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Influencers of Senior High Sciences Students' Satisfaction and Behavioral Intention to Use Online Learning in Panzhihua, China

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Abstract

Purpose: The purpose of this article is to investigate the indicators that influence satisfaction and behavioral intention with online education in Panzhihua, China, and the investigation was conducted using a quantitative survey assessment strategy. The conceptual framework incorporated system quality, information quality, service quality, effort expectancy, social influence, satisfaction, and behavioral intention. **Research design, data, and methodology:** This study applied quantitative method to collect the data. The researcher distributed the questionnaire to the 461 sciences students. Item-Objective Congruence (IOC) and Cronbach's Alpha gauge the validity and reliability. IOC reveals that each scale item achieved a rating of 0.6 or greater. Cronbach alpha coefficient reliability affirms values equal to or surpassing 0.7. The sampling methods encompass judgmental, stratified random, and convenience sampling. Data analysis involved the utilization of Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). **Results:** All six hypotheses were determined to be established. System quality, information quality, service quality significantly influences on satisfaction. Furthermore, behavioral intention is significantly influenced by satisfaction, effort expectancy, and social influence. **Conclusions:** Therefore, if students are satisfied with their online learning experience, their behavioral sense for employment the online learning through the Huidao education system will be enhanced.

Keywords : Online Learning, Effort Expectancy, Social Influence, Satisfaction, Behavioral Intention

JEL Classification Code: E44, F31, F37, G15

1. Introduction

Online learning is a potential pedagogical methodology, and it is an intriguing subject for exploring how it affects students' proactively learning and educational practices (Sahin & Thompson, 2007; Selim, 2007). Numerous academics define online learning as utilizing instructional information or learning possibilities offered or supported via technological devices, including website learning, notebook studying, and distance learning classrooms (Ahmad & Tarmudi, 2012). Several organizations and institutions employ online educational resources to supplement lecture instruction or to create remote learning programs. The popularity of online education platforms has skyrocketed in subsequent decades, owing to student desire for more adaptable education alternatives and budgetary demands on academic organizations, which perceive technologies as a cost-cutting solution.

The scientific research on online learning is extensive and growing (Aparicio et al., 2014). Examining online education acceptance and utilization demonstrates that there is constant development all around the world (OECD, 2012). The projected increase in the number of distance education is 65% (Means et al., 2009). However, several academics recommend that regulations facilitating online education usage be pushed nationally (Kong et al., 2014). Nevertheless, there needs to be a more academic exploration of the quality of online educational systems quality. And there still exist

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several issues for online learning, such as low efficiency, poor accessibility, and inadequate adaptability, all of which make it challenging to satisfy the individual needs of diverse learners. Likewise, online education is frequently criticized for failing to support student-centered learning and mimicking conventional classroom instruction (Vrasidas, 2004). Therefore, the effectiveness of online learning is primarily determined by the quality of the corresponding e-learning system, so it is of obvious research significance to evaluate the learning system used by the target students.

Huidao Education System is an advanced internet instructional infrastructure based on the e-learning 3.0 methodology widely adopted in Sichuan upper secondary schools (Liu et al., 2018). Imaginative activation of learning resources, educated tracking of the instructive method (Tang et al., 2015), accurate data for educating processes of decision-making, cooperative multifaceted informative technique, and instantaneous time evaluation of educating conclusions are all characteristics of the Huidao education system, which thoroughly investigates the aspects of each student's individual learning experience. The Huidao education system is the principal technology explored in this empirical research.

Satisfaction constitutes one of those most utilized measures in assessing the performance of online educational environments, and it is an accurate indicator of online instruction technological performance (Nagy, 2018). The level of application of an innovative instructional framework, systems, and endeavors is determined by behavioral intention (Munadi et al., 2022). According to the preceding, a quantitative investigation has been planned to evaluate the technique for behavioral purposes with six crucial latent variables connected to e-learning via the Huidao Education system for sciences students at Panzhihua No.7 upper secondary school in China.

2. Literature Review

2.1 System Quality

System quality is an electronic networking aspect that determines an individual's interaction with information systems acquiring and communicating system principles (Chang, 2012). Cheng (2012) defines it as the extent to which an individual perceives the general quality of services offered by a data collection approach. The system quality indicates that the academic institution's preferred instructional system for Internet instruction should be outstanding to ensure ease of utilization, accessibility, and trustworthiness (Lin, 2007). Several scholars define system quality as the extent to which participants assess an environment's ease of administration, understanding, engagement, and satisfaction (Alzahrani et al., 2017). Dependability, adaptability, efficiency, and accessibility are system quality characteristics (Almarashdeh, 2016). According to the previous literature, the researcher suggested the following hypothesis:

H1: System quality has a significant influence on satisfaction.

2.2 Information Quality

Chang (2012) identifies information quality as essential for the credibility and organization of technical assertions. The percentage of respondents who consider that an accumulation of content remains up-to-date, reliable, and complete can be information quality (Rughoobur-Seetah & Zuberia, 2021). It is also recognized as an important component of perceived value and considered accessibility in the information system success model. Its evaluation considers the knowledge's precision, comprehensiveness, reliability, currencies, effectiveness, implementation, and productivity (Cheng, 2012). Normally, information quality has been employed as a criterion for research into information quality, which has focused on generally evaluated efficacy or methodology (DeLone & McLean, 2003). If the information quality is consistent and thorough, individuals will consider it easy to comprehend and will experience ease utilizing the system (Almarashdeh, 2016). According to the previous literature, the researcher suggested the following hypothesis:

H2: Information quality has a significant influence on satisfaction.

2.3 Service Quality

Service quality is a key component in organizational research since it demonstrates the association of participation aspirations with recognized service accomplishment (Alzahrani et al., 2017). Service quality is an online education system's ability to gather and communicate knowledge as viewed by participants (Chang, 2012). Service quality is primarily determined by how consistently organizations perform specific services. DeLone and McLean (2003) highlighted service quality as an important administrative attribute, and it related to characteristics such as up-to-date components and developing advancement, as well as involvement from information system administrative people. Furthermore, their research analysis demonstrated sufficient evidence for the benefit of service quality on the results above. Consequently, under the information system success model, a certain number of the specified educational level academic achievements focused on service quality (Haslina et al., 2014). According to the previous literature, the researcher suggested the following hypothesis:

H3: Service quality has a significant influence on satisfaction.

2.4 Satisfaction

Satisfaction is the extent to which an individual considers that a particular event evokes favorable sentiments (Joo & Choi, 2016). Satisfaction is defined as how individuals perceive and evaluate a commodity or professional. However, enjoyment is a particular point of view influenced by characteristics such as perceived value and a certain atmosphere (Chang, 2012). The indications, such as frequent evaluations and individual appraisals, are used to quantify satisfaction (DeLone & McLean, 2003; Munadi et al., 2022). Learning satisfaction indicates how well online education delivered across the academic organization satisfies learners' aspirations. Satisfaction might be measured using capacity, performance, flexibility, trustworthiness, and acceptability (Zaied, 2012). Satisfaction is a key predictor of e-learning technological efficacy at the psychological level (Nagy, 2018). According to the previous literature, the researcher suggested the following hypothesis:
H4: Satisfaction has a significant influence on behavioral intention.

2.5 Effort Expectancy

Effort expectancy is a vital component of anticipation conceptions that concerns the amount of exertion a person expects to devote to completing an undertaking (Joo et al., 2014). The convenience with which an individual may generate, execute, and use technologies enhances effort expectancy and the straightforwardness with which technological advances can be employed influences effort expectancy. The main motivating factor of undergraduates' impulsive willingness to embrace ubiquitous education, stated by e-learning professionals, could be defined as effort expectancy (Joo et al., 2014). Several antecedent research investigations recognized the most important factor to consider while using a certain technique or system as effort expectancy (Ssekakubo et al., 2011). The three elements that make up effort expectancy are ease of use, complexities, and convenience of usage (Chaka & Govender, 2017). According to research by Ssekakubo et al. (2011), effort expectancy significantly impacts interconnection that stimulates the adoption of the information technology innovation system. According to the previous literature, the researcher suggested the following hypothesis:
H5: Effort expectancy has a significant influence on behavioral intention.

2.6 Social Influence

According to Joo et al. (2014), social influence is the degree to which respondents believe exogenous factors, including their fellow students or professors, encourage them to adopt e-learning. From the research achievement from Marchewka and Kostiwa (2007), social influence is an occurrence from the environment that alters a participant's behavior, feelings, recognition, engagement, or other psychological action because of engaging with other students. The capacity to understand social influence is the definition of colonial influence, which results from friends, family, coworkers, and connections (Venkatesh et al. (2003). From another perspective, everyone could become a potential source of social influence, and students could have an enormous effect on the surrounding, which was convinced by academic professionals (Williams et al., 2015). Furthermore, the social influence on bystanders would decrease as a person increases their exercise schedule (Chaka & Govender, 2017). According to the previous literature, the researcher suggested the following hypothesis:
H6: Social influence has a significant influence on behavioral intention.

2.7 Behavioral Intention

The behavioral intention was an eagerness to engage conduct (Davis, 1989). The extent to which new academic resources, systems, and procedures are used depends on behavioral intention (Munadi et al., 2022). According to Attuquayefio and Addo (2014), behavioral intention is an arrangement of determination and commitment to a particular goal. The selection to use online education was influenced by the anticipated probability of its use in achieving an individual's behavioral purpose. Social influence is stated by societal, technological, and administrative variables that control it (Davis, 1993). Participants may have imagined they would want to undertake engagement involvement in the social influence (Zaied, 2012). Following Marchewka and Kostiwa (2007), behavioral intention is defined as the willingness of individuals to complete any assignment because they value collaborating and feel wholly connected to their company. The examination of behavioral intention in the discipline of informational systems and its applications suggested that it was regularly impacted by cognitive evaluation and the certification to which personal perception of effectiveness (Bardakcı, 2019).

3. Research Methods and Materials

3.1 Research Framework

The conceptual framework comprises the comprehensive, logical synchronization of all the key assumptions, concepts, decisions, techniques, and processes that will be implemented across the investigation. The ISSM and UTAUT preconceptions and three theoretical frameworks from preceding examinations were combined to create the conceptual framework for the current study. Chang (2012) first established an interconnection between satisfaction, information, system, and service quality. Attuquayefio and Addo (2014) also found an interaction between behavioral intention, social influence, and effort expectancy. Following that, Munadi et al. (2022) illustrated how satisfaction and behavioral sense are interrelated. This quantitative research sought to identify the key factors influencing the results of sciences students' satisfaction and behavioral intention toward online education through the Huidao education system in a target upper secondary school in the Panzhihua region. It is performed by implementing the advantages of seven latent variables from the conceptual framework, including five independent variables (system quality, information quality, service quality, effort expectancy, and social influence); one mediator variable (satisfaction); and one dependent variable (behavioral intention).

The conceptual framework of this investigation is presented in Figure 1.

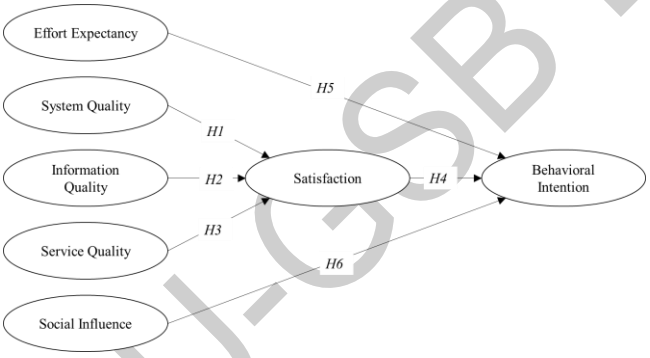

Figure 1: Conceptual Framework

H1: System quality has a significant influence on satisfaction.
H2: Information quality has a significant influence on satisfaction.
H3: Service quality has a significant influence on satisfaction.
H4: Satisfaction has a significant influence on behavioral intention.
H5: Effort expectancy has a significant influence on behavioral intention.
H6: Social influence has a significant influence on behavioral intention.

3.2 Research Methodology

With the research of all sciences students in the Panzhihua No.7 upper secondary school, this investigation aimed to identify the determining elements that affect sciences students' satisfaction and behavioral intention regarding online learning via the Huidao education system in the Panzhihua region of China. The current research used quantitative surveys, a particularly efficient method to comprehend participants' real-life experiences, sentiments, and assessments.

The researcher employed quota sampling for this educational investigation and provided the quantitative in-person questionnaire to sciences students at Panzhihua No.7 senior secondary school who engaged in online education according to the Huidao education system. And the estimation of the information was amalgamated and examined to establish the key elements that affected respondents' behavioral intention for online education. Additionally, 28 observed variables from previous literature were employed to assess the constructs, including five variables for system quality, six variables for information quality, three variables for service quality, four variables for effort expectancy, four variables for social influence, three variables for satisfaction, and three variables for behavioral intention. The research employed a five-level Likert scale to evaluate each scale item.

The responsibility of performing the item-objective congruence (IOC) for the content validity for confirming the accurate marking by the research instrument designers for the current study was given to three professionals with a Ph.D. in education subject and adequate experience in online education. After completing the pilot examinations' content validity assessment, an aggregate of thirty learners was registered. Cronbach's Alpha grading assessed the scale items' internal consistency reliability.

In order to establish the reliability of the questionnaire, a preliminary test was conducted with 30 participants, along with an evaluation using the Index of Item-Objective Congruence (IOC). Three experts assessed the IOC, revealing that each scale item achieved a rating of 0.6 or greater, indicating a satisfactory level of congruence. Furthermore, the pilot test also applied the Cronbach alpha coefficient reliability analysis, affirming robust internal consistency across all items, with values equal to or surpassing 0.7 (Sarmento & Costa, 2016).

Following the approach of reliability and validity assessments for the research instrument was accomplished,

the questionnaires were provided to five-hundred sciences students from Panzhihua No. 7 upper secondary school. The investigator utilized the techniques of statistical analysis to examine the data. Confirmatory factor analysis (CFA) was also performed to examine construction validity. In addition, the structural equation model (SEM) was then utilized to evaluate the assumptions and the direct, indirect, and overall impacts of the interconnection among the associated variables.

3.3 Population and Sample Size

The research's target population was the science students of Panzhihua No. 7 upper secondary school in China. The statistical calculator recommended 425 samples as the minimum sample level; nevertheless, the researcher decided to sample 75 additional sciences students to ensure that any potentially erroneous data would be generated. In the quantitative investigation carried out at Panzhihua No. 7 Senior High School, 500 samples were selected as the final sample from 3127 participants after screening, filtration, and non-probability selection.

3.4 Sampling Technique

The sampling methods encompass judgmental, quota, and convenience sampling. For judgmental sampling, 500 sciences students from Panzhihua No. 7 upper secondary school who already took advantage of online education through the Huidao education system for one semester were selected by the investigator utilizing quota sampling. The information regarding the units of selection and their associated proportional sub-sample sizes were presented in Table 1. The data were obtained from convenience sampling by using online questionnaire as a tool. After, the data screening, 461 responses are valid.

Table 1: Sample Units and Sample Size

Target Group	Grade	Population	Proportional Sample Size
Sciences Student	**2nd Year of the Senior**	1468	235
	3rd Year of the Senior	1659	265
Total		**3127**	**500**

Source: Constructed by author

4. Results and Discussion

4.1 Demographic Information

After eliminating the invalid information from the data gathering, 461 valid data were obtained. The detailed information on the overall demographics of the 461 participants was characterized in Table 2. Male respondents comprised 54.45% of the total, while female respondents comprised 45.55%. In addition, 46.42% of the respondents were second-year students, and 53.58% were third-year students, determined by their academic years.

Table 2: Demographic Profile

Demographic and General Data (N=461)		Frequency	Percentage
Gender	Male	251	54.45%
	Female	210	45.55%
Grade	2nd Years	214	46.42%
	3rd Years	247	53.58%

Source: Constructed by author

4.2 Confirmatory Factor Analysis (CFA)

The elements and weight amounts for the scale items were compared to expectations made by hypotheses or presumptions employing confirmatory factor analysis (CFA). The factor loading findings and permissible levels for each observed variable indicated how well the research matrix appropriated the data (Salkind, 2010). Table 3 demonstrated that Cronbach alpha coefficient reliability analysis affirms values equal to or surpassing 0.7 (Sarmento & Costa, 2016), the average extracted variance (AVE) coefficients were all greater than 0.50 (Hair et al., 2010), the factor loading scores were all greater than 0.50 (Hair et al., 2010), and the composite reliability (CR) was higher than 0.70 (Hair et al., 1998).

Table 3: Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

Variables	Source of Questionnaire (Measurement Indicator)	No. of Item	Cronbach's Alpha	Factors Loading	CR	AVE
Information Quality (INQ)	Chang (2012)	6	0.925	0.734-0.912	0.917	0.649
System Quality (SYQ)	Cheng (2012)	5	0.911	0.701-0.890	0.898	0.639
Service Quality (SEQ)	DeLone and McLean (2003)	3	0.797	0.751-0.830	0.803	0.579
Satisfaction (SAT)	Joo and Choi (2016)	3	0.846	0.752-0.863	0.848	0.651
Behavioral Intention (BEI)	Davis (1989)	3	0.832	0.682-0.800	0.783	0.547
Effort Expectancy (EFE)	Ssekakubo et al. (2011)	4	0.811	0.755-0.839	0.873	0.633
Social Influence (SOI)	Joo et al. (2014)	4	0.783	0.563-0.350	0.852	0.601

Additionally, as shown in Table 4, the necessary criteria for the absolute fit indicators, such as CMIN/DF, GFI, AGFI, and RMSEA, and incremental appropriate evaluations, such as CFI, NFI, and TLI, were all satisfied. Therefore, every goodness of fit indicator employed in the CFA assessment was adequate.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values Before Adjustment	Statistical Values After Adjustment
CMIN/ DF	<3.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	2.397	2.033
GFI	>0.90 (Sica & Ghisi, 2007)	0.889	0.907
AGFI	>0.80 (Sica & Ghisi, 2007)	0.863	0.884
RMSEA	<0.05 (Pedroso et al., 2016)	0.055	0.047
CFI	>0.90 (Bentler, 1990)	0.937	0.954
NFI	>0.90 (Wu & Wang, 2006)	0.898	0.914
TLI	>0.90 (Sharma et al., 2005)	0.928	0.947
Model Summary		**Not in harmony with empirical data**	**In harmony with empirical data**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, RMSEA = root mean square error of approximation, CFI = comparative fit index, NFI = normalized fit index, and TLI = Tucker Lewis index

The outcomes of the investigation into and representations of discriminant validity were also reported in Table 5. None of the correlations that intersected any two latent variables were over 0.80, and the diagonally recognized quantity is the square root of the AVE (Fornell & Larcker, 1981). The discriminant validity of this investigation has been established as a consequence.

Table 5: Discriminant Validity

	EFE	SYQ	INQ	SEQ	SOI	SAT	BEI
EFE	**0.800**						
SYQ	0.387	**0.800**					
INQ	0.181	0.080	**0.806**				
SEQ	0.188	0.202	0.152	**0.761**			
SOI	0.236	0.384	0.142	0.144	**0.775**		
SAT	0.320	0.424	0.220	0.119	0.181	**0.807**	
BEI	0.125	0.042	0.102	0.008	0.008	0.045	**0.740**

Note: The diagonally listed value is the AVE square roots of the variables
Source: Created by the author.

4.3 Structural Equation Model (SEM)

The researcher employed the Structural Equation Model (SEM) to verify the outcomes after completing the CFA assessment. Salkind (2010) states SEM is typically regarded as an explanatory simulations approach. According to Jöreskog and Sörbom (1993), SEM examines the causal association between the qualities in a matrix of characteristics and straightens out for assessment bias or deceit in the predictability factor. The cumulative values of CMIN/DF, GFI, AGFI, CFI, NFI, TLI, and RMSEA were all over acceptable boundaries after being corrected by AMOS. The SEM's goodness of fit has been established based on information in Table 6.

Table 6: Goodness of Fit for Structural Model

Index	Acceptable	Statistical Values Before Adjustment	Statistical Values After Adjustment
CMIN/DF	<3.00 (Al-Mamary & Shamsuddin, 2015; Awang, 2012)	2.530	1.937
GFI	>0.90 (Sica & Ghisi, 2007)	0.877	0.907
AGFI	>0.80 (Sica & Ghisi, 2007)	0.854	0.889
RMSEA	<0.05 (Pedroso et al., 2016)	0.058	0.045
CFI	>0.90 (Bentler, 1990)	0.928	0.957
NFI	>0.90 (Wu & Wang, 2006)	0.876	0.914
TLI	>0.90 (Sharma et al., 2005)	0.921	0.952
Model Summary		**Not in harmony with empirical data**	**In harmony with empirical data**

Remark: CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = goodness-of-fit index, AGFI = adjusted goodness-of-fit index, RMSEA = root mean square error of approximation, CFI = comparative fit index, NFI = normalized fit index, and TLI = Tucker Lewis index

4.4 Research Hypothesis Testing Result

Table 7 presented the hypotheses examining accomplishments, indicating that satisfaction exerted a direct and significant effect upon behavioral intention, which generated the strongest effective strength of this quantitative research with the standardized path coefficient at 0.477 and the t-value at 8.049***. The second greatest significant impact, from system quality to satisfaction, regards the β at 0.407 while the t-value at 8.035*** for this quantitative exploration. The information quality significantly affected happiness, which ranked third place, was equipped with the β at 0.380 and the t-value at 7.690***.

Likewise, for the fourth position, both the association from service quality to satisfaction and from effort expectancy with an identical Effect strength; for service quality to happiness, the β was 0.140, the t-value was 2.902**, and for effort expectancy to behavioral intention, the β was 0.140 the t-value was 2.730**. As the weakest impacting factor, social influence exhibited a significant effect on behavioral intention, with a value of β at 0.122 and a t-value of 2.453*.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-Value	Result
H1: SYQ →SAT	0.407	8.035***	Supported
H2: INQ→SAT	0.380	7.690***	Supported
H3: SEQ→SAT	0.140	2.902**	Supported
H4: SAT→BEI	0.477	8.049***	Supported
H5: EFE→BEI	0.140	2.730**	Supported
H6: SOI→BEI	0.122	2.453*	Supported

Note: *** p<0.001, ** p<0.01, * p<0.05
Source: Created by the author

Additionally, Table 7 demonstrated that the structural method acknowledges that the standardized path coefficient of **H1** was 0.407, indicating that system quality is a significant satisfaction factor. Numerous researchers discovered that adopting the information system performance theatrical academic exploration, exogenous variable system quality could improve endogenous variable satisfaction (DeLone & McLean, 2003; Lwoga & Komba, 2015; Rai et al., 2002).

H2 assessment discovered that information quality had been confirmed to have a significant relationship with satisfaction, with a β value of 0.380. According to antecedently academic achievements, information quality has a considerable influence on both the deployment of information innovations and user satisfaction (DeLone & McLean, 2003; Eom et al., 2012; Napitupulu & Patria, 2013).

For the **H3**, which revealed that service quality provided a considerable impact on satisfaction, with the β score of 0.140. Following the previous research, the performance of online educational activities has a consequence on the joy of online learners, while service quality strengthens the components which contribute to student satisfaction (Aparicio et al., 2017; Grönroos, 1984; Ofori et al., 2018).

With the standardized coefficient of 0.477, **H4** indicated that satisfaction significantly impacted behavioral intention. Multiple empirical academic explorations have discovered this contentment is an essential indicator of individuals' behavioral purposes, especially when it conducts online learning (Babin & Babin, 2001; Clemes et al., 2008; Machleit & Mantel, 2001).

According to **H5**, the intervention significantly affected effort expectancy to behavioral intention, with the effectiveness threshold of β, which was valued at 0.140. Recent research works have found that effort expectancy predicts students' behavioral intention to take advantage of innovative technological systems (Attuquayefio & Addo, 2014; Jairak et al., 2009; Venkatesh et al., 2003).

Ultimately, **H6** confirmed a statistically significant association between social influence and behavioral intention, with a standardized coefficient value of β at 0.122. Many research investigations have demonstrated that social impact promotes individual behavior intention either positively or negatively, with social influence having an advantageous consequence on behavioral intention (Chaka & Govender, 2017; Hao et al., 2017; Jairak et al., 2009).

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

This investigation intended to demonstrate how sciences students' satisfaction and behavioral intentions were significantly affected at Panzhihua No. 7 upper secondary school in China. The entire hypotheses were established according to the conceptual framework that verified every association between exogenous and endogenous variables. The scale items were provided to 500 target students, and 461 valid information were collected. CFA assessments were accomplished to perform the quantitative calculations and determine the construct validity of the association from the data and to the research framework. Furthermore, the SEM was employed to assess the significant factors that affect variables associated with satisfaction and behavioral intention, and the overall hypotheses were supported. The current research's examination of hypotheses demonstrated that three constructs generated the direct influence on behavioral intention, alongside satisfaction, developed the greatest influence strength, followed by effect expectancy and social impact. Furthermore, among the three latent variables which directly influenced satisfaction, system quality was the most influential, followed by information quality and service quality in that order, correspondingly.

5.2 Recommendation

According to the statistical analysis of this quantitative research, based on the evaluation findings of H1: for the sciences, students have a stronger ability to utilize logical thinking and analysis; they are more familiar with and focus on the operation and stability of the educational software system. Consequently, in the subsequential instructional quality of science students in senior high school, corresponding teaching units should pay more attention to the system design problems, participant operational issues, and data synchronization stability in the daily use process of

the target students. Through the continuous improvement of the quality of the online learning system, it provides a better learning experience for high school sciences students.

Depending on the test result of H2, in terms of information quality, science students have paid more attention to the effect of instruction information. Therefore, the association instruction units should be strengthened in providing high-quality professional curriculum information, including the corresponding electronic textbooks, assignment explanation and analysis, and theoretical data, which are more detailed and comprehensive science courses such as physics, chemistry, and biology. Through the powerful functions of the learning management system, online learning materials could be massive beyond the volume of traditional classroom lessons, which could also be provided.

Through the evaluation data of H3: the target sciences student convince that service quality is a significant determinant. Because the general feedback of target sciences students is familiar and adapted to the logical analysis of the innovation technology operations. It can also assist in human-machine interface, operating guidelines, and auxiliary demonstrations based on the Huidao education system. Secondly, when the design of the teaching platform generates the function update, the students should be updated promptly. In this regard, it could be considered to set up corresponding full-time personnel in the teaching unit to reply to the questions or provide the corresponding teaching platform video tutorial to enhance further the support of technical system services for online instruction.

Based on the verification of the H4: the target science student suggested that satisfaction with the Huidao education system is generally influenced by system quality, information quality, and service quality corporately. Therefore, it will greatly improve students' satisfaction with the target educational system and could also synchronously promote the behavioral intention for online education for the target students.

According to H5, effort expectation is a vital influencer affecting science students' learning quality. The teaching unit should fully emphasize the students' learning planning and conduct adequate learning objective setting and learning time planning. In addition, with the facilitation of the corresponding functions for the learning platform, the learning arrangement could be effectively divided and pushed through to the target student. Consequently, students could have positive learning psychology for the corresponding learning tasks and strive to anticipate to enhance their behavioral intention for subsequent online learning significantly.

Regarding H6, social influence is an additional essential determinant for online learning for the target science students via the Huidao education system. A certain number of the students' positive environmental impact could effectively improve their recognition of the importance of to target learning system. Therefore, the teaching unit should actively promote the Huidao learning system and the corresponding online learning methodology and generate a positive and active atmosphere of the platform employment, especially encouraging sciences students to further promote their online learning based on their ability to the goodness of the information system. The sense of accomplishment, thus further generating a positive and active mentality.

5.3 Limitation and Further Study

Unlike numerous high school or university students who did not get involved in this quantitative investigation, demographic information and testing were restricted to one senior high school in China's Panzhiuha region. Additionally, other technological adoption assumptions were not concentered, and the conceptual framework only acknowledged seven variables corresponding to the ISSM and UTAUT representations.The afterward investigation could be categorized into two stages: broadening the scope of the study to include more Chinese regions. As an active role in the research framework development, the additional component derived from the other latent variables, such as perceived ease of use, perceived usefulness, subjective norms, facilitate conditions and performance expectancy, could be investigated.

References

Ahmad, M. D., & Tarmudi, S. M. (2012). Generational differences in satisfaction with e-learning among higher learning institution staff. *Procedia Social and Behavioral Sciences, 67,* 304-311. https://doi.org/10.1016/j.sbspro.2012.11.333

Al-Mamary, Y. H., & Shamsuddin, A. (2015). Testing of The Technology Acceptance Model in Context of Yemen. *Mediterranean Journal of Social Sciences, 6*(4), 268-273. https://doi.org/10.5901/mjss.2015.v6n4s1p268

Almarashdeh, I. (2016). Sharing instructors experience of learning management system: A technology perspective of user satisfaction in distance learning course. *Computers in Human Behavior, 63,* 249-255. https://doi.org/10.1016/j.chb.2016.05.013

Alzahrani, A. I., Mahmud, I., Ramayah, T., & Alalwan, N. (2017). Modelling digital library success using the DeLone and McLean information system success model. *Journal of Librarianship and Information Science, 51*(2), 291-306. https://doi.org/10.1177/0961000617726123

Aparicio, M., Bacao, F., & Oliveira, T. (2014). *Trends in the e-learning ecosystem: A Bibliometric study* [Paper Presentation]. Proceedings of 20th American Conference on Information System. http://aisel.aisnet.org/amcis2014/Posters/ISEducation/7

Aparicio, M., Bacao, F., & Oliveira, T. (2017). Grit in the Path to E-learning Success. *Computers in Human Behavior, 66*, 388-399. https://doi.org/10.1016/j.chb.2016.10.009

Attuquayefio, S. N., & Addo, H. (2014). Using UTAUT Model to Analysis Students' ICT Adoption. *International Journal of Education and Development Using Information and Communication Technology, 10*(3), 75-86.

Awang, Z. (2012). *Structural equation modelling using AMOS graphic* (5th ed.). Penerbit Universiti Teknologi MARA.

Babin, B., & Babin, L. (2001). Seeking something different? A model of schema typicality, consumer affect, purchase intentions and perceived shopping value. *Journal of Business Research, 54*(2), 89-96. https://doi.org/10.1016/s0148-2963(99)00095-8

Bardakcı, S. (2019). Exploring High School Students' Educational Use of YouTube. *International Review of Research in Open and Distributed Learning, 20*(2), 260-278. https://doi.org/10.19173/irrodl.v20i2.4074

Bentler, P. M. (1990). Comparative Fit Indexes in Structural Models. *Psychological Bulletin, 107*, 238-246. http://dx.doi.org/10.1037/0033-2909.107.2.238

Chaka, J. G., & Govender, I. (2017). Students' Perceptions and Readiness Towards Mobile Learning in Colleges of Education: A Nigerian Perspective. *South African Journal of Education, 37*(1), 1-12. https://doi.org/10.15700/saje.v37n1a1282

Chang, C. C. (2012). Exploring the determinants of E-learning systems continuance intention in academic libraries. *Library Management, 34*(1/2), 40-55. https://doi.org/10.1108/01435121311298261

Cheng, Y. M. (2012). Effects of quality antecedents on e-learning acceptance. *Internet Research, 22*(3), 361-390. https://doi.org/10.1108/10662241211235699

Clemes, M. D., Gan, C., & Kao, T. H. (2008). University Student Satisfaction: An Empirical Analysis. *Journal of Marketing for Higher Education, 17*(2), 292-325. https://doi.org/10.1080/08841240801912831

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, And User Acceptance of Information Technology. *MIS Quarterly, 13*(3), 319-340. https://doi.org/10.2307/249008

Davis, F. D. (1993). User Acceptance of Information Technology: System Characteristics, User Perceptions and Behavioral Impacts. *International Journal of Man-Machine Studies, 38*(3), 475-487. https://doi.org/10.1006/imms.1993.1022

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-year Update. *Journal of Management Information Systems/ Spring, 19*(4), 9-30.

Eom, S., Ashill, N. J., Arbaugh, J. B., & Stapleton, J. L. (2012). The Role of Information Technology in E-learning Systems Success. *Human Systems Management*, 31(3), 147-163. https://doi.org/10.3233/hsm-2012-0767

Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research, 24*(4), 337-346. https://doi.org/10.2307/3151312

Grönroos, C. (1984). A service quality model and its marketing implications. *European Journal of Marketing, 18*(4), 36-44. https://doi.org/10.1108/eum0000000004784

Hair, J. F., Anderson, R., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Prentice-Hall.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Prentice-Hall.

Hao, S., Dennen, P., & Mei, L. (2017). Influential Factors for Mobile Learning Acceptance Among Chinese Users. *Educational Technology Research and Development, 65*(1), 101-123. https://doi.org/10.1007/s11423-016-9465-2

Haslina, H., Hashim, I. C., Abdullah, S., Isa, F. M., & Talib, N. (2014, October 7-8). *Geographical Information Systems (GIS) Approach for Mapping the Aboriginal Children Malnutrition Growth: A Case in Kemar, Perak* [Paper Presentation]. Proceedings of Postgraduate Conference on Global Green Issues (Go Green), UiTM (Perak), Malaysia.

Jairak, K., Praneetpolgrang, P., & Mekhabunchakij, K. (2009). An Acceptance of Mobile Learning for Higher Education Students in Thailand. *International Journal of The Computer, the Internet and Management, 17*(3), 361-368.

Joo, S., & Choi, N. (2016). Understanding Users' Continuance Intention to Use Online Library Resources Based on an Extended Expectation-Confirmation Model. *The Electronic Library, 34*(4), 554-571. https://doi.org/10.1108/el-02-2015-0033

Joo, Y. J., Joung, S., Shin, E. K., Lim, E., & Choi, M. (2014). Factors Influencing Actual Use of Mobile Learning Connected with E-Learning. *3rd International Conference on Advanced Information Technologies & Applications (ICAITA-2014)*, 169-176. https://doi.org/10.5121/csit.2014.41116

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural Equation Modeling with the SIMPLIS Command Language* (1st ed.). Lawrence Erlbaum Associates.

Kong, S. C., Chan, T. W., Griffin, P., Hoppe, U., Huang, R., Kinshuk Looi, C. K., Norris, C., Nussbaum, M., Sharples, M., So, W. M. W., Soloway, E., & Yu, S. (2014). E-learning in school education in the coming 10 years for developing 21st century skills: Critical research issues and policy implications. *Journal of Educational Technology & Society, 17*(1), 70-78.

Lin, H.-F. (2007). The role of online and offline features in sustaining virtual communities: an empirical study. *Internet Research, 17*(2), 119-138. https://doi.org/10.1108/10662240710736997

Liu, X., Chen, S., & Ding, L. (2018). Research on Intelligent Classroom Teaching based on Huidao Platform – The Empirical Research in a Middle School in Luzhou of Sichuan. *Chinese Journal of ICT in Education, 1*(2) 51-54.

Lwoga, E. T., & Komba, M. (2015). Antecedents of continued usage intentions of web-based learning management system in Tanzania. *Education + Training, 57*(7), 738-756. https://doi.org/10.1108/et-02-2014-0014

Machleit, K., & Mantel, S. (2001). Emotional response and shopping satisfaction: moderating effects of shopper attributions. *Journal of Business Research, 54*(2), 97-106. https://doi.org/10.1016/s0148-2963(99)00093-4

Marchewka, J. T., & Kostiwa, K. (2007). An Application of the UTAUT Model for Understanding Student Perceptions Using Course Management Software. *Communications of the IIMA, 7*(2), 93-104. https://doi.org/10.58729/1941-6687.1038

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). *Evaluation of evidence-based practices in online learning: A Meta-analysis and review of online learning studies*. US Department of Education. www.ed.gov/about/offices/list/opepd/ppss/reports.html

Munadi, M., Annur, F., & Saputra, Y. (2022). Student Satisfaction in Online Learning of Islamic Higher Education in Indonesia during the Second Wave of COVID-19 Pandemic. *Journal of Education and e-Learning Research, 9*(2), 87-94. https://doi.org/10.20448/jeelr.v9i2.3952

Nagy, J. (2018). Evaluation of Online Video Usage and Learning Satisfaction: An Extension of the Technology Acceptance Mode. *International Review of Research in Open and Distributed Learning, 19*(1), 160-185. https://doi.org/10.19173/irrodl.v19i1.2886

Napitupulu, T. A., & Patria, S. H. J. (2013). Factors that determine electronic medical records users' satisfaction: a case of Indonesia. *Journal of Theoretical and Applied Information Technology, 58*(3), 499-505.

OECD. (2012). *Education at a glance 2012: Highlights. Paris, France*: OECD Publishing.

Ofori, K. S., Boakye, K., & Narteh, B. (2018). Factors influencing consumer loyalty towards 3G mobile data service providers: evidence from Ghana. *Total Quality Management & Business Excellence, 29*(5-6), 580-598. https://doi.org/10.1080/14783363.2016.1219654

Pedroso, R., Zanetello, L., Guimaraes, L., Pettenon, M., Goncalves, V., Scherer, J., Kessler, F., & Pechansky, F. (2016). Confirmatory factor analysis (CFA) of the crack use relapse scale (CURS). *Archives of Clinical Psychiatry, 43*(3), 37-40. https://doi.org/10.1590/0101-60830000000081

Rai, A., Lang, S. S., & Welker, R. B. (2002). Assessing the Validity of IS Success Models: An Empirical Test and Theoretical Analysis. *Information Systems Research, 13*(1), 50-69. https://doi.org/10.1287/isre.13.1.50.96

Rughoobur-Seetah, S., & Zuberia, Z. A. (2021). An evaluation of the impact of confinement on the quality of e-learning in higher education institutions. *Quality Assurance in Education, 29*(4), 422-444. https://doi.org/10.1108/qae-03-2021-0043

Sahin, I., & Thompson, A. (2007). Analysis of predictive factors that influence faculty members technology adoption level. *Journal of Technology and Teacher Education, 15*(2), 167-190.

Salkind, N. J. (2010). *Encyclopedia of Research Design* (1st ed.). SAGE Publication, Inc.

Sarmento, R., & Costa, V. (2016). *Comparative Approaches to Using R and Python for Statistical Data Analysis* (1st ed.). IGI Global Press.

Selim, H. M. (2007). Critical success factors for E-Learning acceptance: Confirmatory factor models. *Computers & Education, 49*(2), 396-413. https://doi.org/10.1016/j.compedu.2005.09.004

Sharma, G. P., Verma, R. C., & Pathare, P. (2005). Mathematical modelling of infrared radiation thin layer drying of onion slices. *Journal of Food Engineering, 71*(3), 282-286. https://doi.org/10.1016/j.jfoodeng.2005.02.010

Sica, C., & Ghisi, M. (2007). The Italian versions of the Beck Anxiety Inventory and the Beck Depression Inventory-II: Psychometric properties and discriminant power. In M. A. Lange (Ed.), *Leading-edge psychological tests and testing research* (pp. 27-50). Nova Science Publishers.

Ssekakubo, G., Suleman, H., & Marsden, G. (2011, October). *Issues of Adoption: Have E-Learning Management Systems Fulfilled their Potential in Developing Countries?* [Paper Presentation]. Proceedings of the South African Institute of Computer Scientists and Information Technologists Conference on Knowledge, Innovation and Leadership in a Diverse, Multidisciplinary Environment, Cape Town.

Tang, Y., Fan, Y., Pang, J., Zhong, S., & Wang, W. (2015). Research on Teaching Strategies of Primary School Mathematics Intelligent Classroom based on Network Learning Space. *China Educational Technology, 1*(2), 49-54.

Venkatesh, V., Morris, M. G., Hall, M., Davis, G. B., Davis, F. D., & Walton, S. M. (2003). User Acceptance of Information Technology: Toward A Unified View 1. *MIS Quarterly, 27*(3), 425-478. https://doi.org/10.2307/30036540

Vrasidas, C. (2004). Issues of Pedagogy and Design in e-learning Systems. *2004 ACM Symposium on Applied Computing, 1*(4), 911-915. https://doi.org/10.1145/967900.968086

Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The Unified Theory of Acceptance and Use of Technology (UTAUT): A Literature Review. *Journal of Enterprise Information Management, 28*(3), 443-488. https://doi.org/10.1108/jeim-09-2014-0088

Wu, J. H., & Wang, Y. M. (2006). Measuring KMS Success: A Respecification of the DeLone and McLean's Model. *Journal of Information & Management, 43*, 728-739. http://dx.doi.org/10.1016/j.im.2006.05.002

Zaied, A. N. H. (2012). An Integrated Success Model for Evaluating Information System in Public Sectors. *Journal of Emerging Trends in Computing and Information Sciences, 6*(3), 814-825.