Factors Influencing the Behavioral Intention of Senior Art Majors of Chengdu to Writing Thesis in the Dissertation Management System

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Abstract—The purpose of this project was to analyze the behavioral intention of senior students in art universities in Chengdu to adopt the “Dissertation Management System (DMS)”, and to analyze the mechanism of the factors that have a significant influence on their behavioral willingness. Based on the technology adoption model and integrated technology adoption theory, this study incorporates five potential variables, namely “perceived ease of use”, “perceived usefulness”, “social influence”, “performance expectations”, and “usage attitude”, into the research framework. This project takes college students majoring in art from three universities in Chengdu as the subjects, and uses quantitative analysis method to randomly select 969 valid questionnaires from college students. Through confirmatory factor analysis, structural equation modeling, and other methods, the collected data is statistically analyzed. Therefore, we suggest that on this basis, academic institutions of art majors in universities should optimize and improve the existing paper management system, in order to achieve better learning outcomes and sustained usage intentions.

Keywords—technology acceptance model, behavioral intention, dissertation management system

I. INTRODUCTION

A. Background of the Research

In the process of training and guiding college students, graduation design and thesis were important components. With the progress of The Times, there were several universities that combined traditional teaching and thesis management system in undergraduate graduation design and thesis. A skilled teacher first asks questions, and then the teacher helps the student choose questions. After the students complete the proposal report, they complete the design and thesis writing under the guidance of the advisor. Final editing of papers, Q&A sessions were held, and papers were archived during the design and mid-term review of papers [1].

Each task during this process calls for direct interaction between teachers and students, as well as contact via phone, email, and other channels. The ability for teachers and students to interact and resolve issues face-to-face was one benefit of doing this. However, it also has drawbacks, particularly in light of the rise of the Internet, contemporary distant learning, and contemporary undergraduate education. The effort of data organization would rise if traditional manual management methods were still applied, in addition to being labor- and time-intensive [2]. To ensure the quality of the graduation project and thesis, as well as to fully take advantage of the benefits of the pervasive Internet and rich network resources, was difficult for teaching managers because it was difficult for them to timely and accurately grasp the overall progress of graduation projects and papers.

With the development of higher education, academic papers have become an important standard for evaluating students’ academic achievements and abilities. As an important part of higher education, the graduation thesis system has an important impact on students’ academic development and social employment. However, at present, there is a certain lag in the research on the behavioral tendency of using the graduation thesis system, so this paper aims to deeply explore the impact factors on the behavioral tendency of target students using the graduation thesis management system, in order to provide references for improving the graduation thesis system.

B. Research Questions

The research questions of this quantitative research were examined the significant relationship between the latent variables, which were summarized in the following content:

1. To determine the significant association between perceived usefulness and attitude toward use of the target students via the Dissertation Management System.
2. To determine the significant association between perceived ease of use and perceived usefulness of the target students via the Dissertation Management System.
3. To determine the significant association between perceived ease of use and attitude toward use of the target students via the Dissertation Management System.
(4) To determine the significant association between social influence and behavioral intention of the target students via the Dissertation Management System.

(5) To determine the significant association between performance expectations and behavioral intention of the target students via the Dissertation Management System.

(6) To determine the significant association between attitude toward use and behavioral intention of the target students via the Dissertation Management System.

C. Research Objectives

In view of the above research problems, this paper puts forward our research objectives. First of all, we should explore the impact of university Dissertation Management System in Chengdu on the behavior intention of senior art students. Then through the research of this paper, let the school consciously guide the students to use the Dissertation Management System, so as to improve the students’ graduation thesis writing ability and level.

As people began to accept the thesis management method, it was being used more and more frequently in universities. Scholars in the United States and other countries have conducted a lot of research on the factors that affect the willingness of students of different majors to use Dissertation Management System. However, the academic research on the implementation of “Dissertation Management System” for art undergraduates in Chengdu was not comprehensive enough, and the qualitative research pays more attention. Therefore, it was a targeted subject to investigate the situation of “Dissertation Management System” adopted by Chengdu art undergraduate students [3].

D. Significance of the Research

In order to help supervisors more effectively correct students’ graduation theses and raise the caliber and level of undergraduate art thesis writing, this study identified the behavioral intentions of senior art majors in Chengdu that were influenced by the behavioral intention to use the Dissertation Management System. Testing why students adopt graduation thesis management systems requires an understanding of their behavioral objectives [4]. The elements influencing students’ utilization of the Dissertation Management System must therefore be made clear while drafting undergraduate theses.

II. LITERATURE REVIEW

A. Dissertation Management System

This technology offers college graduates a technical writing platform on which to compose their graduation thesis. Students can effectively communicate with lecturers and have timely access to essential material for their graduation thesis through online platforms. Additionally, it can make it much easier to upload and read documents, manage information, users, databases, and other associated tasks, which can increase productivity and reduce expenses. Next, the MX+Macro Media Dream Weaver MX+PHP design and implementation plan was given. Users have the ability to log in, carry out identity authentication, and carry out various activities on various users [5]. The system consists of the following components: management of teacher graduation project applications and project approvals, management of student topic selection, management of related report generation, management of online Q&As, management of student paper uploading and viewing, management of online reviews, and other functions, as well as information management, user management, and database management modules used by backend administrators [6]. These components together allow for the effective and networked management of university academics.

B. Perceived Ease of Use

‘Perceived ease of use’ refers to the user’s perception of ‘ease of use’ brought on by a particular technological application method [7]. In a straightforward and approachable description, Thompson, Higgins, and Howell [8] stated that the complexity or system was rather challenging to comprehend and operate. The goal of this article’s “usability” notion was to make it simple for students to learn how to use the software’s features, hence improving educational outcomes. We can infer the following conclusion from the aforementioned research: Resources and Procedures.

H1. Perceived ease of use has a significant impact on perceived usefulness [9].

H2. The attitude toward usage was significantly influenced by perceived simplicity of use.

C. Perceived Usefulness

According to Ref. [7], the psychological evaluation criterion of perceived usefulness was used to assess how well a person uses a given technology. In Vuulleh’s opinion, a student’s perspective of a certain learning style—specifically, whether they believe that learning style to be effective—was reflected in its “perceived usefulness”, which was how effective they believe that learning style to be [10]. Overall, many pilot studies have demonstrated that high levels of usefulness were frequently advantageous for students to build more advanced and effective learning psychology and have a major favorable impact on their usage attitudes [11]. The following hypothesis can be established in light of the aforementioned ideas:

H3. Usage attitude is significantly influenced by perceived utility.

D. Social Influence

Social influence was the effect on other people’s attitudes and behavior. Social impact was the term used to describe any effects brought about by events, legislation, or other variables that have the potential to alter people’s opinions, actions, and interests. The ideas
mentioned above allow us to make the following assumptions:

**H4.** Behavior-related intention was significantly influenced by social influence.

**E. Performance Expectations**

Expectations for someone or something’s performance in the future. It was a prediction that people make about what would happen to people, objects, and things in the future [12]. It has a great guiding relevance for current decisions and was an evaluation of future circumstances due to prejudging and anticipation. The following presumptions can be established using the definition above:

**H5.** Behavior intention was significantly influenced by performance expectations.

**F. Attitude toward Using**

Miles [13] contended that attitudes were both a good and negative psychological response of college students to a particular teaching technique from the perspectives of psychology and sensory neuroscience. According to Ref. [14], “attitude” describes a distinct psychological inclination displayed by a person toward a certain item or technical system. According to Ref. [15], a student’s attitude was a crucial psychological predictor of their willingness to adopt a particular educational approach and technology. According to research, attitude was positively connected with students’ pleasure and played a key part in motivating kids to learn and building proper values while they were obtaining an education. From the literature mentioned above, the following hypothesis can be formed:

**H6.** Behavior intention was significantly influenced by attitudes toward usage.

**G. Behavioral Intention**

According to Ref. [16], behavioral intention refers to a person’s irrational propensity toward potential future decisions. According to Ref. [17], behavioral intention refers to a person’s propensity to carry out a particular action, which is a level of expression controlled by the behavioral choice process of whether to carry out this action. As a result, behavioral intention—which was the choice made before the action manifested—was an essential step in every behavioral manifestation. The measurement of behavioral intention, which Peter and Olson [18] proposed, can be used to anticipate the occurrence of real conduct and can be applied to marketing markets to anticipate consumer behavior. The following conclusion can be drawn from the studies mentioned above:

**H7.** Behavior intention was significantly influenced by attitudes toward usage.

**H8.** Behavior-related intention was significantly influenced by social influence.

### III. RESEARCH METHODOLOGY AND MATERIALS

#### A. Conceptual Framework

This article presents a concept matrix based on TAM and UTAUT by evaluating pertinent literature. First of all, according to Davis et al.’s research, researchers discovered a causal association between user perceived usability, attitude, and behavioral intention [7]. Second, a theoretical framework for this project was developed based on the findings of Alhumsi’s research, which revealed two latent variables: social influence, performance expectations, and causal linkages between behavioral intentions [19]. A Dependent Variable (BI), three independent variables (Perceived Ease of Use (PEOU), Social Influence (SI), and Performance Expectations (PE)), and two mediating factors (Perceived Usefulness (PU) and Attitude Toward Using (ATT)) were all examined in this matrix. In Fig. 1, a concept matrix was displayed.

![Fig. 1. Conceptual framework.](image_url)

#### B. Research Methodology

In order to better understand the mechanism affecting students’ behavioral willingness to use thesis management system, this study would use quantitative research methods to investigate the behavioral factors of fourth grade students in Chengdu Art University. First of all, relevant questionnaire survey was conducted, and the specific survey observation scale is shown in Table I. In addition, the entire scale items were assessed using a 5-level Likert scale. According to the above basic principles and the suggestions of Isaac and Michael [20], 30 subjects were selected for the preliminary test in this study, and Cronbach’s alpha coefficient was used to evaluate the internal consistency reliability of the scale.

Following the pilot test, 560 people from the intended universities received the in-person questionnaires. Utilizing Jamovi and AMOS Graphics 18.0, the data were examined. In addition, Confirmatory Factor Analysis (CFA) was used to assess the discriminant validity, Average Variance Extracted (AVE), Composite Reliability (CR), factor loading, and t-value. The results of the hypothesis were validated using Structural Equation Modeling (SEM), which also looked at the direct, indirect, and cumulative impacts of the relationships between the latent variables.
C. Participants and Sample Size

A total of 969 students who used the graduation thesis management system make up the study’s overall sample of senior graduates with art majors from three universities in Chengdu. There were 969 respondents that participated in this poll. A total of 560 human beings were chosen as the final sample after screening and stratified sampling.

D. Sampling Technique

Therefore, in the first stage of this investigation, the method of judgment sampling was adopted to select a complete target population (the target population should be students majoring in fine arts in three universities in Chengdu, and all of them have used the graduation thesis management system), and the quota sampling method was adopted in the next stage. The sample size was determined by proportional stratified sampling to select a representative population sample. First, the researchers conducted a judgment sample of 969 undergraduate arts graduates who had previously used a thesis management system. In addition, a stratified random sampling method was adopted to select 560 students as the final sample, as shown in Table II.

### TABLE II. THE SAMPLE UNITS AND SUB-SAMPLE SIZE

<table>
<thead>
<tr>
<th>Target University</th>
<th>First Level Sample Size (N = 969)</th>
<th>Secondary Level Sample Size (N = 560)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chengdu University</td>
<td>352</td>
<td>207</td>
</tr>
<tr>
<td>Chengdu Normal University</td>
<td>315</td>
<td>185</td>
</tr>
<tr>
<td>Sichuan Conservatory of Music</td>
<td>302</td>
<td>168</td>
</tr>
</tbody>
</table>

IV. RESULTS AND DISCUSSION

A. Demographic Information

Table III displays information on population participants. 46.55% of the total respondents were men and 53.45% of the respondents were female. 16.05% of the overall majors were not classified, 35.47% were in painting, 21.35% were in art, and 27.13% were in design, per the major categorization.

### TABLE III. DEMOGRAPHIC INFORMATION PROFILE

<table>
<thead>
<tr>
<th>Demographic Information (N = 560)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>260</td>
<td>46.55%</td>
</tr>
<tr>
<td>Female</td>
<td>300</td>
<td>53.45%</td>
</tr>
<tr>
<td>Major Direction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No distinction between majors</td>
<td>90</td>
<td>16.05%</td>
</tr>
<tr>
<td>Painting major</td>
<td>198</td>
<td>35.47%</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>120</td>
<td>21.35%</td>
</tr>
<tr>
<td>Design major</td>
<td>152</td>
<td>27.13%</td>
</tr>
</tbody>
</table>

B. Confirmatory Factor Analysis (CFA)

The Confirmatory Factor Analysis (CFA) method was used to analyze the data. CFA was defined by Lewis Beck and a number of specialists as a multivariate statistical analysis program for synchronizing testing numerous hypotheses and jointly constructing a matrix. The importance of the factor load for each observational variable reveals how well the study model fits the data [30]. According to Table IV, the chi square value (CMIN/DF) for degrees of freedom in the statistical findings produced by AMOS was 1.654, which was less than the criterion of 3.000; The Goodness of Fit Index
(GFI) was greater than the cutoff of 0.900, at 0.960; Higher than the cutoff of 0.800, the Adjusted Goodness of Fit Index (AGFI) was 0.937; The Normalized Fit Index (NFI) was 0.934, greater than the threshold of 0.900, while the Comparative Fit Index (CFI) was 0.972, beyond the 0.900 barrier; The approximate Root Mean Square Error (RMSEA) was finally 0.034, which was less than the 0.050 cutoff. Each goodness of fit indicator in CFA was so acceptable.

Each Cronbach’s Alpha score exceeded 0.900, as shown in Table V’s summary, which showed excellent association internal consistency dependability of the findings. Additionally, the t-values were all greater than 1.980, the p-values were all lower than 0.050, the CR was greater than 0.700, and the AVE was greater than 0.500.

All factor loadings were also above 0.800, which was greater than the acceptable threshold of 0.500. As a result, every estimate in this section was within acceptable bounds.

<table>
<thead>
<tr>
<th>TABLE IV. GOODNESS OF FIT FOR CFA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Index</strong></td>
</tr>
<tr>
<td>CMIN/DF &lt; 3.000</td>
</tr>
<tr>
<td>GFI &gt; 0.900</td>
</tr>
<tr>
<td>AGFI &gt; 0.800</td>
</tr>
<tr>
<td>CFI &gt; 0.900</td>
</tr>
<tr>
<td>NFI &gt; 0.900</td>
</tr>
<tr>
<td>RMSEA &lt; 0.050</td>
</tr>
</tbody>
</table>

The values were all at ideal levels for discriminant validity, as shown in Table VI. The convergent and discriminant validity were thereby confirmed. As a result, the matrix estimation results made it easier to estimate the discriminant validity and verification of the future SEM evaluation.

<table>
<thead>
<tr>
<th>TABLE VI. DISCRIMINANT VALIDITY</th>
</tr>
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<tbody>
<tr>
<td><strong>Construct</strong></td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>B1</td>
</tr>
<tr>
<td>PU</td>
</tr>
<tr>
<td>PEOU</td>
</tr>
<tr>
<td>SI</td>
</tr>
<tr>
<td>ATU</td>
</tr>
<tr>
<td>PE</td>
</tr>
</tbody>
</table>

C. Structural Equation Model (SEM)

Following CFA, SEM was used to evaluate the individual system using a linear equation tailored to that system in order to confirm the fit of the proposed causal matrix. Furthermore, SEM verified the haphazard association between the latent variables in a particular statistical matrix that assessed correctness or faithfulness using the correlation coefficient. The results modified by AMOS version 18.0 are displayed in Table VII.

<table>
<thead>
<tr>
<th>TABLE VII. GOODNESS OF FIT FOR SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Index</strong></td>
</tr>
<tr>
<td>CMIN/DF &lt; 3.000</td>
</tr>
<tr>
<td>GFI &gt; 0.900</td>
</tr>
<tr>
<td>AGFI &gt; 0.800</td>
</tr>
<tr>
<td>CFI &gt; 0.900</td>
</tr>
<tr>
<td>TLI &gt; 0.900</td>
</tr>
<tr>
<td>RMSEA &lt; 0.050</td>
</tr>
</tbody>
</table>

All of the justified consequences corresponded to the acceptable standards, and the criteria for CMIN/DF, GFI, AGFI, CFI, and RMSEA were equivalent to those for CFA. Additionally, the Tucker Lewis Index (TLI) value was 0.991, which was higher than the cutoff of 0.900. As
a result, each goodness of fit indicator used in the SEM examination was perfect.

D. Hypothesis Testing Results

The significance of each latent variable was determined for the research matrix using the regression weights and R2 variances. PE had the biggest impact on behavior intention, as shown in Table VIII, with a standard path coefficient of 0.185 and t-value of 3.699***. Another factor that directly influenced action intention was social influence, with a t-value of 5.237 and a p-value of 0.416, and attitude toward using, with a t-value of 6.717 and a p-value of 0.416. Furthermore, PEOU had an impact on ATU with a t-value of 9.807 and a p-value of 0.070*, whereas PU had an impact on attitude with a t-value of 6.208***. Last but not least, PEOU has the strongest impact on BI, with a normalized path coefficient of 0.718. By employing the thesis management system, PEOU strengthens students’ beneficial effects on PU [31].

According to the data for H3, PEOU, with a standardized path coefficient of 0.420, was the main variable affecting ATU. PEOU was a significant predictor of how students would feel about utilizing the graduation thesis management system [32].

With a normalized path coefficient value of 0.678, PU has the greatest impact on attitude in H2. Students’ opinions toward using the thesis management system were significantly influenced by PU [33].

Additionally, the standardized path coefficient value for H4’s attitude effect on BI was 0.416. The primary factor indicator that influences how students use the graduation thesis management system was attitude [34].

With a normalized path coefficient value of 0.319, SI has the strongest impact on BI in H5 [35].

Finally, for H6, the findings demonstrate that PE significantly influences BI, with a normalized path coefficient of 0.185. PE was an important factor that affected students’ behavior intention of using graduation thesis management system.

V. CONCLUSION AND RECOMMENDATION

A. Conclusion

The goal of this study was to identify the variables that influence senior art majors in Chengdu’s behavioral intents to use the graduation thesis management system. As a conceptual framework, six hypotheses were put out to investigate the important effects of social influence, usage attitudes, and performance expectations on students’ behavioral intentions when utilizing the graduation thesis management system. Five hundred sixty senior art undergraduate graduates from the Chengdu region participated in a quantitative questionnaire survey. The conceptual framework’s efficacy and dependability were verified using CFA. The primary determining factors of behavioral intention were confirmed by SEM.

According to the findings, behavioral intention was significantly influenced by social influence. Because of this, we can highlight some benefits of using the graduation thesis management system for students in the course on writing their capstone projects, and we can also let them know about these benefits through notifications about school policies. Students who use the graduation thesis management system appropriately will benefit from this since it will help them understand it.

Additionally, behavioral intentions were influenced by performance expectations. Students will have preconceived notions and expectations for using the graduation thesis management system if teachers inform them beforehand. This will also have a positive effect on students’ behavioral intentions to use the graduation thesis management system.

Last but not least, behavioral intention was significantly influenced by attitude toward use. College students’ attitudes were their positive and negative psychological responses to a certain instructional strategy. If the previous graduate uses the graduation thesis management system with a positive attitude and feels at ease and productive, that graduate’s attitude toward use will also influence the following graduate’s behavioral intentions when using the system.

The overall goal of this study was to demonstrate that SI, ATU, and PE were significant influences on senior art majors in Chengdu’s behavioral intentions to use the graduation thesis management system.

B. Recommendation

The primary influences on the behavior intentions of Chengdu’s senior fine arts students who use the graduation thesis management system were analyzed in this study. By concentrating on societal impact, performance expectations, and usage attitudes, we may offer ideas for schools and teachers to improve the thesis management system in order to increase the efficiency of schools and teachers in managing theses. An essential way to actualize instructional management information
and network was through the study and implementation of an online management system for undergraduate theses. By using this method to handle college graduation theses, the issues of time consumption, inefficiency, and inequity brought on by manual management of theses can be resolved. This tremendously benefits students and teachers while also enhancing work productivity.

In addition to helping students use the platform of the graduation thesis management system, the university should place a high priority on the research and development of undergraduate thesis online management systems. They must first lessen students’ aversion to using the thesis management system as well as their unfamiliarity with it. In order to establish the student’s positive attitude toward using the thesis management system, the supervisor should also provide the student with the proper guidance to help the student feel satisfied with the experience of using the thesis management system, particularly the PEOU and PU using the thesis management system.

Schools should also create a graduation thesis management system that was appropriate for art students based on their needs and traits. Finally, universities in the Chengdu area should work to improve student satisfaction through the positive effects and performance expectations of using graduation thesis management system, in order to promote students’ behavioral intention to use such a system. This was because PEOU, PU, SI, PE, and ATU have combined effects.

C. Limitations and Further Research

The target demographic of this study was limited to just students from three universities in Chengdu. Additionally, the quantitative analysis was only chosen for seniors majoring in fine arts.

This study was further investigated and was comprised of two sections. First off, the research’s scope can be expanded to include universities in Sichuan and even other regions of China, in addition to other majors outside art and design. Second, in order to expand the research framework utilizing the conceptual framework of thesis management systems, the survey may take into account additional possible variables such as effort expectations, trust, perceived interaction, learning motivation, performance expectations, and facilitation circumstances.

CONFLICT OF INTEREST

The author declares no conflict of interest.

REFERENCES


