his efforts lighter (Davis, 1989).

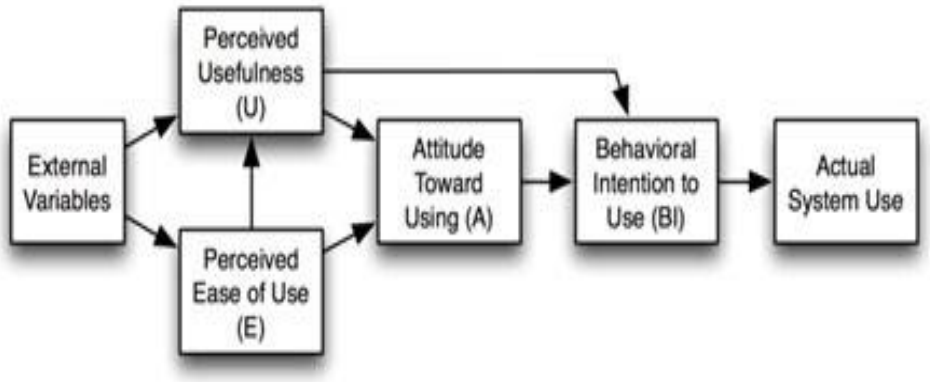

Figure 1: Technology Acceptance Model
Source : Davis 1986, Technology Acceptance Model Propped by Fred Davis

Pikkarainen et al (2004) defined the Technology Acceptance Model (TAM) as a model that explained the majority of variance (about 40%) in the importance and behavior of information systems. According to Marwanto (2019), the acceptance technology (TAM) model is consumers' information technology.The technology acceptance model, commonly referred to as the Technology Acceptance Model (TAM), is commonly used to predict consumer acceptance of new technology. Davis (1989) describes Perceived Usefulness as an individual's belief to perform a particular system to upgrade their work performance and Perceived Ease of Use. TAM believes that the uses of computers are influenced by the Behavioural Intention to Use of the system. In contrast, the function of joint intention depends on an individual's attitude towards the usage of the system and opium use.

The Technology Acceptance Model (TAM) aims to provide a parsimony explanation for the determinants of consumer behavior in information technology towards adopting information technology itself (Davis et al., 1989). The Technology Acceptance Model (TAM) is derived from psychological theory to explain the behavior of information technology users with the beliefs, attitudes, interests, and relationships of consumer behavior as explanatory factors. According to this model, interest in behavior an individual's ability to adopt a particular part of a technology is determined by one's attitude toward using that technology. Among all the beliefs, Perceived Ease of Use is considered as the predictor for Perceived Usefulness. TAM is the popular theoretical model cited for envisioning the acceptance and use of new information technology in the organization. The acceptance of the word processing program discovered that TAM had described more parameters in behavioral intention in comparison to TRA (Davis 1989). It was also stated that Perceived Usefulness is a predominant determinant of an individual's Intention to Use compared to TRA.

Theory of Planned Behaviour (TPB)

TPB is regarded as an improved model of TRA. Theory of Action refers to Planned Theory (TPB) or behavioral planning theory (TRA). Planning Theory of Design (TPB) variables, such as attitudes toward behavior, subjective norms, and perceived behavioral control, are mentioned by Ajzen (1985). According to Fishbein and Ajzen (1975), the determinants of intention include Subjective Norm, Attitude, and Perceived Behavioural Control, as shown in Figure 2. The theory can assess how an individual's actions are influenced. It predicts the progression of specific behavior, assuming that the behavior is performed on purpose. The reason for this is that the behavior can be deliberate and planned.

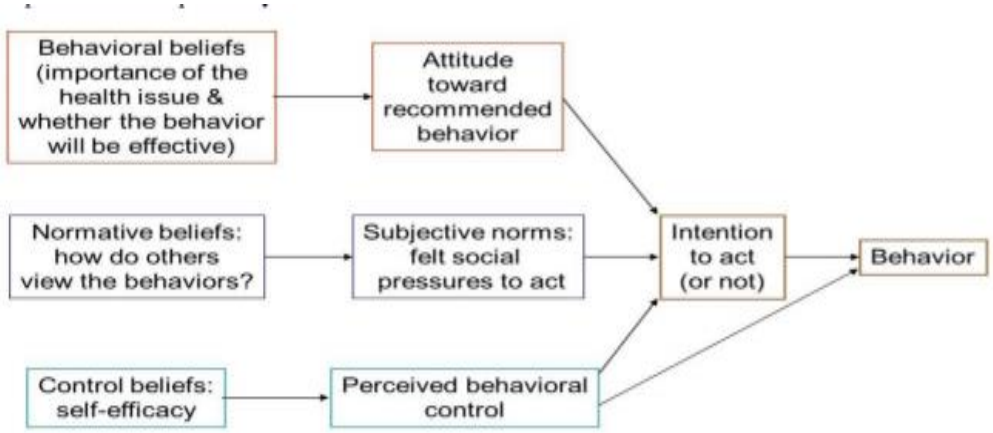

Figure 2: Theory of Planned Behaviour
Source : Ajzen, 1991

Figure 3 describes the three precursors of TPB with direct and indirect influence via various mechanisms of behavior intention over behavior. Perceived Behavioural Control is related to the effect of both intention and behavior (see Figure 2). A meta-analytic analysis by Zaremohzzabieh et al (2019), TPB is efficacious. Perceived Behavioural Control allows the prediction of uncontrolled behavior to complete the volitional control and affects the intention. A study by Ajzen in 1991 supported the argument about the importance of Subjective Norms, Attitude, and Behaviour Control, which is observed in the expectations. This intention is targeted to change the situation and behavior.

Therefore, attitude can express what we like and what we do not like. In contrast, attitudes toward behavior (attitudes toward a behavior) are "assessments of specific behaviors that involve objects of attitude" (Tziner et al., 2001). Attitude toward a behavior is the assessment of several behaviors that are shown toward an object. According to Ramayah and Harun (2005), subjective norms are measured by indicators of trust in the role of the family in starting a business, confidence in the business ventures of the people considered necessary, confidence in support of friends in the business. Behaviour Control (PBC) is that "this factor is refreshing in the sense of ease or difficulty in behavior and that it reflects on past experiences as well as anticipating obstacles and obstacles" (Ajzen, 1988). This factor describes the individual's perception of how the individual behaves and is assumed to reflect past experiences and common barriers.

According to Ajzen (2008), two essential points are related to the theory of planned behavior. The first is the assumption that PBC has motivational implications for intention. A person who believes that if he or she does not have resources or the opportunity to develop the behavior. To have a strong desire to carry the behavior even though they have a positive attitude and believe that they are significant to themselves (other vital people) will agree that they are behaving.

Decomposed Theory of Planned Behavior (DTPB)

DTPB is altered from Taylor and Todd (1995), consist of complexity, relative advantage, and compatibility from the IDT by Rogers (1983) and perceived behavioural control. It has its benefits compared to other theories. Notably, it identifies the specific features of the belief that are likely to affect information technology use. The DTPB combines the characteristics and elements of both TAM and TPB by providing much more overall understanding related to technology adoption (Taylor and Todd, 1995). In particular, the model seems to have a better prediction power against traditional TPB and TAM (Dwivedi, 2019). Even though it is similar in predicting the intentions like TPB, the elements of attitude, behavioral control, and the subjective norm is analyzed to the necessary context of the adoption of technology in the structure of belief (Venkatesh et al., 2003).

As indicated by Taylor and Todd (1995), the acceptance of the information technology services can be described by DTPB as modified with its fundamental structure and belief from the planned behavior theory (Aizen, 1991). At first, DTPB was evolved to understand system-related information technology (Taylor and Todd, 1995). The researcher encountered the ability of DPTB compared to TPB models and reason action theory, which allowed the decomposition of categories of attitude, behavioral control, and subjective norm to have a better and deeper relationship between the adoption and non-adoption services (Taylor and Todd, 1995).In DTPB, the primary source of the behavior is behavioral intention. The other three significant constructs are attitude toward behavior (ATB), subjective norm (SN), and perceived behavior control (PBC), which were introduced in TPB and DTPB.

In addition, DTPB is very useful in conditions where it involves much in-depth knowledge. It is preferred to consider the most substantial predictive power and explain the relationship between the unobserved internal and external variables (Shaikh and Noordin, 2019). It uses

the factors from the innovation literature (such as compatibility and relative advantage). It also explores (such as social influence) behavioural control and subjective norms more comprehensively by breaking them down into a particular dimension, as seen in Figure 3. It administers individually in a comprehensive way to understand attitudes, behavioural control, and subjective norms to understand the influence over the intention to use (LO Campbell et al., 2019). The DTPB is proven to have a better descriptive competence than the original TRA and TPB by (Taylor and Todd, 1995).

Innovation Diffusion Theory (IDT)

Innovation can be defined as “a process in which a new thought, behavior, or thing is formulated and transferred to reality” (Robertson, 1967). The definition of diffusion is “the process where the innovation is communicated via particular channels over time among social system members” (Rogers, 1983). Thus, IDT is expressed as a rational consideration that clarifies how, why, and to what degree a new idea and technology spread among people (Robertson, 1967; Rogers, 1983).

Rogers (1983) explained the prior theory of technology acceptance based on IDT. This theory fits best to investigate the factors that affect students' behavioral intention in using a massive open online courses (MOOCs) system (Al-Rahmi et al., 2019). This theory explained that the acceptance of innovation is a method to reduce the belief. Adoption refers to the results of using innovation completely. Thus, the available actions and rejection will be the result of not practicing innovation. There are four major components in IDT: innovation, time, social system, and communication channels (Garcia-Aviles, 2020).

Firstly, innovation refers to an idea, practice, or project newly invented by an individual or other unit of adoption. The original adoption features are more linked to the three steps of the innovation process known as knowledge, persuasion, and decision (Goh & Sigala, 2020). The second component is overlooked in most aspects of behavioral research. Rogers (1983) argued that integrating the time dimension in diffusion research will be a strength. The social system is the third component is can be termed as a set of interrelated units involving the solution to attain a common problem. Rogers (1983) added that the nature of the social system influences an individual's innovation, the primary standards for an adopter's category. Lastly, the communication channels can be classified as locality and cosmopolite, where they communicate with both the individual social system and external resources.

Rogers (2003) indicated that "Individual's perceptions based on the five traits predict the adoption rate of innovations," as seen in Figure 3. He explained the adoption rate as "the relative speed of an adopted innovation by members of a social system. According to Rogers (2003), the relative advantage is how a perceived innovation is perceived for being better than the idea it succeeds. Compatibility is the degree of perceived innovation to be consistent with the remaining values, earlier experiences, and needs of potential adopters" (Rogers, 2003). Furthermore, according to Rogers (2003), complexity is challenging to understand and use the perceived innovation relatively. Trialability means the degree of an innovation that might be experimented with using a limited basis. Hence observe ability is the degree of innovations visible to others (Raman et al., 2018).

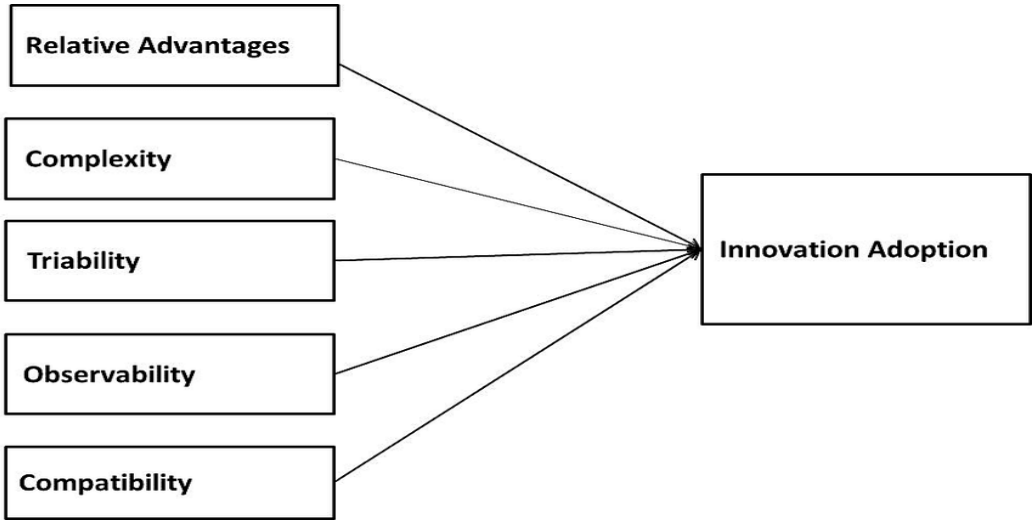

Figure 3: Innovation Diffusion Theory
Source : Roger, 2003

Briefly, innovations supplied more relative advantage compatibility, simplicity, trial and observe ability to adopt faster. IDT mostly classified different types of people in innovations. The leading ideology of this theory is that some people will be more open-minded than others and ready to accept changes in innovation (Akman & Koçoglu, 2017).

IDT explains the attitude formation, the fitting of innovative characteristics, and the leading attitude towards the likelihood of adoption or rejection towards this development (Karahanna et al., 1999). A set of constructs has been developed and presented by Rogers that can be used to study an individual's acceptance of technology (Moore and Benbasat, 1991; Venkatesh et al., 2003). Compatibility compared to earlier technologies, easiness to use, easy demonstration of its results, the relative advantage over existing options, trials of the technology without a vast a priori investment in resources and values and preferences are the traits of technology that predicts the users' adoption of the service (Venkatesh et al., 2003).

Innovation diffusion theory (IDT), also known as a theoretical paradigm, is used to find the reason behind people's choice towards adapting and adopting technologies and new ideas (Rogers, 1983; Robertson, 1967).

Unified Theory of Acceptance and Use of Technology model (UTAUT)

The UTAUT model was developed by Venkatesh et al. (2003). The UTAUT theory argues that four main factors directly determine the intended behavior and behavior of the new technology. Four major determinants or factors are performance expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). In addition, there are four such moderating factors Gender, Age, Experience, and Voluntariness of use, which has various effects that affect the main factors (constructs) of the UTAUT model that have been developed by Venkatesh et al. (2003) (Winarko and Mhadewi, 2013; Baru et al., 2014).

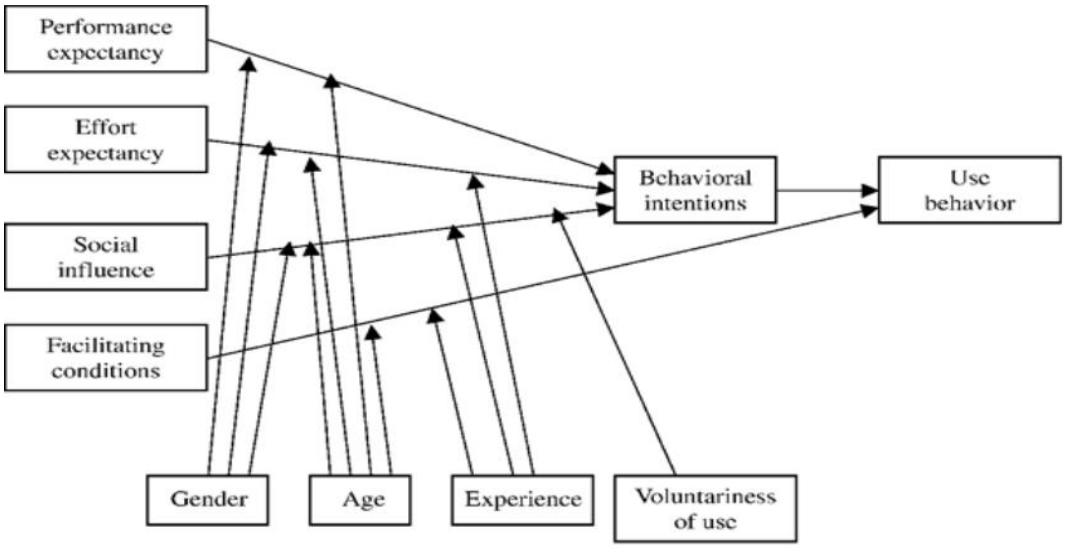

Figure 4: Unified Theory of Acceptance and Use of Technology model
Source : Venkatesh et al., 2003

Referring to figure 6, the UTAUT model consists of 10 elements: expectation time that identifies any person who believes that using a technology/system can improve job performance, an expectation of a user-friendly effort. An individual believes that he or she must use a new system/technology, circumstances defined as intoxicated by anyone who believes that an organization and technical infrastructure exist to support the use of a new system. Technology, user-related behavior per user for the acceptance. Use of new technology, money for every behavior to be achieved, use of any technology, gender, age, experience, and voluntariness of use (Venkatesh et al., 2003).

Comparison of technology acceptance theories/models

The general models are TRA and its extension (TPB), which were created to anticipate and describe the behavior throughout broad types of domains (Momani & Jamous, 2017). Fishbein and Aizen (1975) stated that individual has their own opinion and views, which is known as normative beliefs at which they think of the needs to perform or otherwise. Ideas connected with the external and internal factors might obstruct the behavior performance and required opportunities (Taylor and Tood, 1995).

DTPB and TAM are the modification of TPB and TRA, respectively. They were designed to focus on the acceptance of technology (Davis et al., 1989). Each belief set is specific in referring to the acceptance or rejection behavior on something new that is being applied, such as applications, services, systems, or devices (Taylor and Todd, 1995). Alterations of these models can be seen by analyzing their focus and scope (Hassan et al., 2018).

TAM explains behavioral beliefs only. It mainly focuses on the technology's characteristics (Davis et al., 1989) by using two key assumptions: functionality and ease of use enhancing behavior towards technology and, subsequently, the function. Perceived usefulness shows an individual's level of trust to use a particular digital system or devices that aid him or her for better performance in work (Scherer et al., 2019). Perceived ease of use describes that the levels of trust of a person towards the usage of performance benefits are more significant than the effort of application usage (Davis et al., 1989).

Apart from that, DTPB also considers the consequences of social and external elements that directly affect behavioral intention. It breaks down normative beliefs and control beliefs into more specific ideas. Normative beliefs can be described as influences of peers and superiors (Taylor and Todd, 1995). One of the specific beliefs control dimensions is self-efficacy. It refers to the confidence level towards the ability of something to perform the behavior successfully. The conditions include resource facilitating conditions such as external conditions and technology facilitating conditions such as issues related to technology compatibility are the other for control dimension. Davis et al. (1989) did this model by including new sub-beliefs on something or someone. He described the features of technology as compatibility, which presents a new technology that suits the previous experiences, current needs, and existing values of the potential adapters (Taylor and Todd, 1995).

The Unified Theory of User Acceptance of Technology (UTAUT) developed by Venkatesh et al (2003) based on eight other technology acceptance models such as Theory of Reason Action- (TRA), Technology Acceptance Model- (TAM), Motivational model- (MM), Theory of Planned Behaviour- (TPB), Decomposed Theory of Planned Behaviour- (DTPB), PC Model of PC Utilization- (MPCU), Diffusion of Innovation Theory- (DOI) and Social Cognitive Theory- (SCT) aimed at explaining intentions and behavior technology by users (Venkatesh et al., 2003). The Unified Theory of User Acceptance of Technology (UTAUT) describes the four key aspects: effort expectancy, performance expectancy, facilitating conditions, and social influence as the main factors of consumers' intention and behavior (Hanafizadeh et al., 2014).

This UTAUT is considered better and more comprehensive because it can explain more variance in usage intention than any other model (Venkatesh et al., 2003). UTAUT is also a complex and simple theory that is very practical to apply in a single study (Venkatesh et al., 2003). In addition, UTAUT is also a very comprehensive theory in integrating constructs for factors that determine an individual or organization to adapt and adopt a new technology/system (Winarko and Mahadewi, 2013).

Methodology

This section delves into the steps and procedures involved in this systematic review of technology acceptance across multiple countries. Scholars and researchers from all over the world conducted reviews on various articles with empirical studies considered for inclusion. Aside from that, only English articles are accepted to avoid difficulties with translation and comprehension. In terms of timeline, this study only includes articles published between 2014 and 2021.

Discussion

Technology acceptance studies are becoming increasingly popular, especially in countries where technological development is accelerating. There were 35 studies on technology acceptance included in this survey. Studies on the use of technology are summarized in Table 1.

A large number of respondents in most studies are from the aspects of technology, individual user, consumer, non-user, students, academics/teachers and other various field workers.

Table 1

Related studies detail the sample and the findings of each study in a structured manner.

No.	Authors	Sample and Country	Theory/Theories	Method	Main Findings
1	Sugarhood et al (2014)	Healthy Living in Elders: 16 semi-structured interviews	IDT	Assessment; semi-structured interviews	As predicted by the model, this relates to technology, individual adoption, the process of social influence, innovation and organizational readiness, the process of implementation and routinization after initial use, and the nature and strength of the relationship between these elements.
2	Martins et al (2014)	249 valid cases from Portugal	UTAUT	Survey Questionnaire; Structural equation modelling (SEM)	Performance expectancy, effort expectancy, and social influence are supported by the findings, as is the role of risk as a stronger predictor of intention.
3	Maillet et al (2015)	recruit 616 nurses from Montreal, Canada	UTAUT	Survey Questionnaire; Structural equation modelling (SEM)	The findings emphasize the significance of the effort expectancy and performance expectancy constructs' mediating effects. The most important factors explaining nurses' satisfaction were the EPR's compatibility with preferred work styles, existing work practices, and nurses' values.
4	Waheed et al (2015)	366 respondents from 5 different faculties University Kuala Lumpur, Malaysia	IDT	confirmatory factor analysis (CFA); structural equation modelling (SEM); AMOS 20.0.	The findings revealed that relative advantage, trialability, observability, human-assisted self-efficacy, and individual self-efficacy significantly

					impact ebook-reader adoption. However, emotional attachment to paper books harms the relationship between user attitude toward eBook readers and eBook reader adoption.
5	Yazdanpanah and Forouzani (2015)	389 students Ramin University and Jundishapur University from south-western Iran	TPB	questionnaire-based survey; structural equation modelling	TPB was employed in order to investigate the relationship between attitude and action. According to the findings, the student's attitude was the most important predictor of purchasing organic foods.
6	Meijer et al (2015)	200 farmers in Chiradzulu and Mzimba districts in Malawi	TPB	mixed-method approach; both quantitative and qualitative	Malawian farmers are generally supportive of farm-level tree planting. Positive attitudes toward tree planting lead to an increase in the number of trees planted on farms. Attitudes significantly influence tree planting behavior.
7	de Leeuw et al (2015)	602 students from five high schools in Luxembourg	TPB	questionnaire-based survey; structural equation modelling	The results revealed an excellent fit for the standard TPB model; attitudes, descriptive subjective norms, and perceptions of control contributed independently to predicting intentions, and intentions predicted behavior when combined with perceived control.
8	Thanh and Yapwattanaphun (2015)	300 respondents from Vietnam	TPB	the Statistical software SPSS 16	According to the study, 65 percent of SAPs were not

					adopted at a low rate, while 35 percent were adopted at a high rate. Sustainable agricultural perception, economic status, extension courses, education, and practice feasibility influenced banana farmers' SAPs.
9	Halder et al (2016)	402 Finnish and 130 Indian students studying in the ninth and tenth grades in nine schools	TPB	questionnaire-based survey; structural equation modelling	The findings revealed that the construct 'Attitude' had the most powerful and statistically significant positive effect on students' intentions to use bioenergy in cross-cultural and Finnish contexts. 'Subjective Norm' (SN) had the second most positive effect on intention, while 'Perceived Behavioral Control (PBC) did not affect 'Intention'.
10	Mirjana PejićBach et al (2016)	100 companies from USA	TAM	Survey questions; statistical methods	In businesses, technology-driven strategy, information quality, and project management are used to expand research based on the technology acceptance model.
11	Ahmed, and Ward (2016)	204 student's higher education institutions	DTPB	cross-sectional survey method; structural equation modelling	The results showed that the DTPB had higher explanatory power and a better understanding of the phenomenon under investigation.
12	Agag and El-Masry (2016)	495 respondents	IDT; TAM	questionnaire-based survey; structural	The findings explain consumer participation intentions, which

				equation modelling	positively influence purchase intentions and positively WOM with innovation diffusion theory and TAM with the belief of providing an appropriate model.
13	Cimperman et al (2016)	400 participants aged 50 years in Slovenia	UTAUT	questionnaire-based survey; structural equation modelling	The Extended UTAUT model with testing and developing HTS in the domain field and non-existent services and technology is essential for implementing new innovative health technologies. Relevant predictors of HTS acceptance behavior in older users were confirmed, with Performance Expectancy, Effort Expectancy, Facilitating Conditions, and Perceived Security is directly impacting behavioral intention to use HTS.
14	Tao and Fan (2017)	400 respondents Tag user	DTPB	questionnaire-based survey; structural equation modelling	The findings support the hypothesis that five constructs influence behavior intention indirectly through attitude and perceived behavior control. Compatibility is the most critical influence factor, followed by perceived usefulness, facilitating conditions, self-efficacy, and perceived ease of use.

15	Fauzi (2017)	526 respondents Academics in Malaysia	TPB	questionnaire-based survey; structural equation modelling	The study focuses on the factors that influence academic KS behavior and research productivity. The relationship between incorporating a holistic and comprehensive model in understanding how academics' KS behavior can lead to research productivity.
16	Hoeksma et al (2017)	329 respondents in the Netherlands who buy meat	TPB	questionnaire-based survey; structural equation modelling	According to the findings, the variation of consumer intentions to purchase MSU meat is TPB accounts for a significant amount. Social attitudes, personal norms, subjective norms, and behavioral control are considered the best models for predicting MSU meat purchasing willingness through the expanded TPB.
17	Kabra et al (2017)	192 humanitarian practitioners	UTAUT	questionnaire-based survey; structural equation modelling	The UTAUT model has a significant impact on IT usage; performance expectations, business expectations, social influence, and facilitation conditions - performance expectations and business expectations have a significant impact on IT use
18	Khalilzadeh et al (2017)	412 restaurant customers	UTAUT and TAM	questionnaire-based survey; structural	The results show strong evidence of the impact of risk,

				equation modelling	safety, and trust on customer intent to use NFC -based MP technology in restaurants through the Advanced UTAUT model, when considering the impact, attitude, safety, and overall risk significantly affects customer behavioral intent.
19	Okumus (2018)	395 individuals	UTAUT	questionnaire-based survey; structural equation modelling	According to the findings, the expected app performance, the expected usage effort, social influence, and the level of user innovation by customers' intention to use the smartphone diet app are estimated.
20	Ibrahim et al (2018)	100 respondents	UTAUT	questionnaire-based survey; structural equation modelling	The study's adopted model explains 67.3 percent of the variation in behavioral intention to adopt ICT and has the most significant influence on behavioral intention than the other predictor variables in the research context.
21	Liu and Yang (2018)	426 respondents' users' bicycle-sharing applications in China	TAM	questionnaire-based survey; structural equation modelling	The findings revealed that perceived usefulness (PU) and perceived ease of use (PEOU) are the two most important factors influencing BI. Furthermore, trust (TRU) was a mediator of the subjective norm (SN) and PEOU. Imitating others (IMI) affects BI,

					while SN affects TRU, PU, and PEOU.
22	Mostafa et al (2018)	340 students who used social media in Saudi	DTPB	questionnaire-based survey; structural equation modelling	The elements proposed in the hypothesis, such as technology, social media impact, and ethical impact, technological, social assistance, mass media influence, security awareness, support, attitudes, subjective norms, perceived behavioral control, and involvement in cyberbullying, were found to have a significant relationship.
23	Al-Rahmi (2018)	723 research students in five Malaysian universities	IDT and TAM	questionnaire-based survey; structural equation modelling	The study results indicate that six perspectives on novelty characteristics influence student behavior in schema (MOOC). That is felt to significantly impact the ease of use perceived by relative advantages, complexity, reliability, visibility, compatibility, and convenience.
24	Procter et al (2019)	564 Customers of online wagering sites from Australia	TRA	questionnaire-based survey; structural equation modelling	The findings indicate that past behavior is a significant predictor of intention, and intention is a significant predictor of future behavior. They are influencing individual attitudes and perceptions of others.
25	Tatipatta (2019)	65 respondents in Indonesia	TAM	questionnaire-based survey; structural equation modelling	Modify the Technology Acceptance Model to investigate the factors influencing Gamatechno

					Employee System (GES) information technology acceptance (TAM). At PT. Gamatechno Indonesia, perceived ease of use has a significant positive effect on GES acceptance. Perceived usefulness has a significant positive effect on GES acceptance at PT.
26	Olya et al (2019)	320 respondent's guests of green hotels in Cyprus, a Mediterranean island	TPB	questionnaire-based survey; structural equation modelling	The findings increase the intention to continue visiting and recommending green hotels through attitudes toward behavior. Similarly, enhancing guest -desired behavioral responses through subjective norms. While it is not enough to predict the intentions of green hotel guests to recommend, the handling of perceived behaviors increases their intentions to return.
27	Norman (2019)	407 respondent's university students	TPB	questionnaire-based survey; structural equation modelling	According to the findings, to drink alcohol and be less aware of alcohol (affective attitudes, descriptive norms, and self-efficacy) than those who were not participants who saw the message had lower intentions. Furthermore, reporting more incidents of excessive drinking were participants who decided not to drink alcohol.

28	Zaremohzzabieh et al (2019)	37 samples, n (14,318)	TPB	meta-analytic structural equation modeling (MASEM)	The results showed that the alternative models predicted SEI better than the original TPB model. The findings also revealed that the strength of the two models improves the TPB by introducing new variables.
29	Bordalba & Bochaca (2019)	30 families and 35 teachers from 11 different schools in Spain	DTPB	questionnaire-based survey; structural equation modelling	The results show that the barriers to using digital media, especially teachers, are the most significant. Revealed has a positive attitude toward using digital media in schools where the management team promotes email or online platforms, family-school communication, parents, and teachers.
30	Campbell et al (2019)	100 respondents' pre-service teachers in their final semester before graduation	DTPB	questionnaire-based survey; structural equation modelling	The findings revealed that the following factors were predictive: (a) attitudes, (b) subjective norms, and (c) perceived behavioral control. Determine their behavioral intentions for incorporating emerging technology tools and related pedagogies into their future teaching practices.
31	Shaikh and Noordin (2019)	282 respondents who are non-users of family takaful product	DTPB	questionnaire-based survey; structural equation modelling	Critical factors influencing consumer interest in Islamic mortgages. It was found that

					attitudes, perceived behavioral control, subjective norms, and prices, and by peers, perceived relative superiority, self-efficacy, and Islamic mortgage acceptance measured perceived appropriateness.
32	Al-Rahmi et al (2019)	1286 students in Malaysia	IDT	questionnaire-based survey; structural equation modelling	The results showed that a significant influence on the perceived usefulness had complexity, trialability, relative advantage, observation, perception of perceived enjoyment.
33	Patil et al (2020)	491 consumers in India	UTAUT	questionnaire-based survey; structural equation modelling	According to the findings, performance expectancy, intention to use, and grievance redressal are significant positive predictors of consumer use behavior toward mobile payment. Furthermore, attitude, social influence, and facilitating conditions had a significant impact on intention to use.
34	Ying et al (2021)	513 online survey participants in China	TAM	questionnaire-based survey; structural equation modelling	According to the findings, online buying intentions positively affect website quality, trust, and electronic Word of Mouth (eWOM). Further, the relationship between website quality and intention to buy online significantly

					and positively regarding ease of use and usability was considered moderate.
35	Rastini and Respati (2021)	200 consumer	TRA and TAM	questionnaire-based survey; structural equation modelling	The study results found that consumer attitudes positively and significantly influence ease of use and perceived usefulness. Individual behavioral interests were considered to have a positive and significant effect on subjective norm variables, perceived consumption to positively and significantly affect consumer attitudes, and perceived ease of use and usefulness.

Limitation

There are some limitations to this review. The review is based on studies that are based on well-established theories. As a result, it is safe to conclude that this study included relevant studies in technology acceptance from well-known theories. The nature of the technology acceptance users in this review cannot be generalized to other parts of the world.

Conclusion

Various models have been reviewed and applied broadly by the system to predict intentions by reviewing many kinds of literature. As we move towards a society based on technology, different approaches have been applied to understand the conditions that affect technology usage. A various stream of the study was carried out to describe information communication technology uses from the viewpoint that beliefs have the leading cause of action based on the intention-based model (Taylor and Todd, 1995). Multiple models are present within this stream, such as Innovation Diffusion Theory (IDT), Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), Decomposed Theory of Planned Behavior (DTPB), and UTAUT model. They recognize the potential issues seen in detail, explaining the salient reasons for choosing UTAUT as a better model for investigating technology acceptance behaviors. At the same time, there has been continuous progress in identifying new factors that significantly influence the core variables of Technology Acceptance.

Numerous scientists in the IS field are keen on looking at human trust in technology acceptance. Trust in technology is always a basic idea as advancements show up and may become progressively unpredictable and harder for a few and nobody else. Such significant

contrasts between bunches by seeing technology acceptance may have remarkable hypothetical and valuable suggestions for user expectations. Throughout reasonable improvement and the same discoveries of past examinations, most specialists have agreed that quality explanations rise through powerful speculations/models. Despite the negative angles distinguished in the hypothetical ideal models of these speculations/models, one unique worldview out of the six speculations/models could be drawn from this applied audit. This perceived prevailing hypothetical discernment, as UTAUT, could be appropriately utilized for modeling technology acceptance behavior.

Theoretical and Contextual Contribution

This study contributes in terms of theoretical and contextual perception. This study aims to ensure the application of the technology acceptance model. This study is expected to add to existing knowledge and theory about the technology acceptance model. This study contributes to a unique understanding of the variables associated with recognizing recent advances. The study, in particular, describes the model of technology acceptance. Incorporating complexity into the model also contributes to a general understanding that complexity is a significant determinant of the technology acceptance model.

As previously stated, technology acceptance varies depending on the type of user; as a result, technology acceptance research on user type lecturers or teachers is critical, and future studies are required. Future researchers will benefit from this comprehensive review of the technology acceptance model in education because they will quickly identify the variables, causal relationships, user types studied, and the education area in which technology acceptance has been considered. This study's findings can be applied to future technology acceptance studies in the education domain.

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