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Examining Student Behavioral Intention of Superstar Learning System by Extending Its Technology Acceptance Model

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ABSTRACT

Superstar Learning System, designed and developed by Superstar Company, is a learning platform where teachers and learners may have access to plentiful educational resources and interact with each other. Behavioral intention related to this platform has not been explored although many researchers have examined its use in education. A random sampling technique and a questionnaire survey were adopted to collect data to complement this missing link in literature. This study revealed numerous influencing factors of behavioral intention such as performance expectancy, effort expectancy, lecturer influence, peer influence, user innovativeness, interface simplicity, and multiple functions. It also extended the extended technology acceptance model (TAM) by involving more influencing constructs (i.e., lecturer and peer influences, user innovativeness, interface simplicity, and multiple functions). Future research could adopt inter-disciplinary research methods to examine Superstar Learning System-based behavior intention of learners.

KEYWORDS

Behavioral Intention, Constructs, Extended TAM, Superstar Learning System

INTRODUCTION

The outbreak of The COVID-19 pandemic has forced many teachers and learners to stay home receiving online education. Online learning technologies could play an important role in facilitating online learning and teaching. Many online learning and teaching platforms have boomed up to address the educational issue during the pandemic. They can facilitate online learning and teaching via multiple functions. However, the lower completion rates and weak behavior intention of online education have puzzled educators for long. It is thus necessary to design an online learning and teaching technology to enhance students' behavioral intention as well as the factors that may exert a great influence on behavioral intention.

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Superstar Learning System, designed and developed by Superstar Company, is a learning platform where teachers and learners may have access to plentiful educational resources and interact with each other. It is an eye-catching one that has been receiving growing popularity in online education due to its prominent improvements on educational outcomes. Through this platform, educators and learners could obtain plentiful learning resources, communicate with each other, discuss difficult problems, and share their opinions. Students' behavior intention may be improved, coupled with higher completion rates. Students can also note down the key knowledge pieces and teachers can trace students' learning behaviors in addition to the supervision of students' attendance (Figure 1).

Numerous studies have been committed to the effectiveness of Superstar Learning System in various subjects. Superstar Learning System could improve Higher Vocational Mathematics teaching (Zhu, 2019), promote Physical Chemistry learning (Wang, Zhang, & Qian et al., 2018), facilitate the teaching of Business English Intensive Reading (Fan, 2017), and enhance English Reading teaching on the basis of a mobile pedagogical model (Zhang, 2016). Based on the platform of Superstar Learning System, Wang (2018) constructed a hybrid teaching model of Comprehensive English courses including four elements, i.e. online self-learning, classroom teaching, network interaction, and teaching evaluation. The teaching practice showed that this model combined the advantages of mobile teaching and traditional classroom teaching, which could improve students' self-regulation and enhance their behavior intention.

While many researchers have been committed to the effectiveness of the use of Superstar Learning System, scanty studies have focused their attention on the influencing factors of its behavioral intention. It is thus necessary to identify the constructs that may influence students' behavioral intention of this learning technology especially within the framework of the Technology Acceptance Model (TAM). Therefore, researchers propose the research question, i.e. will performance expectancy, effort expectancy, lecturer influence, peer influence, user innovativeness, interface simplicity, and multiple functions exert a positive influence on the behavioral intention to use Superstar Learning System? This research will develop the null hypotheses based on previous studies, collect data to test proposed null hypotheses, discuss the results, and present future research directions.

LITERATURE REVIEW

The Origin of The Technology Acceptance Model

TAM was proposed by Davis (1989), who adopted rational behavior theory to study users' acceptance of information systems. The original purpose of TAM was to explain the influencing constructs of computer technology acceptance. TAM proposes two major influencing constructs: perceived

Figure 1. The Superstar Learning system platform

usefulness, which indicates the extent to which a user thinks that using a technology system improves the performance; and perceived ease of use, which means the degree to which a user thinks it is easy to use a technology system.

The Technology Acceptance Model (see Figure 2) considers that the use of technology is determined by the behavioral intention, while the behavioral intention is determined by the attitude toward the use and perceived usefulness. Perceived usefulness is determined by perceived ease of use and external variables. Perceived ease of use is determined by external variables. External variables include technology design characteristics, user characteristics (including perception forms and other personalities), task characteristics, nature of development or execution process, policy impact, and organizational structure, etc. They establish a connection between internal beliefs, attitudes, intentions, and differences among different individuals, environmental constraints, and controllable interference factors in the technology acceptance model.

Development of TAM

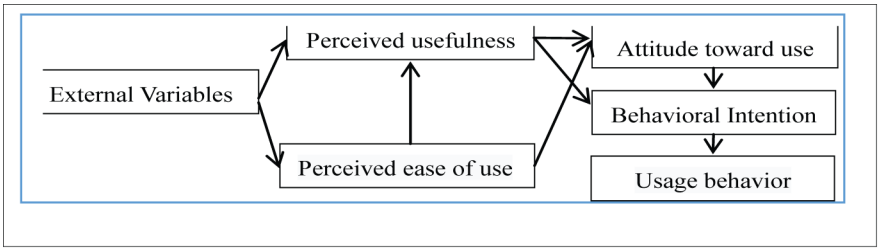
TAM of Knowledge Management System. An increasing number of organizations realize that organizational competitiveness depends on the effective management of intellectual resources, which makes knowledge management a very important organizational function (Davenport & Grover, 2001). Knowledge management includes a wide range of complex organizational, social, and behavioral constructs. Nevertheless, information technology is still a major factor in the current study of knowledge management. Based on the fact that knowledge management is supported by information-related technologies, the acceptance of knowledge management system is studied by using TAM. This model mainly measures several major constructs of the TAM, i.e. perceived usefulness, ease of use, and user's intention to use knowledge management system, as well as their relationship with actual use.

Compared with Davis' original technology acceptance model, Davenport & Grover's (2001) research model did not consider the construct of attitudes to use. Nevertheless, Davis (1989) argued that attitudes to use partially mediated the effect of perceived usefulness on the behavioral intention to use. External variables not involved, this research model does not include constructs that influence perceived usefulness and perceived ease of use.

TAM of Enterprise Resource Planning (ERP) application system. ERP is a system capable of handling multiple functions including finance, human resources, manufacturing, material management, sales, and distribution (Davenport, 2000). The implementation of ERP requires a lot of organizational resources and risks brought by a lot of investment. Compared with the implementation of a traditional simple information technology system, it is a completely different application area of information technology.

In this research model, two constructs were included that influenced TAM, i.e. perceived usefulness and perceived ease of use (Lewis & Seibold, 1993). The model includes the main constructs of TAM and defines three external variables: the plan exchange of ERP system, the consensus of benefits generated by ERP system, and the training of ERP system (Legris, Ingham, & Collerette, 2003). In the organization, the users who would most likely accept the ERP system were the senior

Figure 2. The technology acceptance model (Davis et al., 1989)



managers. The plan exchange of the ERP system made the information about the ERP system flow from the senior managers to others (Caner, Jambulingham, & Gupta, et al., 2001). The consensus on the benefits of the ERP system (Mirani & Lederer, 1998) refers to the consensus among peers and managers on the value of the ERP system. The training modes of the ERP system (Potosky, 2002) include both internal and external professional practice.

TAM of the Internet Application. Many enterprises used the Internet, especially aiming to share important information resources (Feher & Towell, 1997). The development of Internet-based systems and the establishment of intra-enterprise Internet can help break down the barriers of time and distance between suppliers and demanders to reduce costs and increase productivity. Enterprises use the Internet mainly to collect information, but how to obtain the expected information is a major concern (Soh, Mah, & Gan et al., 1997). Collecting task-related information has become a major aspect of using the Internet. More importantly, the performance of information processing was increasingly dependent on the matching degree between information and organizational tasks.

In the research model proposed by Feher & Towell (1997), TAM is used to evaluate individual performance. The assessment of the Internet use in daily work is mainly based on personal impressions of using task-related websites and Intranets. To empirically study the use of task-related Internet by staff, TAM and Choo's (1998) information behavior model is synthetically used. The information behavior model mainly explains how people reduce the uncertainty of tasks through the information demand-search-use cycle.

Based on the three-step cycle of information behavior model, the use of the Internet in work was explored from three aspects. In the aspect of information demand, users assessed whether the relevant information could solve the problem and related factors could be proposed (Spink, Greisdof, & Bateman, 1998). In the information search stage, perceived usefulness, ease of use, and a personal factor-the state of imagination were proposed.

Revised TAMs. A more reliable TAM, i.e. the unified theory of acceptance and the use of technology (UTAUT) was formulated by Venkatesh et al. (2003), who aimed to integrate and analyze constructs in the TAM. In UTAUT there are three influencing constructs that determine the behavioral intention, i.e. performance expectancy, effort expectancy, and social influence. One influencing construct, facilitating condition, is considered able to directly determine the use behavior of mobile technology. This enhances the reliability of the acceptance model by extending the basic TAM. Characteristics of users, such as gender, age, experience, and voluntariness of use are deemed as significant moderating variables influencing the behavioral intention and the use behavior. It has been argued (Venkatesh et al., 2003) that UTAUT is significantly more reliable than the basic TAM in that the former is able to account for 70% of variances in the behavioral intention. Therefore, UTAUT provides a reliable model to test the usability of a novel mobile app (Ibrahim & Jaafar, 2011).

There are four core determinants in UTAUT: (1) Performance Expectancy (PE), (2) Effort Expectancy (EE), (3) Social Influence (SI), and (4) Facilitating Conditions (FC). PE refers to "the degree to which individuals feel that using systems is helpful to their work"; EE indicates "how much effort individuals need to make use of systems"; SI means "the degree to which individuals feel affected by the surrounding groups"; FC refers to "the degree of support that individuals feel for the use of systems in related technologies" (Venkatesh, 2003).

Based on the literature, we proposed the following null hypotheses:

H1: Performance expectancy exerts no positive influence on the behavioral intention to use Superstar Learning System.

H2: Effort expectancy exerts no positive influence on the behavioral intention to use Superstar Learning System.

Later, many studies revised the basic TAM (e.g. Lee & Lehto, 2013; Teo, 2009) by arguing that more external variables should be added to TAM (Abdullah & Ward, 2016; Legris, Ingham, &

Collerette, 2003). Afterward, numerous scholars extended the basic TAM by adding different external variables such as experience (Yang & Wang, 2019), students' self-determination, satisfaction (Joo, So, & Kim, 2018), prior experience, gender difference (Park, Kim, Cho, & Han, 2019), attitude, performance expectancy (Hoi, 2020), perceived reliability (Alam, Hoque, Hu, & Barua, 2020), psychological constructs (Yu, 2020), and social influence (Chimborazo-Azogue et al., 2021). A recent study concludes that subjective norms, perceived ease of use, and perceived usefulness could significantly influence the attitude towards use (Alshurafat et al., 2021).

Constructs Influencing the Behavioral Intention

Behavioral intention related to this platform has not been enough explored although many researchers have examined its use in education. Behavioral intention related to this platform has not been enough explored although many researchers have examined its use in education. In order to deal with this regret in literature, we intend to use UTAUT to test the usability of Superstar Learning System. Based on the basic TAM, usability is considered an important construct to influence the behavioral intention. Multiple functions can be considered an in-depth usability for students and teachers to use a mobile app. Perceived ease of use is also an important determinant influencing the behavioral intention, of which Interface simplicity of the mobile app is an essential component.

Lecturer influence and peer influence source from the important determinant -- social influence, referring to the extent to which users take it important that superiors and inferiors believe that they should use the mobile technology (Venkatesh et al., 2003). Social influence, which could be divided into superior/lecturer and peer influences (Igbaria, Schiffma, & Wieckowski, 1994), has been considered an important determinant directly influencing the behavioral intention of the use of mobile technology (Venkatesh & Davis, 2000).

H3: Lecturer influence exerts no positive influence on the behavioral intention to use Superstar Learning System.

H4: Peer influence exerts no positive influence on the behavioral intention to use Superstar Learning System.

User innovativeness, another important determinant influencing the behavioral intention, indicates the individual voluntariness to accept a new mobile technology. Strong user innovativeness could exert a positive influence on performance expectancy and effort expectancy at an initial stage (Liu et al., 2010). We, therefore, proposed the following null hypothesis:

H5: User innovativeness exerts no positive influence on the behavioral intention to use Superstar Learning System.

There are four moderators that have a significant impact on the above core determinants, i.e. gender, age, experience, and voluntariness of use. Venkatesh et al. (2003) also found that the combined use of more than two control variables would make the effect more significant on the behavioral intention and the use behavior. This study attempts to include new constructs, i.e. lecturer and peer influences, user innovativeness, interface simplicity, and multiple functions to test the TAM of Superstar Learning System, besides the explored constructs: performance expectancy, and effort expectancy. Thus, we proposed another two null hypotheses:

H6: Interface simplicity exerts no positive influence on the behavioral intention to use Superstar Learning System.

H7: Multiple functions exert no positive influence on the behavioral intention to use Superstar Learning System.

Materials and Methods

This study adopts a random sampling technique to collect data in order to test proposed research hypotheses.

PARTICIPANTS

We randomly selected 281 tertiary students from Faculty of Business, Faculty of Western Languages, Faculty of Humanities & Social Sciences, Faculty of Middle Eastern Studies, and Faculty of Training in a state-owned university. The university, founded in 1962, is affiliated to the Ministry of Education of China. She, located in the Capital of China-Beijing, provides professional education in terms of linguistics, information science, economics, art, literature, psychology, and education. They major in various disciplines, e.g. English Language, Linguistics, Business Administration, Journalism and Communication, International Relations, and International Politics. They, ranging from 19 to 26 years old, have normal literacy and psychological state based on their self-reports.

Research Instruments

Research instruments used in this study were adapted from Abualaish & Love's peer-reviewed article (2013). The questionnaire (Appendix A) included five adapted scales, aiming to determine five influencing constructs, i.e. performance expectancy, effort expectancy, lecturer influence, peer influence, and user innovativeness. Besides, we designed another two constructs that may influence the behavioral intention of Superstar Learning System, i.e. interface simplicity, and multiple functions. The questionnaire is internally consistent ($\alpha = 0.977$) and externally valid (KMO=.943, $P < .01$) at the significance level .05.

A Scale to Measure Performance Expectancy

We used five-question items to determine performance expectancy such as "I find Superstar Learning System useful for my learning.", and "Using Superstar Learning System would enable me to achieve learning tasks more quickly." Each item is followed by a five-point Likert Scale, ranging from *strongly agree, agree, neutral, disagree,* to *strongly disagree.* Participants will obtain 5 points if they select *strongly agree*, 4 points if *agree*, 3 points if *neutral*, 2 if *disagree*, and 3 if *strongly disagree.*

A Scale to Measure Effort Expectancy

Five items were designed to measure effort expectancy, e.g. "I would find Superstar Learning System flexible and easy to use", and "Learning to operate Superstar Learning System does not require much effort". Each item is followed by a five-point Likert Scale, ranging from *strongly agree, agree, neutral, disagree,* to *strongly disagree.*

A Scale to Measure Lecturer Influence

We designed five items to determine lecturer influence, such as "I would use Superstar Learning System if it was recommended to me by my lecturers", and "I would like to use Superstar Learning System if my lecturers supported the use of it". Each item is followed by a five-point Likert Scale, ranging from *strongly agree, agree, neutral, disagree,* to *strongly disagree.*

A Scale to Measure Peer Influence

Peer influence was measured through five items, e.g. "Whether my classmates use Superstar Learning System influences my use of it", and "Whether my schoolmates use Superstar Learning System influences my use of it". Each item is followed by a five-point Likert Scale, ranging from *strongly agree, agree, neutral, disagree,* to *strongly disagree.*

A Scale to Measure User Innovativeness

We identified user innovativeness through five items, e.g. "I like to experiment with new information technologies", and "When I hear about a new information technology I look forward to examining it". Each item is followed by a five-point Likert Scale, ranging from *strongly agree, agree, neutral, disagree,* to *strongly disagree.*

A Scale to Measure Interface Simplicity

The influencing construct "Interface simplicity" is determined by five items, e.g. "The interface of Superstar Learning System is easy to follow", and "The interface of Superstar Learning System is clearly organized". Each item is followed by a five-point Likert Scale, ranging from *strongly agree, agree, neutral, disagree,* to *strongly disagree.*

A Scale to Measure Multiple Functions

"Multiple functions" was identified via five items, e.g. "Superstar Learning System provides me with rich resources", and "Superstar Learning System provides me with many learning activities". Each item is followed by a five-point Likert Scale, ranging from *strongly agree, agree, neutral, disagree,* to *strongly disagree.*

A Scale to Measure the Behavioral Intention

We also used five items to measure "the behavioral intention", e.g. "I plan to use Superstar Learning System in my studies", and "I predict that I will use Superstar Learning System frequently". Each item is followed by a five-point Likert Scale, ranging from *strongly agree, agree, neutral, disagree,* to *strongly disagree.*

Superstar Learning System-Assisted Learning Process

Superstar Learning System-assisted learning process is different from traditional learning without the aid of a mobile learning app. Superstar Learning System has the function of grouping students. It can set up learning groups according to the purpose of the study and the number of students. Generally, each group can contain 6 to 8 students. Teachers can distribute lecture materials to each group about one week before class. Each group member uses their spare time to consult, discuss and analyze the materials, and put forward plans within the prescribed time to prepare for classroom discussion. Classroom discussions are also conducted in divided groups on the mobile platform.

Superstar Learning System could enhance the interactivity and communication in the learning process. The contents of the solutions proposed by the groups may include learning experience and knowledge or explanation of related theoretical knowledge. Team members debate and answer questions raised by teachers and classmates. Teachers can give timely evaluation and feedback on the platform. In addition, the assessment of academic achievements includes the mutual evaluation of team members and the assessment of their classmates. This group-based learning model enables students to learn how to express their views clearly, how to deal with different views or opinions, and how to cooperate with each other and respect each other. It is conducive to strengthening students' team consciousness and enhancing their mutual cooperation and tolerance.

Superstar Learning System could facilitate learning and teaching process, as well as learning analytics. When examining the completion of students' learning tasks, teachers can adopt the way of "choosing persons" in the "activity" module. The random way of choosing persons to answer questions can urge students to prepare well before class. In the process of teaching, teachers can also arrange answers according to the key points of knowledge, and students can respond online. Of course, in the development of classroom teaching, teachers can also use the "sign-in" function in learning to allow students to complete the check-in within a specified time and to inspect the attendance of students, rather than roll call names via the traditional method. It can not only save the classroom

time but also facilitate the records of each check-in situation on the platform, which is convenient for analysis of the performance statistics. It can also conduct a questionnaire survey on teaching methods, assessment methods, and personnel training through the "voting/questionnaire" module, as well as statistical analysis of obtained data.

Teachers could determine or adjust the teaching progress based on the data collected through Superstar Learning System. Teachers can use modules such as "examination" and "homework" to assign corresponding questions to each course, or carry out chapter tests, give scores according to students' answers, and statistically analyze the results. Teachers can also reflect on teaching according to the results of the analysis, find out the problems existing in students, and further adjust the teaching plan, in order to implement and improve target teaching. In addition, the completion of each assignment and scores are recorded on the system platform for the final summary. It also saves the time of marking papers for teachers.

The online forum bridges a gap between teachers and students. The discussion area in the course builds a platform for communication between teachers and students. Teachers can answer students' questions in time. Students can also exchange and discuss with each other, learn from each other, and broaden their views. In addition, according to the number of tasks completed by students, the length of video viewing, the number of discussions and visits, and the learning situation of students can be tracked through the "Statistics-Student Management and Supervision" interface of Superstar Learning System.

Information could be easily and conveniently transmitted through Superstar Learning System. Applying the "notification" function of Superstar Learning System Communication Platform, we can also issue relevant learning task notifications, or course announcements such as adjusting classes, arranging experimental classes, and examinations to ensure that the information is conveyed in a timely manner.

In general, the application of Superstar Learning System in the teaching process possibly provides great convenience for enriching the classroom teaching, which is conducive to the comprehensive improvement of students' professional, methodological and collaborative abilities, and promotes the overall achievement of quality education (Liu & Zhang, 2019).

RESULTS

This section provides a concise and precise description of the experimental results, their interpretations, as well as the experimental conclusions that can be drawn.

Pearson Correlation Coefficients

Researchers examined the relationships between performance expectancy, effort expectancy, lecturer influence, peer influence, user innovativeness, interface simplicity, multiple functions, and the behavioral intention to use Superstar Learning System via Pearson correlation coefficients (Table 1).

As shown in Table 1, there are strong, positive relationships between performance expectancy and the behavioral intention ($r = 0.887$, $p < .001$), between effort expectancy and the behavioral intention ($r = 0.889$, $p < .001$), between lecturer influence and the behavioral intention ($r = 0.876$, $p < .001$), between peer influence and the behavioral intention ($r = 0.878$, $p < .001$), between user innovativeness and the behavioral intention ($r = 0.773$, $p < .001$), between interface simplicity and the behavioral intention ($r = 0.842$, $p < .001$), between multiple functions and the behavioral intention ($r = 0.823$, $p < .001$) at the significance level .01. Therefore, we rejected all the seven null research hypotheses.

The Extended TAM

In order to answer the research question "will performance expectancy, effort expectancy, lecturer influence, peer influence, user innovativeness, interface simplicity, and multiple functions exert a

Table 1. Correlations between variables

		PE	EE	LI	PI	UI	IS	MF	BI
PE	Pearson Correlation	1							
	Sig. (2-tailed)								
EE	Pearson Correlation	.891**	1						
	Sig. (2-tailed)	.000							
LI	Pearson Correlation	.876**	.913**	1					
	Sig. (2-tailed)	.000	.000						
PI	Pearson Correlation	.848**	.877**	.886**	1				
	Sig. (2-tailed)	.000	.000	.000					
UI	Pearson Correlation	.827**	.828**	.879**	.799**	1			
	Sig. (2-tailed)	.000	.000	.000	.000				
IS	Pearson Correlation	.824**	.845**	.846**	.835**	.835**	1		
	Sig. (2-tailed)	.000	.000	.000	.000	.000			
MF	Pearson Correlation	.835**	.822**	.850**	.749**	.807**	.777**	1	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		
BI	Pearson Correlation	.887**	.889**	.876**	.878**	.773**	.842**	.823**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	

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

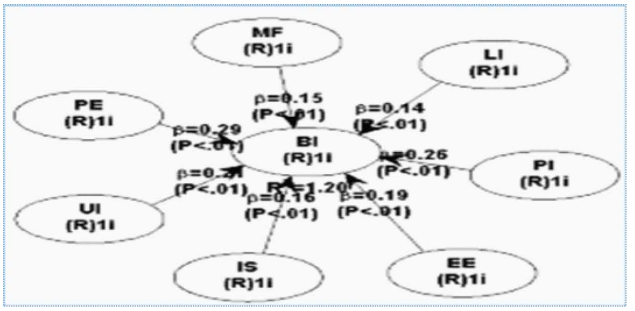
Notes: PE: performance expectancy; EE: effort expectancy; LI: lecturer influence; PI: peer influence; UI: user innovativeness; IS: interface simplicity; MF: multiple functions; BI: behavioral intention

positive influence on the behavioral intention to use Superstar Learning System?", a WarpPLS SEM was operated to validate the extended TAM (See Figure 3).

Model Fit and Quality Indices

The indexes indicated goodness of fit of the model (Figure 3), APC = 0.200, P<0.001; ARS = 1.202, P < 0.001; AARS = 1.208, P < 0.001; AVIF = 6.857; AFVIF = 7.124; GoF = 1.097; SPR = 1.000, NLBCDR = 1.000 (Kock, 2015). Consequently, we concluded that lecturer influence, peer influence, user innovativeness, interface simplicity, and multiple functions could significantly influence the behavioral intention to use Superstar Learning System.

Figure 3. The extended TAM (Notes: PE: performance expectancy; EE: effort expectancy; LI: lecturer influence; PI: peer influence; UI: user innovativeness; IS: interface simplicity; MF: multiple functions; BI: behavioral intention)



Correlations Revealed

It is also shown in Figure 3 that there are strong, positive relationships between the behavioral intention and lecturer influence ($\beta = .14$, $p < .01$), peer influence ($\beta = .26$, $p < .01$), user innovativeness ($\beta = .27$, $p < .01$), interface simplicity ($\beta = .16$, $p < .01$) and multiple functions ($\beta = .15$, $p < .01$) at the significance level .01. Therefore, all of the proposed seven null hypotheses were rejected.

DISCUSSION

This discussion part examines the rationales for strong, positive influences of performance expectancy, effort expectancy, lecturer influence, peer influence, user innovativeness, interface simplicity, and multiple functions on the behavioral intention to use Superstar Learning System.

Performance Expectancy and the Behavioral Intention

The performance expectancy greatly influenced the behavioral intention to use mobile apps, which was consistent with previous studies (e.g. Hoi, 2020; Venkatesh et al., 2003). Performance expectancy and enjoyment expectancy could exert a strong and positive influence on the behavioral intentions (Momani, 2021). The strong and positive effect of effort expectancy on the behavioral intentions indicated that in case users believed Superstar Learning System could pay their efforts, they would possibly try to use it, leading to the enhanced behavioral intention. Teachers would in turn praise students if they could complete learning tasks in a timely manner. Thus if students thought Superstar Learning System could help them with their task, they would most likely use it, which was evidenced by the strong and positive effect of enjoyment expectancy on behavioral intentions (Momani, 2021). Collaboration was important in learning to improve students' academic performances (Yoon & Leem, 2021). If Superstar Learning System was expected to enable students to improve their learning performances, they would possibly use Superstar Learning System, enhancing their behavioral intention.

Effort Expectancy and the Behavioral Intention

Findings revealed that effort expectancy could strongly and positively influence users' behavioral intention of using mobile apps (Puriwat & Tripopsakul, 2021). The perceived amount of effort spent on the use of mobile apps, e.g. Superstar Learning System, could influence the behavioral intention. In case students thought Superstar Learning System, flexible and easy to use, did not require much effort, they would intend to use it. On the contrary, if they thought that the use of Superstar Learning System would need them to work hard for learning goals, they would tend to suspend technology-assisted learning. Furthermore, if Superstar Learning System could help them interact with their peers via clear and understandable instructions, their intention of use would also be strengthened since the interaction might solve thorny problems and make the learning process less effortful.

Lecturer Influence and the Behavioral Intention

Superiors and peers could strongly and positively influence learners' behavioral intention and the latter could also exert a strong and positive influence on the former's professional expectancy (Ndlovu et al., 2020). Superiors greatly influenced students' decision of whether to use mobile apps. In case teachers suggested that students use Superstar Learning System, and use it themselves both in and out of class, students would most likely follow them since they had established a model for students. Teachers' further help and support for the use of Superstar Learning System would also definitely encourage students to use it, which would also enhance their behavioral intention. Lecturers, as superiors strongly and positively influencing students' learning behaviors, could be taken into serious consideration in the design and development of Superstar Learning System-assisted education.

Peer Influence and the Behavioral Intention

Peer influence could exert an indirect influence on the behavioral intention of learners and educators (Xu et al., 2021). Students tended to be consistent with the majority of people surrounding them. Peer influence could greatly influence the behavioral intention of changing smart tools (Oh & Park, 2020). In case that their classmates, schoolmates, friends, families, and other acquaintances used Superstar Learning System, they would also attempt to use it, because they would not like to be isolated and idiosyncratic. By contrast, if their peers expressed negative comments on the use of Superstar Learning System, they would also negatively evaluate its use in education. To obtain positive comments on its use in education, designers and developers could make every effort to improve Superstar Learning System-assisted learning by incorporating gamification, stratified knowledge, scaffolding questions, or interesting learning contents.

User Innovativeness and the Behavioral Intention

Users' personalities such as innovativeness and compatibility could strongly and positively influence their behavioral intention (Rattanaburi & Vongurai, 2021). Students' personalities could exert a significant influence on the use of Superstar Learning System. If they would like a new mobile app, they would examine and accept it, their behavioral intention would undoubtedly be augmented. If users came across difficult problems, they would try to be skillful in using Superstar Learning System. On the contrary, if they rejected the change of learning tools, they would not like to try the Superstar Learning System-assisted learning. Teachers with introverted or stubborn personalities would refuse to accept the digital technology-assisted teaching.

Interface Simplicity and the Behavioral Intention

Concise interfaces of digital learning tools could facilitate learning and teaching, as well as the behavioral intention (Prasetyo et al., 2021). The concise interface could help students find the target function quickly and easily, coupled with strong behavioral intention and acceptance of the tool (Prasetyo et al., 2021). Under this circumstance, students could use Superstar Learning System easily and follow the structures without any hard try. On the contrary, if the interface is complicated or even confusing, they would possibly abandon due to the difficulty in finding target functions. Therefore, it might be unwise to put too many items on the desk although users could easily retrieve them from the desk.

Multiple Functions and the Behavioral Intention

Multiple functions are also an important construct influencing the behavioral intention. In case multiple functions of learning tools could enhance joyfulness and playfulness, learners might be voluntary to use them, which might positively influence their behavioral intention (Cheng et al., 2018). Students will most likely not hesitate to use Superstar Learning System if it carries rich resources, contains many learning activities, includes various courses and learning approaches, and makes them follow the teacher easily and conveniently. Multiple functions can be developed and designed aiming to facilitate learning by increasing their learning effectiveness, efficiency, and learning interest rather than by making the learning process complicated.

CONCLUSION

This section includes major findings, limitations of this study, as well as future research recommendations.

Major Findings

This study revealed numerous influencing factors of behavioral intention and extended the extended technology acceptance model (TAM) by including the innovative influence factors. The findings

are generally consistent with previous works (e.g. Venkatesh et al., 2003; Ibrahim & Jaafar, 2011; Yang & Wang, 2019; Yu & Yu, 2019). The newly included factors could provide solid foundations for future research.

Limitations

Participants are limited to a Chinese context, which might have entailed a contextual bias. Superstar Learning System is an application widely used in China rather than across the world. The generalizability may weakened due to this limitation. However, as an advanced learning technology, Superstar Learning System may play an important role in online learning. The findings in this study may be beneficial to the world where online or blended learning is increasingly popular.

The topic is relevant as more and more reliance is placed on non-traditional means of engaging with students. It extends TAM, adds values to the body of literature and to practice, and offers implications that can be considered in relation to other learning systems. The way it is presented orients the reader to the idea that the Superstar Learning System is being evaluated but in reality, the findings are more thought-provoking than this. This is more of an issue of how the ideas are presented. The findings have values beyond a validation of the system, particularly since it is used primarily in one part of the world.

In some way, this study reads as a look at a model to see how the variables relate. However, in other ways, it feels like an evaluation of the Superstar Learning System. It is not as valuable to validate the learning system as it is to understand the relationships between these variables. This may have detracted from the article although the extension of TAM is of valuable insights. Superstar Learning System provides a context for exploring the variables.

Future Research Directions

Future research could extend the research context to a wider scope. Interdisciplinary research between computer sciences, education, linguistics, and other related disciplines is also needed to explore an extended TAM to use Superstar Learning System. Future research could pay much attention to other factors that might exert a great influence on technology-enhanced learning outcomes such as social media tools (Yu et al., 2022a), a sustainable educational model (Yu et al., 2022b), student roles, digital literacy, motivation (Yu, 2022), and gender differences (Yu & Deng, 2022).

Future research could also highlight the importance of lower completion rates and higher dropouts in online or blended learning. Developers could cater the functions of Superstar Learning System to various needs of different students so that they may be interested in online or blended learning, reducing dropouts and increasing completion rates. Rewards, badges, or other incentives could be integrated into online or blended learning with an aim to facilitate online or blended learning effectiveness. Playful features or entertaining elements could also be designed to increase completion rates and reduce dropout rates in the future.

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DATA AVAILABILITY STATEMENT

Data and material are available in the submission.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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