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Integrating Communication and Task–Technology Fit Theories: The Adoption of Digital Media in Learning

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Abstract: In order to eliminate discrepancies between the literature on the use of digital media for education and its effects on students' academic achievement in higher education institutions, this article aims to develop a model that would identify essential aspects that are predicted to continue to play a large role in TTF and CT for learning, which could be used to improve academic performance in higher education. The purpose of this study was to investigate the characteristics and aspects of digital media and the relationship between their use in the TTF and CT theories to determine how they affect research students' satisfaction and AP in HE institutions. Data for the TTF and CT theories were collected using a questionnaire survey. A questionnaire survey was the primary method of data collection. A total of 1330 students who were acquainted with digital media participated in the data collection survey from Universiti Kebangsaan Malaysia. To assess the findings, quantitative structural equation modeling was used. Technological, task, and social characteristics were found to have a substantial association with TTF for using digital media sites for academic purposes, which had a favorable impact on satisfaction and educational achievement. Similar to this, a significant relationship between online communication, reasons for communicating, communication self-efficacy, and attitude toward using features with TC was found to exist for utilizing digital media sites for educational purposes that positively impacted satisfaction as well as academic performance. The study concludes that TTF and CT concepts for using digital media enhance students' active learning and give them the ability to effectively exchange knowledge, data, and discussions. In order to further their educational objectives, we advise students to make use of digital media platforms. Additionally, educators in higher education institutions need to be convinced to use digital media platforms in their lessons.

Keywords: technology characteristic; online communication; communication self-efficacy; students' satisfaction; academic performance

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1. Introduction

The advancement and widespread use of digital media platforms are built on the constant development of the internet and its applications. Because of the advent of digital media, interaction and communication through both offline and online media have changed [1,2]. Numerous justifications play a key role in its daily consumption, generally among numerous individuals and particularly among the young generation worldwide.

Nearly all young individuals who utilize digital media are students. The means of creating information and sharing it through the web among students and their colleagues have varied, mainly because of the emergence of digital media [1,2]. The application of technology and its impact on both students' academic performance and students' satisfaction in classroom settings are similarly influenced by this transformation. Because of its enhanced features, the advent of technology involving digital media and Web 2.0 is primarily beneficial in improving the academic performance of learners at the higher education level [2,3].

As digital media popularity and usage increase among students in higher education institutions, the literature has mostly investigated digital media usage among learners in educational environments, in addition to its value in education [4]. In the literature, digital media tools claim to provide a chance to enhance learning with the assistance of social learning, increasing both instructors' and students' interactions, which improves student-focused communication and learning [3,4]. The positive influence of digital media platforms on learners when employed for educational purposes is considered evident, as previous studies have discussed [5,6]. Both students' satisfaction and academic performance have been affected by the utilization of digital media for teaching and learning purposes in educational institutions [7], in addition to employing and refining the interaction among students and faculty members throughout the implementation of this technology [8]. Therefore, the knowledge gaps are expected to be covered in this study, whereas a digital media usage model is developed for communication and learning that affects both students' satisfaction and academic performance among Universiti Kebangsaan Malaysia students. According to research, digital media are frequently used by educators in Asian nations as a type of formal TTF, mainly for social communication as opposed to students' satisfaction or educational success [9]. Al-Rahmi [10] also claimed there was no connection between online activities and institutional learning. Despite varying results, academics generally concur that better learner-focused educational systems might be developed with the use of digital media when combined with a thorough understanding of the subject [11]. This study aims to minimize the disparities between existing research on the use of social networks in training and its effects on students' academic performance in universities of higher education.

By providing a model that unifies TTF and communication theories and is helpful for interpretation, this research adds to the body of the literature. This research also aids in the integration of TTF theories. This helps digital media and its developing computer systems, which encourages further interest in using it in the future. The current study provided a wide range of tools made by humans to support the development of cutting-edge social technology. Greater social involvement is specifically supported by Web 2.0's built-in capabilities in conjunction with websites and applications that are accessible online. The widely acknowledged paradigm of digital media employed in this study can be used to assess how digital media can actually be used in relation to TTF, technology, task, and SOC to improve both university students' and others' educational achievement. The spread of information regarding the use of networks for the behavioral goal of utilizing digital media for studying through TTF, which is expected to promote academic advancement in higher education, was another additional theoretical feature of our study that we considered to be outstanding.

Utilization of Digital Media Platforms in Universities

Higher education learning topics shifted from focusing solely on information to focusing on necessary abilities [12]. These communication and collaboration skills have been shown to be extremely beneficial to employers [13]. Various assumptions have been advanced in relation to active communication and collaboration for education, with Dillenbourg et al. [14] identifying it as a location where two or more individuals try learning or learning certain new knowledge simultaneously. Most researchers studied specific digital media tools, for instance Facebook, Twitter, and Myspace, as inventions in the education

process; thus, this study trend appears sufficient in view of the sweeping generality regarding digital media. Furthermore, digital media have been used as a social resource for learning to allow learners to appreciate and validate creative work, encourage peer graduates, and obtain and provide related assistance. Higher education context was investigated. Factors that include faculty use [15–17] and students' learning and communication [10,18] had an impact on, in addition to, academic performance [10,19]. Yang and Brown [20] determined that university learners demonstrated more positive communication toward academic performance and colleague collaboration over cooperative blogs. Higher education has drawn widespread awareness from the community through research on the digital media curriculum's application for educational objectives. Communication for education and inspiring intellectual abilities expression as well as metacognition is a fundamental role in higher education institutions' use of digital media for learning [21]. Several studies have shown how a higher learning level was achieved as an outcome of digital media usage for learners' homework [22,23].

2. Theoretical Model and Hypotheses

In addition to the TC theory, the theoretical model suggested in this work explores all elements connected to the TTF theory, including task–technology fit, technological features, task features, and social features (which affect online communication, motives to communicate, communication self-efficacy, and attitude toward use). These elements are examined in this part because it has been determined that they have an impact on students' academic success and satisfaction at higher education institutions (observe Figure 1).

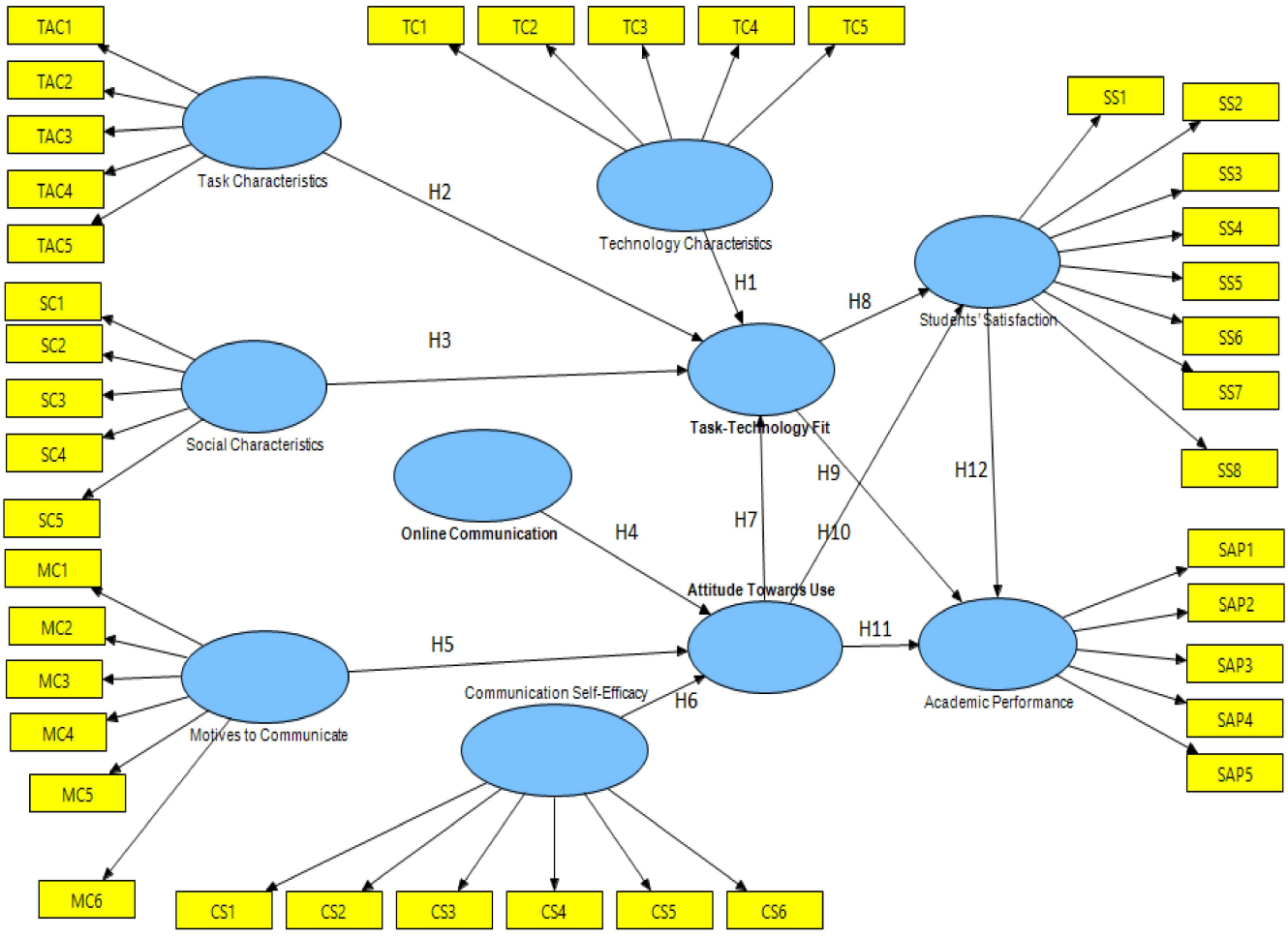

Figure 1. Research model.

2.1. Task–Technology Fit

Task–technology fit (TTF) could be defined as the extent to which technology supports people in completing their portfolio of tasks. More accurately, TTF is the connection among the functionality of the technology, individual abilities, and task requirements [24]. Former experimental research [25] suggested that if the perception of a specific technology fits properly among current users' values, i.e., perceived ease of use and perceived usefulness, it could serve as a foundation for the perceptions of essentially employing the technology. Furthermore, experimental findings have shown that perceived ease of use and perceived usefulness are influenced by the TTF, i.e., once the fit between the technology and task is greater, consumers perceive the tool to be simpler to utilize and more helpful for this task. Thus, technology elements are anticipated to impact the effectiveness of online learning [26].

2.2. Technology Characteristic

Technologies are considered to be instruments used by people to accomplish their tasks. Within the context of information systems study, technology implies computer systems (data, software, and hardware) as well as consumer assistance (help lines, training, etc.) offered to help consumers in their duties. Thus, TTF is meant to be broad enough to aim at either the effects of a particular system or the broader effects of the whole systems' set, services, and policies offered by an IS unit. Additionally, the task–technology fit theory directly affects the implementation of electronic learning systems before indirectly influencing such systems [27]. When extending the task–technology fit theory to portable information systems, consumer mobility demands must be taken into account [28]. A technology must be suitable for the task at hand in order to be used; in a wireless environment, this entails the usage of location information [29]. Therefore, the geo-location features of smart app services enable mobile users to search for deals in their immediate areas, saving time and effort and enabling the technology to focus on the task at hand. Consequently, UC associated with mobility and time savings in this research on MTS settings is obtained from the theory of task–technology fit [30].

2.3. Tasks Characteristics

Tasks are generally described as activities undertaken by persons in setting inputs into outputs. Task features of significance involve those which could push a consumer to depend more strongly on some aspects of the information technology. For instance, the necessity to respond to many unpredictable and varied queries regarding company functions would make a consumer rely more strongly on an information system's ability to process questions compared to an operational information database. Thus, task characteristics and their effects on information use were studied by numerous scholars (e.g., [31–33]). Next, Fry and Slocum Jr [34] implicated of a broad tasks classification, Goodhue (approaching) combined [35] with Perrow [36] featured and then effectively evaluated a dual-dimensional concept of task characteristics: non-routineness (lack of an analytical look for behavior) as well as interdependence (along with the other governmental divisions). Tasks have long been recognized as an essential element that impacts behavior acceptance [37]. Based on the assumption that task features serve as an antecedent of behavior acceptability, many studies in the current field have focused on an important function or a specific task of the detailed explanation of task characteristics [38,39]. ICT qualities may have a bigger impact on a person's adoption when a task fits with them more closely [40–42].

2.4. Social Characteristic

Amid the social theory is the exchange theory: Community members anticipate improving knowledge sharing and information, social belonging, reputation, and social status. This anticipation will lead to a growing commitment to take part in the network. Prior research shows that exchange theory is widely used to describe the social performance of the virtual network. Nevertheless, it is understood that OSN is a shifting setting, which can develop a new operational model occasionally. In a macro perspective, between

formation elements, it is thought that attention to a functional theory could describe the major motivations and activities through which the community can develop social values. For instance, Dodevska [43] highlights that the two unplanned activities of information sharing and cooperation may be some sort of social task to support value advancement. Consequently, OSN must be established within a function of emerging social values (e.g., information symmetry) in such a way as to evaluate how social characteristics depend on ICT. The present study begins on the theoretical foundation of the social function and discovers the association among social–technology fit and its characteristics toward OSN performance [44].

2.5. Online Communication for Learning

Although motivation is a potent sign of the reasons behind communicating among learners in the class, it does not show the way learners sense that communication. Thus, Murray and Christison [45] identified motivation as a force to maintain and initiate an engagement in education. Attitudes are particularly important in communicating online; therefore, we hypothesize about attitudes as well as motivations. As Cheung and Yin [46] claim, attitudes expressed online are likely to have differential outcomes and antecedents, thus affecting personal communication forms uniquely. Furthermore, Gonulal's [47] definition of attitude as a comparative beliefs-enduring framework around a circumstance or an object that motivates one to act in a certain unique way helps to a greater extent in understanding attitudes in online communication. In particular, Ledbetter et al. [48] proposed a group of affective orientations and cognitive attitudes for online communication that could either discourage or enhance someone's desire to engage online.

2.6. Motivate to Communication in Learning

Students assert that it is critical to understand the motivations behind why students interact with their teachers, viewing the classroom as a unique setting for social connections [49]. Motives can therefore be thought of as the individual justifications that students have for speaking with their instructors [50]. Five primary reasons why students communicate were thus categorized: most related to this research, participatory relational reasons, in addition to sycophantic, excuse-making, and functional reasons. Participatory communication motives, learning highly motivated by dialogic methods [51], lead learners to participate in class conversations via comments or other types of communication. Considering how much students want to contribute to an active class, among other things, there may be obvious reasons for students communicating in a classroom; these reasons interact with other reasons for students to communicate, as our suggested model for using Twitter in the classroom would subsequently represent.

2.7. Communication Self-Efficacy

The current study views online communication self-efficacy as a different element to be expected to influence communication for learning through technology. Additionally, online communication self-efficacy will be able to impact self-directed learning with technology via its impact on digital media tools' usage for education. Digital media platforms enable students to collaborate and communicate together [52]. Collaboration and communication with others allow students to benefit from the digital media tools' affordance concerning social learning, collaboration, and peer networks [53]. Students with higher online communication self-efficacy tend to benefit more from digital media tools for education. Earlier research offered ample proof that computer self-efficacy affects the extent of communication when students participate with digital media platforms [54–56]. Consequently, computer self-efficacy impacts the level to which students utilize digital media tools for education.

2.8. Attitude toward Use

Jiao and Onwuegbuzie [57] indicated that intention is caused by the attitude of individuals, which then determines the individual's behavior. According to research performed

by Elkaseh et al. [58] and Baş et al. [59], attitude provides a considerable contribution to behavioral intention as well as technology use. Both Chakraborty and Al Rashdi [60] stated that the impact of attitudes on behavioral intention is illegitimate and will be considerable if two factors are eliminated from the model, namely effort expectancy and performance expectancy. Nevertheless, Bashir et al. [61] and Al-Rahmi et al. [62] discovered conflicting results, whereas attitude has considerable influence both with the effort expectancy and performance expectancy. Correspondingly, a study has shown that having a positive attitude can impact the intentional use of the new technology [63].

2.9. Students' Satisfaction

Digital media have the ability and opportunity to improve education by facilitating information exchange and communication, fostering students' participation and collaboration, and providing assistance [64–67]. According to Kern et al. [68], Facebook can provide a more relaxed learning environment, connect students and teachers, increase learners' motivation levels, and support cooperative learning methods. Previous studies have demonstrated that collaborative education increases students' satisfaction [67,69,70]. The use of digital media in cooperative education among graduate and undergraduate students is examined by Labib et al. [71] by looking at the intrinsic and external motivating roles, intentions, and attitudes. The research's significance lies in its examination of the effects of digital media use in collaborative learning on both undergraduate and graduate students from a variety of perspectives, including decision-making, collaboration, socializing, interaction, performance, and students' satisfaction. Depending on the results, collaborative education significantly affects users' intentions to utilize digital media, which in turn affects students' learning and instruction [72,73].

2.10. Students' Academic Performance

According to Saha and Karpinski [74], digital media have an impact on students' academic achievement and users' contentment, yet it has been discovered that social groups created on Facebook make it simpler for learners to develop. However, there are a few unusual cases where data indicate a favorable link between Facebook and Twitter [73,75] and also that inclusion could improve education [76,77]. Following an investigation by Laha and Pal [78], the researcher found that students spend more time using digital media for purposes other than learning, which has an impact on their academic performance. According to a study subsequently developed by Alqahtani et al. [79], digital media users were ranked lower than students who would never engage in social communications. However, there are widespread benefits associated with using digital media. According to [80], digital media provide a means of interaction, collaboration, and communication between research academics and students inside their respective faculties. Cooke [81] also asserted that digital media did not have an impact on pupils' academic performance. Additionally, a study by [82] attempted to investigate the relationship between Facebook and students' academic achievement. Conclusions revealed a significant inverse relationship between Facebook use and pupils' academic performance. In comparison to nonusers, those surveyed said they spent on average fewer hours each week studying. The majority claimed to use Facebook at least once every day. This agrees with the findings of [83]. Researchers who contributed to the analysis of the impacts of digital media use on students' academic performance and happiness found that students believed it was acceptable for their teachers to use Facebook in places where both educators and learners can interact socially [84]. Additionally, using digital media networks makes the link between students' academic success and contentment easier to understand [85–87].

3. Research Methodology

With the assistance of two experts, our study examined the questionnaires that were gathered. The data gathering was provided by Universiti Kebangsaan Malaysia. Undergraduate and graduate students who used digital media were included in the research

model chosen to assess attitudes toward using digital media using CT and TTF in order to gauge students' happiness and academic achievement. The obtained data were assessed applying a 5-point Likert scale, including elements of CT and TTF variables, and demographics. All respondents were asked to comment on the usage of digital media for CT and TTF and their thoughts on its impact on students' satisfaction and academic achievement in the questionnaire, which had been physically distributed. Data were randomly gathered, and IBM SPSS and structural equation modeling were used for analysis (SEM-Smart-PLS).

These were divided into two stages and are thought to be the most significant statistical techniques in our study. In the first, the measure discriminant validity, measure convergent validity, and measure validity were examined; in the second, a structural model assessment was carried out. Hair et al. [88] made the suggestion for this approach. A total of 1330 undergraduate and graduate students made up the sample size in this study, which was representative of farmers. It was calculated using Krejcie and Morgan's sample size computation, often known as their sample-size determination, which is written as the following equation [89]. The Krejcie and Morgan's sample-size calculation was based on $p = 0.05$, where the probability of committing a type I error is less than 5% or $p < 0.05$. S = X2 NP (1 − P) ± d2 (N—]) + X2 P (1 − P), where (S) is the necessary sample size, (N) is the population size, and (P) is the proportion of the population (assumed to be 0.50 since this would provide the maximum sample size). (X2) is the tabular value of the chi-square with one degree of freedom at the chosen level of confidence (0.05 = 3.841), and (d) is the accuracy level represented as a proportion (0.05).

Measurement Instruments and Data Collection

During the end of December 2022, 1330 sample questionnaires were collected from students at Universiti Kebangsaan Malaysia. This method was comparable to that described by Hair et al. [88], who indicated how outliers may be disregarded since they posed the risk of obtaining statistical results that were not valid. The technology transfer factor (TTF) coefficient was measured using five items from Khan et al. [90], and the technology characteristics (TC) were measured using five points from Yeh et al. [91]. Five points from Abbas et al. [92] were used to measure the task characteristics (TAC), and five questions from Hsiao et al. [93] were used to measure the SC. Six questions related to online communication (OC), six items related to communication motivations (MC), six items related to communication self-efficacy (CS), and six items related to attitude toward use (AT) were taken from [94]. Additionally, five items that were all drawn from [95] were used to measure students' satisfaction (SS). Finally, five proposed indicators from [96] were used to gauge pupils' academic performance (AP).

4. Result and Data Analysis

With a Cronbach's reliability coefficient of 0.887, behavioral intention to use digital media based on higher education was one of the connected factors that affected TC and TTF for learning. Based on three criteria, this study assessed the validity of the distinction: Squared AVE was greater than the factor-related inter-construct correlations (IC) [97], the average variance of extracted (AVE) levels were at least 0.5, and the variable index values were below 0.80 [98]. The factor-loading levels were also at least 0.7 or higher. With a Cronbach's alpha value and convergent validity of 0.70 or higher, this was deemed satisfactory [99].

4.1. Measurement Model and Instrumentation

The partial generalized least method is used as the first step in claiming the reliability and legitimacy of the model. Two rounds of Smart-PLS 2.0 basic equations modeling (PLS-SEM) were employed to validate the integrity of the fitness model before the theories were tested. Similar to this, credibility that spreads component loadings was built; Cronbach's alpha, composite unshakable quality, and fusion credibility were determined. Use of the standard test to verify discriminant authenticity followed the advice provided by [97].

4.2. Construct Validity of the Measurements

"Develop legitimacy" is defined as the extent to which the measures employed to assess a factor can accurately quantify the proposition they were intended to measure [88]. Instead of comparing distinct builds, the entirety of the things employed to evaluate the developments should stack fundamentally to their particular developments. This was ensured by organizing a writing audit with the goal of delivering materials that had already been established and tested by earlier writers. Based on the principal components, it was confirmed that items were appropriately named as developments because they stood out from other developments due to their large loadings (See Table 1).

Table 1. An overview of constructs, items, and factors loading.

Factor	Items	Factors Loading	Factor	Items	Factors Loading	Factor	Items	Factors Loading
Academic Performance	AP1	0.795882	Social Characteristics	SC1	0.766768	Task Characteristics	TAC1	0.810603
	AP2	0.815983		SC2	0.804732		TAC2	0.841565
	AP3	0.828747		SC3	0.800970		TAC3	0.716818
	AP4	0.860344		SC4	0.808120		TAC4	0.861570
	AP5	0.864955		SC5	0.765453		TAC5	0.816353
Attitude Toward Use	AT1	0.810830	Motives to Communicate	MC1	0.789922	Task–Technology Fit	TTF1	0.840152
	AT2	0.824586		MC2	0.816294		TTF2	0.889442
	AT3	0.704647		MC3	0.830012		TTF3	0.885380
	AT4	0.843560		MC4	0.793855		TTF4	0.841950
	AT5	0.837671		MC5	0.824620		TTF5	0.770494
	AT6	0.837011		MC6	0.829871	Technology Characteristics	TC1	0.772006
Communication Self-Efficacy	CS1	0.736609	Online Communication	OC1	0.780952		TC2	0.790862
	CS2	0.784227		OC2	0.770826		TC3	0.843658
	CS3	0.746609		OC3	0.774892		TC4	0.791446
	CS4	0.773882		OC4	0.844509		TC5	0.802901
	CS5	0.779799		OC5	0.823185			
	CS6	0.755035		OC6	0.828783			
Students' Satisfaction	SS1	0.793267	Students' Satisfaction	SS4	0.860675	Students' Satisfaction	SS7	0.817703
	SS2	0.785344		SS5	0.834819		SS8	0.820604
	SS3	0.839283		SS6	0.863267			

4.3. Convergent Validity of the Measurements

With Cronbach values varying from 0.933918 to 0.849827 over the recommended cut-off estimation of 0.60, the composite reliability values varied from 0.945452 to 0.892070 and are present all through the prescribed cut-off estimation of 0.70. Additionally, the critical element loadings were above 0.50, and the average change removed (AVE) values varied from 0.716680 to 0.582015 (all exceeding the cut-off estimate of 0.5). All of these traits exceeded the suggested incentives set forth by [88,97]. The CFA outcomes of the measuring model are shown in Table 2.

Table 2. Convergent validity.

Factors	AVE	Composite Reliability	R Square	Cronbach's Alpha
Academic Performance	0.694883	0.919197	0.547359	0.889976
Attitude Toward Use	0.657964	0.920008	0.477402	0.895314
Communication Self-Efficacy	0.582015	0.893049	0.000000	0.858377
Motives to Communicate	0.663020	0.921878	0.000000	0.898734
Online Communication	0.647038	0.916559	0.000000	0.890877
Social Characteristics	0.623211	0.892070	0.000000	0.849827
Students' Satisfaction	0.684422	0.945452	0.562401	0.933918
Task Characteristics	0.657574	0.905353	0.000000	0.868857
Task–Technology Fit	0.716680	0.926554	0.512831	0.900301
Technology Characteristics	0.640850	0.899131	0.000000	0.859826

4.4. Discriminant Validity of Measures

Discriminant *Validity* [99] measures how much one notion and its pointers diverge from another idea and its pointers. The AVE esteem is substantially over 0.50 and is significant at $p = 0.001$, demonstrating that the legitimacy of discrimination is supported

across the board [97]. In this way, ref. [88] made it clear that interactions between things in two developments should not be greater than the cube of the typical fluctuation shared by the items in a single development (see Table 3).

Table 3. Latent variable correlations.

	AP	AT	CS	MO	OC	SC	SS	TAC	TTF	TC
AP	1.00000									
AT	0.62117	1.00000								
CS	0.56138	0.56077	1.00000							
MO	0.56105	0.56484	0.63880	1.00000						
OC	0.60337	0.60629	0.52708	0.52393	1.00000					
SC	0.53897	0.50400	0.52697	0.46954	0.50812	1.00000				
SS	0.71965	0.69949	0.55967	0.56988	0.68010	0.56060	1.00000			
TAC	0.49248	0.49656	0.36820	0.36197	0.50243	0.54488	0.59357	1.00000		
TTF	0.49381	0.52799	0.39474	0.42908	0.47791	0.4898	0.59894	0.61841	1.00000	
TC	0.495318	0.528684	0.481527	0.498715	0.478003	0.534292	0.583742	0.585614	0.623722	1.000000

4.5. Analysis of the Structural Model

Following the confirmation of the accuracy of the presented estimation, the next step required evaluating the hypothesized links between the structures. The expert used Smart-PLS 2.0, which led the PLS calculation and examined the model. Coefficients were then provided in the manner shown in Figure 2. Additionally, Figure 3 displays the theories in Table 4.

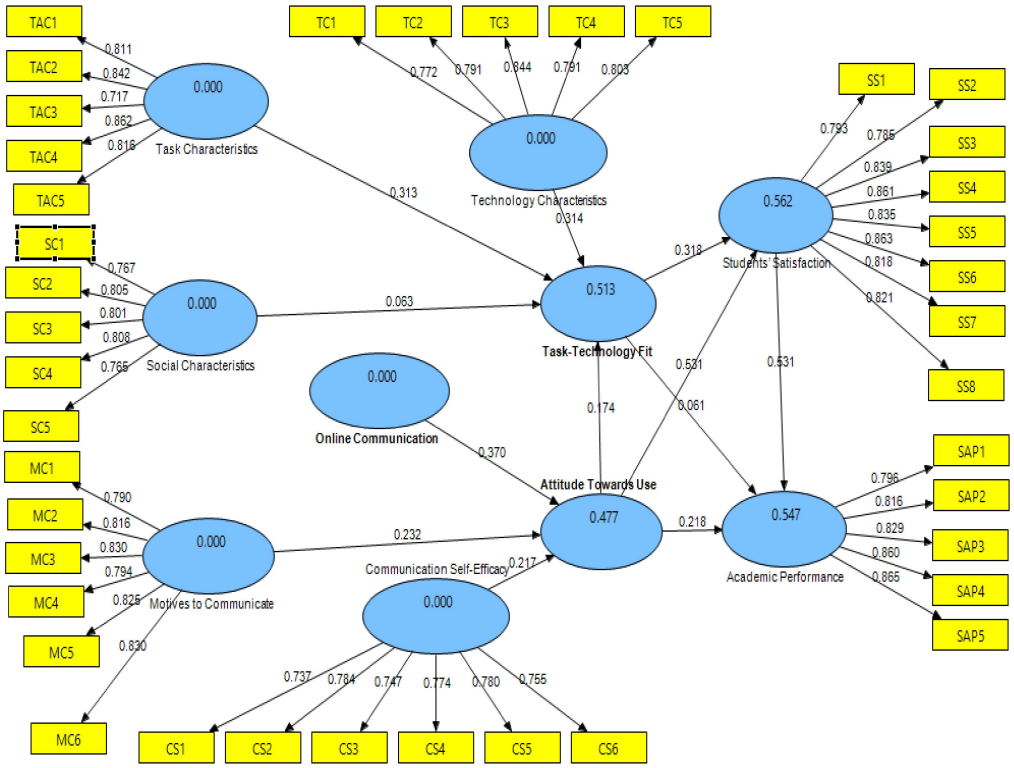

Figure 2. Path coefficients results.

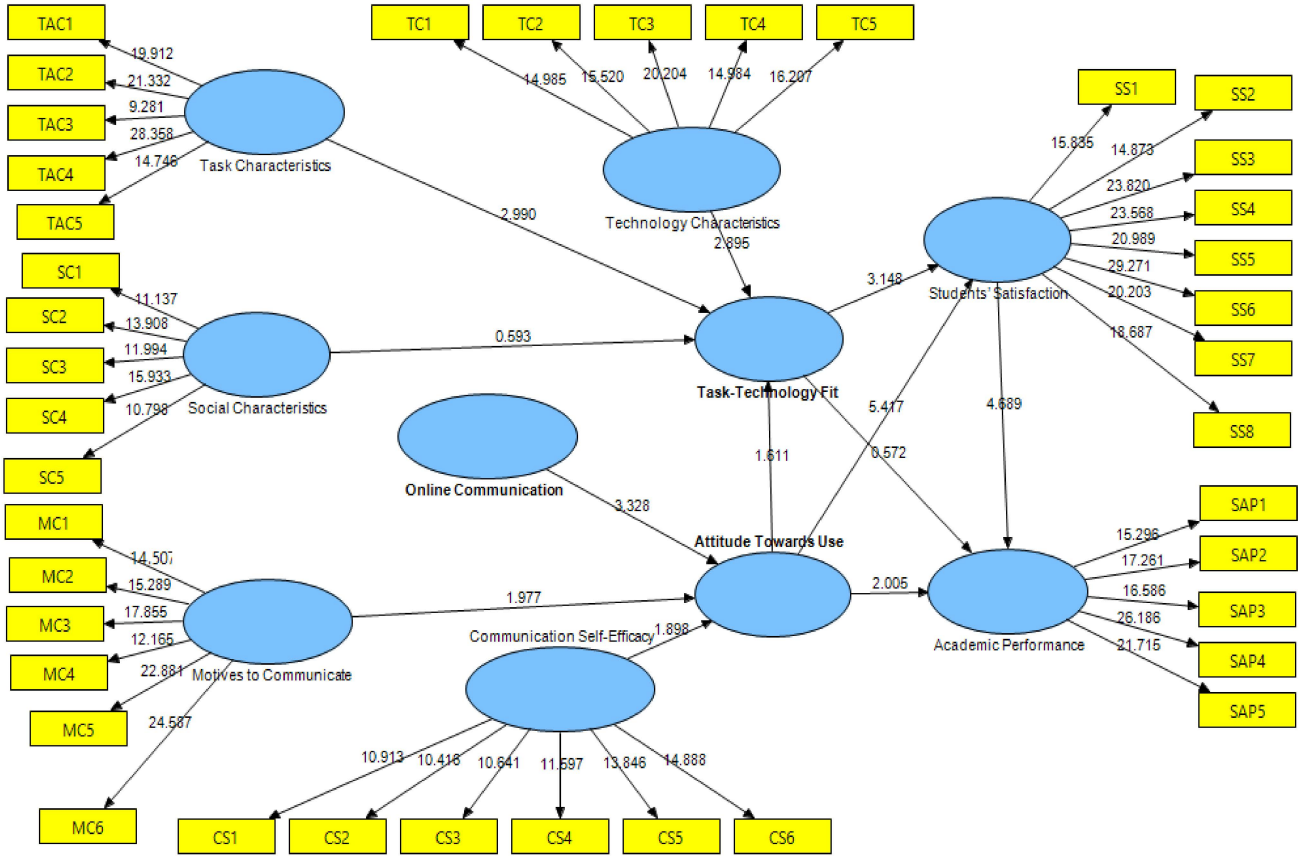

Figure 3. Path coefficients T values.

Table 4. Hypotheses testing.

H	Independent	Relationship	Dependent	Path Coefficient	Standard. E	T. Value	Result
1	TC	→	TTF	0.314205	0.108550	2.894574	Accepted
2	TAC	→	TTF	0.313283	0.104770	2.990203	Accepted
3	SC	→	TTF	0.063387	0.106890	0.593010	Accepted
4	OC	→	AT	0.370101	0.111220	3.327640	Accepted
5	MC	→	AT	0.232002	0.117323	1.977465	Accepted
6	CS	→	AT	0.217496	0.114568	1.898408	Accepted
7	AT	→	TTF	0.174370	0.108254	1.610742	Accepted
8	TTF	→	SS	0.318371	0.101121	3.148429	Accepted
9	TTF	→	AP	0.060903	0.106467	0.572034	Accepted
10	AT	→	SS	0.531399	0.098092	5.417384	Accepted
11	AT	→	AP	0.217620	0.108552	2.004749	Accepted
12	SS	→	AP	0.530953	0.113232	4.689075	Accepted

4.6. Hypotheses Testing of TTF Theory

Regarding the first supposition, the task–technology fit and link between technological features are (=0.314205, t = 2.894574). H1 was therefore supported. The investigation of the link between task features and task–technology fit supports the second hypothesis (=0.313283, t = 2.990203). H2 was therefore supported. The third net hypothesis examines how social traits and task–technology fit relate to (β = 0.063387, t = 0.593010). H3 was therefore supported. There is also a connection between task–technology fit and students' satisfaction (=0.318371, t = 3.148429). H8 was therefore supported. The nine hypotheses state that task–technology fit and academic achievement are related (=0.060903, t = 0.572034).

H9 was therefore supported. The association between students' satisfaction and academic achievement is the final hypothesis (=0.530953, t = 4.689075). H12 was therefore supported.

4.7. Hypotheses Testing of CT Theory

Regarding the association between online communication and attitude toward use, (β = 0.370101, t = 3.327640) is the fourth hypothesis. H4 was therefore supported. The fifth theory is a favorable association between communication motives and attitude toward use (β = 0.232002, t = 1.977465). H5 was therefore supported. The association between communication self-efficacy and attitude toward use is the sixth and final hypothesis (β = 0.217496, t = 1.898408). H6 was therefore supported. Additionally, the seven hypotheses examined the link between task–technology fit and attitude toward use (=0.174370, t = 1.610742). H7 was therefore supported. Similar to this, there is a correlation between students' pleasure and their attitude toward use (=0.531399, t = 5.417384). H10 was therefore supported. The association between attitude toward usage and academic performance is the eleventh and final hypothesis (β = 0.217620, t = 2.004749). H11 was therefore supported.

5. Discussion and Implications

The findings of our study contribute to a greater knowledge of AP and its relationships to TEC, TAC, social traits, communication motivation, communication self-efficacy, and online communication. Digital media, which can increase students' contentment and AP, facilitate the background that TTF creates and contacts via digital media.

According to the results of this study, the use of digital media improves technology and task features, SOC, and its TTF, all of which can increase students' happiness and AP as found in past and current studies [100,101]. The results of this study also demonstrate that social media use can improve communication self-efficacy, communication motives, and online communication. As a result of the findings of this study and previous studies [102,103], it also improves students' attitudes toward the use of digital media, increasing their satisfaction and AP.

As a result, the attitudes toward use are related to online communication, the motivation to communicate, and communication self-efficacy, all of which enhance students' academic activities by enabling them to acquire crucial resources from their peers, including their professors' directions. Experimental data suggest that when using digital media for collaboration, on-campus students require more assistance than just quick face-to-face interactions. Additionally, it has been discovered that face-to-face sessions are relatively more helpful for the purposes of learning as compared to using digital media, based on developments in the development of research skills by educators and the idea of student exchanges [102,103]. As a result, this study adds to the body of knowledge by offering an interpretive model that harmonizes the TTF theory with the communication theory. This research also contributes to the integration of the TTF theory and the communication theory. This benefits digital media as well as the developing computer systems that encourage increased interest in use in the future. Therefore, answering the research questions led to the most significant practical results and contributions of this study. Human computer interaction has also recently made an effort to examine a user's behavior in order to enhance the creation of social technology [104–106].

The current study provided a wide range of tools made by humans to support the development of cutting-edge social technology. Greater social involvement is specifically supported by Web 2.0's built-in capabilities in conjunction with websites and applications that are accessible online. As a result, academics are working to improve ideas that can direct these behaviors [107–109]. The TTF and communication theories are suggested by this study as resources for a deeper comprehension of the attitude toward utilizing digital media and task technology appropriate for using digital media to improve the academic performance of university-level students. New assessment standards and metrics are also crucial components of both practice and research. According to Davis [110], communication theory offers standards for assessing the designed system in order to evaluate the practical

usage of digital media in relation to TTF and attitude toward using digital media as well as technology, task, and SOC (online communication) and the motivation to communicate, communication self-efficacy, and improvement of the educational performance of both university students and those in other institutions.

Even though the current study found evidence for all of the assumptions, other measurements have also been confirmed and are likely to be used to gauge different aspects of computer and educational interactions connected to "human–computer interaction". The transmission of information regarding the use of digital media to influence attitudes was another theoretical component of our study that we thought was particularly noteworthy. Utilizing modern tools to improve your knowledge of TTF and attitudes toward using digital tools can help students in higher education advance academically. In this investigation, three types of empirical evidence were created: The first step was to analyze TTF using TEC, TAC, and SOC. Additionally, regarding attitudes in higher education, it was discovered that using digital media as a tool to comprehend online communication, the motivation to communicate, and communication self-efficacy improved students' achievement. Last but not least, TTF and students' attitude toward the use of digital media for educational purposes improved students' academic performance in higher education. These make a significant theoretical contribution to earlier communication research, which did not fully account for the effects of using digital media for learning [100,102,111,112]. Based on the findings of this investigation, the following conclusions are drawn: Students' academic achievement in higher education can be greatly enhanced by using digital media (such as Facebook, blogs, and YouTube) for technology-based activities paired with its inherent SOC that enhance collaborative learning. Additionally, students share knowledge and information, they receive assistance from professors and lecturers through question-and-answer sessions, and the relative simplicity with which knowledge can be obtained has increased enormously. All of these have the capacity to enhance educational outcomes and the research process.

6. Conclusions and Future Work

The findings of this study lend credence to the idea that three different sorts of characteristics—technological, task-related, and social—will affect academic accomplishment when used in tandem with TTF for learning. Similar results showed that communication motivation, communication self-efficacy, and online communication are all factors that affect AP when there is more digital media contact for educational purposes. Moreover, the results validated the communication and TTF theories that were employed to investigate the usage of digital media for studying as a strategy to improve students' AP in higher education. This enhanced students' learning processes considerably facilitated peer-to-peer dialogues as well as knowledge sharing and information exchange. The use of TTF and CT theory in examining the attitude toward the use of digital media for task–technology fit to increase students' satisfaction and academic performance in higher education was also confirmed by the findings. Overall, attitude toward use of digital media for task–technology fit via digital media enhances the students' learning activities, knowledge sharing, and information exchange, and it facilitates discussion with peers. Although this study produced novel findings, it had the following drawbacks: The results might not be representative of the conduct of other organizations, such as secondary school instructors, private colleges, or military installations, because the sample size was restricted to one university in Universiti Kebangsaan Malaysia. A lecturer's observation or even what students do in practice may not match the level of knowledge and perceptions of other students. Additionally, the differences between research fields were not taken into account. Recommendations for future research include conducting the study in provinces outside of Malaysia with different environments, as well as exploring the aforementioned limitations in greater depth.

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