



Continuance Intention to Use Blended Education for Production Design Major Undergraduates at Public University in Chengdu of China

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Abstract

Background and Aim: The objective of the investigation is to assess the key determinants that significantly influence production design major undergraduate students' continuance intention with blended education at three public universities in the Chengdu region of China. The following latent variables—Service Quality (SEQ), System Quality (SYQ), Information Quality (INQ), Engagement (ENG), Course Structure (COS), Satisfaction (SAT), and Continuance Intention (COI)—were all evaluated to determine if they impacted the target undergraduate students who were participating in blended education activities.

Materials and Methods: The researcher utilized the quantitative investigation strategy with 500 samples and administered a quantitative questionnaire to undergraduates specializing in production design at three target universities. In this survey, the quota sampling method has been employed. The components under investigation were examined using Confirmatory Factor Analysis (CFA) and the Structural Equation Model (SEM).

Results: The statistical analysis findings validated the entire hypotheses, with satisfaction demonstrating the greatest direct significant effect on continuance intention.

Conclusion: According to the observations of this study, for the production design students to acknowledge and appreciate the effectiveness of blended education, university administrators and instructional employees should expect to be paid sufficient attention to the determinants that have generated a significant impact on the continuance intention of the blended instruction and suggest the associated instructional approach in the upcoming times.

Keywords: Blended Education; Production Design; Satisfaction; Continuance Intention

Introduction

Blended education, or hybrid instruction, which is a category of the instructional mechanism that combines online teaching activities and resources with traditional place-based instructional methodologies (Harasim, 2000; Margie, 2003). Blended education promotes positive autonomy while decreasing classroom time, which makes it more convenient and customizable than utilizing only traditional or purely online courses (Rivera et al., 2002).

Presently, the advancement of Chinese blended education is expanding positively. For the online instruction component of blended education, the population of Chinese internet students is anticipated to approach 989 million by the end of 2020. (CNNIC, 2021). There are 342 million internet students in China overall, however this is more than 80 million in the first quarter of 2020, while the repercussions of coronavirus infection began to expand (CNNIC, 2021). The capability of Chinese online education business ecosystem has expanded tremendously with the significant increase in online teaching participants. In China, the marketplace for online instruction has matched 4,230 billion yuan in 2020, up 21.97% from 3,468 billion yuan in 2019. (CNNIC, 2021).

According to statistical evidence, the percentage in universities was the highest in the Chinese online education industry, accounting for around 49.6% in 2019. (Zhang & Deng, 2020).

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Whereas the overwhelming majority of universities have emphasized on the development and administration of blended education following the massive online instruction in 2020, there were nevertheless a number of obstacles associated with blended education. For instance, in Chinese present blended education arrangement, the online teaching component is provided the least weight (Qu & Dong, 2022). Furthermore, there were extremely limited appropriate academic investigations for the blended instruction (Tian & Jiao, 2005). In comparison, while institutions and universities in southwest of China maintained a attention on undergraduate production design degrees, but the administration provided less consideration to blended education (Yang & Pan, 2021).

As blended education develops, production design major undergraduate students acquire more personality in their blended coursework. While the perception of persistence intention is an important aspect in students' motivation to continue using e-learning or blended schemes because they believe it will improve their educational productivity (Cheng, 2019). Continuance intention to employ certain educational technologies in academic literature as the degree to which a student is inspired to engage e-learning or hybrid instruction systems in the long-term and to absolutely advise e-learning or blended systems to others such as relatives and classmates (Chang, 2012). As a consequence, it is critical to increase student instructional perseverance intention in the Chinese higher education system during the massive pandemic era of the coronavirus.

Depending on preceding findings, this research analyzed the factors that have a significant impact on blended education for undergraduates majoring in production design in China. The investigation emphasized on students' continuance intention for utilizing blended education in China. Regarding the associated aspects, it is apparent that a quantitative examination is necessary to analyze whether university students majoring in production design in the Chengdu region of China estimate their quality of consistency with six significant latent variables associated with blended education.

Objectives

The primary research objective of this publication is the production major undergraduates who have had blended education experience, and it examined the influence of the attributes of the continuance intention in order to provide better instruction recommendations for potential blended education for production design students majoring.

Literature review

Information System Success Model

The Delone and McLean ISS framework, also recognized as the information systems success theory, is an essential information structures assumption that endeavors to develop an advanced clarification of information mechanism achievement by illuminating, articulating, and contextualizing the connections between six critical latent success considerations that are meticulously utilized to evaluate information systems. DeLone and McLean (1992) established the suggestion originally, then developed it in reaction to objections from other researchers conducting research in this subject several years later. The ISSM has been acknowledged in several anthropology scientific scholastic publications and is generally regarded as one of the most fundamental suggestions in informational scientific work.

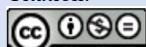
The theoretical organization has identified and created the ISSM framework's important characteristics, which include information quality, system quality, service quality, behavioral intention, satisfaction, and net system benefit (DeLone & McLean, 2002). Utilizing the ISSM assumption in the empirical evaluation of technologically instructional innovations engaging undergraduate students from all over the world, Freeze et al. (2010) detected a quantitatively significant relationship between system/information performance and satisfaction/system utilization. In this theory, each characteristic of the dependent determinant should be identified and classified with awareness due to the observable intertwined and interconnected aspects of information success accomplishment. To differentiate the contributions of multiple independent determinants on either of these dependent performance evaluations, it is vital to determine any relevant interconnections between the success assessments in the particular use of informational technology (DeLone & McLean, 2003).

Information Quality

The effectiveness of information presented by individuals technologically is represented as information quality (Qutaishat, 2012). Information quality symbolizes the degree to which individuals acknowledge the

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information to be correlated, consistent, correct, and interlinked (Lee et al., 2007). According to Masrek and Gaskin (2016), information quality is a significant predictor in determining a complicated information strategy based on an application technology and determining the advantageous, comprehensive, and correct information delivered by the innovation to the participants.

Information quality is one of the most important factors in evaluating authentication satisfaction and current usage, and it has a significant impact on both (Ebnehoseini et al., 2022). Information quality is one of the candidates' significant criteria determining e-learning or blended education mechanism on satisfaction, according to Masrek & Gaskin (2016). Based on the conclusions of Eom (2012), information quality appears to have a substantial impact on participants' particular interactions, perceived usefulness, and practical repercussions.

Service Quality

Service quality correlates to the service or product overall exceptionality as evaluated by the public (Zeithaml, 1988). Service quality is defined as "the associated but not immediately comparable tendency to satisfaction, establishing a comparative outcome between expectation and efficacy" (Parasuraman et al., 1988). Service quality is also considered as the degree of satisfaction or perceived accessibility by participants while utilizing technology systems for informational extraction and dissemination (Masrek & Gaskin, 2016). According to Ebnehoseini et al. (2022), service quality is the standard of service experienced by individuals during the specific technology system utilization procedure, including perceived trustworthiness, appropriateness, compassion, and so on.

Service quality is evaluated employing a technological approach by accessibility, maintainability, responsiveness, verification, competences, communication, and sympathy. This will have a significant impact on the individual's enjoyment and accurate usage sensations (Ebnehoseini et al., 2022). According to Wang et al. (2014), one of the key interconnections to increasing user satisfaction and overall utilization experience is upgrading the service quality of system utilizations. The recommendations generated via blended education, library services, internal management agencies, and Web 2.0 service providers such as advocates and social media connections can be regarded as service quality (DeLone & Mclean, 2004; Masrek & Gaskin, 2016).

System Quality

The system quality determines the individual involvement of the online system in communicating acquisitions and interaction conceptions (Chang, 2012). Participants evaluate online education mechanism activities through information reactivation and interaction, which are considered to be system quality (McKinney et al., 2002). According to Masrek and Gaskin (2016), system quality affects user satisfaction, which includes accessibility, performance, serviceability, and reactivity. The convenience and effectiveness of system users in all components of the system are testified to by system quality; that is, the individual's utilization expectations can be fulfilled by a pleasant, appropriate framework that can receive reliable substantiation (Ebnehoseini et al., 2022).

The effectiveness of technological exchange and pragmatism performance are used to determine the system quality (Masrek & Gaskin, 2016). As a response, Yuce et al. (2019) recognized that system quality is the significant predictor impacting participants' current utilization the target system according to the behavioral sensations, as well as the system's functionality and efficacy. System quality which is the characteristics of internet information system presentation were significant for observational research (Szymanski & Hise, 2000). System quality which demonstrated the degree of the individuals who were technologically advanced and web application procedures were displayed in this latent variable (Kim et al., 2012).

Engagement

Engagement can be defined as participants' willingness, desire, ambition, and preoccupation to effectively participate in and complete educational activities (Bomia et al., 1997). Alternatively, student engagement has been characterized as degree of participants' commitment, how undergraduate students identify the attitude of commitment with specific educational program, and their motivation to memorize crucial concepts (Korobova & Starobin, 2015). According to Kuh (2003), multiple investigations have shown that university freshmen comprehend better when they commence their efforts with a variety of pedagogically deliberate attempts. Engagement is characterized by passion, dedication, and absorption and is a positive, happy attitude toward work (Gray & DiLoreto, 2016; Schaufeli et al., 2002). Engagement is the predicator in which a respondent has intricacy that prevents them from performing and reduces their chances of studying achievements (Saleem et al., 2018).



Gray and DiLoreto (2016) demonstrated that structured interaction and student engagement are essential for student achievement memorization and consequently, persistence. Several scientists claim that student identification instructional advantages, greater sociocultural capabilities, and increased engagement in educational technique (Hu & Kuh, 2001; Kuh & Vesper, 2001). Undergraduates' assessments of their engagement during memorizing and participation in electives improved as they were expected to collaborate more constructively with classmates (Duderstadt et al., 2002).

Course Structure

Course structure includes the development and customization of course material administration, curriculum, pedagogical methodologies, and approaches, all of which are assigned on a systematic and comprehensive basis forward to, throughout, and afterwards the course is administered (Garrison et al., 2000; Xiang & Duangkanong, 2022). Course structure corresponds to the progression, organization, design, coursework, educational practices and strategies, chronological, and overarching intent of a course initially, throughout, and until it is completed (Aduojo, 2018; Garrison et al., 2000; Julia et al., 2019). The coursework expectations and objectives are incorporated into the course framework to accommodate and promote student capability development (Moore, 1991).

Course organization, instructional recommendations, self-motivation, cognitive encounters, communication, and pedagogical cooperation generally exert a significant effect on educational satisfaction, according to Eom et al. (2006). The course structure design has a quantitatively significant effect on both individual memorization and undergraduate satisfaction (Gray & DiLoreto, 2016). The course structure composition promotes students' engagement and satisfaction (Harsasi & Sutawijaya, 2018). As according Muirhead (2005), educationalists must be competent to design course structures that stimulate connections while maintaining to academically rigorous standards and promoting personality independent studying.

Satisfaction

Satisfaction demonstrated to how students perceive their instructional experiences, and it is an important factor in academic outcomes associated with higher levels of student involvement and performance (Biner et al., 1997; Gray & DiLoreto, 2016; Sahin & Shelley, 2008). Astin (1993) distinguished satisfaction with operationally undergraduate monitoring from contentment with academic personnel, coursework and evaluation, educational programs, participant assistive services, and infrastructures. Satisfaction can be characterized as the extent to which individuals achieve articulating individual personal aspirations and a specific assessment of experience (Diener, 1984; Manning-Walsh, 2005).

Satisfaction is a frequently adopted attribute for determining the effectiveness of a quantitative investigation framework in educational research. It is predominately focused with people's assumptions of education technological management and their degrees of connection with it (Annamdevula & Bellamkonda, 2016; Cigdem & Ozturk, 2016; Wu & Wu, 2019). The greatest essential component that has an appreciable impact on comprehending satisfaction when using interactive educational techniques or technology is the learner's straightforward reinforcement (Hui et al., 2008; Chang, 2012; Xiang & Duangkanong, 2022).

Continuance Intention

Cheng (2019) emphasized that the definition of continuance intention generally refers to individuals' commitment to continuing employing e-learning or hybrid programs since they assume it might enhance their educational productivity. It is characterized as the motivation to keep using an information management system (Bhattacherjee, 2001; Chang, 2012; Daneji et al., 2019). Thus, according Basak and Calisir (2015), when the respondent begins employing the educational application software, the emotional ambitions may occur, which influencing the participant's decision to continue employing the technological platform. The qualities of a respondent who intends to remain utilizing the services after recognizing it were referred to as continuance intention (Rajeh et al., 2021).

Several sociological researchers have established that continuance intention or perseverance motivation is intricately related to perceived usefulness or satisfaction (Lee, 2010; Chang, 2012; Lin, 2012; Lwoga & Komba, 2015). In the domain of the e-learning or blended educational technology, satisfaction is the determinant of continuance intention or commitment; accordingly, when individuals consider the blended educational mechanism to be satisfying, they are increasingly inclined to aspire to continue using such services (Xu et al., 2017). There are sufficient indicators to support the thesis that contentment and post-adoption expectation have a significant relationship on continuance intention (Hong et al., 2006).



Conceptual Framework

Previous academic investigation achievements were explored in order to establish the conceptual framework of this research. It was primarily based on the ISSM theory and developed from three theoretical perspectives. Chang (2012) discovered a connection between information quality, system quality, service quality, satisfaction, and continuance intention. Furthermore, Harsasi & Sutawijaya (2018) revealed the relationship between course structure and satisfaction. Furthermore, Gray & DiLoreto (2016) showed an association between engagement and satisfaction. Figure 2 illustrated the conceptual framework which was developed surrounding these constructs.

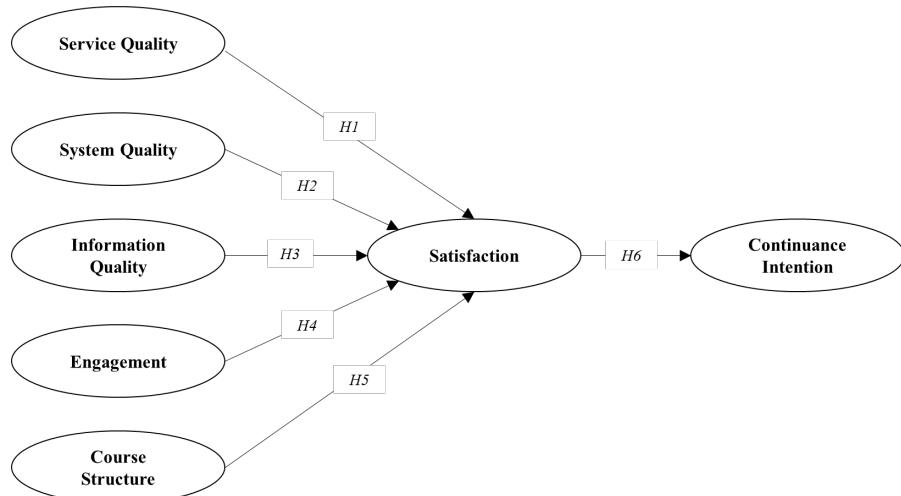


Figure 1: Conceptual Framework

Obtaining six latent variables into consideration, ranging service quality, system quality, information quality, engagement, course structure, and satisfaction, this research ascertained to examine essential components that impact the continuance intention of production design major students on blended education from three public universities in Chengdu Region of China. Additionally, this study evaluated the causative connection between every latent variable in order to identify the components whether and how influence continuance intention.

The following hypotheses were developed in accordance with the conceptual framework's structure:

- H1: Service quality has a significant impact on satisfaction.
 - H2: System quality has a significant impact on satisfaction.
 - H3: Information quality has a significant impact on satisfaction.
 - H4: Engagement has a significant impact on satisfaction.
 - H5: Course structure has a significant impact on satisfaction.
 - H6: Satisfaction has a significant impact on continuance intention.

Methodology

The objective of this investigation is to evaluate the continuance intentions of production design specialized undergraduates from Chengdu University (CDU), Sichuan Normal University (SNU), and Xihua University (XHU) from Chengdu Region in Sichuan of China. The quantitative survey strategy was utilized in this investigation since it was the greatest efficient research methodology for gathering students' personality psychological data and determining their emotional reactions.

Research Instrument: The quantitative questionnaire was the investigation instrument of this article, and it was coordinated into three sections: screening questions, demographic information, and scale items for all of the 32 observed variables. initially, the screening question were developed to identify and assess participants with specified criteria, such as whether they are in the production design, from the intended universities, and possess sufficient blended education competence. So, the researcher utilized the single item from the screening question to determine that the samples were acceptable for the forthcoming investigation.

Additionally, demographic questionnaires were utilized to obtain interviewees' personal background information, such as gender, institution status, and academic years. Moreover, 32 observed variables which adapted from antecedently literature were employed to assess the latent variables, which included 6 items for information quality, 3 items for service quality, 5 items for system quality, 5 items for engagement, 4 items for course structure, 5 items for satisfaction, and eventually 4 items for continuance intention.

The five-level Likert scale was employed to evaluate the overall measurement scales, with 5 indicating strong agreement for the positive attitude and 1 indicating strong disapproval for the negative psychological reaction (Salkind, 2017). The detailed characteristics scale items were summarized in the appendix.

Validation of the Research Instrument: Three professors who with Ph.D. educational ethnicities at least fourteen years of experience in blended teaching academic exploration were requested to perform the item-objective congruence (IOC) evaluation to evaluate the content validity of the scale items. The IOC examination obtained the lowest score at 0.67, suggesting that all the observed variables obtained the ideal content validity.

Furthermore, the pilot test was performed out to examine the internal consistency reliability of this research instrument. Antecedently researcher (Hill, 1998) acknowledged that a participant group of 30 respondents was adequate for the pilot test. As a consequence, 30 students enrolled in the pilot test, and the internal consistency reliability was analyzed via the Cronbach's Alpha indicator. According to the pilot test consequences, the weakest value of the Cronbach's Alpha was 0.885, indicating that the internal consistency reliability of the measurement scales was satisfactory. Table 1 presented the information internal consistency reliability examination.

Table 1 Consequence of the Internal Consistency Reliability Assessment of the Pilot Test

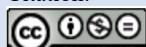
Latent Variables	No. of Items	Cronbach's Alpha
Information Quality	6	0.940
Service Quality	3	0.823
System Quality	5	0.901
Engagement	5	0.947
Course Structure	4	0.869
Satisfaction	5	0.872
Continuance Intention	4	0.921

Population and Sample Size: This quantitative survey's target population included all the undergraduates majoring in production design which from three prestigious universities in Chengdu region of China. Chengdu University (CDU), Sichuan Normal University (SNU), and Xihua University (XHU) are the selected universities in this quantitative research. Rashwan (2021) suggested the sample size of 500 participants for the complicated research methodology in the structural equation model. As the consequence, 500 undergraduates were selected as the target sample from the population of 1043 following screening item and quota selection.

Sampling Methodology: The sample was selected from 1043 undergraduates from the key public academy institutions in the Chengdu region of China, with a one-month blended education career at the commencement. Following afterwards, 500 participants were identified from the 12 division of the sample units which according to quota sampling as the target interviewees.

Data Collection and Statistical Progress: Regarding the evaluation of content validity and internal consistency reliability preparatory to massive attitude information collection, the quantitative questionnaire was distributed to 500 production design major undergraduates from the target universities.

In addition, after the checking progress, 479 valid data was obtained, and 21 invalid data was abandoned. To examine the data, the researcher according to the analytical software SPSS, JAMOVI, and AMOS. The researcher also employed Confirmatory Factor Analysis (CFA) to determine if the attitude data match the research model, and the Structural Equation Model (SEM) utilized to analyze the hypotheses examination as well as the path diagram analysis between the latent variables.



Results

Demographic Information

Table 2 summarizes the complete demographic features of 479 participants. Male undergraduates accounted up 29.85% of all participation, whereas female undergraduates made up 70.15%, for the institution information which including 26.09% attending Chengdu University (CDU), 34.86% attending Sichuan Normal University (SNM), and 39.05% attending Xihua University (XHU). According to their academic year, 24.22% of the respondents were freshmen, 25.26% were sophomores, 25.68% were juniors, and 24.84% were seniors.

Table 2 Demographic Profile

Variable	Category	Quantity	Proportion (%)
Gender	Male	143	29.85%
	female	336	70.15%
University Belong	Chengdu University	125	26.09%
	Sichuan Normal University	167	34.86%
	Xihuan University	195	39.05%
Academic Year	Freshman	116	24.22%
	Sophomore	121	25.26%
	Junior	123	25.68%
	Senior	119	24.84%

Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) was performed to ascertain whether the composition and loading ratios of the observed variables whether matched predictions depending on hypotheses or assumptions. The factor loading estimates and acceptable values for each observed variable demonstrated the investigation matrix's goodness of fit (Hair et al., 2007). Furthermore, as demonstrated in Table 4, all of the applicable criteria after adjusting for the four absolute fit measurements and three incremental fit indicators. As the consequence, all of the goodness of fit criteria evaluated in the CFA evaluation were satisfactory which the detail information was summarized in Table 3.

Table 3 Model fitting test results for CFA

Content	CMIN/DF	CFI	AGFI	RMSEA	CFI	NFI	TLI
Standard	<3.00	>0.90	>0.80	<0.05	>0.90	>0.90	>0.90
Value	1.705	0.910	0.892	0.038	0.962	0.913	0.957
Conclusion	Qualified						

Table 4 Confirmatory Factor Analysis Result, Factor Loading, Cronbach's Alpha, CR, AVE.

Variable	Item	Factor Loading	Cronbach's α	CR	AVE
Information Quality	6	0.715 - 0.801	0.888	0.888	0.570
Service Quality	3	0.817 - 0.859	0.886	0.887	0.723
System Quality	5	0.632 - 0.829	0.856	0.851	0.723
Engagement	5	0.704 - 0.869	0.882	0.881	0.600
Course Structure	4	0.609 - 0.896	0.840	0.861	0.608
Satisfaction	5	0.740 - 0.800	0.887	0.893	0.626
Continuance Intention	4	0.672 - 0.829	0.852	0.833	0.562

Table 4 illustrates that the overall values of factor loading, composite reliability (CR), and average variance reliability (AVE). Factor loading should be greater than 0.50 (Truong & McColl, 2011), CR more than 0.70 (Srinivasan et al., 2002), and AVE higher than 0.50. (Fornell & Larcker, 1981). Within this

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investigation, the weakest factor loading was 0.609, the weakest CR was 0.833, and the weakest AVE was 0.562. Thus, all of these findings were satisfactory.

Table 5 summarizes the outcomes of the exploration into and representation of discriminant validity. The diagonally specified quantity is the square root of the value of AVE, and no correlation between any connection of latent variables were more than 0.80. (Schmitt & Stults, 1986). As the consequence, the discriminant validity was established applying these quantitative data.

Table 5 Discriminant Validity

	INQ	SEQ	SYQ	ENG	COS	SAT	COI
INQ	0.755						
SEQ	0.120	0.850					
SYQ	0.264	0.165	0.733				
ENG	0.185	0.180	0.163	0.775			
COS	0.236	0.137	0.238	0.179	0.780		
SAT	0.368	0.216	0.307	0.220	0.404	0.791	
COI	0.294	0.236	0.184	0.259	0.213	0.302	0.750

Structural Equation Model (SEM)

Following the CFA assessment, the structural equation model (SEM) identification was performed in this investigation. The SEM technique is employed to determine whether or not the assumed causality interconnection by evaluating the definite combination of regression coefficients. The SEM was used to evaluate the hypotheses in this study. Table 6 illustrated the value of goodness fit which after model modified by the application AMOS, the values which after adjusted of all the absolute and incremental fit determinants were all within admissible level. As the calculation consequence demonstrated, the SEM's goodness of fit was acceptable.

Table 6 Model fitting test results for CFA

Content	CMIN/DF	CFI	AGFI	RMSEA	CFI	NFI	TLI
Standard	<3.00	>0.90	>0.80	<0.05	>0.90	>0.90	>0.90
Value	1.776	0.902	0.886	0.040	0.956	0.906	0.952
Conclusion	Qualified						

Hypothesis Testing Results

Based on the observations in Table 7, satisfaction indicated the direct significant influence on continuance intention, leading in the greatest influence effects in this investigation, which regarding the standardized path coefficient (β) of 0.368 and the t-value of 6.357***.

Furthermore, course structure generated the significant effect on satisfaction, having the β in 0.332 and t-value at 6.074*** becoming the second highest influence effect in this investigation. While information quality impacted satisfaction significantly with β at 0.294 and t-value at 5.817***. Moreover, satisfaction was significantly affected by system quality, with β in 0.215 and t-value in 4.384***. Additionally, for the β at 0.149 and t-value at 3.122**, service quality had generated the significant effect on satisfaction. Eventually, engagement had a considerable effect on satisfaction, regarding the value of β at 0.120 and t-value in 2.535*. As the consequence, the complete hypotheses of this research were supported.

Table 7 Hypothetical path verification table

Hypothesis	Path		Standardized Path Coefficient (β)	t-value	Test Result	
H1	SEQ	→	SAT	0.149	3.122**	Supported
H2	SYQ	→	SAT	0.215	4.381***	Supported
H3	INQ	→	SAT	0.294	5.817***	Supported
H4	ENG	→	SAT	0.120	2.533*	Supported
H5	COS	→	SAT	0.332	6.074***	Supported
H6	SAT	→	COI	0.368	6.357***	Supported

Note: *** p<0.001, ** p<0.01, * p<0.05

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H1 has demonstrated that service quality is the key determinant of satisfaction, with the standardized path threshold at 0.149 for this research. Additionally, numerous research achievements revealed that the high degree estimate of educational service quality had a positive impact on student satisfaction (Brady et al., 2001; Chang, 2012; DeLone & McLean, 2003).

The statistical observations for H2 validated the hypothesis that system quality had a significant contribution on satisfaction, with a standard coefficient value of 0.215 reflecting the significant impact in this quantification study. According to Yuce et al. (2019), system quality is a considerable factor in influencing students' complete satisfaction. The effectiveness of the system quality has a positive influence on participants' satisfaction (Fang, 2022).

With a standardized path parameter of 0.294 in H3, the analysis finding reflected that information quality is one of the crucial considerations of satisfaction. Multiple investigation has indicated that information quality is a vital component in students' satisfaction with a specific education approach, which has a considerable influence on education satisfaction (McKinney et al., 2002; Wixom & Todd, 2005; Xu et al., 2013).

Additionally, H4 demonstrated that engagement provided the significant influence on satisfaction in this research, which regarding the standard path coefficient point at 0.120. Based on preceding analysis, engagement has a substantial influence on satisfaction in computerized educational circumstances (Bitzer & Janson, 2014; Gray & DiLoreto, 2016; Shin & Chan, 2004; Swan, 2001).

In considerations of H5, it was determined that course structure generated the strong significantly association with satisfaction, achieving the standard path coefficient threshold in 0.332. Antecedently literature has recognized the requirement of examining the undergraduates' learning outcomes for appropriate course structure standards and encouraging students' satisfaction with digital or hybrid education methodology (Harsasi & Sutawijaya, 2018; Levin & Wadmany, 2006; Xiang & Duangekanong, 2022).

Ultimately, H6 established that satisfaction was considerably correlated with continuance intention, as evidenced by a value of 0.328 on the standard path coefficient of effective impact, and the which was the greatest effect point on satisfaction in this quantitative investigation. Since satisfaction is a predictor of motivation or continuation intention, while respondents consider the blended educational approach to be gratifying, they will generate the positive psychological reaction to continuance intention utilizing the instructional programs (Daneji et al., 2019; Suriazdin et al., 2022; Xu et al., 2017).

Path Diagram Analysis

This investigation's conceptual framework contains four independents, two mediators, and one dependent variable. The consequence of path diagram analysis is presented in the Figure 3.

The R² for satisfaction in this investigation was 0.273, indicating that the entire quantity of the five independent variables contributed for 27.3% of the variance on satisfaction. The effect degree for course structure was 0.322***, while information quality was 0.294***, system quality was 0.215***, service quality was 0.149**, and engagement was 0.120* respectively.

Additionally, continuance intention was the quantitative research's dependent variable, while the R² of 0.135 indicated that the entire independent variables and mediator variable contributed 13.5% variance in continuance intention. Satisfaction generated the greatest direct significantly effect on continuance intention, with the impact effect of 0.368***, while five independent variables exerted the significant indirect effect, including course structure at 0.118***, information quality at 0.108***, system quality at 0.079***, service quality at 0.055**, and engagement at 0.044* separately. The detail information was demonstrated in Figure 3.

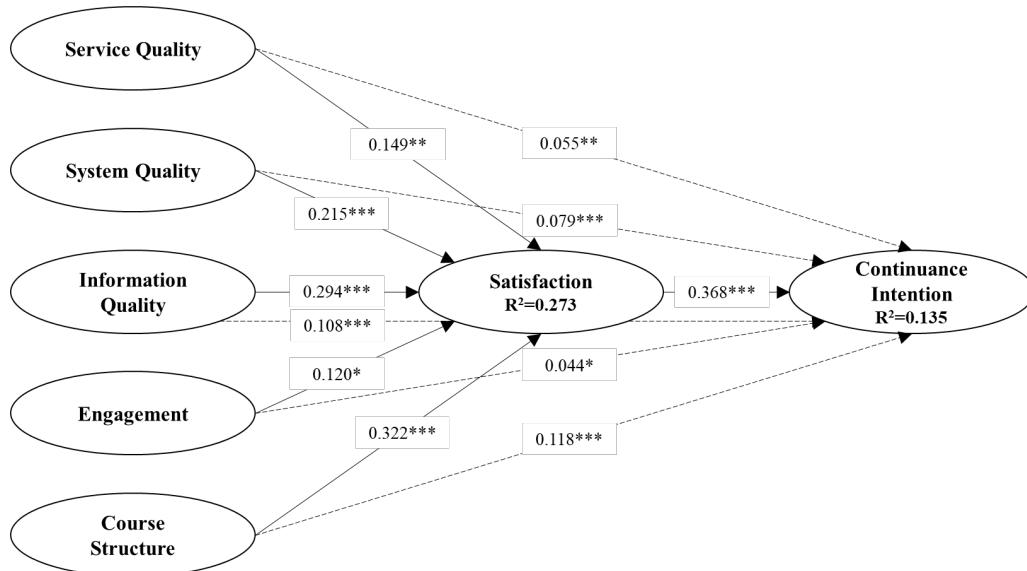


Figure 2: Path Diagram Analysis

Conclusion

The objective of this investigation was to evaluate whether the essential factors exhibited a significant impact on production design major undergraduate students' continuance intention with blended instruction at three important public universities in Chengdu region of China. The conceptual framework illustrated the seven hypotheses for validating the interrelationship of information quality, service quality, system quality, engagement, course structure, satisfaction, and continuance intention. In order to determine potential association between these variables, 479 undergraduate students with hybrid instruction experience completed the questionnaire survey. To examine if the observations fit the prescribed hypothesis measurement instrument according to the Confirmatory Factor Analysis (CFA). Correspondingly, Structural Equation Modeling (SEM) was employed to evaluate and validate hypotheses about the associations between the independent variables, mediator variable to continuance intention.

Based on the findings of this investigation, satisfaction has the most significant direct impact on continuance intention.

Furthermore, course structure has the strongest significant direct influence on satisfaction, while information quality, system quality, service quality generated the significant direct effect on satisfaction. While the engagement has the significant direct effect on satisfaction which with the lowest standardized path coefficient.

Discussion

Individuals majoring in production design who participated in this survey were confident that the most significant determinant influencing continuance intention was satisfaction, whereas satisfaction was impacted by the remaining five independent variables. The course structure represented the greatest prominent independent variable that influenced satisfaction in this quantitative research, demonstrating that the destination learners commonly assume that the course structure, which was thoughtfully constructed, could successfully incorporate the online instructional section and the traditional instructional component. This would successfully strengthen participants' awareness of the blended education course structure. As the consequence, it could have a direct and considerable impact on learning satisfaction, as well as an appropriate indirect consequence on continuance intention.

Information quality has the second strongest influence on satisfaction, suggesting that learners specializing in production design were encouraged by the blended educational instructional strategy, particularly the digital instruction environment. When it is able to continue providing students with sufficient high quality of professional information, including material of specialist coursework, teaching materials, software operation tutorials, and other expeditiously revised information, it will considerably enhance

participants' acknowledgment of information quality for blended teaching, which could both directly and substantially impacts students' satisfaction while having an indirect effect on their continuance intention.

The consequence of system quality on satisfaction was placed third inside the academic research, demonstrating that the intended participants were confident that the consistency of the interactive instructional system used in blended education was an indispensable component of satisfaction. Whenever the consistency of the online educational operating system is appropriate, the program's operational strategy is exceptional, and the human-computer communication is transparent and organized, it should strengthen learners' identification of the system's quality for blending learning. As a reason, it potentially has a direct and considerable effect on educational satisfaction while having an affect on continuance intention.

The implications of service quality on satisfaction consistently rated the fourth, indicating that participants recommended that suitable service quality which could instantaneously satisfy the potential issues or errors of interactive educational platform for blended instruction, offering the correlating activity guidance, and the application service encounter presented by the educational framework to undergrads. It would significantly increase participants' identification service quality for blended education. As a consequence, it could have a direct and considerable impact on educational satisfaction while possessing the indirect consequence on continuance intention.

Ultimately, engagement used to have a considerable repercussion on satisfaction, suggesting that production major design students were committed that in definitions of blended education, sophisticated course design, appropriate lecturer guidance, and sensible challenge designation of instructors on the digital educational framework would considerably enhance students' engagement in incorporated informational courses. As a consequence, it might have a direct and considerable consequence on education satisfaction while exerting the indirect consequence on continuance intention.

Recommendation

For the subsequent blended education implementation of the production design major, the appropriate instructional units should increase the service quality of the online teaching platform. First and foremost, freshmen who contact the online education platform for the first time should be supplied with extensive operating guidelines and technological guidance, so that they may clearly understand the operation methods of a series of learning behaviors of the teaching platform. Second, when the system of the super star platform is changed, the revised function should be introduced to students on time. To strengthen the technical system service support for blended education.

Concerning system quality, the corresponding instructional units should continue to obtain system design problems that may occur in students' regular use of the online education platform, platform operation issues of computer and smartphone terminals, and data synchronization troubles, etc., to provide feedback to the technological management personnel of the online platform's affiliated enterprise, in order to make the operation of the online education platform more stable. Simultaneously, suggestions should be provided to system developers based on the professional characteristics of production design, the default categories of homework submission and standardized exam questions should be established in the online learning system, and more activity possibilities appropriate for the specialist production design should be incorporated. To provide a superior learning environment for students majoring in production design by continuously improving the quality of the online learning system.

In terms of information quality, the associated teaching units should continue to publish additional professional course materials relevant to the product design major via the online learning platform. It should incorporate not only the connected digital textbook, digital theoretical materials, but also detailed training video on production design major's professional software such as Adobe Photoshop, Auto CAD, Autodesk 3dsMAX, Rhinoceros, as well as video clips of design case studies and design processes demonstration. It provides online learning materials that much exceed the capacity of traditional classroom hours attributable to the powerful functionalities of the online learning platform. Additionally, based on the outcomes of the production design curriculum system, the online learning system can appropriately deliver the related information of upcoming major compulsory and core courses of the major, providing in a suitable introduction to future learning.

Regarding to the engagement, the corresponding instructional units should take optimal utilization of the online learning platform's interactive function to effectively increase students' participation in blended education. Furthermore, instructors may introduce the course's teaching characteristics through

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brainstorming and other connections in the online teaching process and evaluate the course's major professional knowledge points after class by voting on the platform. Furthermore, make optimal use of the online learning platform to assign related learning assignments that should be performed through the platform in order to ensure that students can benefit from greater engagement through blended education.

When the teaching unit have optimized in terms of service quality, system quality, information quality, engagement, and course structure, the satisfaction of production design major students with blended education will be improved effectively. When students have a high degree of satisfaction in this learning approach, they will definitely have a positive continuance intention for the corresponding blended education. So, it can gradually form a positive training cycle.

Limitations and the Subsequence Research

For the subsequent blended education implementation of the production design major, the appropriate instructional units should increase the service quality of the online teaching platform. First and foremost, freshmen who contact the online education platform for the first time should be supplied with extensive operating guidelines and technological guidance, so that they may clearly understand the operation methods of a series of learning behaviors of the teaching platform. Second, when the system of the super star platform is changed, the revised function should be introduced to students on time. To strengthen the technical system service support for blended education.

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