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The Influence of Student Engagement and Student Satisfaction on Continuous Use of Paid Knowledge on Moocs Platform: A Survey Case Study of School of Management, Guangdong University of Technology

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Abstract

Background and Aim: Since 2012, the advent of Massive Open Online Courses (MOOCs) has sparked a global revolution in digital education. As modern educational technology continues to advance rapidly, the sharing of educational resources and the establishment of online courses have become critical priorities. This research aims to analyze the current state of online course learning among students in management colleges, tackle the challenge of enhancing online learning environments, develop innovative models for online platforms, and meet diverse learning needs. Through investigation and research on students' understanding of online courses, usage patterns, and existing challenges, the study seeks to foster well-rounded management professionals equipped to meet the demands of contemporary society.

Materials and Methods: This study involves seven variables that will be assessed through questionnaires to ensure reliability and validity in research measurement. To achieve this, we integrated previous questionnaire designs related to paid courses on knowledge payment platforms and conducted a pre-test to refine the questionnaire based on participant feedback and data performance. Following adjustments, a finalized version of the questionnaire was developed to enhance accuracy in data collection.

The focus of this research is on users of paid knowledge platforms who either intend to purchase or have already made purchases. Therefore, screening questions were initially included in the questionnaire design to identify respondents familiar with paid courses. Respondents not aware of such courses were excluded from further questioning. Subsequently, additional inquiries were directed towards filtering out those unwilling to pay. The final sample analysis was conducted exclusively on users who were aware of paid courses and either expressed willingness or demonstrated behavior in paying for them.

Results: The researcher will outline the study's subjects in this chapter, including the target population, sample units, sample size, and related sampling procedures. Additionally, they will establish the research instrument for this study and delineate the various sections of the questionnaire. The validity, internal consistency, and reliability of the research content will also be addressed. Internal validity is determined by two factors: prediction and Cronbach's alpha coefficient.

Conclusion: The relevant research findings are presented, which are beneficial for learners in both courses, and the level of support provided by the course structure varies for different learners; Understanding the needs of learners for the course is essential. Based on the aforementioned research, the ultimate goal is to promote curriculum optimization and iteration and provide corresponding guidance and references for developing MOOC classes to enhance teachers' teaching abilities.

Keywords: Moocs; College students; Online learning; Knowledge payment

Introduction

The article is organized into distinct sections. Firstly, it provides the relevant background of the study. Secondly, it delineates the research objectives. The third section comprises a Literature review that describes pertinent literature and reference materials essential for this research project. The fourth section presents the Conceptual Framework, which establishes its research framework based on previous studies. The fifth part encompasses Methodology; followed by Results in the sixth part, where data presentation, interpretation, statistical analysis, and findings are expounded upon. The seventh part is dedicated to discussing and summarizing previous research data as well as addressing related issues. Finally, in the conclusion section, the prospects of the research content will be deliberated.

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Limitations of the Study

The data and findings were gathered via questionnaires, where respondents were asked to answer specific questions listed in the questionnaire (Sheatsley, 1983). However, there are limitations, such as potential challenges in reaching the appropriate respondents or not achieving geographic diversity. In terms of data accessibility, this research focuses on a specific population, which could lead to a relatively small sample size and limited scope. Consequently, the reliability of the collected data may be compromised. Furthermore, due to constraints in data collection and time limitations for paper completion, there might not be enough time allocated to thoroughly develop the research, potentially affecting the quality of the outcomes. Additionally, considering the authors' diverse cultural backgrounds and individual perspectives on certain phenomena, these variations could influence the interpretation of the research findings.

Variables: Table 1 lists the relevant factors used in the literature regarding the impact of perceived teacher presence and student satisfaction on the continuous use of paid knowledge on MOOC platforms.

Table 1 summarizes the factors related to Simulation identified in the literature.

Factors	Description	References
Student Satisfaction	Satisfaction can be defined as the extent to which needs, goals, and desires have been accomplished.	(Gray&DiLoreto, 2016)
Student Engagement	According to Fredricks et al., (2004), student engagement is multidimensional.	(Gray &DiLoreto, 2016)
Course Structure	The course structure expresses the rigidity or flexibility of learning objectives, teaching strategies, and evaluation methods.	(Gray & DiLoreto, 2016)
Perceived Instructor Presence	, (Anderson et al., 2020) referred to teaching presence as the design, facilitation, and direction of cognitive and social processes for the realization of personally meaningful and educationally worthwhile learning outcomes.	(Mendoza el at., 2021) (Anderson et al., 2020)
Learner Interaction	The interaction between an instructor and learners during online courses.	(Cidral et al.,2018); (Sun et al., 2008)
Interactivity in Software Tool	Regarding online learning, interactivity has been identified at least. Three dimensions: student–instructor, student–content, and student-student	(Swan, 2001)
Instructor presence	Summarized three indicators of instructor presence: instructional.management, building understanding, and directing instruction.	(Garrison et al., 2001)

This paper is mainly based on (Gray & DiLoreto, 2016), and the model is modified and expanded according to the characteristics of the MOOC content payment platform. Based on the use of MOOC platforms before and after college students in the psychological feelings and behavior of the perception of the exploration. The present study investigates the determinants influencing college students' utilization of MOOC knowledge payment content and proposes corresponding recommendations and strategies based on the research findings (Kumar et al., 2022). Therefore, a correlational theoretical model was established to verify the influence of these factors on the acceptance of paid knowledge content on MOOC platforms. After verifying the relevant factors, a researcher can better combine the conclusions and put forward some suggestions on the willingness to use paid knowledge content on MOOC platforms (Chan & Bishop, 2013).

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Questions

1. What is the significant relationship between the course structure of paid knowledge learning on the Mooc platform and Student Satisfaction in paid knowledge learning on the Mooc platform for college students in the School of Management, Guangdong University of Technology?
2. What is the significant relationship between the Interactivity in Software Tools of paid knowledge learning on the Mooc platform and Perceived Instructor Presence with paid knowledge on the Mooc platform for college students in the School of Management, Guangdong University of Technology?
3. What is the significant relationship between the Instructor Presence of paid knowledge learning on the MOOC platform and Student Engagement with paid knowledge on the MOOC platform for college students in college students in School of Management, Guangdong University of Technology?
4. What is the significant relationship between Perceived Instructor Presence and student engagement of college students in college students in School of Management, Guangdong University of Technology in paid knowledge learning on MOOC platforms?
5. What is the significant relationship between Perceived Instructor Presence and Student Satisfaction of college students in college students in School of Management, Guangdong University of Technology in paid knowledge learning on MOOC platforms?
6. What is the significant relationship between Learner Interaction and Student Satisfaction of college students in college students in School of Management, Guangdong University of Technology in paid knowledge learning on MOOC platforms?

Objectives

1. To identify the significant relationship between the Course Structure of paid knowledge learning on the MOOC platform and Student Satisfaction with paid knowledge learning on the MOOC platform among college students in Guangdong University of Technology's School of Management.
2. To identify the Instructor Presence of college students in Guangdong University of Technology's School of Management in learning paid knowledge on MOOC platforms Significant relationship with Student Engagement for learning paid knowledge on MOOC platforms.
3. To identify the significant relationship between the Learner Interaction and Student Satisfaction of college students in Guangdong University of Technology's School of Management on paid knowledge of MOOC platform.
4. To identify the significant relationship between Interactivity in Software Tools and Perceived Instructor Presence of paid knowledge on MOOC platforms for college students in Guangdong University of Technology's School of Management.
5. To identify the significant relationship between college students in Guangdong University of Technology's School of Management on paid knowledge of MOOC platforms between the Perceived Instructor Presence and Student Engagement.
6. To identify the significant relationship between college students at Guangdong University of Technology's School of Management on paid knowledge of MOOC platforms between the Perceived Instructor Presence and Student Satisfaction of paid knowledge on MOOC platforms.

Literature review

Student Satisfaction

The concept of satisfaction in marketing typically refers to the psychological state of happiness experienced when expectations are fulfilled. The introduction of "customer satisfaction" by American scholar Cardozo in 1965 marked a significant milestone in the field, bringing heightened attention to this critical aspect (Cardozo, 1965). In educational contexts, satisfaction often denotes students' positive perceptions of their blended learning experiences (Nagy, 2016). Scholar Locke described satisfaction as a psychological phenomenon, possibly related to individuals' subjective intentions or their assessments of relationship quality and capability (Locke, 1969).

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Student Engagement

The exploration of student engagement in educational research, particularly regarding student participation, can be traced back to the contributions of Ralph Tyler, a respected scholar who introduced the concept of "task timeliness." Tyler emphasized the importance of allocating sufficient time to learning, as it facilitates the acquisition of relevant knowledge, thereby laying a foundational basis for theories related to student engagement (Pace, 1982).

Additionally, Pace put forth the Quality of Effort theory in 1982, positing that the more students apply learned knowledge in educational activities and the greater effort and time they invest, the more active their participation and the greater their gains. However, Pace's theory faces challenges in providing precise descriptions of learner involvement, reflecting the lack of a unified definition of learning engagement among scholars.

The term "learning engagement" can be traced back to the 1930s, when educational psychologist Ralph Tyler demonstrated in his research that investing time in tasks positively impacts learning outcomes. Since then, scholars have proposed various explanations for learning engagement based on psychological investigations.

For instance, Newman et al. (1992) defined learning engagement as "the cognitive commitment and dedication invested in acquiring, comprehending, or mastering knowledge, skills, and crafts," emphasizing the cognitive and effortful aspects of mental involvement (Newman, 1992). Building on this, Marks (2000) described learning engagement as "a cognitive process involving a student's focus, curiosity, active participation, and exertion in the learning and working process" (Marks, 2000).

Course Structure

Literature exploring curriculum design emphasizes the importance of sequence and continuity in optimizing learning outcomes. According to Janet (1987), foreign scholars argue that course structures must consider order and coherence to enhance effective learning. Additionally, leading international higher education institutions' curriculum frameworks are highly regarded by national counterparts, although consensus on standardization remains elusive.

Specialized majors play a crucial role in shaping future career paths and educational structures. Byrne (2006) notes that institutional tendencies often align with international precedents, influencing curriculum development and specialization trends. This structured approach in professional curriculum design fosters the development of engineers equipped with innovative thinking and specialized skills.

Perceived Instructor Presence

According to (Anderson et al.,2020), teaching presence refers to the intentional facilitation of cognitive and social processes to create meaningful and educational learning experiences for individuals.

However, a significant concern raised in existing literature is the limited interaction between students and teachers in online learning environments. This lack of interaction may lead to a reduced awareness of the teacher's presence (Park & Kim, 2020). Additionally, research suggests that incorporating research tools can enhance teacher presence in online learning while positively influencing student engagement and satisfaction.

Learner Interaction

According to Wagner (1994), interactions involve bilateral actions between individuals or groups. In the context of e-learning, the value of interactions is pivotal across various dimensions. Kim et al. (2011) highlight three crucial aspects: student-teacher interaction, student-content engagement, and student-student collaboration (Swan, 2001), which collectively enhance the curriculum's efficacy.

The research underscores the significance of learner interactions in sustaining active engagement, emphasizing the need for participants to maintain relevant engagement states (Anton & DiCamilla, 1998). Laurillard's conversational model of teaching further supports this view, positing that interactions between learners and educators, both within structured environments and conceptually, are integral to the learning process.

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Interactivity in Software Tool

The following are the main areas of research and concepts related to this topic. Firstly, interpersonal relationships benefit from interactivity and contribute to a stronger social presence in networks. In e-learning, curriculum value (Kim et al., 2011) is reflected through three key aspects: student-teacher interaction, student-content engagement, and student-student collaboration (Swan, 2001). Perceived activity is directly proportional to the level of interactivity observed (Park & Kim, 2020), emphasizing that interactivity cannot exist in isolation but requires active participation and productive interactions among individuals.

Additionally, software tools play a crucial role in facilitating collaboration during online learning processes, thereby enhancing students' work efficiency and overall learning experience (Abrami et al., 2011). Consequently, incorporating interactive software tools becomes indispensable within the realm of online education.

Information about the Population

In this study, 4,927 undergraduates from the School of Management, Guangdong University of Technology were selected. The school is in Guangzhou, Guangdong Province. The students are mainly from Guangdong Province, with a few from all over the country. According to the latest data from the school's official website in 2021, the School of Management has 5 departments offering 13 undergraduate majors; It has 1 first-level postdoctoral mobile station, 1 doctoral degree, and 1 second-level doctoral degree. There are 183 faculty members, including 148 full-time teachers, and 25 professors; There are 4,927 undergraduate students and 1,520 doctoral and master's students.

Conceptual Framework:

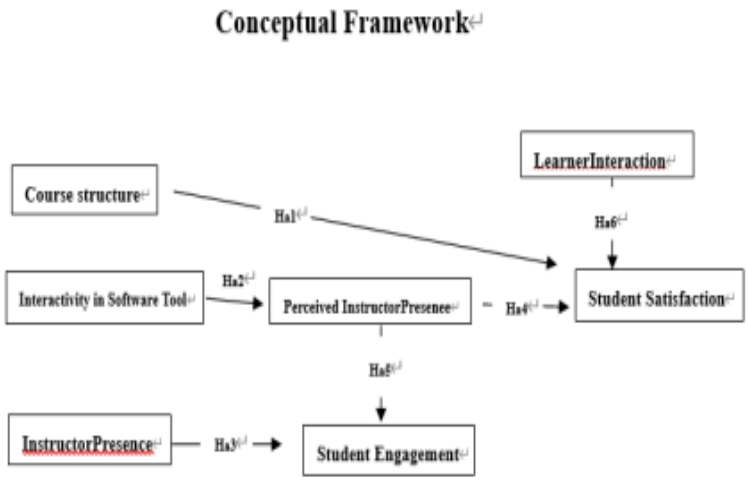

Figure 1 Conceptual Framework

Highlighting the importance of theory-driven decision-making when selecting a research topic, Grant and Osanloo (2014) use the metaphor of a house blueprint to illustrate the application of theoretical frameworks. They detail the steps involved in choosing and integrating a theoretical framework to structure various aspects of research, providing a comprehensive example within a thesis context. Clark (2015) underscores the indispensable role of conceptual frameworks as fundamental tools in academic research.

Hair et al. (2013) illustrate that conceptual frameworks visually depict the relationships between model variables, aiding in understanding complex interactions. Cooper and Schindler (2014) emphasize the graphical representation of variable relationships within the conceptual framework of a study. In this study,

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the conceptual framework encompasses seven variables categorized into independent, dependent, and intermediary variables.

Hair et al. (2013) define independent variables as concepts measured to assess their impact on specific outcomes, reinforcing their pivotal role in research design. Clark (2010) notes that independent variables influence other pertinent variables. In this context, the independent variables include Course Structure, Instructor Presence, Interactivity in Software Tools, and Learner Interaction.

Given the research questions, the following hypotheses are proposed:

H_a1: Course structure has a statistically significant impact on student satisfaction.

H_a2: Interactivity in Software Tools has a statistically significant impact on Perceived Instructor Presence.

H_a3: Instructor Presence has a statistically significant impact on Student Engagement.

H_a4: Perceived Instructor Presence has a statistically significant impact on Student Satisfaction.

H_a5: Perceived Instructor Presence has a statistically significant impact on Student Satisfaction.

H_a6: learner interaction has a statistically significant impact on Student Satisfaction

Methodology

1. Quantitative Sample

In addition, the study focuses on users of paid knowledge platforms who either intend to purchase or have already enrolled in the "Financial Management" course. To ensure the relevance of responses, screening questions were incorporated into the questionnaire design process to identify respondents familiar with paid courses. Individuals unfamiliar with these courses were excluded from further participation. Subsequent investigations further filtered out respondents who lacked a willingness to pay.

The final sample analysis was conducted exclusively on users who were aware of paid courses and either expressed a willingness to pay or had already engaged in such transactions.

2. Research instrument

The survey instruments were developed based on (Gray & DiLoreto, 2016); (Mendoza et al., 2021); (Garrison et al., 2001). All 32 survey items were assessed using a Likert scale ranging from 1 to 5 (1 indicating strong disagreement and 5 indicating strong agreement).

To ensure the validity of the scale, a test of item-target consistency was conducted by three experts in the field. Following the initial questionnaire drafting phase, three senior experts with over 20 years of experience in English teaching and proficiency in both Chinese and English meticulously evaluated the Chinese version of the questionnaire to ensure translation accuracy. The internal consistency of the questionnaire was assessed through a pretest involving 30 students, using Cronbach's α coefficient.

3. Data collection procedure

The author of this study is a daily teaching manager at the School of Management, Guangdong University of Technology. The participants were undergraduates from the same institution. To ensure the collection of relevant and valid interview data, respondents' age confirmation (above 15 years old) and random selection of questionnaire recipients were prerequisites. Ethical approval for data collection was obtained from relevant leadership before commencement. Assistance from faculty members in each grade facilitated disciplined data gathering.

Before data collection, students received paper questionnaires to assess their attitudes. They were also required to sign a statement confirming their participation and an anonymity agreement. The research was further supported by data from authorized school researchers, with final inclusion in Mikura University, Thailand. Interviews were conducted in March 2022, preceded by sending interview questions and details to participants for advanced consideration, aiming to elicit comprehensive and credible responses.

This project utilized both online data collection and face-to-face interviews. A total of 530 questionnaires were distributed among management students at Guangdong University of Technology. A rigorous review of relevant scientific literature provided the theoretical framework, focusing on specific disciplines and target student groups."

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4. Data analysis

In addressing the research problem, SPSS software is utilized for conducting statistical analyses such as confirmatory factor analysis (CFA) and structural equation modeling (SEM). These analyses are employed to investigate the relationships among key variables, assess the validity of the research hypotheses, and quantify the strength of path coefficients.

4.1 Descriptive Statistics of Variables

A total of 530 cases were successfully collected, with all 530 questionnaires deemed valid for analysis. Mean scores were computed for each of the seven identified factors by averaging individual variable scores. These results are presented in Table 2 and should be interpreted within the context of a Likert scale, where scores range as follows: 1.00-1.50 indicating strongly disagree, 1.51-2.50 disagree, 2.51-3.50 neutral, 3.51-4.50 agree, and 4.51-5.00 strongly agree (Norman, 2010).

The average scores obtained were as follows: 3.41 for Perceived Instructor Presence, 3.27 for Student Engagement, 3.235 for Student Satisfaction, 3.57 for Learner Interaction, 3.124 for Instructor Presence, 3.44 for Course Structure, and 3.465 for Interactivity in Software Tool. These findings indicate a strong consensus among students regarding the effectiveness of paid courses offered on the platform during the specified period.

Furthermore, the reliability of the data was assessed using Cronbach's alpha, with each factor scoring above 0.9, surpassing the recommended threshold of 0.7 for satisfactory internal consistency (Cronbach, 1951).

Results

The structural equation modeling (SEM) method was employed to assess the proposed model and evaluate the overall fit of the research hypotheses. Before conducting the SEM analysis, a confirmatory factor analysis (CFA) was performed to validate the study's structural framework.

1. Goodness-of-Fit Evaluation of CFA Matrix: The results of the goodness-of-fit for the measured model are presented in Table 3. Overall, each item demonstrates significant loading within its respective structural framework, thereby confirming convergent validity. The indicators and calculations indicate a well-fitting model.

Table 2 Goodness-of-Fit for Measurement Model Results

Reference index	X^2/df	GFI	AGFI	NFI	IF	TLI	CFI	RMSEA
Statistical value	2.254	0.898	0.878	0.913	0.950	0.943	0.950	0.049
Reference value	<3	>0.8	>0.8	>0.9	>0.9	>0.9	>0.9	<0.08
Conclusion	Qualified	Qualified	Qualified	Qualified	Qualified	Qualified	Qualified	Qualified

Remark: CMIN/DF = 2.254; GFI = 0.898; AGFI = 0.878; NFI = 0.913; CFI = 0.950; TLI = 0.943; RMSEA = 0.049.

2. Evaluation of the Confirmatory Factor Analysis

Table 3 The Results for Factor loading, Composite Reliability (CR), and Average Variance Extracted (AVE

Observation variable	CA	Factors Loading	T-Value	CR	AVE
SS	**0.914**			**0.915**	**0.731**
SS1		0.873			
SS2		0.823	24.325		
SS3		0.809	23.606		

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Observation variable	CA	Factors Loading	T-Value	CR	AVE
SS4		0.910	28.979		
SE	**0.868**			**0.871**	**0.629**
SE1		0.813			
SE2		0.752	18.531		
SE3		0.727	17.776		
SE4		0.872	21.974		
CS	**0.871**			**0.872**	**0.630**
CS1		0.748			
CS2		0.811	18.242		
CS3		0.776	17.446		
CS4		0.838	18.818		
PIP	**0.884**			**0.887**	**0.611**
PIP1		0.870			
PIP2		0.802	22.307		
PIP3		0.742	19.849		
PIP4		0.737	19.651		
PIP5		0.748	20.051		
IP	**0.893**			**0.893**	**0.626**
IP1		0.839			
IP2		0.838	22.623		
IP3		0.780	20.474		
IP4		0.763	19.831		
IP5		0.730	18.684		
LI	**0.905**			**0.904**	**0.612**
LI1		0.786			
LI2		0.894	22.526		
LI3		0.840	20.997		
LI4		0.663	15.819		
LI5		0.715	27.739		
LI6		0.773	15.825		
IIST	**0.921**			**0.884**	**0.657**
IIST *1*		0.837			
IIST *2*		0.751	19.013		
IIST *3*		0.847	22.180		
IIST *4*		0.803	20.799		

Note: CR = Composite Reliability, AVE = Average Variance Extracted, ***=p<0.001; **=p<0.01.

3. Evaluation of Structural Equation Model

Table 5 Model Goodness-of-Fit Index

Reference index	Reference value	Statistical value(before)	Statistical value(after)	Conclusion
x^2/df	1 < NC < 3, good adaptation	3.981	2.811	Qualified
AGFI	＞0.8	0.808	0.860	Qualified
GFI	＞0.8	0.883	0.881	Qualified

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Reference index	Reference value	Statistical value(before)	Statistical value(after)	Conclusion
TLI	＞0.9	0.865	0.918	Qualified
NFI	＞0.9	0.876	0.926	Qualified
CFI	＞0.9	0.876	0.926	Qualified
RMSEA	< 0.08, reasonable adaptation	0.075	0.059	Qualified

After confirming the absence of measurement issues in the model, Structural Equation Modeling (SEM) was performed to estimate the path coefficients using Maximum Likelihood estimation. The overall model fit after adjustment is presented in Table 5 and is considered satisfactory, as all measures fall within acceptable limits: CMIN/DF = 2.811; GFI = 0.860; AGFI = 0860; NFI = 0.926; CFI = 0.926; TLI = 0.918; RMSEA = 0.059.

The principal findings illustrating the statistically significant structural relationships between constructs are depicted in Figure 2 below.

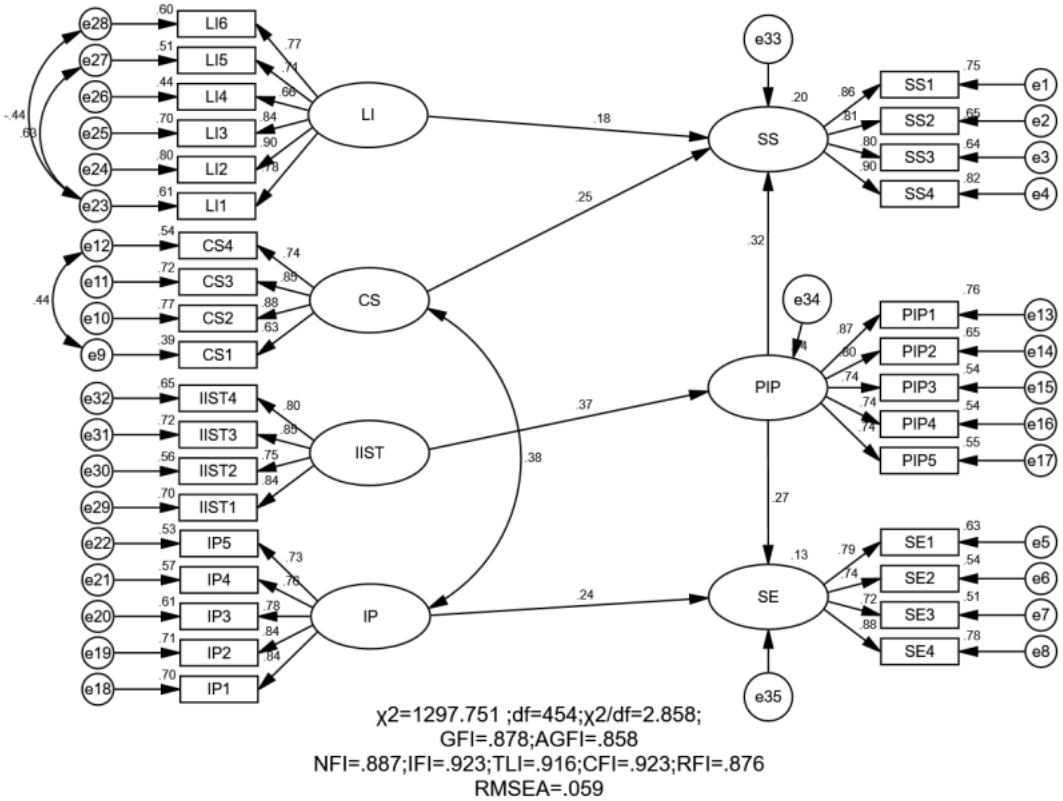

Figure 2 The Structural Equation Model Matrix After Adjustment

Results

In this study, AMOS 21.0 software was utilized to analyze the path of the structural equation model, determining both the path coefficients and the Critical Ratio (C.R.) of the model. Path coefficients reflect the strength and direction of influence between variables, while C.R. values indicate the significance of regression coefficients. Typically, a C.R. value greater than or equal to 1.96 suggests statistical significance at the 0.05 significance level (Hou & Wen, 2005).

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The resultant paths from the analysis gave rise to six alternative hypotheses, as summarized in Table 6.

Ha1: Interactivity in Software Tools has significantly impacted Perceived Instructor Presence.
Ha2: Learner interaction has significantly impacted student satisfaction.
Ha3: Course structure has significantly impacted student satisfaction.
Ha4: Perceived Instructor Presence has significantly impacted student satisfaction.
Ha5: Instructor Presence has significantly impacted Student Engagement.
Ha6: Perceived Instructor Presence has significantly impacted Student Engagement.

Table 6 Summary of the Test Results of Alternative Hypotheses

Hypotheses	Path	Standardized ath Coefficient (β)	T-Value	S. E	Tests Result
Ha1	PIP←IIST	0.371	7.764	0.046	Supported
Ha2	SS←LI	0.183	4.181	0.045	Supported
Ha3	SS←CS	0.252	5.37	0.06	Supported
Ha4	SS←PIP	0.316	6.991	0.047	Supported
Ha5	SE←IP	0.244	5.156	0.039	Supported
Ha6	SE←PIP	0.274	5.771	0.043	Supported

Note: ***=p<0.001; **=p<0.01; *=p<0.05

Explanation of the Results for Hypotheses Testing

Ha1: Interactivity in Software Tools has significantly impacted Perceived Instructor Presence.

In hypothesis 1, the causal relationship between Interactivity in Software Tools and Perceived Instructor Presence is proposed. The t value is 7.764*** and the standardized path parameter is 0.371. According to the initial statistical conclusions, there is a statistically significant trend between Interactivity in Software tools and Perceived Instructor Presence in the current study. Finally, the alternative hypothesis 1 is accepted, the null hypothesis is accepted, and hypothesis 1 is eliminated.

Ha2: learner interaction has significantly impacted satisfaction.

In another hypothesis 2, the causal relationship between learner interaction and satisfaction is proposed. The t value is 4.181*** and the standardized path parameter is 0.183. According to the initial statistical conclusion, for the current relevant studies, there is a statistically significant trend between learner interaction and satisfaction. As a result, alternative hypothesis 2 is accepted and null hypothesis 2 is eliminated.

Ha3: Course structure has significantly impacted student satisfaction.

Alternative hypothesis 3 proposes a causal relationship between Course structure and student satisfaction. The t value is 5.37* and the standardized path parameter is 0.252. According to the initial statistical conclusion, there is a statistically significant trend between Course structure and student satisfaction in the current study. As a result, alternative hypothesis 3 is accepted and null hypothesis 3 is eliminated.

Ha4: Perceived Instructor Presence has significantly impacted student satisfaction.

Alternative hypothesis 4 proposes a causal relationship between Perceived Instructor Presence and student satisfaction. The T-value is 6.991 ***, and the standardized path parameter is 0.316. According to the initial statistical conclusion, there is a statistically significant trend between Perceived Instructor Presence and student satisfaction in the current study. Therefore, alternative hypothesis 4 is accepted and null hypothesis 4 is eliminated.

Ha5: Instructor Presence has significantly impacted Student Engagement.

The path coefficient of PIP to SE was 0.244, the T-value was 5.156, and the corresponding significance was P < 0.001. Therefore, PIP had a significant positive effect on SE, so the hypothesis was valid.

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Ha6: Perceived Instructor Presence has significantly impacted Student Engagement.

Alternative hypothesis 6 proposes a causal relationship between Perceived Instructor Presence and Student Engagement. The t value is 5.771 and the standardized path parameter is 0.274. According to the initial statistical conclusion, there is a statistically significant trend between Perceived Instructor Presence and Student Engagement in the current study. Therefore, alternative hypothesis 6 is accepted and null hypothesis 6 is eliminated.

Discussion

1. What is the significant relationship between the course structure of paid knowledge learning on the Mooc platform and Student Satisfaction in paid knowledge learning on the Mooc platform for college students in the School of Management, Guangdong University of Technology?

Based on the full measurement and evaluation of individual statistical analysis, the researchers conclude that there is a causal relationship between the exogenous variable course structure and the endogenous variable student satisfaction, with a T-value of 5.361***

According to previous studies by related scholars (Harsasi & Sutawijaya, 2018), curriculum structure, when used as an independent variable, also has a significant impact on students' satisfaction. The research (Paechter et al., 2010) also shows that teachers should properly adjust the courses (online and offline courses) according to the objective situation, which has a certain impact on students' satisfaction. Therefore, the results of this research project are consistent with the previous relevant learning results.

2. What is the significant relationship between the Interactivity in Software Tools of paid knowledge learning on the Mooc platform and Perceived Instructor Presence with paid knowledge on the Mooc platform for college students in the School of Management, Guangdong University of Technology?

Based on the full measurement and evaluation of individual statistical analysis, the researchers conclude that there is a causal relationship between the exogenous variable Interactivity in Software Tools and the endogenous variable Perceived Instructor Presence, with a T-value of 8.136***

According to the relevant studies (Swan, 2001), interaction can be observed from different perspectives in the context of e-learning, such as the interaction between students and teachers or peers about the course content. According to the research results (Park & Kim,2020), there is also a positive correlation between the perceived presence of teachers and the interaction level experienced by students. These conclusions are consistent with the results obtained in this project regarding this hypothesis.

3. What is the significant relationship between the Instructor Presence of paid knowledge learning on the Mooc platform and Student Engagement with paid knowledge on the Mooc platform for college students in college students in School of Management, Guangdong University of Technology?

Based on the full measurement and evaluation of individual statistical analysis, the researchers conclude that there is a causal relationship between the exogenous variable Instructor Presence and the endogenous variable Student Engagement, with a T-value of 5.135***

According to a related study by a scholar (Zilka et al., 2018), the existence of teachers is a "meaningful social process that can shape, assist, and guide cognition." The presence of the teacher and the interaction with the software also promote a connection with the learners, who can be helped in an online environment. It is also a known phenomenon that the presence of teachers can hinder student participation during viral epidemics (Starr-Glass, 2020).

4. What is the significant relationship between Perceived Instructor Presence and student engagement of college students in college students in School of Management, Guangdong University of Technology in paid knowledge learning on Mooc platforms?

Based on the full measurement and evaluation of individual statistical analysis, the researchers conclude that there is a causal relationship between the exogenous variable Perceived Instructor Presence, and the endogenous variable Student Engagement, with a T-value of 5.713***

According to the consistent research results of scholars (Hernandez et al.,2021) and (Xu et al., 2023), the positive role of teachers (promoting and presenting in the classroom) will increase participation.

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According to the research of scholars (Wang & Antonenko., 2017), teacher engagement is closely related to student satisfaction. Research (Wang & Antonenko et al., 2017) also suggests that the presence of teachers can improve students' satisfaction.

5. What is the significant relationship between Perceived Instructor Presence and Student Satisfaction of college students in college students in School of Management, Guangdong University of Technology in paid knowledge learning on Mooc platforms?

Based on the full measurement and evaluation of individual statistical analysis, the researchers conclude that there is a causal relationship between the exogenous variable Perceived Instructor Presence, and the endogenous variable Student Satisfaction, with a T-value of 6.926***

According to relevant research (Kim & Park, 2023), the use of interactive tools in online education can enhance the strong interaction between educators and learners, and also enhance students' perception of the presence of teachers. Related research (Hackman & Walker,1990) studied the influence of social presence on students' learning and satisfaction. They argue that a teacher's social presence can be communicated through the instant actions they display on a screen and that a teacher's social presence significantly affects student learning outcomes and satisfaction.

6. What is the significant relationship between Learner Interaction and Student Satisfaction of college students in college students in School of Management, Guangdong University of Technology in paid knowledge learning on Mooc platforms?

According to the research of scholars (Kuo & Walker, 2013), adding more cooperative activities to teachers' teaching activities can better strengthen learners' interaction in learning, and encourage teachers to add more cooperative activities in undergraduate courses. (Rodriguez, 2006) shows the importance of interaction between learners in e-learning environments. In the study of Jung et al., 2002, the integration of collaborative activities into online courses enhanced learners' interaction with each other, which had a significant impact on students' satisfaction.

Based on the full measurement and evaluation of individual statistical analysis, the researchers conclude that there is a causal relationship between the exogenous variable Learner Interaction and the endogenous variable Student Satisfaction, with a T-value of 4.163***.

Conclusion

This research project aims to identify the influencing factors. Among the undergraduates of the School of Management of the Guangdong University of Technology, a total of four undergraduates with different majors and grades participated in a course, and their situation was investigated. The SEM and CFA frameworks, along with related early research, were used to construct and present the initial conceptual framework. to explain the Interactivity in Software Tools, Perceived Instructor Presence, Instructor Presence, Student Engagement, learner interaction, Course Structure, Student Satisfaction, we use the theoretical framework to create six related hypotheses.

The reliability, convergence validity, and discriminant validity of internal consistency were evaluated based on JAMOVI and AMOS by using confirmatory factor analysis and other relevant data analysis techniques. As part of this technique, 550 undergraduate students from four majors participated in the survey, receiving 530 valid questionnaires and 20 invalid questionnaires. The reliability and validity of the conceptual framework are mainly verified by statistical methods, such as confirmatory factor analysis (CFA). In addition, the structural equation model (SEM) will be used as the main factor to verify the influence continuation intention. Preliminary results confirm that all hypotheses are supported.

The preliminary results of this study showed that the result Interactivity in Software Tools had the greatest impact on Perceived Instructor Presence. The second factor influencing the satisfaction is Perceived Instructor Presence. The principal factor is how Perceived Instructor Presence regulates Student Engagement. The next one is the effect of Course Structure on Student Satisfaction.

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Recommendation

Currently, there is ongoing progress in the advancement of MOOC platforms. It is crucial for us to continuously research and explore ways to enhance users' purchasing intention, particularly among young individuals. Once we have obtained significant findings, future studies will focus on rectifying the limitations and achieving perfection.

The research dimensions can be expanded to encompass a wider range of areas.

For instance, the field of knowledge payment offers various specialized courses that cater specifically to the interests and needs of younger audiences. These courses cover diverse topics such as personal development, practical skills, and hobbies. Each learning content appeals differently to users and has distinct payment objectives. Future studies could conduct surveys targeting different audience segments to explore their unique preferences and characteristics regarding content selection. Moreover, incorporating in-depth interviews alongside questionnaire analysis would enhance the significance of the research findings. Additionally, by increasing the sample size based on demographic factors like gender, age, professional background, and income level.

There is potential to expand the scope and quantity of research samples.

For instance, collaborating with prominent knowledge payment platforms and preparing relevant tasks can enable more precise targeting of the desired population for delivery and research purposes. This collaboration would result in a broader and more representative questionnaire, enhancing the data's comprehensiveness to accurately reflect factors influencing young users' willingness to pay for different courses on MOOC platforms.

It is recommended to enhance the existing research models, incorporate a range of theories and models, and integrate the practical aspects of paid courses along with various scenario factors. This will help in expanding, complementing, and constructing more impactful factors and hypothesis models to enhance their applicability.

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