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A Study of Undergraduate Students' Attitudes Towards Blended Learning in Chengdu, China--The Moderating Effects of Gender, Disciplines and Social Influences

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Abstract

Background and Aim: With the end of COVID-**19**, Chinese universities are returning to offline teaching and learning and looking to blended learning and digitization as the way forward. To better engage learners in the future of blended learning, it is necessary to understand the internal dynamics that drive learner engagement.
Materials and Methods: This study is based on social cognitive theory and focuses on the factors that influence learners' attitudes toward participating in blended learning. The study collected information on perceived usefulness, satisfaction, self-efficacy, and attitudes towards blended learning and demographic characteristics from five hundred university students using a five-point Likert questionnaire, and the data collected was quantitatively analyzed using SPSS.
Results: This study found that the students' perceived usefulness, satisfaction, and self-efficacy could significantly influence their attitudes towards blended learning, while gender, discipline, and social influence moderated the factors influencing students' attitudes to varying degrees. Gender could influence the ability of self-efficacy to predict attitudes; the influence of discipline is shown in satisfaction and self-efficacy on attitudes. The moderating effect of social influence reveals some of the issues facing blended learning at this stage, namely that students need more support from teachers and families to increase perceived usefulness, and that peer influence is more likely to increase female students' self-efficacy.
Conclusion: In conclusion, the social cognitive theory continues to be a valid theoretical guide in the field of blended learning. Research has shown that social cognitive theory continues to be a valid theoretical guide in the field of blended learning. To better implement blended learning, pay attention to the various factors that influence student engagement and adapt the design of blended learning projects.

Keywords: Blended Learning; Attitude; Engineering; Gender; Social Influence

Introduction

The rapid development of mobile devices and the internet in recent years has facilitated the development of online learning (Fan et al., 2022). After three years of the COVID-19 pandemic, online education has gained rapid momentum in China. The development of higher education in mainland China has always been under the guidance and investment support of the government. With the end of the epidemic, the government has set new requirements for the next stage of higher education. In 2022, a conference of the Chinese Ministry of Education stated that it would promote the development of higher education through digitization, taking advantage of China's current large-scale online teaching (Xinhua News Agency, 2022). The development of blended learning, which combines online educational resources with traditional face-to-face education will receive attention over the next few years.

This trend is also reflected on a global scale. According to a report by UNESCO (2020), the rapid growth of online education programs at universities has affected 1.37 billion university students. The possible problems arising from the rapid transition to online learning brought about by the external environment could not be ignored. A more internal perspective of education may need to be considered.

On the other hand, blended learning has been implemented and researched in the education sector for almost two decades. Blended learning behavior is determined by the individual's intention to participate, which is often influenced by the individual's attitude towards the behavior and by important others (Foong & Khoo, 2013). Alrabai (2017) found that students' independence is more evident in blended learning. Many studies showed that personal attitudes can be used to broadly predict behavioral

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intentions, and the same is true in educational research (Schwarz et al., 2009; Ahmad et al., 2011). In order to adapt learners to the upcoming trend of blended learning, focusing on students' attitudes is the best way to understand and find appropriate ways to motivate them to take responsibility for their own learning. This study focuses on the influence of learners' attitudes towards participation in blended learning in relation to other subjective impact factors such as perceived usefulness, satisfaction, and self-efficacy on attitudes and considers the moderating effects of gender, disciplines, and social influences on attitudes to blended learning.

Objectives

The main research objective of this study is to the university students who have had blended learning experiences to understand the current status and influences on their attitudes towards blended learning, and the moderating role of gender, disciplinary, and social influences on attitudes. This will complement the internal perspectives of blended education and provide suggestions for designing and encouraging students to engage in blended learning.

Literature Review

Blended Learning

The definition of blended learning has evolved in recent years. Stubbs et al. (2006) suggested that blended learning has evolved from traditional online learning as a face-to-face teaching and learning interaction, using technology as the lead and computer applications as the medium. Blended learning can demonstrate higher levels of satisfaction and self-efficacy than traditional teaching (Ho et al., 2014) and is also more effective and engaging than traditional teaching (Spanjers et al., 2015). In general, the positive impact of blended learning on educational behavior is acknowledged (Henrie et al., 2015).

At the same time, these blended learning strengths and learning outcomes are often related to individual student engagement status, such as satisfaction and self-efficacy (Henrie et al., 2015). For students, blended learning provides specific learning contexts that can influence their perceptions and then impact learning activities and approaches (Lizzio et al., 2002). Blended learning can influence students' self-determination and increase their motivation to learn (Noour & Hubbard, 2015). Students learning autonomy and intention can be positively influenced in a blended learning environment with enough technology support (Mulcahy et al., 2017). In terms of collaborative learning, Poon (2012) argues that blended learning has been found to make it easier for students to interact in groups and to create opportunities for partnerships.

Social cognitive theory

Social cognitive theory suggests that individuals' behavior is consistent with internal value standards, that is, individuals' judgment could influence their intentions to carry out a particular behavior (Zhou et al., 2020). This theory is a study of the relationship between the environment, the individual and behaviour. It views behavioral decisions as the result of a combination of individual and environmental factors. It has been widely used to understand and predict behavioral choices and characteristics (Ganesh et al., 2019).

In this theory, three main aspects influence individual behavior, including personal demographic characteristics, such as age and perceived experience; environmental factors, such as the support of social relationships; and the influence of different aspects of the behavior itself. It usually emphasizes observational learning that occurs in a social context, such as observing the behavior of others and the consequences of that behavior. In a blended learning environment, this makes social influence an important factor to consider. Zhou et al. (2020) used this theory to study the learning behavior of YouTube users, highlighting the environment as one of the key factors. Ursini and Sánchez (2008) mentioned that the attitudes of learners should be paid to attention when introducing new technologies into teaching and learning, including the influence of individual gender.

Perceived usefulness

In blended learning, the ability to use learning resources effectively is an important learning

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step. And many studies of online and distance learning have found that perceived usefulness is an important factor that not only influences students' learning behavior but also acts on their emotions, self-perceptions, and attitudinal. Hyman et al. (2014) found that perceived usefulness predicted learning attitudes in a study focusing on electronic library use. In Tu et al.'s (2021) study on university students' attitudes toward online libraries, usefulness was an important part of their interests and attitude. Perceived usefulness remains an important influencing factor for the use of ePortfolios (Bodle et al., 2017).

H1: Students' attitudes towards participation in blended learning can be influenced by perceived usefulness.

H2: Students' satisfaction can be influenced by perceived usefulness.

H3: Students' self-efficacy can be influenced by perceived usefulness.

Satisfaction

Satisfaction, as one of the positive effects, should be considered together with engagement to facilitate the development of positive attitudes toward learning and the use of technology in learning (Barkatsas et al., 2009). According to the study by Tu et al. (2021), satisfaction is an important factor to be considered in the development of online libraries. This finding was supported by Chen et al. (2013), who found that higher levels of satisfaction could be associated with higher levels of learning outcomes. The study by Liao et al. (2015) mentioned that there is a correlation between learners' attitudes and satisfaction with learning. Satisfaction is also influenced by individual factors of learners, Abidin et al. (2011) in their study on the use of technology in mathematics classrooms found that boys tended to have higher levels of satisfaction and positive attitudes.

H4: Students' attitudes towards participation in blended learning can be influenced by satisfaction.

H5: Students' self-efficacy can be influenced by satisfaction.

Self- Efficacy

Self-efficacy is another important element in Bandura's theory. He mentioned that in addition to expectations of behavioral outcomes, individuals also have expectations of efficacy. Self-efficacy as one of the personal factors can be used to predict the acceptance of the learning system (Šumak et al., 2011). When learners have a high level of self-efficacy, it often means that they have a lower level of anxiety, which can also lead to increased learning effectiveness (Tu et al., 2021). Self-efficacy is the learner's intrinsic desire to control effective learning. Self-efficacy supports and satisfies motivation, and is also enhanced by the motivation to learn (Jeno et al., 2018). Ismaili (2021) conducted a study on students' attitudes toward distance learning and suggested that self-efficacy is one of the important factors influencing behavioral intention to learn online.

H6: Students' attitudes towards participation in blended learning can be influenced by self-efficacy.

Attitude

Ajzen and Fishbein (1972) defined learning attitude as a behavioral tendency. This includes the learner's affective, perceptions, and cognitive, which influence whether the student supports the learning behavior. Tsai and Tang (2017) mentioned that attitude is a relatively stable psychological state that could be influenced by external causes. Vale and Leder (2004) argued that there were some students' attitudes toward learning mathematics on the computer due to gender. Male students showed higher attitudes in this case. Similar results were found by Liaw and Huang (2011), who found that males had more positive attitudes toward e-learning than females. In addition, Fan et al. (2022) argued that for people who engage in mobile learning, their learning behavior can be influenced by emotional, cognitive, and social influences. In terms of disciplines, Foung and Chen (2019) referred to the influence of discipline on blended learning and found that design majors and accounting majors differ in their learning behavior.

H7: Students' attitudes towards participation in blended learning and its impact factors can be influenced by gender.

H8: Students' attitudes towards participation in blended learning and its impact factors can be influenced by disciplines.

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Social Influence

As suggested by Barkatsas et al. (2009), considering students' positive affective and engagement levels can help them develop more positive attitudes in their learning. Social influence is an important factor to support learners` emotions, no matter it comes from teachers, families, or peers. According to Niwaz et al. (2019), both family and teacher support and concern are important influences on the success of college students in distance education.

H9: Students' attitudes towards participation in blended learning can be influenced by teachers and tutors (social influence 1).

H10: Students' attitudes towards participation in blended learning can be influenced by family and siblings (social influence 2).

H11: Students' attitudes towards participation in blended learning can be influenced by peers (social influence 3).

Conceptual Framework

In summary, the conceptual framework of this study is as follows in Figure 1.

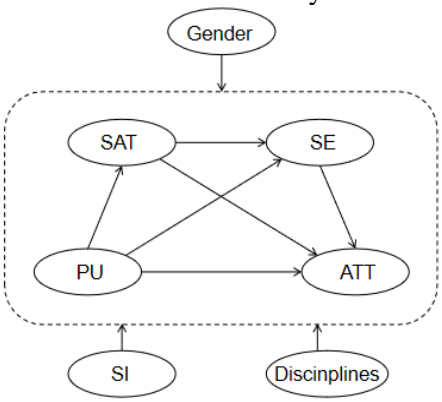

Figure 1. Conceptual framework

Methodology

Questionnaire Development

The main part of the questionnaire was “Factors influencing attitudes towards blended learning”. There were 21 items to measure the conceptual framework with a 5-point Likert scale. Screening questions and demographic information were also included in the questionnaire.

Data Collection

500 Undergraduate students from five public universities in Chengdu, China were invited to participate in the online survey. Demographic information is shown in table 1. Of these, 30 more students majored in social sciences than in engineering.

Table 1: Demographic information

Item	Category	No.	%
Gender	Female	228	45.6
	Male	272	54.4
Academic year	1	96	19.2
	2	133	26.6
	3	184	36.8
	4	87	17.4
Majors	Social sciences	265	53
	Engineering	235	47
Total		500	100

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Data and Measurement Model Analysis

The skewness and kurtosis of the scale were calculated to ensure that it largely followed a normal distribution and was sufficient for the next step in the analysis. All variables have a slightly negative skewness between -0.2 and 0.15. Only SI2 and SI3 showed positive skewness. For the kurtosis, they were mainly between -0.51 and 1.01. ATT3 had a larger kurtosis of 2.43, indicating that there is an obvious difference between the students' attitudes on the issue that blended learning could understand engineering and technology development.

Cronbach's Alpha results were all above 0.76 and greater than 0.6. Based on Hair et al. (2019), when Cronbach`s Alpha is greater than 0.6, the internal consistency of the scale is demonstrated. factor Loading was basically between 0.6 and 0.8, with only PU4 having a value of 0.57. According to Fornell and Larcker (1981) and Hair et al. (2019) thought their minimum results should be 0.6 and 0.5. CR refers to combined reliability. The results are between 0.76 and 0.84. Rauniar et al. (2014) give the standard that higher than 0.7 could prove internal consistency. The AVE results were between 0.45 and 0.52. This is a low value for average variance extracted, but as mentioned in Lam's (2012) study, if AVE is between 0.4 and 0.5, while the value of CR is greater than 0.6, it is an acceptable situation.

Table 2: Normal distribution test and scale item descriptive statistics scale

	Mean	S.D.	Skewness	Kurtosis	Cronbach`s alpha	Factor Loading	CR	AVE
ATT1	4	0.75	-0.20	-0.51		0.70		
ATT2	4.05	0.68	-0.52	0.92		0.76		
ATT3	4.11	0.64	-0.74	2.43	0.87	0.68	0.84	0.52
ATT4	3.7	0.77	-0.21	0.27		0.68		
ATT5	3.93	0.82	-0.75	0.82		0.72		
ATT6	4	0.74	-0.73	1.01		0.73		
PU1	4.05	0.78	-0.54	0.23		0.69		
PU2	4.08	0.72	-0.35	-0.34	0.78	0.75	0.79	0.49
PU3	4.14	0.72	-0.53	0.31		0.77		
PU4	3.98	0.82	-0.35	-0.39		0.57		
SAT1	3.87	0.78	-0.52	0.63		0.60		
SAT2	3.82	0.72	0.05	-0.63	0.76	0.62	0.76	0.45
SAT3	3.75	0.76	0.15	-0.74		0.69		
SAT4	3.93	0.70	-0.33	0.32		0.75		
SE1	4.05	0.78	-0.32	-0.66		0.70		
SE2	4.03	0.72	-0.31	-0.26	0.84	0.76	0.81	0.51
SE3	4.06	0.75	-0.3	-0.63		0.68		
SE4	3.88	0.73	-0.39	0.11		0.72		

Differential Analysis

Based on the demographic data collected by the questionnaire, SPSS was used to see if gender, discipline, and academic year made significant differences in students' attitudes.

Differences in undergraduate's attitudes by gender and discipline

Using independent sample t-tests, the study found that the standard deviation for motivation was greater for females than for males. It indicated that female students' data were more discrete on the scale items of motivation. The variable of perceived behavior control showed a significant difference between male and female students according to Table 3.

Table 3: Independent sample t-test result for Gender

	Female	male	t	p
ATT	4.08±0.67	4.08±0.53	0.01	0.10
PU	4.00±0.61	4.12±0.53	-2.34	0.02

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	Female	male	t	p
SAT	3.71±0.52	4.11±0.54	-8.46	0.00
SE	4.01±0.60	4.00±0.62	0.18	0.85

The analysis showed that there were significant differences between male and female students on only two factors, satisfaction, and perceived usefulness. Among these, the mean value of satisfaction with blended learning was significantly higher for male students than for female students. The mean scores of the attitudes were similar for male and female students, but the degree of dispersion was greater for female students, indicating that the views of female students were more dispersed in their attitudes toward blended learning.

Table 4: Independent sample T-test result for Gender

	Social science	Engineer	t	p
ATT	4.05±0.54	4.11±0.67	-1.03	0.30
PU	4.03±0.54	4.10±0.61	-1.32	0.19
SAT	3.90±0.61	3.95±0.61	-0.95	0.35
SE	4.05±0.56	3.95±0.65	1.83	0.07

In terms of discipline differences in Table 4, engineering students' attitudes， perceived usefulness, and satisfaction with blended learning were rated higher than those of social sciences students. However, for self-efficacy, the mean scores of social science students were significantly higher and less discrete than those of engineering students.

Differences in undergraduate`s attitudes by academic year

A one-way ANOVA with the academic year as the criterion shows that the means of the factors basically increase with the year. Among them, self-efficacy and perceived usefulness show a significant difference in Table 5.

Table 5: One-way ANOVA test result for academic years

	Y1	Y2	Y3	Y4	F	P
ATT	4.06±0.61	4.03±0.59	4.12±0.57	4.10±0.66	0.61	0.61
PU	3.94±0.61	4.03±0.55	4.12±0.59	4.11±0.50	0.57	0.05
SAT	3.82±0.61	3.94±0.54	3.92±0.52	4.05±0.66	2.50	0.06
SE	3.88±0.70	4.07±0.47	3.96±0.56	4.14±0.74	3.78	0.01

Measurement Model and SEM Analysis

In Table 6, CMIN/ DF was less than 2 and the RMSEA was less than 0.05. Structural equation modeling enables a clear analysis of the contribution of each indicator to the overall picture, including GFI(0.95), AGFI(0.94), CFI(0.97), and NFI(0.94). The data fit the model well enough to allow an analysis of the relationship between the factors.

Table 6: Model fit result

	CFA model	SEM model
CMIN/ DF	227.62/129 or 1.77	227.62/129 or 1.77
Goodness of Git Index (GFI)	0.95	0.95

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	CFA model	SEM model
Adjusted Goodness of Fit Index (AGFI)	0.94	0.94
Comparative fit index (CFI)	0.97	0.97
Normed fit index (NFI)	0.94	0.94
Root mean square error of approximation (RMSEA)	0.04	0.04

Mediating Effect Model Analysis

As shown in Table 7, the prediction of the perceived usefulness of attitudes in the model is supported by the data (B=0.55, p<0.001). Satisfaction played a positive mediating role in the dependent and independent variables. The pathways involving self-efficacy were relatively complex. The data did not show a statistically significant influence of perceived usefulness and satisfaction on the predictive power of self-efficacy, but self-efficacy still had a significant influence on attitudes (B=0.11, p=0.01<0.05)

Table 7: Standardized Regression Weight and Regression Weight analysis results

	Standardized Regression Weight	Regression Weight	S.E.	C.R.	P
PU→SAT	0.55	0.55	0.07	8.41	***
PU→SE	0.03	0.04	0.09	0.44	0.66
PU→ATT	0.52	0.61	0.08	7.54	***
SAT→SE	-0.06	-0.07	0.08	-0.79	0.43
SAT→ATT	0.19	0.22	0.07	3.19	**
SE→ATT	0.11	0.11	0.04	2.47	**

Gender Moderating Effect Analysis

Combined with the results of the different analyses of the demographic information, the data were grouped and compared using AMOS, taking into account the moderating effect of gender on the structural equation model.

The unstandardized regression coefficients presented in Figure 2 show that different genders have different results in the mediation model. For female students, significant effects of perceived usefulness and satisfaction on self-efficacy were observed, whereas, for male students, the effect of self-efficacy on attitudes was not supported by the data.

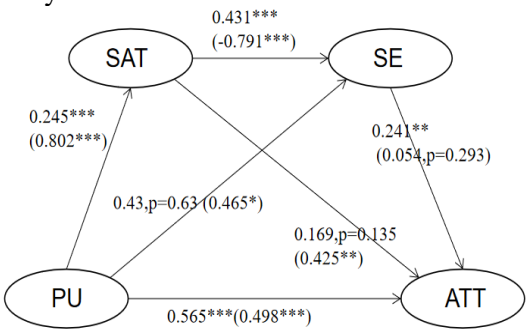

Figure 3: The regression weights of the moderating effect of gender
Note: Values outside brackets are female, values in brackets are for males; ***p<0.001

Among other statistically significant paths, it is worth mentioning that male's satisfaction had a significant negative effect on self-efficacy (β=-0.63***) and that the positive moderating effect of

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perceived usefulness on the effect of satisfaction was significantly higher for males (β=0.81***) than for females (β=0.29**).

Table 8: The standardized regression weight and the critical ratio of the difference between parameters

	Female				Male				Critical Ratio of the Difference Between Parameters
	β	S.E.	C.R.	P	β	S.E.	C.R.	P	
PU→SAT	0.29	0.07	3.39	**	0.81	0.08	10.52	***	5.56
PU→SE	0.04	0.09	0.48	0.65	0.38	0.22	2.12	**	1.79
PU→ATT	045	0.09	6.03	***	0.46	0.15	3.43	***	-0.39
SAT→SE	0.33	0.11	4.04	***	-0.63	0.22	-3.57	***	-4.92
SAT→ATT	0.13	0.11	1.50	0.10	0.39	0.15	2.80	**	1.35
SE→ATT	0.20	0.09	2.79	**	0.06	0.05	1.05	0.29	-1.87

Disciplines Moderating Effect Analysis

Exploring the moderating effect of disciplines on the mediation model revealed that the relationship between satisfaction and self-efficacy was not supported by the data for either engineering or social sciences. For engineering students, neither satisfaction nor perceived effectiveness was found to significantly influence their attitudes towards blended learning, nor was the relationship between perceived usefulness and self-efficacy.

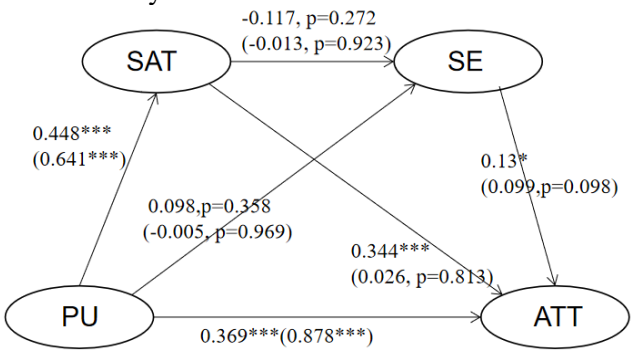

Figure 3. The regression weights of the moderating effect of disciplines
Note.:Values outside brackets are social science, values in brackets are for engineering; ***p<0.001

A comparison of the standardized coefficients shows that the positive effect of perceived usefulness on attitudes is significantly higher for engineering students (β=0.73***) than for social science students(β=0.33***).

Table 9: The standardized regression weight and the critical ratio of the difference between parameters

	Social science				engineering				Critical Ratio of the Difference Between Parameters
	β	S.E.	C.R.	P	β	S.E.	C.R.	P	
PU→SAT	0.45	0.08	5.69	***	0.64	0.02	8.05	***	-1.83
PU→SE	0.08	0.11	0.92	0.36	-0.01	0.14	-0.04	0.97	0.59
PU→ATT	0.33	0.09	4.16	***	0.73	0.12	7.18	***	-3.49
SAT→SE	-0.10	0.11	-1.10	0.27	-0.01	0.14	-0.10	0.92	-0.60

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	Social science				engineering				Critical Ratio of the Difference Between Parameters
	β	S.E.	C.R.	P	β	S.E.	C.R.	P	
SAT→ATT	0.31	0.09	3.92	***	0.02	0.11	0.24	0.81	2.27
SE→ATT	0.14	0.06	2.17	0.03	0.10	0.06	1.65	0.10	0.36

Social Influence Moderating Effect Analysis

To explore the impact of social influences on attitudes towards blended learning, SPSS PROCESSV4.1 was used for analysis. The independent variable was perceived usefulness, the dependent variable was attitude, and the control variables were gender, major, and school year, with the following regression coefficients for each pathway under the moderating effect of S1.

Teacher Influence Moderating Effect Analysis

The impact of teachers' perceptions of blended learning as a factor of social influence. The results showed that the influence of teachers was mainly reflected in the first half of the mediation effect. For students' self-efficacy, the effect of teachers was significant and the interaction terms with both perceived usefulness and satisfaction were significant.

Table 10: The moderating effects of teacher influence

	SAT			**SE**			**ATT**		
	coeff	t	p	coeff	t	p	coeff	t	p
Constant	-0.64***	-5.92	0.00	-0.11	-0.80	0.42	0.24*	2.11	0.04
PU	0.38***	9.84	0.00	0.01	0.16	0.87	0.43***	9.97	0.00
SAT	\	\	\	-0.06	-1.17	0.24	0.28***	6.24	0.00
SE	\	\	\	\	\	\	0.07	1.84	0.07
SI1	0.01	0.27	0.79	0.28***	8.06	0.00	0.06*	2.02	0.04
SI1 x PU	-0.02	-0.31	0.76	-0.15*	-2.13	0.03	0.07	1.16	0.25
SI1 x SAT	\	\	\	0.14*	2.13	0.03	-0.05	-0.95	0.35
SI1 x SE	\	\	\	\	\	\	-0.04	-0.79	0.43
disciplines	0.03	0.67	0.50	-0.11*	-2.16	0.03	0.02	0.43	0.67
academic year	0.02	0.74	0.46	-0.11*	-2.10	0.04	-0.02	-0.83	0.41
gender	0.36***	7.96	0.00	0.07**	2.67	0.01	-0.14***	-2.84	0.00
R^2	0.28***			0.14***			0.34***		
F	31.32			10.10			24.95		
R^2-chng	SI1 x PU	0.00	0.76	0.01*		0.03	0.00	0.25	
	SI1 x SAT	\	\	0.01*		0.03	0.00	0.35	
	SI1 x SE	\	\	\		\	0.00	0.43	

Examining the interaction items by Bootstrap test, it could be found that this moderating effect was significant only at low levels of SI1 (in intervals lower than one standard deviation). This means that when the influence of the teacher was lower, its interaction term with satisfaction significantly produced a positive effect of attitude towards blended learning.

Table 11: Bootstrap test result of SI1 and SAT

SI1	**Effect**	**se**	**t**	**p**	**LLCI**	**ULCI**
-1.02	-0.20	0.09	-2.34	0.02	-0.37	-0.03
-0.02	-0.06	0.05	-1.22	0.22	-0.17	0.04
0.98	0.07	0.08	0.91	0.36	-0.08	0.23

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Family Influence Moderating Effect Analysis

The influence of family or relatives was measured in this section. The results indicated that the interaction term between SI2 and perceived usefulness was significant at the 0.05 level and showed an increased moderation of the effect of perceived usefulness on attitude.

Table 12: The moderating effects of family influence

	SAT			SE			ATT		
	coeff	t	p	coeff	t	p	coeff	t	p
Constant	-0.64***	-5.92	0.00	-0.15	-1.22	0.22	0.27**	2.39	0.02
PU	0.38***	9.84	0.00	-0.02	-0.51	0.61	0.43***	10.10	0.00
SAT	\	\	\	-0.05	-1.05	0.29	0.29***	6.33	0.00
SE	\	\	\	\	\	\	0.08	1.83	0.07
SI2	0.00	-0.12	0.90	0.40	12.23	0.00	0.05	1.33	0.18
SI2 x PU	0.00	0.00	1.00	-0.07	-1.15	0.25	0.11*	1.93	0.05
SI2 x SAT	\	\	\	0.24	3.81	0.00	-0.08	-1.25	0.21
SI2 x SE	\	\	\	\	\	\	0.05	1.14	0.25
disciplines	0.03	0.67	0.51	-0.13	-2.66	0.01	0.02	0.38	0.70
academic year	0.02	0.76	0.45	0.07	2.72	0.01	-0.02	-1.06	0.29
gender	0.36***	7.91	0.00	0.11	2.15	0.03	-0.16***	-3.26	0.00
R^2	0.28***			0.25***			0.34***		
F	31.29			10.10			25.08		
R^2-chng	SI2 x PU	0.00	0.99	0.00		0.25	0.01*	0.05	
	SI2 x SAT	\	\	0.02***		0.00	0.00	0.21	
	SI2 x SE	\	\	\		\	0.00	0.25	

The effect of family and siblings was tested using a Bootstrap test. The results show that the more positive the family's view of the student`s participation in blended learning, the more positive the moderating effect of the interaction with perceived usefulness.

Table 13: Bootstrap test result of SI2 and PU

SI2	Effect	se	t	p	LLCI	ULCI
-1.14	0.31	0.08	4.10	0.00	0.16	0.46
-0.14	0.42	0.04	9.60	0.00	0.33	0.50
0.86	0.52	0.06	8.18	0.00	0.40	0.65

Peers Influence Moderating Effect Analysis

Similar to teacher influence, peer influence is mainly in the first half of the mediated model. It positively moderates students' self-efficacy and is significant at the 0.001 level together with the interaction term for satisfaction.

	SAT			SE			ATT		
	coeff	t	p	coeff	t	p	coeff	t	p
Constant	-0.64***	-5.89	0	-0.11	-0.93	0.35	0.28**	2.49	0.01

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	SAT			SE			ATT		
PU	0.38***	9.80	0	-0.03	-0.75	0.46	0.43***	9.89	0.00
SAT	\	\	\	-0.05	-0.95	0.34	0.29***	6.33	0.00
SE	\	\	\	\	\	\	0.07	1.77	0.08
SI3	-0.01	-0.26	0.80	0.41***	12.00	0.00	0.05	1.46	0.15
SI3 x PU	-0.02	-0.30	0.76	-0.04	-0.62	0.54	0.04	0.62	0.54
SI3 x SAT	\	\	\	0.21***	3.37	0.00	-0.07	-1.15	0.25
SI3 x SE	\	\	\	\	\	\	0.05	1.25	0.21
disciplines	0.03	0.67	0.50	-0.10*	-2.16	0.03	0.02	0.47	0.64
academic year	0.02	0.77	0.44	0.04	1.59	0.11	-0.03	-1.21	0.23
gender	0.36***	7.83	0.00	0.11*	2.08	0.04	-0.17***	-3.33	0.00
R^2	0.28***			0.25***			0.34***		
F	31.31			19.96			24.81		
R^2-chng	SI3 x PU	0.00	0.76	0.00		0.54	0.00		0.54
	SI3 x SAT	\	\	0.02		0.00	0.00		0.25
	SI23 x SE	\	\	\		\	0.00		0.21

Influence from peers was also more significant at low levels, and interacting with satisfaction to produce a negative moderating effect, weakened the positive effect of peer influence on self-efficacy.

Table 13: Bootstrap test result of SI3 and SAT

SI3	Effect	se	t	p	LLCI	ULCI
-1.16	-0.29	0.09	-3.30	0.00	-0.47	-0.12
-0.16	-0.08	0.05	-1.60	0.11	-0.18	0.02
0.84	0.13	0.07	1.85	0.06	-0.01	0.27

In general, blended learning is considered as a good way to promote teamwork and develop students' sense of cooperation and team skills. To understand why peer influence was not as significant as expected, the study also analyzed how peer influence was moderated by both gender and discipline.

The analysis showed that the discipline did not moderate with peer influence. However, self-efficacy differed under the influence of gender. As shown in Table 14, the interaction term between self-efficacy and peer influence had a significant positive moderating effect for female students.

Table 14. The moderating effect of peer influence and gender

	Female-ATT			Male-ATT		
	β	T	p	β	T	p
cons	0.01	0.07	0.94	-0.02	-0.23	0.82
PU	0.42	6.07	0.00	0.45	7.42	0.00
SAT	0.13	1.66	0.10	0.31	4.85	0.00
SE	0.18**	2.67	0.01	0.07	1.15	0.25
SI3	0.22	3.35	0.00	-0.09	-1.74	0.08
SI3 x PU	-0.06	-0.58	0.56	0.10	1.24	0.22
SI3 x SAT	0.02	0.19	0.85	-0.03	-0.42	0.68

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	Female-ATT			Male-ATT		
SI3 x SE	0.21**	2.65	0.01	-0.09	-1.70	0.09
Gender	0.06	0.77	0.44	-0.01	-0.22	0.83
Academic year	0.01	0.07	0.94	-0.01	-0.40	0.69
R^2	0.34			0.46		
Adjusted R^2	0.32			0.44		
F	0.70			0.14		
Sig.	0.50			0.88		

Results

Results of descriptive statistics and demographic difference

The descriptive analysis shows that students currently have a more positive attitude towards blended learning, with higher mean values for several other influencing factors. The analysis of the demographic characteristics shows that gender creates a significant gap. Male students have significantly higher assessments of perceived usefulness and satisfaction. The academic year also had a significant impact on students' perceived usefulness and self-efficacy, with students in the lower years having significantly lower ratings and fluctuation in the second and third years. In terms of the difference between social and engineering subjects, the impact on students was not significant.

Results of the hypothesis test

The structural equations calculated by Amos revealed that the hypotheses H1(PU→ATT), H2(PU→SAT), H4(SAT→ATT), H6(SE→ATT) were supported by the data. Satisfaction played a partially mediating role between perceived usefulness and attitudes.

The moderating effects of gender and discipline continued to use Amos for group testing, where H7 (Gender) for the effect of gender on the model was supported by the data. On the path from perceived usefulness to satisfaction, male students were significantly higher than female students, while on the path from satisfaction to self-efficacy, male students showed a significant negative correlation and female students showed a significant positive correlation. Furthermore, the data for males did not confirm a significant effect of self-efficacy on attitudes, while the significant effect of satisfaction on attitudes was not supported by the data for females, while perceived usefulness did not show predictive self-efficacy for females. For H8 (Discipline), social science students showed significant validity on the satisfaction to attitude pathway, whereas engineering students did not have a such feather. The same situation also happened for the pathway from self-efficacy to attitude. However, for engineering students, the predictive effect of perceived usefulness on attitudes was more pronounced.

Regarding H9 (Teacher Influence), it has a significant effect on both self-efficacy and attitude and interacts with perceived usefulness and satisfaction on self-efficacy. H10 (Family Influence) was found to interact with perceived usefulness to positively moderate attitudes. H11 (Peer Influence) was proved to have an effect on self-efficacy, which, in addition to its direct positive moderating effect, also interacts with satisfaction to increase it.

Conclusion

This study conducted a questionnaire survey of university students' attitudes and influencing factors based on their existing blended learning experiences. The data was analyzed by AMOS and SPSS, and results included demographic differences and structural equations results. The study found that social cognitive theory continues to explain questions about students' attitudes in blended learning environments. In particular, gender, discipline, and social influences all play a moderating role in students' attitudes and their influences. It is interesting to note that previous research on blended learning has tended to suggest that it has a positive impact, for example in terms of promoting peer collaboration (Taylor et al., 2011), but this was not reflected in this study.

Discussion

Attitude toward blended learning and gender

With the moderating effect of gender, the model remains valid. Females had more discrete attitudinal scores towards participation in blended learning and had significantly lower mean satisfaction scores than males. Liaw and Huang's (2011) study showed similar results, with male students having more positive attitudes toward learning. While males were not significant on the

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pathway from self-efficacy to attitude, female' self-efficacy was a significant predictor of their attitude.

Perceived usefulness was more important for male students is consistent with the results of Lin et al. (2016). They also refer to the social and process-oriented shown by females, whereas males are pragmatic and task-oriented, which is also somewhat in line with the importance of self-efficacy for females in this study. Therefore, in blended teaching, the use of design and teaching methods to maintain a high level of self-efficacy is important for female students` attitudes.

Attitude towards blended learning and disciplines

There was a significant difference between the impact of satisfaction and self-efficacy on attitudes between social science and engineering students when the subject was used as a moderator. Neither of these two was significantly correlated for engineering students. The strength of the predictive effect of perceived usefulness on attitudes was significantly higher for engineering students than for social science students. This may be related not only to the gender ratio of majors in Chinese universities but also to the characteristics of the discipline itself. Previous research on the benefits of blended learning has emphasized that the environment it creates helps students to learn, and the medium and technology it relies on also have strong relevance to the engineering profession directly (Ho et al., 2014; Lizzio et al., 2002). It could explain the much higher perceived usefulness influence on the attitudes of engineering students than those of social science students. For social science subjects, the design and implementation of blended learning should be more incorporating subject characteristics and create more interaction, in order to better exploit the benefits of blended learning.

Attitude toward blended learning and social influence

Social influence is analyzed in three ways, encompassing three different sources of influence: teachers, family, and peers. The influence of teachers acts mainly on the mediating role of self-efficacy. The data suggest that for students, teachers' perceptions that participation in blended learning is important can significantly and positively influence their attitudes towards blended learning, and interaction with student's satisfaction positively influences attitudes. In contrast, the interaction term of teacher influence and students' perceived usefulness played a weakening moderating effect. And this moderating effect is significant when the teacher's ability to influence is weak.

The influence of the family is weaker than that of the teacher, but it still needs to be considered. This is because when students use blended learning, they may need support from their families, whether it is the provision of learning equipment. environment or emotional support. From the data, it appears that the degree to which families consider participation in blended learning to be important can interact with students' perceived usefulness and exert a significant positive moderating effect. This moderating effect increases as the influence of the family increases.

Peer influence, on the other hand, is similar to teacher influence and occurs mainly along the model pathway mediated by self-efficacy. Peer influence significantly contributes to students' self-efficacy. And it was able to form an interaction term with satisfaction, which significantly weakened its influence when the peer influence is weak. Additionally, for female students, a low level of peer influence could reduce their self-efficacy. It is also important to pay attention to peer interaction for females in blended learning

As Ellis et al (2009) state, integrating technology into the student learning environment requires an understanding of the relationship between students, teachers, and technology. Educators, university administrators and online course developers need to be aware of the impact of students' personal characteristics on their attitudes toward participating in blended learning. This is because when policy pushes for educational change, it tends to accelerate the pace, allowing voices within education to be ignored, thus affecting the very laws and coherence of educational development. This means that when setting up a blended curriculum, developers, teachers, and administrators must first understand the learning stages, conditions, and occupations of different students, engage in peer communication and interaction design and be prepared to communicate with families. As Fan et al. (2022) suggest, attitudes toward learning can influence students' engagement with mobile learning, along with interesting and well-designed approaches to learning. It is important to avoid the problems that arise when promoting blended learning in China, such as replicating existing course modules and using the same teaching methods for all students from different backgrounds

Limitation and recommendation

The limitations of this study are mainly related to the sample and the research methodology.

The first is that the sample is geographically limited. Factors such as family influence and gender in the Chengdu area would be influenced by economic and social development, and as a city in an underdeveloped region of China, this finding may affect the generalisability of this study. The second

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is that the research methodology only used questionnaires, but after three years of epidemic policies and related changes in higher education in mainland China, students' attitudes towards blended learning are a more complex issue with many possible influencing factors.

Future research could enrich the sample and research methods to explore in depth the influences that affect students' attitudes towards engaging in blended learning to better understand, develop and adapt blended learning programs.

Reference

Abidin, M.J.Z., Rezaee, A.A., Abdullah, H.N., & Singh, K.K.B. (2011). Learning styles and overall academic achievement in a specific educational system. *International Journal of Humanities and Social Science,* 1 (10), 143-152.

Ahmad, T. S., Kamalv, M. B., Nik Suryani, N. A. R., & Tunku Badariah, T. A. (2011). Investigating students' attitudes and intention to use social software in higher institutions of learning in Malaysia. *Multicultural Education & Technology Journal*, 5(3), 194–208.

Ajzen, I., & Fishbein, M. (1972). Attitudes and normative beliefs as factors influencing behavioral intentions. *Journal of Personality and Social Psychology,* 21(1), 1–9. https://doi.org/10.1037/h0031930

Alrabai, F. (2017). From teacher dependency to learner independence: A Study of Saudi Learners' readiness for autonomous learning of English as a foreign language. *Learning and Teaching in Higher Education: Gulf Perspectives,* 14(1), 70–97. https://doi.org/10.18538/lthe.v14.n1.262

Barkatsas, A.T., Kasimatis, K., & Gialamas, V. (2009). Learning secondary mathematics with technology: Exploring the complex interrelationship between students' attitudes, engagement, gender, and achievement. *Computers & Education,* 52(3), 562–570. https://doi.org/10.1016/j.compedu.2008.11.001

Bodle, K. A., Malin, M., & Wynhoven, A. (2017). Students' experience toward ePortfolios as a reflective assessment tool in a dual-mode indigenous business course. *Accounting Research Journal,* 30(3), 333–350. https://doi.org/10.1108/arj-06-2015-0089

Chen, Y.-C., Yeh, R. C., Lou, S.-J., & Lin, Y.-C. (2013). What drives a successful web-based language learning environment? an empirical investigation of the critical factors influencing college students' learning satisfaction. *Procedia - Social and Behavioral Sciences,* 103, 1327–1336. https://doi.org/10.1016/j.sbspro.2013.10.463

Ellis, R. A., Ginns, P., & Piggott, L. (2009). E-learning in higher education: Some key aspects and their relationship to approaches to study. *Higher Education Research & Development,* 28(3), 303–318. https://doi.org/10.1080/07294360902839909

Fan, M., Ndavi, J. W., Qalati, S. A., Huang, L., & Pu, Z. (2022). Applying the time continuum model of motivation to explain how major factors affect mobile learning motivation: A comparison of SEM and FSQCA. *Online Information Review,* 46(6), 1095–1114. https://doi.org/10.1108/oir-04-2021-0226

Foong, S.-Y., & Khoo, C.-H. (2015). Attitude, learning environment, and current knowledge enhancement of accounting students in Malaysia. *Journal of Accounting in Emerging Economies,* 5(2), 202–221. https://doi.org/10.1108/jaee-07-2012-0030

Fornell, C., & Larcker, D. F. (1981b). Erratum: structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 18(3), 382–388.

Foung, D., & Chen, J. (2019). Discovering disciplinary differences: Blending data sources to explore the student online behaviors in a university English course. *Information Discovery and Delivery*, 47(2), 106–114. https://doi.org/10.1108/idd-10-2018-0053

Ganesh, M. P., López-Cabarcos, M. Á., & Vázquez-Rodríguez, P. (2019). Are self-leaders more willing to mentor others? A study among Indian and Spanish University Teachers. *Cross Cultural & Strategic Management*, 26(2), 223–245. https://doi.org/10.1108/ccsm-04-2017-0047

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate Data Analysis. Cengage Learning, EMEA.

Henrie, C. R., Halverson, L. R., & Graham, C. R. (2015). Measuring student engagement in technology-mediated learning: A review. *Computers & Education,* 90, 36–53. doi:10.1016/j.compedu.2015.09.005

Ho, V., Nakamori, Y., Ho, T., & Lim, C. (2014). Blended learning model on hands-on approach for in-service secondary school teachers: Combination of e-learning and face-to-face discussion. *Education and Information Technologies,* 21(1), 185-208. https://doi.org/10.1007/s10639-014-9315-y

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DOI: https://doi.org/10.14456/jsasr.2023.18

Hyman, J. A., Moser, M. T., & Segala, L. N. (2014). Electronic reading and digital library technologies: Understanding learner expectation and usage intent for mobile learning. *Educational Technology Research and Development,* 62(1), 35–52. https://doi.org/10.1007/s11423-013-9330-5

Ismaili, Y. (2021). Evaluation of students' attitude toward distance learning during the pandemic (covid-19): A case study of elite university. *On the Horizon,* 29(1), 17–30. https://doi.org/10.1108/oth-09-2020-0032

Jeno, L. M., Adachi, P. J., Grytnes, J.-A., Vandvik, V., & Deci, E. L. (2018). The effects of M-learning on motivation, achievement, and well-being: A self-determination theory approach. *British Journal of Educational Technology*, 50(2), 669–683. https://doi.org/10.1111/bjet.12657

Lam, L. (2012). Impact of competitiveness on salespeople's commitment and performance. *Journal Of Business Research,* 65(9), 1328–1334. https://doi.org/ 10.1016/j.jbusres.2011.10.026

Liao, Y.-W., Huang, Y.-M., Chen, H.-C., & Huang, S.-H. (2015). Exploring the antecedents of collaborative learning performance over social networking sites in a ubiquitous learning context. *Computers in Human Behavior*, 43, 313–323. https://doi.org/10.1016/j.chb.2014.10.028

Liaw, S.-S., & Huang, H.-M. (2011). Exploring learners' acceptance toward Mobile Learning. *Technology Acceptance in Education*, 145–157. https://doi.org/10.1007/978-94-6091-487-4_8

Lin, X., Featherman, M., & Sarker, S. (2016), Understanding factors affecting users' social networking site continuance: a gender difference perspective. *Information and Management,* 54(3), 383-95.

Lizzio, A., Wilson, K., & Simons, R. (2002). University students' perceptions of the learning environment and academic outcomes: Implications for theory and practice. *Studies in Higher Education,* 27(1), 27–52. https://doi.org/10.1080/030750701 20099359

Mulcahy, R. F., Russell-Bennett, R., Zainuddin, N., & Kuhn, K. A. (2017). Designing gamified transformative and social marketing services. *Journal of Service Theory and Practice*, 28(1), 26–51. https://doi.org/10.1108/jstp-02-2017-0034

Niwaz, A., Ahmed, Q. W., & Kamran, S. (2019). An exploration of issues and challenges faced by students in distance learning environment. *Global Social Sciences Review*, 4(4), 77–83. https://doi.org/10.31703/gssr.2019(iv-iv).11

Noour, M., & Hubbard, N. (2015). Self-determination theory: Opportunities and challenges for blended e-learning in motivating Egyptian learners. *Procedia - Social and Behavioral Sciences,* 182, 513–521. https://doi.org/10.1016/j.sbspro.2015.04. 836

Poon, J. (2012). Use of blended learning to enhance the student learning experience and engagement in property education. *Property Management,* 30(2), 129-156. https://doi.org/10.1108/02637471211213398

Rauniar, R., Rawski, G., Yang, J., & Johnson, B. (2014). Technology acceptance model (TAM) and social media usage: an empirical study on Facebook. *Journal of Enterprise Information Management,* 27(1), 6–30. https://doi.org/10.1108/jeim- 04-2012-0011

Schwarz, E. J., Wdowiak, M. A., Almer-Jarz, D. A., & Breitenecker, R. J. (2009). The effects of attitudes and perceived environment conditions on students' entrepreneurial intent. *Education + Training,* 51(4), 272–291. https://doi.org/10.1108/00400910910964566

Spanjers, I., Könings, K., Leppink, J., Verstegen, D., de Jong, N., Czabanowska, K., & Van Merriënboer, J. (2015). The promised land of blended learning: Quizzes as a moderator. *Educational Research Review,* 15, 59-74 https://doi.org/10.1016/j.edurev. 2015.05.001

Stubbs, M., Martin, I., & Endlar, L. (2006). The structuration of blended learning: Putting holistic design principles into practice. *British Journal of Educational Technology*, 37(2), 163–175. https://doi.org/10.1111/j.1467-8535.2006.00530.x

Šumak, B., Heričko, M., & Pušnik, M. (2011). A meta-analysis of e-learning technology acceptance: The role of user types and e-learning technology types. *Computers in Human Behavior*, 27(6), 2067–2077. https://doi.org/10.1016/j.chb.2011.08.005

Taylor, D. G., Voelker, T. A., & Pentina, I. (2011).Towards the acceptance of RSS to support learning: an empirical study to validate the technology acceptance model in Lebanon. *International Journal of Mobile Marketing,* 6(2), 60–70.

Tsai, M.-H., & Tang, Y.-C. (2017). Learning attitudes and problem-solving attitudes for blended problem-based learning. *Library Hi Tech,* 35(4), 615–628. https://doi.org/10.1108/lht-06-2017-0102

Tu, Y.-F., Hwang, G.-J., Chen, J. C.-C., & Lai, C. (2021). University students' attitudes towards ubiquitous library-supported learning: An empirical investigation in the context of the line@library. *The Electronic Library*, 39(1), 186–207. https://doi.org/10.1108/el-03-2020-0076

UNESCO. (2020). *1.37 billion students now home as COVID-19 school closures expand, ministers*

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Website: https://so07.tci-thaijo.org/index.php/IJSASR/index
DOI: https://doi.org/10.14456/jsasr.2023.18

scale up multimedia approaches to ensure learning continuity. UNESCO.org. Retrieved February 28, 2023, from https://www.unesco.org/en/articles/137-billion-students-now-home-covid-19-school-closures-expand-ministers-scale-multimedia-approaches

Ursini, S., & Sánchez, G. (2008). Gender, technology, and attitude towards mathematics: A Comparative Longitudinal Study with Mexican students. *ZDM,* 40(4), 559–577. https://doi.org/10.1007/s11858-008-0120-1

Vale, C. M., & Leder, G. C. (2004). Student views of computer-based mathematics in the Middle Years: Does gender make a difference? *Educational Studies in Mathematics,* 56(3), 287–312. https://doi.org/10.1023/b:educ.0000040411.94890.56

Xinhua News Agency. (2022). *Building a new form of higher education through digitalization. Presentation by the Director of Higher Education, Ministry of Education*. Retrieved November 10, 2022, from https://baijiahao.baidu.com/s?id=1740009396480767736&wfr=spider&for=pc

Zhou, Q., Lee, C. S., Sin, S.-C. J., Lin, S., Hu, H., & Fahmi Firdaus Bin Ismail, M. (2020). Understanding the use of YouTube as a learning resource: A Social Cognitive Perspective. *Aslib Journal of Information Management,* 72(3), 339–359. https://doi.org/10.1108/ajim-10-2019-0290

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