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# Exploring Impacting Factors of Undergraduate Students' Satisfaction with Online Courses of Adult Higher Education in Chengdu

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## Abstract

**Purpose:** This study explores the satisfaction of adult higher education undergraduate students with the online course education method in Chengdu. Perceived ease of use, perceived usefulness, service quality, information quality, system quality, self-efficacy, and user satisfaction are used to investigate students' satisfaction with online courses. **Research design, data, and methodology:** The researcher adopts a quantitative exploration approach with 493 samples and distribute the quantitative questionnaire to adult higher education undergraduate students at one university. The sampling approach are judgmental, quota, and convenience sampling. Confirmatory factor analysis and structural equation models are employed to explore the relationship of the variable in the current study. **Results:** All hypotheses are supported. Perceived ease of use, perceived usefulness, service quality, information quality, system quality, and self-efficacy significantly impact user satisfaction. **Conclusions:** For adult higher education undergraduate students to acknowledge and recognize the effectiveness of online courses, the administrator and teaching staff of continuing education schools in public universities should pay more attention to the factor that has to produce an important effect on the satisfaction of instruction and consider the correlated teaching adjust or reform in future according to the findings of this research.

**Keywords:** Online Course, Information Quality, System Quality, Self-Efficacy, Satisfaction

**JEL Classification Code:** E44, F31, F37, G15

## 1. Introduction

In recent years, many users have enrolled in online courses for adult higher education, and the use of online courses has increased, leading to the technological and platform support for online courses growing with the growth in popularity and use of the Internet. Joshi et al. (2018) defined online courses as "online courses are courses in which most or all of the content is online, and there is usually no or little face-to-face teaching." An online course is a teaching subject, and the planned learning process for a certain subject is based on Internet technology support and new teaching and learning relationship.

There are many problems in the practice of adult online courses, such as the disconnection between the course objectives, the training objectives, the actual needs of the

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industry, the extensive implementation of the course, and the limitations of evaluating the course learning achievements (Yu, 2018). Online courses of adult higher education often follow the online course teaching mode of general education, ignoring the characteristics and needs of adult learners. Higher adult online courses are still under construction, especially the integration of artificial intelligence, a new topic that is still being explored and integrating AI into online courses to meet the needs of adults.

Online education has become mainstream, and enhancing the service quality of online courses has become a social need. Creating top-notch online courses is crucial in raising the quality of online education. User satisfaction is a crucial metric for assessing the caliber of online courses. Therefore, raising students' satisfaction with online courses is urgently needed. Improving learner satisfaction is a major challenge for learners; according to information systems and computer-assisted learning (Eom et al., 2006), the learner's or user's satisfaction is a crucial indicator of the results of learning and the implementation success of online educational systems.

Based on the above multiple reasons, the quality of adult higher education online courses can be greatly improved by studying the elements that affect students' satisfaction with these courses. The researcher used confirmatory factor analysis and structure equation models to examine the results of this research. Based on past research, many key factors influence satisfaction, such as perceived ease of use, perceived usefulness, service quality, information quality, system quality, and self-efficacy.

## 2. Literature Review

### 2.1 Perceived Ease of Use

Some students think accessing online learning resources requires no mental effort (Almarashdeh, 2016). The system's perceived ease of use refers to how easily someone imagines implementing a particular technology (Lee, 2006). In electronic learning, perceived usability is evaluated regarding how difficult it would be to implement an E-learning system (Ahn et al., 2007). It is related to the phrase "the degree to which learners think the online courses will be simple to utilize" (Fokides, 2017). According to Davis (1989), one's perception of how easily new technology is to use depends on how much they believe it to be such. The study also mentioned the link between PEOU and one's assessment of the spiritual efforts made throughout the system's implementation. Hence, below hypotheses are set:

**H1:** Perceived ease of use has a significant impact on perceived usefulness.

**H2:** Perceived ease of use has a significant impact on user satisfaction.

### 2.2 Perceived Usefulness

Perceived usefulness is the extent to which a person argues that embracing a particular technology can boost work efficiency. The word "useful" is described as capable of being utilized constructively, which implies this. In turn, system users who believe use and performance are strongly correlated will give it a high perceived usefulness score (Feng et al., 2022). Scilicet relates to the extent to which a certain group's acceptance will improve the ability of a person to perform their work (Davis, 1989). The idea of perceived utility refers to how many students believe E-learning will improve learning results (Shahrokh, 2021). Adopters believed that E-learning is effective in helping them achieve their educational objectives (Lin, 2007). People's perceptions of a system's utility are measured by how much they think utilizing new technology will improve their ability to do their tasks. The degree to which participants believed MOOCs effectively improve academic performance is measured by perceived usefulness (Singh & Sharma, 2021). The subjective likelihood that utilizing a particular personality E-learning technology has improved the user's learning performance is what we refer to as perceived usefulness in this study (Cho et al., 2009). Thus, a hypothesis is set:

**H3:** Perceived usefulness has a significant impact on user satisfaction.

### 2.3 Service Quality

There needs to be more concern about service quality in the information systems and marketing literature. Significant efforts have been made over the past 40 years to identify thorough metrics for evaluating the quality of information system services. User perception of the entire quality of services the information systems provide is known as service quality (Almarashdeh, 2016). It refers to the availability of multiple contact channels for timely assistance to clients in resolving IS usage problems (Ahn et al., 2007). A user's perception of the service quality refers to their assessment of the overall caliber of services offered by an IS (Lee et al., 2007). The quality of services perceived by a user as a whole as offered by an IS is referred to as service quality (Wang et al., 2007). "Service quality" refers to a user's opinion of the overall caliber of services provided by multiple systems (Eom, 2012). When addressing various problems that the technology infrastructure may encounter, information technology professionals can appraise the level of service provided by Electric-learning systems (Aparicio et al., 2017). Accordingly, a hypothesis is indicated:

**H4:** Service quality has a significant impact on user satisfaction.

### 2.4 Information Quality

Information quality refers to how confident system users are that the content provided for online learning is complete, accurate, relevant, and organized (DeLone & McLean, 2003). The system's ability to produce and distribute information is measured by its quality. When it comes to information systems, good information quality is crucial for making wise decisions (Xinli, 2015). Information quality is the most helpful indication for E-learning courses out of the two supporting components of system quality and service quality specified in the information system model (Shih, 2004). Information quality is the level of the report's presentation and substance that the IS produces. It measures the information's accuracy, comprehensiveness, validity, effectiveness, relevancy, and scope (Aparicio et al., 2017). Information quality was the most helpful indication for e-learning courses out of the two supporting components of system quality and service quality specified in the information system model (Shih, 2004). Information quality is a term used to describe the characteristics of systems that become accurate, including metrics of correctness, timeliness, and completeness (Ramirez-Correa et al., 2017). Consequently, this study hypothesizes that:
**H5:** Information quality has a significant impact on user satisfaction.

### 2.5 System Quality

System quality is determined by how well a system possesses the distinctive qualities of an information system, as measured, among other things, by the system's response time, availability, dependability, flexibility, utility, and ease of understanding (Almarashdeh, 2016). According to Petter and McLean (2009), the extent to which users of a system believe it to be easy to be used, simple to understand, able to relate with, and fun to utilize. The IS's performance in dependability, comfort, simplicity, usability, effectiveness, and other system metrics is described as the System Quality concept (Ramirez-Correa et al., 2017). System quality describes how an IS processes information. As a result, many studies now use system quality to measure IS performance (Shih, 2004). According to Hossain (2016), system quality is described as how closely the system will mirror the traits that make up the information system. Subsequently, a hypothesis is suggested:
**H6:** System quality has a significant impact on user satisfaction.

### 2.6 Self-efficacy

Self-efficacy is the capacity to plan and carry out the actions required to achieve particular kinds of performances. Self-efficacy is a personal characteristic: "one's assessment of his ability to plan and execute the actions required to generate a particular achievement" (Bandura, 1997). It is the ability to use technical instruments in interactions (Liaw, 2008). The degree to which a student has self-efficacy is known as their level of belief in their ability to finish an Internet degree course (Shao, 2018). Self-efficacy is a person's ideas about their capacity to respond to a specific scenario's demand (Herold et al., 2007). Self-efficacy is the capacity to manage demanding demands and internal processes. Due to the task nature of self-efficacy beliefs, a person with high self-efficacy is likelier to demonstrate positive personality traits like perseverance, strategic planning, and high success (Hong et al., 2016). Based on the assumptions, this study can put forward:
**H7:** Self-efficacy has a significant impact on user satisfaction.

### 2.7 User Satisfaction

Kim and Malhotra (2005) believed that anticipated the level of knowledge gained through a specific E-learning platform. How satisfied a user is with a system's information, quantity, speed, and format is referred to as user satisfaction (DeLone & McLean, 2003). The expected degree of knowledge acquired through a certain E-learning platform defines user satisfaction (Hussein et al., 2020). Internet users' level of contentment with the choice to use the online and how it fits their aspirations are determined by their level of satisfaction (Wang & Liao, 2008). User satisfaction refers to how much the user feels the system meets their information demands, which implies that information systems that cater to users need to increase user happiness (Montesdioca & Maçada, 2015).

## 3. Research Methods and Materials

### 3.1 Research Framework

Research Framework is shown in Figure 1. Perceived usefulness positively impacts perceived ease of use (Almarashdeh, 2016). Perceived ease of use and confirmation can affect satisfaction (Liao et al., 2009). An important indicator of a learner's satisfaction with the system is the system's perceived usefulness (Xu et al., 2017). Based on AL-Sabawy (2013), numerous studies have been conducted to study how user satisfaction and service quality influence E-learning system effectiveness. According to

Roca et al. (2006), information quality is important for student satisfaction, who looked at it from the learner's perspective. The system quality of E-learning systems is also established as a determining element of user satisfaction (Chopra et al., 2019). Shen et al. (2013) found that online learning self-efficacy predicts students' satisfaction with online courses.

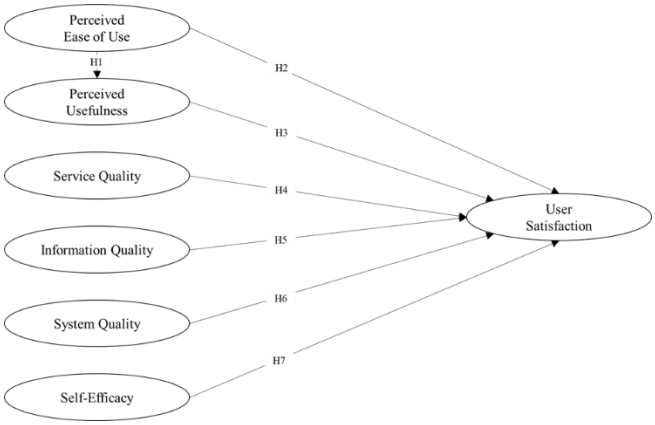


**Figure 1:** Conceptual Framework

**H1:** Perceived ease of use has a significant impact on perceived usefulness.
**H2:** Perceived ease of use has a significant impact on user satisfaction.
**H3:** Perceived usefulness has a significant impact on user satisfaction.
**H4:** Service quality has a significant impact on user satisfaction.
**H5:** Information quality has a significant impact on user satisfaction.
**H6:** System quality has a significant impact on user satisfaction.
**H7:** Self-efficacy has a significant impact on user satisfaction.

## 3.2 Research Methodology

The researcher employed a probability sampling methodology for research and administered the questionnaire in person to undergraduate students from adult higher education in Chengdu, China. The adult undergraduate comes from Xihua University, and their major included accounting, preschool education, automobile engineering, and civil engineering. Observational data are aggregated and investigated to determine the fundamental characteristics affecting the participant's satisfaction with the online course. A questionnaire is a standard procedure to collect primarily quantitative data from informants during an interview or a self-completion questionnaire in a survey (McColl et al., 2001). Using search query history, Bi et al. (2013) successfully and reliably extrapolated demographic information about users, for example, age and gender, as well as political and religious opinions. Its benefits include clear and straightforward consideration criteria, a manageable number of questions, and more reliability than other rating scale kinds (Snaw & Wright, 1967).

To analyze the accuracy of objectives proposed by the instrument developer for this research, four experts with appropriate competence in online courses were invited to undertake the item-objective congruence (IOC) for content validity. To check the instrument's reliability, 40 students participated in the pilot test; Cooper and Schindler (2013) stated that the ideal sample size is between 25 to 100. The ratings obtained from three experts by the IOC exceeded a score of 0.6, indicating approval. Additionally, the pilot test demonstrated Cronbach's alpha coefficient values that surpassed the acceptable threshold of 0.7, as specified by Nunnally and Bernstein (1994).

Therefore, the pilot test has 40 students, and Cronbach's Alpha score is employed to evaluate the internal consistency reliability of the questionnaire. Questionnaires are distributed to 500 undergraduate students from target institutions after the validity and reliability of the instrument are determined. IBM SPSS and AMOS are used to evaluate the data. Furthermore, the factor loading, t-value, composite reliability (CR), average variance extracted (AVE), and discriminant validity (DV) are employed to assess confirmatory factor analysis (CFA). The structural equation model (SEM) is used to verify the direct and indirect impact of latent constructs' association on the hypotheses.

## 3.3 Population and Sample Size

The study's target population is the adult higher education undergraduate from accounting, preschool education, automobile engineering, and civil engineering at Xihua University, China. The sample size is based on an analysis method that must be considered cautiously, as Collis and Hussey (2013) suggested in this section. According to the computed conclusions, the minimal sample size for this empirical research should be at least 425 for undergraduate and junior college students. In order to cope with the possible invalid data, the researcher selected more than 75 students as insurance. According to the equation modeling statistical technology, 500 students as a sample size are suitable and sufficient to obtain significant results.

## 3.4 Sampling Technique

The researchers used a multiple sampling method. First, the researcher used judgmental sampling to select students with online education experience from the higher adult

education units cooperating with Xihua University. Second, through the quota selection method, 500 respondents were selected from the majors of accounting, preschool education, civil engineering, and automotive service engineering as the final sample. Sample units and sample sizes are shown in Table 1. Convenience sampling is to distribute online questionnaire to the target group.

**Table 1:** Sample Units and Sample Size

| Educational Background | Subjects | Population Size | Proportional Sample Size |
|---|---|---|---|
| Undergraduate Students | Accounting | 333 | 97 |
| | Preschool Education | 157 | 46 |
| | Automobile Engineering | 228 | 67 |
| | Civil Engineering | 991 | 290 |
| **Total** | | **1709** | **500** |

**Source:** Constructed by author

## 4. Results and Discussion

### 4.1 Demographic Information

Table 2 summarizes the detailed demographics of respondents. Male respondents account for 50.51%, and female respondents account for 49.49%. According to the enrollment of adult education majors in the university, 17.85% of accounting majors participated in the activity, and 11.56% of students majored in preschool education. 15.21% of the students majored in automotive engineering and 55.38% in civil engineering. Regarding age distribution, 3.45% were aged 18 to 21, 21.30% were aged 22 to 25, 22.92% were aged 26 to 29, 21.09% were aged 30 to 33, and 31.24% were over 34.

**Table 2:** Demographic Profile

| Demographic and General Data (N=493) | | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 249 | 50.51% |
| | Female | 244 | 49.49% |
| Major Direction | Accounting | 88 | 17.85% |
| | Preschool Education | 57 | 11.56% |
| | Automobile Engineering | 75 | 15.21% |
| | Civil Engineering | 273 | 55.38% |
| Age | 18-21years | 17 | 3.45% |
| | 22-25 years | 105 | 21.30% |
| | 26-29years | 113 | 22.92% |
| | 30-33 years | 104 | 21.09% |
| | Over 34 years | 154 | 31.24% |

### 4.2 Confirmatory Factor Analysis (CFA)

The number of factors is a good indicator of the number of subscales, and the item-factor relationship pattern is a good indication of how the subscales should be scored. CFA is a crucial analytical tool for other psychometric evaluation components, including the estimation of scale (Raykov, 2001). Table 3 demonstrates that the entire value of average extracted variance (AVE) exceeds 0.50, composite reliability (CR) exceeds 0.70, and the values of factor loading are all over 0.50 (Bagozzi & Yi, 1988; Hulland, 1999).

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

| Variables | Source of Questionnaire (Measurement Indicator) | No. of Item | Factors Loading | CR | AVE |
|---|---|---|---|---|---|
| Perceived Ease of Use (PEOU) | Singh and Sharma (2021) | 3 | 0.833-0.910 | 0.895 | 0.741 |
| Perceived Usefulness (PU) | Singh and Sharma (2021) | 4 | 0.741-0.877 | 0.876 | 0.639 |
| Service Quality (SEQ) | Chopra et al. (2019) | 4 | 0.746-0.867 | 0.880 | 0.649 |
| Information Quality (IQ) | Chopra et al. (2019) | 6 | 0.790-0.848 | 0.926 | 0.675 |
| System Quality (SYQ) | Chopra et al. (2019) | 4 | 0.743-0.856 | 0.869 | 0.624 |
| Self-efficacy (SE) | Eom (2012) | 4 | 0.746-0.851 | 0.869 | 0.625 |
| User Satisfaction (SAT) | Chopra et al. (2019) | 5 | 0.740-0.831 | 0.903 | 0.650 |

Furthermore, as demonstrated in Table 4, the entire threshold of the chi-square value to the degree of freedom (CMIN/DF), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI), normalized fit index (NFI), Tucker Lewis index (TLI), and root mean square error of approximation (RMSEA) all compared the characteristic. Consequently, all these measures for the goodness of fits in this scientific study's CFA testing were appropriate.

**Table 4:** Goodness of Fit for Measurement Model

| Fit Index | Acceptable Criteria | Statistical Values |
|---|---|---|
| CMIN/DF | <5.00 (Awang, 2012) | 1.936 |
| GFI | ≥ 0.80 (Doll et al., 1994) | 0.908 |
| AGFI | ≥ 0.80 (Sica & Ghisi ,2007) | 0.889 |
| RMSEA | < 0.08 (Pedroso et al., 2016) | 0.044 |
| CFI | ≥ 0.90 (Hair et al., 2010) | 0.963 |
| NFI | ≥ 0.80 (Wu & Wang, 2006) | 0.926 |
| TLI | ≥ 0.90 (Hair et al., 2010) | 0.958 |
| **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, RMSEA = Root mean square error of approximation, CFI = Comparative fit index, NFI = Normed fit index and TLI = Tucker–Lewis index.

The consequences of the investigation and presentation of discriminant validity are shown in Table 5. The diagonally designated quantity is the AVE square root of the AVE, and neither of the correlations crossing any two latent variables was larger than 0.80 (Liu et al., 2020; Schmitt & Stults, 1986). Therefore, employing these quantitative measurements, discriminant validity was established.

**Table 5:** Discriminant Validity

| | PEOU | PU | SEQ | IQ | SYQ | SE | SAT |
|---|---|---|---|---|---|---|---|
| **PEOU** | **0.861** | | | | | | |
| **PU** | 0.281 | **0.799** | | | | | |
| **SEQ** | 0.313 | 0.528 | **0.806** | | | | |
| **IQ** | 0.404 | 0.453 | 0.499 | **0.822** | | | |
| **SYQ** | 0.211 | 0.508 | 0.551 | 0.466 | **0.790** | | |
| **SE** | 0.476 | 0.484 | 0.428 | 0.489 | 0.464 | **0.791** | |
| **SAT** | 0.421 | 0.509 | 0.536 | 0.521 | 0.501 | 0.560 | **0.806** |

**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 equation model (SEM) is verified in the research after CFA evaluation. In order to establish whether or not the hypothesized causality explanation fits, a particular combination of linear coefficients is evaluated using the SEM methodology. Structural equation modeling (SEM) and potent multivariate tool are used to analyze and assess the relationship of multivariate causal (Fan et al., 2016). Table 6 shows the goodness of fit for structural equation modeling by AMOS version 30. The combined values of CMIN/DF, GFI, AGFI, CFI, NFI, TLI, and RMSEA are all above acceptable limitations. The results reveal that the goodness of fit of the SEM is established.

**Table 6:** Goodness of Fit for Structural Model

| Index | Acceptable | Statistical Values |
|---|---|---|
| CMIN/DF | <5.00 (Awang, 2012) | 3.016 |
| GFI | ≥ 0.80 (Doll et al., 1994) | 0.836 |
| AGFI | ≥ 0.80 (Sica & Ghisi ,2007) | 0.801 |
| RMSEA | < 0.08 (Pedroso et al., 2016) | 0.064 |
| CFI | ≥ 0.90 (Hair et al., 2010) | 0.920 |
| NFI | ≥ 0.80 (Wu & Wang, 2006) | 0.885 |
| TLI | ≥ 0.90 (Hair et al., 2010) | 0.909 |
| **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, RMSEA = Root mean square error of approximation, CFI = Comparative fit index, NFI = Normed fit index and TLI = Tucker–Lewis index.

## 4.4 Research Hypothesis Testing Result

According to the results of Table 7, self-efficacy has an important effect on satisfaction. The standardized path coefficient (β) is 0.252 (T-value =5.174***). Perceived ease of use has the second strongest interaction with perceived usefulness, and the value of β is 0.251 (T-value=5.223***). Additionally, perceived ease also significantly affects satisfaction, and the value of β is 0.234 (T-value=3.720***). Service quality also significantly impacts satisfaction, and the value of β is 0.236 (T-value =4.909***); perceived usefulness significantly affects satisfaction, and the value of β is 0.209 (T-value=4.257***). Information quality is also examined and determined to affect satisfaction substantially, and the value of β is 0.216 (T-value=4.566***). As a result, system quality impacts satisfaction in quantifiable surveys, and the value of β is 0.175 (T-value =3.671***).

**Table 7:** Hypothesis Results of the Structural Equation Modeling

| Hypothesis | (β) | t-Value | Result |
|---|---|---|---|
| H1: PEOU→PU | 0.251 | 5.223*** | Supported |
| H2: PEOU→SAT | 0.234 | 3.720*** | Supported |
| H3: PU→SAT | 0.209 | 4.257*** | Supported |
| H4: SEQ →SAT | 0.236 | 4.909*** | Supported |
| H5: IQ →SAT | 0.216 | 4.566*** | Supported |
| H6: SYQ →SAT | 0.175 | 3.671*** | Supported |
| H7: SE→ SAT | 0.252 | 5.174*** | Supported |

**Note:** *** p<0.001
**Source:** Created by the author

Based on the findings of Table 7, with a standardized path parameter threshold of 0.251 for the structural approach, **H1** represents perceived ease of use as a considerable determinant for perceived usefulness. Perceived usefulness and perceived ease of use are connected with e-services, according to prior studies (Gefen et al., 2003). Based on TAM, perceived usefulness is determined by perceived ease of use because usability is necessary for information technology to function effectively (Goodwin, 1987). The key determinants of whether or not IS will be embraced are perceived usefulness and perceived ease of use.

In **H2**, the results demonstrate that one of the primary satisfaction characteristics is perceived ease of use, with a standardized path coefficient of 3.720. Research indicated a positive correlation between user satisfaction and perceived ease of use (Islam & Azad, 2015). Elmorshidy (2018) empirically analyzed the effects of crucial mobile application security parameters on TAM. They study the influence of important variables on the perceived ease of use

and user attitudes from an integrated perspective. It is proved that perceived ease of use positively affects the users' perceptions. Perceived ease of use and confirmation influence satisfaction (Liao et al., 2009).

The observable statistic findings of **H3** confirmed the hypothesis that perceived usefulness has a significant consequence on satisfaction. The standard coefficient value of 0.209 is the greatest significant consequence of the quantification investigation. According to studies by Alraimi et al. (2015), perceived usefulness and user satisfaction favorably impact users' intentions to continue using online courses. User satisfaction is influenced by how well expectations are met and how beneficial they believe it to be. However, according to the expectancy-confirmation paradigm, user satisfaction with information technology is impacted by perceived usefulness because it offers a standard for comparison with affirmation judgments (Lee, 2010).

Additionally, **H4** demonstrates that service quality has an important impact on the participants' satisfaction. Service quality indirectly affects user satisfaction (Oktal et al., 2016). Almarashdeh (2016) asserted that the level of service provided by LMSs considerably raises user satisfaction.

Moreover, **H5** confirms that information quality significantly influences satisfaction, with a standard coefficient value of 0.216. User satisfaction is correlated with information quality (Lee et al., 2007). E-learning systems should provide high-quality information because the technology gives pupils their theoretical foundation. The satisfaction of students is greatly influenced by the course content (Sun et al., 2008). Studies show that information quality is a key element defining satisfaction and behavioral intention and greatly affects user satisfaction (Jung et al., 2015).

Regarding **H6,** it is observed that system quality is closely related to satisfaction, resulting in a standard coefficient value of 0.175. This is the weakest effect point in academic research. According to Cheng et al. (2013), it significantly predicts both technology use and user satisfaction. For the same reasons, according to Aldholay et al. (2018), system quality greatly affects user satisfaction. The system quality of E-learning systems is also established as a determining element of user satisfaction (Chopra et al., 2019).

Eventually, **H7** has determined that Self-efficacy is significantly associated with satisfaction, as demonstrated by a statistical score of 0.252 on the standard coefficient of the active influence and the second strongest effect point on satisfaction in this research. We suggested in our hypothesis that SE directly influences the US because it is an intrinsic element. Studies on self-efficacy have been conducted about several student outcomes, including course satisfaction, as shown by the evidence in the body of literature (DeWitz & Walsh, 2002; Lee & Mendlinger, 2011). Several student outcomes, including student satisfaction, have been studied about self-efficacy (Alqurashi, 2017).

## 5. Conclusion and Recommendation

### 5.1 Conclusion and Discussion

The study aims to determine the influence factors of adult higher education students' satisfaction with online courses in Chengdu, China. The conceptual framework showed the seven hypotheses to validate the interaction between perceived ease of use, perceived usefulness, service quality, information quality, system quality, self-efficacy, and satisfaction. The scale items are designed and disseminated to 493 undergraduate students with sufficient experience in online courses as the component of the research strategy. Confirmatory Factor Analysis (CFA) is employed to conduct scientific calculations to authenticate the validity and reliability of the conceptual framework. Additionally, Structural Equation Model (SEM) is used to validate the primary influencers for the components that influenced satisfaction, and results show that all the hypotheses are supported.

It can be seen from the results of the study self-efficacy has the strongest significant influence on satisfaction and directly affects the dependent variable. Service and information quality demonstrate the second-rank and third-rank variables that impact satisfaction. Additionally, perceived usefulness has a fourth-rank impact on satisfaction. In addition, system quality and perceived ease of use with lower standardized path coefficient. Moreover, according to the TAM theory, perceived ease of use positively influenced the perceived usefulness in a quantitative survey.

### 5.2 Recommendation

The fundamental determinants for undergraduate satisfaction in online courses of higher adult education in Chengdu have been examined. The data of quantitative investigation suggests that the interconnection between self-efficacy, perceived ease of use, perceived usefulness, service quality, information quality, system quality, and satisfaction should be carefully considered. The following recommendations are outlined to generate more reasonable or advanced educational strategies to improve academic achievements.

As for self-efficacy, students, as the subject of teaching activities, should give full play to their subjective initiative and construct their cognitive system based on their existing knowledge and experience. Teachers should formulate

teaching standards according to the characteristics of online adult education students and encourage students to complete the requirements on their initiative. Teachers and teaching units should help students reduce unfamiliarity or resistance to the E-learning system to obtain the control ability of the E-learning platform. Combined with the characteristics of adult education students, make full use of the advantages of online courses, change the traditional classroom teaching thinking, and optimize online courses.

In addition, educational institutions and technical personnel of the learning platform should pay attention to the technical maintenance, technical guidance, and corresponding operation assistance of the online course platform, and timely understand the learning situation of students through tracking information of the platform, to ensure students complete the corresponding learning content on the online course platform.

Finally, for the study of online adult education courses, students' satisfaction can be significantly enhanced by promoting positive feedback and communication between students and teachers to expand extracurricular knowledge and acquire additional theoretical knowledge and practical ability.

### 5.3 Limitation and Further Study

In this paper, the sample size of adult education students at Xihua University in Chengdu is limited, so the conclusions have certain limitations. In the future, if conditions permit, we can go deep into different regions and types of adult colleges and universities to do comparative studies to make the conclusion more general. In addition, Technology Acceptance Model (TAM) and Information System Success Model (ISSM) are used in the paper, and the conceptual framework only contained seven potential variables; more technology acceptance theories such as TPB, TRA, and UTAUT could be considered to support the construction of the research framework.

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