pISSN: 1906 - 6406 The Scholar: Human Sciences
eISSN: 2586 - 9388 The Scholar: Human Sciences
http://www.assumptionjournal.au.edu/index.php/Scholar

Evaluating Significant Factors of Graduate Students' Satisfaction with Small Private Online Course in Chongqing, China

Zhang Jian*

Received: September 16, 2023. Revised: October 12, 2023. Accepted: October 13, 2023.

Abstract

Purpose: The objective of this research is to investigate the determinants that impact student satisfaction when utilizing Small Private Online Courses (SPOCs) in Chongqing, China. The conceptual framework encompasses factors such as information quality, system quality, service quality, perceived ease of use, perceived usefulness, perceived enjoyment, interactivity, and satisfaction. **Research design, data, and methodology:** The research focused on a target population comprising 500 graduate students specializing in art, enrolled in the SPOC programs of the two prominent universities situated in Chongqing, China. Employing a quantitative approach, data collection was carried out through a structured questionnaire-based research design. To ensure the quality of the data, the study applied the Index of Item-Objective Congruence (IOC) and Cronbach's Alpha for assessing content validity and data reliability, respectively. The gathered data underwent analysis using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) techniques. **Results:** The results show that information quality, system quality, perceived ease of use, and perceived usefulness significantly influence satisfaction. Perceived ease of use has a significant influence on perceived usefulness. Nevertheless, service quality, interactivity and perceived enjoyment have no significant influence on satisfaction. **Conclusions:** The findings offer practical insights for educators and institutions aiming to improve the quality and effectiveness of online education in Chongqing, China, and beyond.

Keywords : Service Quality, Perceived Enjoyment, Interactivity, Satisfaction, Small Private Online Course

JEL Classification Code: E44, F31, F37, G15

1. Introduction

Small Private Online Course (SPOC) platform management of Harvard University (Harvard X) Robert Lue said that in the future, more universities will begin to build their SPOC platform with different MOOCs. When a university opens a SPOC platform, teachers can students according to their own needs, determine the course content, and add functions, including video lectures, at the same time, evaluation, interaction, etc. This customized curriculum can improve students' satisfaction and learning results (Kaplan & Haenlein, 2016).

Previous studies have shown that SPOC can improve students' learning effect compared with MOOC to some extent. In the spring of 2013, edX and MITX offered an introductory programming course at MIT, using both SPOC and MOOC teaching methods, respectively. Finally, the average score of students participating in SPOC is 10 points higher than that of students participating in MOOC (Pritchard, 2013). SPOC supports blended and flipped classroom learning, combining online education resources and technology to bring students and teachers closer. Universities are more about serving the needs of students rather than facing the public, so SPOC mode is beautiful to universities. In general, MOOCs mainly target social students and emphasize sharing quality resources, while

1*Zhang Jian, Sichuan Fine Arts Institute, China. Email: 3938249@qq.com

SPOCs are primarily open to students and emphasize student management (Wang, 2019).

Student satisfaction is also a challenge for online art courses. SPOC programs face an increasingly competitive environment. Use the existing SPOC platform to develop SPOC content for art colleges and universities, with the help of the SPOC hybrid teaching model, maximize the role of quality online teaching resources. Through the SPOC courses that have been offered, study its factors related to student satisfaction, such as information quality, usability, the interactivity of online and offline teaching, etc., reverse deduced SPOC curriculum design standards, and gradually develop a reasonable course satisfaction index evaluation system, to create high-quality art class online course model. Thus, to improve the current situation of MOOC construction being much more, an operation being less, registration rate being high, and completion rate being low. In addition, it focuses on the possibility of using new technologies, such as virtual reality, in online education platforms to improve teaching effectiveness and satisfaction.

The main goal of this research is to explain the reasons and consequences of art significant students' satisfaction with SPOC courses and teaching models, which includes a series of relevant factors such as online systems and offline teaching associated with SPOC hybrid teaching, including Information Quality, System Quality, Service Quality, Perceived Ease of Use, Perceived Usefulness, Perceived Enjoyment, and Interactivity. These studies establish a model of influencing factors of learner satisfaction with art courses under the SPOC teaching mode.

2. Literature Review

2.1 Information Quality

Information quality is the perception of the effectiveness of the information delivered by the system (Eid, 2011). The user felt the system output effect of the info (Negash et al., 2003). It evaluates the system's on-screen communication and feedback (Gable et al., 2008). Studies have shown that in most cases of information technology use, user satisfaction levels are predicted by information quality (Chen et al., 2013; Floropoulos et al., 2010; Poelmans et al., 2013; Sørum et al., 2012). Hussein et al. (2007) found that information quality significantly predicts user satisfaction. Zhou (2011) pointed out low information quality leads to lower user satisfaction. Accordingly, the study proposes the following hypothesis:

H1: Information quality has a significant influence on satisfaction.

2.2 System Quality

Many authors in higher education believe system quality can affect students' satisfaction with various information technology systems (Lin, 2008; Ramírez-Correa et al., 2017). For example, some studies have shown that system quality determines users' satisfaction with the online library portal platform (Lee et al., 2005; Ramayah et al., 2012; Thong et al., 2002; Vaidyanathan et al., 2005). system quality positively affects user satisfaction. Some researchers verify this assertion (Iivari, 2005; Negash et al., 2003; Sagar, 2006). Previous studies on various types of information technology platforms have verified the impact of system quality on user satisfaction (Chatterjee et al., 2009; Lee & Chung, 2009; Wixom & Todd, 2005). System quality will positively affect user satisfaction (Hsiao et al., 2019). Poor system quality will reduce customer satisfaction (Gao & Bai, 2014). Therefore, the following hypotheses are proposed:

H2: System quality has a significant influence on satisfaction.

2.3 Service Quality

The quality of service is determined by the difference between users' expectations and experience (Zeithaml et al., 1996). The quality of service is whether the user's expectations are met (Lewis & Booms, 1983). Quality of service can be understood as the sum of the capabilities of a service to meet known or potential requirements (Johnson & Winchell, 1988). Studies have shown that service quality directly affects satisfaction (Alves & Raposo, 2007). In the context of higher education, perceived value indirectly affects satisfaction (Brown & Mazzarol, 2009). That is to say, if service attributes directly affect student satisfaction. Previous studies have shown that the higher the service quality, the higher the customer satisfaction (Zhou et al., 2009). Consistent and reliable service quality leads to increased customer perceived value, and increased satisfaction leads to an enhanced willingness to adopt the service (Hsiao et al., 2019). Thus, a hypothesis is developed:

H3: Service quality has a significant influence on satisfaction.

2.4 Perceived Usefulness

Perceived usefulness means students' acceptance of the performance brought by mobile Internet (Islam et al., 2017) and an essential factor influencing users' acceptance of new products and systems (Davis, 1989). Venkatesh et al. (2003) argue that perceived usefulness is a crucial factor affecting user behavior. Different studies used structural perceived usefulness as the antecedent of satisfaction, such as (Yang et al., 2003). Previous studies on using learning technologies

have shown that users' perceived usefulness affects their happiness and is positively correlated (Sørebø et al., 2009; Stone & Baker-Eveleth, 2013). Researchers explained that usefulness significantly impacted satisfaction (Kumar & Ravindran, 2012; Lee & Park, 2008). Perceived usefulness will directly influence user satisfaction (Adamson & Shine, 2003; Liu et al., 2006; Mahmood et al.,2000). Compared to face-to-face learning, online video demonstrations can also increase users' perceived usefulness and satisfaction (Natour & Woo, 2020). Based on these assumptions, this study proposes the following hypothesis:

H4: Perceived usefulness has a significant influence on satisfaction.

2.5 Interactivity

Interactivity emphasizes the role of information exchange and interaction when using the Internet (Demangeot & Broderick, 2006; Tan et al., 2018). Interactivity is also one of the significant media advantages of computers and the Internet (Li et al., 2014). Interactivity helps users build rapport and increase satisfaction with their online experience (Jo & Kim, 2003). Interactivity significantly impacts users' satisfaction with online experience (Teo et al., 2009). A study by Headar et al. (2013) revealed the relationship between user satisfaction and interactivity in e-learning. Lowry et al. (2009) Validation interactivity increases process satisfaction. Users use online course materials publicly available online, give feedback or ideas, and interact with the system using various media functions, thus enhancing user satisfaction. Chen et al. (2018) argue that interactivity can influence the formation of user satisfaction. In the context of mobile instant messaging, interactivity has a significant positive impact on satisfaction. User satisfaction increases as interactivity increases (Lien et al., 2017). Consequently, a hypothesis is developed:

H5: Interactivity has a significant influence on satisfaction.

2.6 Perceived Enjoyment

Venkatesh and Davis (2000) found that perceived enjoyment refers to the comfort brought by using a particular system without paying attention to other factors, such as system performance. Natour and Woo (2020) believe that perceived enjoyment increases the appeal of learning through online videos and enhances students' satisfaction. Perceived enjoyment is participating in interactive activities in addition to efficiency (Davis, 1989). Previous studies have also verified the influence of perceived enjoyment on E-satisfaction (Chen & Xie, 2008). Nusair et al. (2008) believe that perceived enjoyment is paramount in attracting, satisfying, and retaining users. The online method (i.e., online video presentation) increased the ability to perceive pleasure (compared to face-to-face learning) and increased student satisfaction with the technique (Natour & Woo, 2020).

Students who perceived happiness for learning by blog may be satisfied with these technologies in their learning environment, and previous research has confirmed the idea that intrinsic motivation (theoretical flow variables such as playfulness) can significantly influence users' satisfaction with technology use (Lin et al., 2005; Shiau & Luo, 2010). The results of many ISS studies on hedonic orientation indicate that user satisfaction is significantly influenced by perceived enjoyment (Gerow et al., 2013). Thus, the following hypotheses are indicated:

H6: Perceived enjoyment has a significant influence on satisfaction.

2.7 Perceived Ease of Use

Perceived ease of use is the degree to which a user can quickly master and use a system (Liu et al., 2009) or the ability to easily use online platforms (Haq et al., 2017). For online learning, perceived ease of use means the degree to which it is easy for students to master and use online learning platforms (Lee, 2006). As for students' acceptance of learning technology, many studies have shown that perceived ease of use and usefulness are positively correlated (Abdullah et al., 2016; Lee et al., 2005). perceived ease of use will directly affect perceived effectiveness (Davis, 1989; Taylor & Todd, 1995). Perceived usefulness in an online learning environment is positively influenced by users' perceived ease of use (Lee, 2006). Min et al. (2022) confirmed the relationship between the perceived ease of use of perceptual technology and perceived usefulness. Davis (1989) found that perceived enjoyment and benefit mediate the influence of perceived ease of use on the willingness to use computers. Therefore, this study hypothesizes that:

H8: Perceived ease of use has a significant influence on perceived usefulness.

2.8 Satisfaction

Satisfaction is emotional feedback on a product interaction or service (Westbrook & Reilly, 1983). It means the perceived pleasure or frustration of users expecting to benefit from the online platform (Masrek et al., 2009). Satisfaction is a comprehensive judgment of users' feelings of interactive experience after using the online platform (Kuo et al., 2009). It is an essential quality evaluation index in online education platforms (Kulkarni et al., 2007). Satisfaction refers to the emotional feedback of users on the use of the system, which in turn affects the use of the system by pro-users (DeLone & McLean, 2003). Satisfaction determines the persistence of user behavior (Kim et al., 2009; Kuo et al., 2009; Liu et al., 2011).

3. Research Methods and Materials

3.1 Research Framework

The foundation of the conceptual framework draws from prior research efforts. Ozkan et al. (2009) explored the impact of information, system, and service quality on satisfaction. Ifinedo (2017) contributed to the framework by investigating perceived ease of use, perceived usefulness, perceived enjoyment, and satisfaction. Cheng (2020) delved into the relationship between interactivity, perceived usefulness, and satisfaction. Thus, Figure 1 illustrates the construction of our conceptual framework, integrating insights from these previous studies.

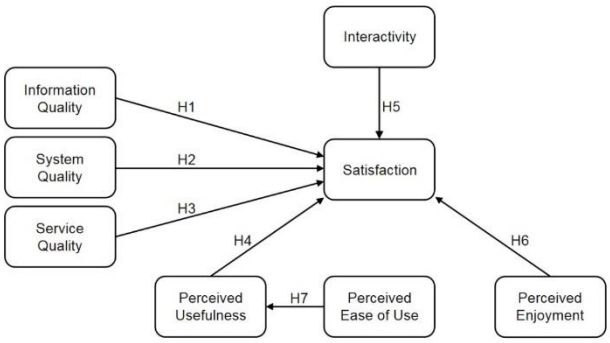

Figure 1: Conceptual Framework

H1: Information quality has a significant influence on satisfaction.
H2: System quality has a significant influence on satisfaction.
H3: Service quality has a significant influence on satisfaction.
H4: Perceived usefulness has a significant influence on satisfaction.
H5: Interactivity has a significant influence on satisfaction.
H6: Perceived enjoyment has a significant influence on satisfaction.
H7: Perceived ease of use has a significant influence on perceived usefulness.

3.2 Research Methodology

In this research, a questionnaire served as the primary data collection tool, employing a quantitative research approach to assess the influence of various factors on satisfaction. The questionnaire consisted of three sections: screening questions, measurement items utilizing a five-point Likert scale, and demographic information. Following data collection, the researcher conducted data analysis using confirmatory factor analysis (CFA) and structural equation modeling (SEM).

The item-objective congruence (IOC) index was employed to assess the questionnaire items. Experts were requested to assign scores on a scale ranging from -1 to +1, with scores indicating congruence (+1), questionable fit (0), or incongruence (1). Results indicated that an IOC index above 0.5 signified item acceptability (Hiranrat, 2016). During the pilot test (n=30), all variables exhibited Cronbach's Alpha values exceeding 0.7. This outcome indicates robust measurement reliability for the questionnaire items, aligning with established standards (Nunnally, 1978).

3.3 Population and Sample Size

The study focuses on graduate students who have encountered the Small Private Online Course (SPOC) teaching model in Chongqing, China. In line with the recommendation by Hair et al. (2006), a minimum sample size of 500 participants is targeted for efficient data analysis, particularly when dealing with a complex model structure using structural equation modeling (SEM). This sample size ensures the robustness of the study's findings.

3.4 Sampling Technique

This research employed a combination of sampling methods, including judgmental, quota, and convenience sampling. Initially, judgmental sampling was used to select graduate students who had encountered the Small Private Online Course (SPOC) teaching model in Chongqing, China. Subsequently, the quota sampling technique was employed to collect data from a sample of 500 students majoring in art, drawn from two universities in Chongqing, as depicted in Table 1. Additionally, convenience sampling was utilized to efficiently distribute the online questionnaire to the identified target student population.

Table 1: Quota Sampling

Institute	Undergraduate	Sample Size (N=500)
Sichuan Fine Arts Institute (SCFAI)	3900	85
Chongqing University of Posts and Telecommunications (CQUPT)	19000	415
Total	**22900**	**500**

4. Results and Discussion

4.1. Demographic Information

In the Table 2, 58.8% are male, and 41.2% are female. Art Design is the most popular major, with 38.2% of students enrolled in it. Animation or Film Making and Fine Art are

also significant majors, with 20.2% and 25.2% of students, respectively. Among postgraduate students, a similar pattern is observed, with the majority (60.0%) spending 4-6 times per week, followed by 1-3 times per week (22.8%), and 7 times per week or above (17.2%).

Table 2: Demographic Profile

Demographic and General Data (N=1,000)		Graduate (n=500)	
		Frequency	Percentage
Gender	Male	294	58.8%
	Female	206	41.2%
Major	Fine Art	126	25.2%
	Art Design	191	38.2%
	Animation or Film Making	101	20.2%
	Others	82	16.4%
Time Spent on SPOC	1-3 times/week	114	22.8%
	4-6 times/week	300	60.0%
	7 times/week or above	86	17.2%

4.2 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis (CFA) was employed to scrutinize the measurement model, and the results conformed to various established criteria. Notably, all variables exhibited Cronbach's Alpha values surpassing 0.7, indicative of robust measurement reliability in line with Nunnally (1978). Factor loadings were utilized to gauge the strength of the relationships between items and their respective constructs. Following the guidelines proposed by Stevens (1992), a satisfactory factor loading typically exceeds 0.40, accompanied by a p-value below 0.05. These outcomes substantiate the alignment of the items with their designated constructs, with all items displaying statistical significance and satisfactory factor loadings. Moreover, the study achieved discriminant validity, signifying that items within each variable were distinct and did not overlap significantly. Convergent validity was successfully established, as evidenced by an Average Variance Extracted (AVE) exceeding 0.5 and a Composite Reliability (CR) surpassing 0.6. These outcomes affirm the validity and reliability of the measurement model, aligning harmoniously with the recommendations outlined by Fornell and Larcker (1981).

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
1. Information Quality (IQ)	Masrek et al. (2009)	6	0.828	0.631-0.708	0.828	0.446
2. System Quality (SYQ)	Masrek et al. (2009)	5	0.888	0.727-0.871	0.891	0.621
3. Service Quality (SEQ)	Masrek et al. (2009)	6	0.858	0.678-0.748	0.859	0.503
4. Perceived Ease of Use (PEOU)	Sharma et al. (2014)	4	0.820	0.669-0.810	0.821	0.536
5. Perceived Usefulness (PU)	Sharma et al. (2014)	4	0.759	0.550-0.735	0.764	0.451
6. Perceived Enjoyment (PE)	Ifinedo (2017)	5	0.889	0.564-0.886	0.893	0.631
7. Interactivity (IN)	Cheng (2020)	3	0.880	0.825-0.871	0.880	0.709
8. Satisfaction (SAT)	Ifinedo (2017)	5	0.851	0.664-0.795	0.851	0.535

To evaluate the adequacy of the measurement model, statistical software was employed, and the findings are summarized in Table 4. The results reveal that the measurement model applied to the main campus group exhibited a commendable fit, obviating the need for additional modifications. This assertion finds support in the consistently favorable values of goodness-of-fit indicators, all of which consistently met widely recognized benchmarks. These outcomes bolster the validity of the confirmatory factor analysis model as established in this study.

Table 4: Goodness of Fit for Measurement Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	< 3.00 (Hair et al., 2006)	914.965/637 = 1.436
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.915
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.901
NFI	≥ 0.80 (Wu & Wang, 2006)	0.904
CFI	≥ 0.80 (Bentler, 1990)	0.969
TLI	≥ 0.80 (Sharma et al., 2005)	0.965
RMSEA	≤ 0.08 (Pedroso et al., 2016)	0.030
Model summary		**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, NFI, normalized fit index, CFI = comparative fit index, TLI = Tucker-Lewis index, and RMSEA = root mean square error of approximation.

In accordance with the principles outlined by Fornell and Larcker (1981), the evaluation of discriminant validity involved computing the square root of each Average Variance Extracted (AVE). As depicted in Table 5, the computed discriminant validity values exceeded all inter-construct or inter-factor correlations, thereby furnishing robust evidence in favor of the measurement model's credibility. Having effectively demonstrated both convergent and discriminant validity, there exists substantial and compelling support to affirm the construct validity of this study.

Table 5: Discriminant Validity

	IN	IQ	SYQ	SEQ	PU	PEOU	PE	SAT
IN	**0.842**							
IQ	0.524	**0.668**						
SYQ	-0.014	0.018	**0.788**					
SEQ	0.516	0.549	-0.137	**0.709**				
PU	0.616	0.587	0.021	0.482	**0.671**			
PEOU	0.301	0.226	-0.017	0.105	0.385	**0.732**		
PE	-0.073	-0.062	0.535	-0.140	-0.009	0.014	**0.795**	
SAT	0.413	0.586	-0.054	0.439	0.569	0.307	-0.029	**0.731**

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 structural model explores the relationships between latent constructs themselves. It tests hypotheses about how constructs interact and influence each other. Table 6 displays the computed goodness-of-fit indices for the structural model of the main campus group. Following the undergraduate group, the statistical findings revealed a satisfactory fit, as indicated by the following indices: CMIN/DF = 2.385, GFI = 0.852, AGFI = 0.833, NFI = 0.836, CFI = 0.897, TLI = 0.890, and RMSEA = 0.053. These values attest to the model's acceptable goodness of fit.

Table 6: Goodness of Fit for Structural Model

Fit Index	Acceptable Criteria	Statistical Values
CMIN/DF	< 3.00 (Hair et al., 2006)	1569.233/658 = 2.385
GFI	≥ 0.85 (Sica & Ghisi, 2007)	0.852
AGFI	≥ 0.80 (Sica & Ghisi, 2007)	0.833
NFI	≥ 0.80 (Wu & Wang, 2006)	0.836
CFI	≥ 0.80 (Bentler, 1990)	0.897
TLI	≥ 0.80 (Sharma et al., 2005)	0.890
RMSEA	≤ 0.08 (Pedroso et al., 2016)	0.053
Model summary		**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, NFI, normalized fit index, CFI = comparative fit index, TLI = Tucker-Lewis index, and RMSEA = root mean square error of approximation.

4.4 Research Hypothesis Testing Result

In this study, an exploration of the connections between the independent and dependent variables, as articulated in the research hypotheses, was undertaken. This investigation encompassed the assessment of standardized path coefficients along with their associated t-values. The comprehensive results of this analysis are elucidated in Table 7, with statistical significance ascertained based on p-values below the established threshold of 0.05. Consequently, it can be affirmed that all the hypotheses formulated in this study garnered support, given that the research findings furnished robust and statistically significant evidence in their favor.

Table 7: Hypothesis Results of the Structural Equation Modeling

Hypothesis	(β)	t-value	Testing result
H1: Information quality has a significant influence on satisfaction.	0.394	6.882*	Supported
H2: System quality has a significant influence on satisfaction.	-0.075	-1.623	Not Supported
H3: Service quality has a significant influence on satisfaction.	0.146	3.039*	Supported
H4: Perceived usefulness has a significant influence on satisfaction.	0.357	6.296*	Supported
H5: Interactivity has a significant influence on satisfaction.	0.051	1.099	Not Supported
H6: Perceived enjoyment has a significant influence on satisfaction.	0.046	1.016	Not Supported
H7: Perceived ease of use has a significant influence on perceived usefulness.	0.398	6.810*	Supported

Note: * $p<0.05$
Source: Created by the author

The study conducted a rigorous examination of various hypotheses to assess the relationships between independent variables and their influence on satisfaction. Below is an analysis of the hypotheses, their associated beta coefficients (β), t-values, and the testing outcomes:

The results support H1, indicating that information quality significantly influences satisfaction. A positive beta coefficient of 0.394 and a high t-value of 6.882 demonstrate a robust and statistically significant relationship between the quality of information provided and overall satisfaction.

H2 is not supported as the results show that system quality does not have a significant influence on satisfaction. The negative beta coefficient (-0.075) suggests that changes in system quality are not strongly associated with changes in satisfaction, and the t-value of -1.623 is not statistically significant at the $p<0.05$ threshold.

The study provides support for H3, indicating that service quality significantly influences satisfaction. The positive beta coefficient of 0.146 and the t-value of 3.039 indicate a statistically significant relationship between service quality and satisfaction.

H4 is supported, as the results demonstrate that perceived usefulness significantly influences satisfaction. The positive beta coefficient of 0.357 and the high t-value of 6.296 provide robust evidence of a statistically significant relationship.

H5 is not supported, as the results indicate that interactivity does not have a significant influence on satisfaction. The low beta coefficient (0.051) and the t-value of 1.099 do not meet the criteria for statistical significance at the $p<0.05$ level.

H6 is not supported, as the results suggest that perceived enjoyment does not have a significant influence on satisfaction. The low beta coefficient (0.046) and the t-value of 1.016 do not reach statistical significance at the $p<0.05$ threshold.

The results provide strong support for H7, indicating that perceived ease of use significantly influences perceived usefulness. The positive beta coefficient of 0.398 and the high t-value of 6.810 demonstrate a robust and statistically significant relationship between these variables.

In summary, the study's hypotheses testing results reveal a mixed picture, with some hypotheses supported while others are not. Information quality, service quality, perceived usefulness, and the influence of perceived ease of use on perceived usefulness emerge as significant factors influencing satisfaction. Conversely, system quality, interactivity, and perceived enjoyment do not demonstrate a significant influence on satisfaction in this study. These findings provide valuable insights into the specific factors that contribute to student satisfaction, offering important implications for improving educational experiences and system design.

5. Conclusion and Recommendation

5.1 Conclusion and Discussion

This research aimed to explore the factors influencing student satisfaction in Small Private Online Courses (SPOCs) in Chongqing, China, by utilizing a comprehensive conceptual framework encompassing various determinants. The study focused on a target population of 500 graduate students majoring in art, enrolled in SPOC programs at two prominent universities in Chongqing. Employing a quantitative approach and a structured questionnaire-based research design, the study rigorously assessed the quality and reliability of the data using established measures such as the Index of Item-Objective Congruence (IOC) and Cronbach's Alpha. Data analysis involved Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) techniques.

The findings of this study provide valuable insights into the complex landscape of student satisfaction in SPOCs, shedding light on the determinants that significantly impact this critical aspect of online education. The study revealed that the quality of information provided significantly influences student satisfaction. This underscores the importance of offering high-quality and relevant course materials in SPOCs to enhance the overall learning experience. Contrary to expectations, system quality did not exhibit a significant influence on satisfaction in this study. This finding suggests that while a reliable platform is crucial, other factors may play a more substantial role in determining satisfaction. The study confirmed that perceived ease of use significantly affects student satisfaction. This implies that user-friendly interfaces and navigation within the online learning platform contribute positively to students' overall satisfaction. The results indicated that perceived usefulness is a significant determinant of student satisfaction. This highlights the importance of aligning course content and objectives with students' educational and career goals.

Surprisingly, service quality did not exhibit a significant influence on student satisfaction in this study. Institutions should further investigate and address aspects of service quality that may be more relevant to students in the context of SPOCs. The study found no significant influence of interactivity on satisfaction, challenging the notion that increased interaction necessarily leads to higher satisfaction. Further research may be needed to explore the specific nature of interactivity that enhances satisfaction. Perceived enjoyment was also not found to significantly impact satisfaction in this study. Institutions should consider incorporating elements that enhance enjoyment in SPOC courses to make the learning experience more engaging.

In conclusion, this research contributes to the growing body of knowledge on student satisfaction in Small Private Online Courses (SPOCs). The findings offer practical insights for educators and institutions aiming to improve the quality and effectiveness of online education in Chongqing, China, and beyond. By addressing the significant factors identified in this study and further exploring the non-significant ones, educational stakeholders can work towards enhancing the overall SPOC learning experience and promoting student success

5.2 Recommendation

Based on the findings and limitations of the study on factors influencing student satisfaction with SPOC teaching platforms in Chongqing, China, the following recommendations are provided for educational institutions, course developers, instructors, and policymakers.

The rapid expansion of online education and the proliferation of digital learning platforms have transformed the landscape of higher education worldwide. Small Private Online Courses (SPOCs) have gained popularity as a flexible and accessible means of delivering education, providing students with the opportunity to engage with course materials at their own pace. However, the effectiveness and quality of SPOCs can significantly impact student satisfaction and learning outcomes. This essay presents a set of recommendations based on a recent study conducted in

Chongqing, China, aimed at enhancing student satisfaction with SPOC teaching platforms.

The study focused on Chongqing, China, where SPOC platforms have been integrated into the higher education system to cater to diverse student populations, including art majors. The research explored various factors influencing student satisfaction with these platforms, shedding light on the unique needs and preferences of undergraduate and postgraduate students. High-quality course content is paramount to student satisfaction. Educational institutions should invest in the development and curation of course materials that are accurate, relevant, and clear. Regular updates and reviews can ensure that content remains aligned with students' learning needs.

The reliability and functionality of the SPOC platform are critical. Continuous assessment and enhancements to the platform's technical aspects are necessary to minimize disruptions to the learning experience. Collaborating with instructional designers to create user-friendly, intuitive interfaces for the SPOC platform is essential. Usability testing should be conducted to identify and address navigation and usability issues.

Interactive elements, discussions, and collaborative activities should be encouraged in online courses. Instructors should receive training and resources to effectively utilize interactive tools and engage students. Acknowledge the distinct needs of undergraduate and postgraduate students and tailor course materials and interactions accordingly. Flexibility in course structures can accommodate varied learning preferences. Establish mechanisms for collecting regular feedback from students regarding course content, platform usability, and teaching effectiveness. This feedback should inform course improvements and adjustments.

Instructors should be offered professional development opportunities to enhance their online teaching skills and familiarity with SPOC platforms. Emphasis should be placed on pedagogical strategies for online instruction. Cultural factors that may influence student preferences and learning styles should be acknowledged. Adaptation of teaching approaches and content to be culturally sensitive and inclusive is vital. Develop strategic plans for the long-term sustainability and growth of online education. Consider emerging technologies and evolving educational trends to stay ahead. Evaluate the impact of interventions aimed at improving student satisfaction. Use data-driven insights to make informed decisions about course design and delivery.

Student satisfaction with SPOC teaching platforms is central to the success of online education. The recommendations presented here offer a comprehensive approach to enhancing student satisfaction in Chongqing, China, and can be adapted to similar contexts worldwide. These recommendations underscore the importance of quality course content, user-friendly platforms, and responsive teaching practices. By implementing these strategies, educational institutions and stakeholders can create effective and satisfying online learning experiences for students, fostering a culture of continuous improvement in online education.

5.3 Limitation and Further Study

Every research study has its limitations, and it's essential to acknowledge them transparently as they help contextualize the findings and inform future research endeavors. In the case of the study on factors influencing student satisfaction with SPOC teaching platforms in Chongqing, China, several limitations are worth noting:

Contextual Specificity: The study's findings are based on data collected in Chongqing, China, which may have unique cultural, educational, and technological contexts. Therefore, the generalizability of the results to other regions or populations may be limited.

Sample Size and Representativeness: The study may have a limited sample size, and the participants may not be fully representative of the broader student population. Larger and more diverse samples could yield different results.

Cross-Sectional Design: The research design is cross-sectional, providing a snapshot of student satisfaction at a particular point in time. Longitudinal studies could offer insights into how satisfaction changes over time.

Acknowledging these limitations is essential for maintaining the integrity of the research and guiding future investigations. Researchers and practitioners can build upon these limitations to conduct more robust and comprehensive studies that further our understanding of student satisfaction in online learning environments.

References

Abdullah, F., Ward, R., & Ahmed, E. (2016). Investigating the influence of the most commonly used external variables of TAM on students' perceived ease of use (PEOU) and perceived usefulness (PU) of e-portfolios. *Computers in Human Behavior, 63*(3), 75-90.

Adamson, I., & Shine, J. (2003). Extending the new technology acceptance model to measure the end-user information systems satisfaction in a mandatory environment: a bank's treasury. *Technology Analysis & Strategic Management, 15*(4), 441-55.

Alves, H., & Raposo, M. (2007). Conceptual model of student satisfaction in higher education. *Total Quality Management, 18*(5), 571-588.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*(2), 238-246. https://doi.org/10.1037/0033-2909.107.2.238

Brown, R., & Mazzarol, T. (2009). The importance of institutional image to student satisfaction and loyalty within higher education. *Higher Education, 58*(1), 81-95.

Chatterjee, S., Chakraborty, S., Sarker, S., Sarker, S., & Lau, F. Y. (2009). Examining the success factors for mobile work in healthcare: a deductive study. *Decision Support Systems, 46*(3), 620-633.

Chen, C. C., Lee, C. H., & Hsiao, K. L. (2018). Comparing the determinants of non-MOOC and MOOC continuance intention in Taiwan: effects of interactivity and openness, *Library Hi Tech, 36*(4), 705-719.

Chen, J. V., Rungruengsamrit, D., Rajkumar, T., & Yen, D. C. (2013). The success of electronic commerce Web sites: a comparative study in two countries. *Information & Management, 50*(6), 344-355.

Chen, Y. H., & Xie, J. (2008). Online consumer review: word-of-mouth as a new element of the marketing communication mix. *Management Science, 54*(3), 477-491.

Cheng, Y.-M. (2020). Students' satisfaction and continuance intention of the cloud-based e-learning system: roles of interactivity and course quality factors. *Education + Training, 62*(9), 1037-1059. https://doi.org/10.1108/ET-10-2019-0245

Davis, F. (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

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, 19*(4), 9-30. https://doi.org/10.1080/07421222.2003.11045748

Demangeot, C., & Broderick, A. J. (2006). Exploring the experiential intensity of online shopping environments. *Qualitative Market Research: An International Journal, 9*(4), 325-351.

Eid, M. I. (2011). Determinants of e-commerce customer satisfaction, trust, and loyalty in Saudi Arabia. *Journal of Electronic Commerce Research, 12*(1), 78.

Floropoulos, J., Spathis, C., Halvatzis, D., & Tsipouridou, M. (2010). Measuring the success of the Greek taxation information system. *International Journal of Information Management, 30*(1), 47-56.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Gable, G. G., Sedera, D., & Chan, T. (2008). Re-conceptualizing information system success: the IS-impact measurement model. *Journal of the Association for Information Systems, 9*(7), 377-408. https://doi.org/10.17705/1jais.00164

Gao, L. L., & Bai, X. S. (2014). An empirical study on continuance intention of mobile social networking services Integrating the IS success model, network externalities and flow theory. *Asia Pacific Journal of Marketing and Logistics, 26*(2), 168-189.

Gerow, J. E., Ayyagari, R., Thatcher, J. B., & Roth, P. L. (2013). Can we have fun & work? The role of intrinsic motivation for utilitarian systems. *European Journal of Information Systems, 22*(3), 360-380.

Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate Data Analysis* (6th ed.). Pearson Education.

Haq, N. U., Raja, A. A., Nosheen, S., & Sajjad, M. F. (2017). Determinants of client satisfaction in web development projects from freelance marketplaces. *International Journal of Managing Projects in Business, 11*(3), 583-607.

Headar, M. M., Elaref, N., & Yacout, O. M. (2013). Antecedents and consequences of student satisfaction with e-learning: the case of private universities in Egypt. *Journal of Marketing for Higher Education, 23*(2), 226-257.

Hiranrat, W. (2016). The Design of the Contents of an e-Learning for Teaching M.5 English Language Using ADDIE Model. *International Journal of Information and Education Technology, 6*(2), 127-131. https://doi.org/10.7763/IJIET.2016.V6.671

Hsiao, K. L., Lin, K. Y., Wang, Y. T., Lee, C. H., & Zhang, Z. M. (2019). Continued use intention of lifestyle mobile applications: the Starbucks app in Taiwan. *The Electronic Library, 37*(5), 893-913.

Hussein, R., Selamat, M. H., & Karim, N. S. A. (2007). The impact of technological factors on information systems success in the electronic government context. *Business Process Management Journal, 13*(5), 613-617.

Ifinedo, P. (2017). Students' perceived impact of learning and satisfaction with blogs. *The International Journal of Information and Learning Technology, 34*(4), 322-337.

Iivari, J. (2005). An empirical test of the Delone-Mclean model of information systems success. *Data Base for Advances in Information Systems, 36*(2), 8-27.

Islam, A. Y. M. A., Mok, M. M. C., Xiuxiu, Q., & Leng, C. H. (2017). Factors influencing students satisfaction in using wireless internet in higher education Cross-validation of TSM. *The Electronic Library, 36*(1), 2-20. https://doi.org/10.1108/EL-07-2016-0150

Jo, S., & Kim, Y. (2003). The effect of web characteristics on relationship building. *Journal of Public Relations Research, 15*(3), 199-223.

Johnson, R., & Winchell, W. (1988). Educating for quality. *Quality Progress, 2*(1), 48-50.

Kaplan, A. M., & Haenlein, M. (2016). Higher education and the digital revolution: About MOOCs, SPOCs, social media, and the Cookie Monster. *Business Horizons 59*(4), 441-450.

Kim, C., Oh, E., Shin, N., & Chae, M. (2009). An empirical investigation of factors affecting ubiquitous computing use and U-business value. *International Journal of Information Management, 29*(6), 436-448. https://doi.org/10.1016/j.ijinfomgt.2009.06.003

Kulkarni, U. R., Ravindran, S., & Freeze, R. (2007). A knowledge management success model: theoretical development and empirical validation. *Journal of Management Information Systems, 23*(3), 309-347. https://doi.org/10.2753/NUS0742-1222230311

Kumar, R. G., & Ravindran, S. (2012). An empirical study on service quality perceptions and continuance intention in mobile banking context in India. *Journal of Internet Banking and Commerce, 17*(1), 1-22.

Kuo, Y. F., Wu, C. M., & Deng, W. J. (2009). The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. *Computers in Human Behavior, 25*(4), 887-896.

Lee, K. C., & Chung, N. (2009). Understanding factors affecting trust in and satisfaction with mobile banking in Korea: a modified DeLone and McLean's model perspective. *Interacting with Computers, 21*(5/6), 385-392.

Lee, M. K. O., Cheung, C. M. K., & Chen, Z. (2005). Acceptance of internet-based learning medium: the role of extrinsic and intrinsic motivation. *Information & Management, 42*(8), 1095-1104.

Lee, T. M., & Park, C. (2008). Mobile technology usage and B2B market performance under mandatory adoption. *Industrial Marketing Management, 37*(7), 833-840.

Lee, Y. C. (2006). An empirical investigation into factors influencing the adoption of an e-learning system. *Online Information Review, 30*(5), 517-541. https://doi.org/10.1108/14684520610706406

Lewis, R. C., & Booms, B. H. (1983). Emerging Perspectives on Services Marketing. In L. L. Berry, G. Shostack & G. Upah (Eds.), Emerging Perspectives in Service Marketing, American Marketing Association (pp. 99-107). American Marketing.

Li, L., Zhang, L., & Willamowska-Korsak, M. (2014). The effects of collaboration on build-to-order supply chains: comparing BTO, MTO, and MTS. *Information Technology & Management, 15*(2), 69-79.

Lien, C. H., Cao, Y., & Zhou, X. (2017). Service quality, satisfaction, stickiness, and usage intentions: an exploratory evaluation in the context of We Chat services. *Computers in Human Behavior, 68*, 403-410.

Lin, C. S., Wu, S., & Tsai, R. J. (2005). Integrating perceived playfulness into expectation-confirmation model for web portal context. *Information & Management, 42*(5), 683-693.

Lin, H. F. (2008). Determinants of thriving virtual communities: contributions from system characteristics and social factors. *Information and Management, 45*(8), 522-527.

Liu, C.-T., Guo, Y., & Lee, C.-H. (2011). The effects of relationship quality and switching barriers on customer loyalty. *International Journal of Information Management, 31*, 71-79. https://doi.org/10.1016/j.ijinfomgt.2010.05.008

Liu, S.-H., Liao, H.-L., & Pratt, J. (2009). Impact of media richness and flow on e-learning technology acceptance. *Computers & Education, 52*, 599-607. https://doi.org/10.1016/j.compedu.2008.11.002

Liu, Y., Chen, Y., & Zhou, C. (2006, October). *Determinants affecting end-user satisfaction of information technology service* [Paper Presentation]. 2006 International Conference on Service, Troyes.

Lowry, P. B., Romano, N. C., Jenkins, J. L., & Guthrie, R. W. (2009). The CMC interactivity model: how interactivity enhances communication quality and process satisfaction in lean-media groups. *Journal of Management Information Systems, 26*(1), 155-196.

Mahmood, M., Burn, J. M., Gemoets, L. A., & Jacquez, C. (2000). Variables affecting information technology end-user satisfaction: a meta-analysis of the empirical literature. *International Journal of Human-Computer Studies, 52*(4), 751-71.

Masrek, M. N., Jamaludin, A., & Mukhtar, S. A. (2009). Evaluating academic library portal effectiveness: A Malaysian case study. *Library Review, 59*(3), 198-212. https://doi.org/10.1108/00242531011031188

Min, Y., Huang, J., Varghese, M. M., & Jaruwanakul, T. (2022). Analysis of Factors Affecting Art Major Students' Behavioral Intention of Online Education in Public Universities in Chengdu. *AU-GSB E-JOURNAL, 15*(2), 150-158. https://doi.org/10.14456/augsbejr.2022.80

Natour, S., & Woo, C. (2020). The determinants of learner satisfaction with the online video presentation method. *Internet Research, 31*(1), 234-261. https://doi.org/10.1108/INTR-04-2019-0155

Negash, S., Ryan, T., & Igbaria, M. (2003). Quality and effectiveness in web-based customer support systems. *Information and Management, 40*(8), 757-768.

Nunnally, J. C. (1978). *Psychometric Theory.* McGraw-Hill.

Nusair, K., Kandampully, J., & Nusair, K. (2008). The antecedents of customer satisfaction with online travel services: A conceptual model. *European Business Review, 20*, 4-19. https://doi.org/10.1108/09555340810843663

Ozkan, S., Koseler, R., & Baykal, N. (2009). Evaluating learning management systems: Adoption of hexagonal e-learning assessment model in higher education. *Transforming Government: People, Process and Policy, 3*, 111-130. https://doi.org/10.1108/17506160910960522

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

Poelmans, S., Reijers, H. A., & Recker, J. (2013). Investigating the success of operational business process management systems. *Information Technology and Management, 14*(4), 295-314.

Pritchard, A. (2013). *Ways of Learning: Learning theories and learning styles in the classroom* (3rd ed.). Routledge. https://doi.org/10.4324/9781315852089

Ramayah, T., Ahmad, N., & Hong, T. (2012). An Assessment of E-training Effectiveness in Multinational Companies in Malaysia. *Educational Technology and Society, 15*(2), 125-137.

Ramírez-Correa, P. E., Rondan-Cataluña, F. J., Arenas-Gaitán, J., & Alfaro-Perez, J. L. (2017). Moderating effect of learning styles on a learning management system's success. *Telematics and Informatics, 34*(1), 272-286.

Sagar, V. R. V. (2006). *A digital library success model for computer science student use of the meta-search system* [Unpublished Master's Thesis]. Virginia Polytechnic Institute, and State University.

Sharma, G. P., Verma, R. C., & Pathare, P. (2005). Mathematical modeling 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

Sharma, S. K., Chandel, J. K., & Govindaluri, S. M. (2014). Students' acceptance and satisfaction of learning through course websites. *Education, Business, and Society: Contemporary Middle Eastern Issues, 7*(2/3), 152-166.

Shiau, W. L., & Luo, M. M. (2010, July 9-10). *Continuance intention of blog users: the impact of perceived enjoyment and user involvement.* Proceedings of PACIS, Taipei.

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.

Sørebø, Ø., Halvari, H., Gulli, V. F., & Kristiansen, R. (2009). The role of self-determination theory in explaining teachers' motivation to continue to use e-learning technology. *Computers & Education, 53*(4), 1177-1187.

Sørum, H., Medaglia, R., Andersen, K. N., Scott, M., & Delone, W. (2012). Perceptions of information system success in the public sector: web admins at the steering wheel?. *Transforming Government: People, Process and Policy, 6*(3), 239-257.

Stevens, J. P. (1992). *Applied multivariate statistics for the social sciences* (2nd ed.). Erlbaum.

Stone, R. W., & Baker-Eveleth, L. (2013). Students' expectation, confirmation, and continuance intention to use electronic textbooks. *Computers in Human Behavior, 29*(3), 984-990.

Tan, G. W. H., Lee, V. H., Hew, J. J., Ooi, K. B., & Wong, L. W. (2018). The interactive mobile social media advertising: an imminent approach to advertise tourism products and services? *Telematics and Informatics, 35*(8), 2270-2288.

Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: a test of competing models. *Information System Research, 6*(2), 144-174.

Teo, T. S. H., Srivastava, S. C., & Jiang, L. (2009). Trust and electronic government success: an empirical study. *Journal of Management Information Systems, 25*(3), 99-131.

Thong, J. Y. L., Hong, W., & Tam, K. Y. (2002). Understanding user acceptance of digital libraries: what are the roles of interface characteristics, organizational context, and individual differences?. *International Journal of Human-Computer Studies, 57*(3), 215-42. https://doi.org/10.1016/S1071-5819(02)91024-4

Vaidyanathan, G., Sabbaghi, A., & Bargellini, M. (2005). User acceptance of digital library: an empirical exploration of individual and systems components. *Issues in Information Systems, 6*(2), 279-285.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: four longitudinal field studies. *Management Science, 46*(2), 186-204. https://doi.org/10.1287/mnsc.46.2.186.11926

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly, 27*(3), 425-478.

Wang, X. (2019). Research and practice based on SPOC seminar flipped classroom. *Journal of Inner Mongolia University of Finance and Economics, 17*(1), 138-141.

Westbrook, R. A., & Reilly, M. D. (1983). Value-percept disparity: an alternative to the disconfirmation of expectations theory of consumer satisfaction. *NA-Advances in Consumer Research, 10*, 256-261.

Wixom, B. H., & Todd, P. A. (2005). Theoretical integration of user satisfaction and technology acceptance. *Information Systems Research, 16*(1), 85-102.

Wu, J. H., & Wang, Y. M. (2006). Measuring KMS success: A respecification of the DeLone and McLean's model. *Information and Management, 43*(6), 728–739. https://doi.org/10.1016/j.im.2006.05.002

Yang, Z., Peterson, R. T., & Cai, S. (2003). Services quality dimension of internet retailing: an exploratory analysis. *Journal of Services Marketing, 17*(6/7), 685-700.

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing, 60*(2), 31-46.

Zhou, T. (2011).Examining the critical success factors of mobile website adoption. *Online Information Review, 35*(4), 636-652.

Zhou, T., Lu, Y., & Wang, B. (2009). The relative importance of website design and service quality determines consumers online repurchase behavior. *Information Systems Management, 26*(4), 327-337.