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Zhuo Dai

School of Business, Jiujiang University, P.R.China, daizhuo1@126.com

Zaiyue Li

School of Business, Jiujiang University, P.R.China

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The Study on Affecting Factors of Learners' Satisfaction of Online Course Platform

*Dai zhuo**, *Li zaiyue*

School of Business, Jiujiang University, P.R.China

Abstract: Online course platforms have many advantages. Many universities establish online course platforms for online courses. Students' satisfaction with the online course platform largely determine the adopt of online course platform. In this paper, students in Jiujiang University Jiangxi province are regarded as research objects. Moderating variables are Big Five personality traits. Dependent variables are reliability, navigation, richness, friendliness and aesthetics. Independent variable is satisfaction. A learners' satisfaction model of online course platform is established. The collected 368 valid questionnaires are processed by Amos20.0 and spss17.0. The reliability and validity of questionnaires is reasonably. Confirmatory factor analysis is conducted. The hypotheses of structural equation model is also confirmed. The moderating effect of personality traits is partly verified by using grouping regression and hierarchical regression. The results shows that: firstly, the reliability, navigation, richness, friendliness and aesthetics of the online course platform are significantly positively related to satisfaction; secondly, apart from conscientiousness grouping, the remaining four personality traits have some moderating effect on the relationship between satisfaction and reliability, navigation, richness, friendliness, aesthetics of online course platform. Finally, the article makes a conclusion and proposes suggestions, limitations and directions of future research.

Keywords: online course platform ; satisfaction; personality traits

1. INTRODUCTION

Lee et al. study the factors affecting the learners' satisfaction of online course platform^[1]. The purpose of study is to increase the understanding of learners' satisfaction of the online course platform, induce designers of online course platform to improve the quality of online course platform, increase the satisfaction level of the learners. Previous studies of satisfaction assume learners are homogeneous. Nevertheless, in fact, different learners have different personality traits, which affect the intensity of relationship between satisfaction and the affecting factor of satisfaction, or even change the direction of relationship, i.e., personality traits have moderating effects. China's greatest educator Confucius believes that teaching should vary according to personality traits^[2]. American psychologist Fiedler proposes the contingency model of the leader, which links personality traits with the external environment. He points out that the management model which the leader's style and environment correspond will improve the efficiency of managers^[3]. Therefore, the purpose of this paper is to find the key factors of affecting satisfaction and study the moderating effect of personality traits.

2. LITERATURE REVIEW AND HYPOTHESES OF RESEARCH

Yu yanfang et al. believe online course platform should be evaluated from four aspects^[4]. They are the interface of learning, learning communities, content and personalization. They finds that beginners regard learning interface as the most important factors that affect satisfaction. Mahwish believes that factors affecting students' satisfaction include appropriate technical means, the teacher's guidance, the friendliness of the interface, students' attitudes to technology and students' computer performance^[5]. Sun et al study the factors that drive the success of online course platform. They find that the quality, flexibility, usefulness, ease of use of the online course platform play a vital role for learners' satisfaction^[6].

Based on the above literature review, this paper proposes the following five factors affecting learners'

* Corresponding author. Email: daizhuo1@126.com

satisfaction.

Reliability of platform. Bharati discovers the reliability of platform is an important factor affecting users' satisfaction through empirical research^[7].The reliability of the platform mainly refers to opening the page quickly and accurately and without broken links or blank pages.

Good navigation.Steve et al. believe the navigation of online course platform is very important.Good navigation allows learners to experience a pleasant trip when they obtain the knowledge from website^[8].

Rich content. Rich content refers to comprehensive,adequate and timely updating, which means high quality information and brings about learners' satisfaction^[9].

Friendly interface. This refers to be easy to use, be easy to operate and be comfortable feeling.Wang points out that this will lead to a positive attitude and high users' satisfaction^[10].

Aesthetics of the page. Steve Muylle thinks the layout of page has a impact on the learners' satisfaction.A pleasing platform can deliver knowledge to the learners better and improve learners' satisfaction^[8]. The following hypotheses are made based on the above literatures :

H1:platform reliability(H1a),navigation(H1b),richness of content(H1c),friendly interface (H1d), aesthetics of the page (H1e) have significantly positive impact on learners' satisfaction.

Some scholars have studied the moderating effect of Big Five personality traits. Tong lijun et al. believe that personality traits have a moderating effect on relationship between conflict and satisfaction^[11]. Wang bingcheng finds that conscientiousness of Five Big personality traits has a moderating effect on pay equity and job satisfaction^[12].The research of Luolu suggests that personality traits have a moderating effect on the relationship between leisure participation and leisure satisfaction^[13]. Li meifeng deems that the relationship between job characteristics and job satisfaction is moderated by four traits of Big Five personality^[14]. Based on the above literatures, the following hypotheses are made:

H2: extraversion has a moderating relationship between learners' satisfaction and reliability (H2a), navigation (H2b), richness of content (H2c), friendly interface (H2d), aesthetics of the page (H2e).

H3: agreeableness has a moderating relationship between learners' satisfaction and reliability (H2a), navigation (H2b), richness of content (H2c), friendly interface (H2d), aesthetics of the page (H2e).

H4: conscientiousness has a moderating relationship between learners' satisfaction and reliability (H2a), navigation (H2b), richness of content (H2c), friendly interface (H2d), aesthetics of the page (H2e).

H5: neuroticism has a moderating relationship between learners' satisfaction and reliability (H2a), navigation (H2b), richness of content (H2c), friendly interface (H2d), aesthetics of the page (H2e).

H6: openness has a moderating relationship between learners' satisfaction and reliability (H2a), navigation (H2b), richness of content (H2c), friendly interface (H2d), aesthetics of the page (H2e).

Based on the above hypotheses, this paper establishes a learners' satisfaction model of online course platform.The model is shown in Figure 1. RE represents reliability.NA represents navigation.RI represents rich content.FR represents friendly interface. AE represents aesthetics of the page.SA represents satisfaction. PT represents Big Five personality traits.

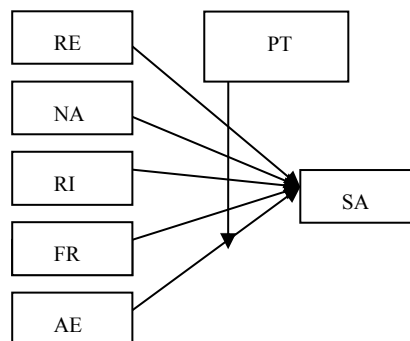


Figure 1. The model of study

3. DESIGN OF STUDY

A simplified version of 25 questions about personality traits is adopted. Question of satisfaction is drawn up based on similar questionnaire at home and abroad. The number of questionnaire is 18. Questionnaire adopts five Likert scale. 1 represents strongly disagree. 5 represents strongly agree. The number of questions about reliability, navigation, rich content, friendly interface, aesthetics of the page, satisfaction is three.

Samples are collected in Jiujiang University. Questionnaires are distributed and collected from March to April in 2013. 545 questionnaires are issued. 391 questionnaires are recovered. Apart from 23 invalid questionnaires, the number of valid questionnaires is 368. The effective recovering rate of questionnaires is 68%. After the questionnaires are recovered, questionnaires are purified according to the CITC (item-total correlation coefficient). CITC of the 18 items are all more than 0.5. The correlation coefficients of constructs and Cronbach coefficient are calculated by spss17.0. Reliability analysis and the verification of moderating effect are also carried out by spss17.0. Confirmatory factor analysis and confirmation of hypotheses are carried out by Amos20.0.

4. THE RESULTS OF STUDY

4.1 the test of reliability and validity

The reliability of questionnaire is analyzed to ensure that questionnaire is stable and reliable. Reliability is judged by cronbach's α . 0.7 is the minimum acceptable value. The validity can be divided into convergent validity and discriminant validity. Convergent validity refers to what extent a series of indicators converge to the same factor. There are three criteria to assess convergent validity. Firstly, all standardized factor loadings are greater than 0.5 and achieve significant level ($P < 0.05$). Secondly, average variance extraction (AVE) is greater than 0.5. Thirdly, composite reliability (CR) is greater than 0.7. Average variance extraction = $\frac{\sum (\text{standardized factor loading})^2}{\sum (\text{standardized factor loading})^2 + \sum (\text{measurement error for each measurement variable})}$, composite reliability = $\frac{\sum (\text{standardized factor loading})^2}{\sum (\text{standardized factor loading})^2 + \sum (\text{measurement error of the measured variable})}$, measurement error of the measured variable = $1 - \text{standardized factor loading}^2$. The results of the test of reliability and convergent validity are shown in Table 1. All cronbach's α is greater than 0.7. In addition, standardized factor loading, composite reliability and average variance extraction meet the criteria of convergent validity.

Table 1. The test of reliability and convergent validity

Factors	Items	standardized factor loading	cronbach's α	CR	AVE
RE	RE1	0.805***	0.878	0.88	0.709
	RE2	0.878***			
	RE3	0.842***			
NA	NA1	0.964***	0.917	0.923	0.8
	NA2	0.791***			
	NA3	0.92***			
RI	RI1	0.932***	0.924	0.928	0.812
	RI2	0.946***			
	RI3	0.819***			
FR	FR1	0.891***	0.915	0.919	0.79
	FR2	0.937***			
	FR3	0.836***			
AE	AE1	0.706***	0.783	0.785	0.55
	AE2	0.824***			
	AE3	0.688***			
SA	SA1	0.884***	0.881	0.89	0.73
	SA2	0.772***			
	SA3	0.902***			

*** indicate standardized factor loads are significant at the level of $p < 0.001$

Discriminant validity is proposed by Gounaris (2003)^[15]. When average variance extracted are greater than squared correlation coefficient of construct, questionnaire shows good discriminant validity. The results are shown in Table 2. Table 2 shows the square root of the average variance extracted is greater than the correlation coefficient of construct, which means that average variance extracted are greater than squared correlation coefficient of constructs. Therefore, the questionnaire has good discriminant validity.

Table 2. The test of discriminant validity

	SA	RE	NA	RI	FR	AE
SA	0.854					
RE	0.639	0.842				
NA	0.65	0.559	0.894			
RI	0.729	0.589	0.633	0.901		
FR	0.679	0.565	0.57	0.692	0.888	
AE	0.516	0.406	0.451	0.49	0.501	0.742

notes: (i)The diagonal value is the square root of AVE.(ii)correlation coefficients are Pearson unilateral

4.2 verify hypotheses and test the overall fit

Hypotheses of model are tested by Amos20.0. The results are shown in Table 3. Table 3 shows that H1a, H1b, H1c, H1d, H1e are confirmed. Results indicates that reliability, navigation, rich content, friendly interface, aesthetics of the page have a significantly positive impact on satisfaction. In order to test the overall fit, this paper uses the following index: X^2/df , NFI, GFI, CFI, RMR, RMSEA, IFI, TLI, SRMR. The results are shown in Table 4. Table 4 shows that recommended value and actual value correspond and the overall model fit is good.

Table 3. The test of hypotheses

hypotheses	Coefficients of path	results
H1a	0.252***	support
H1b	0.145*	support
H1c	0.305***	support
H1d	0.255**	support
H1e	0.218**	support

***, **, * indicate coefficients of path are significant at the level of $p < 0.001, 0.01, 0.05$.

Table 4. The situation of the overall model's fit

fit index	recommended value	actual value	consistent or not
X^2/df	<5	2.908	support
NFI	>0.9	0.938	support
GFI	>0.9	0.907	support
CFI	>0.9	0.958	support
RMR	<0.05	0.024	support
RMSEA	<0.08	0.072	support
IFI	>0.9	0.959	support
TLI	>0.9	0.947	support
SRMR	<0.5	0.045	support

4.3 Moderating effects of personality traits

The questionnaire of personality traits with 25 questions is adopted. After the questionnaires are recovered, each student's original scores of extraversion, agreeableness, conscientiousness, openness and neuroticism are calculated. According to the conversion table, the standard scores corresponding to original scores are identified. Then each student's standard scores of five personality traits is summed and averaged. In the light of each student's average standard scores, all students are divided into high scores group and low scores group. The number of high scores and low scores group of extraversion is 257 and 111 respectively. The number of high scores and low scores group of agreeableness is 119 and 249 respectively. The number of high scores and low scores group of conscientiousness is 149 and 219 respectively. The number of high scores and low scores group of neuroticism is 254 and 114 respectively. The number of high scores and low scores group of openness is 123 and 245 respectively.

The dependent variable is satisfaction. The independent variables are reliability, navigability, richness, friendliness, aesthetics. The analysis of regression on extraversion group is conducted. The results are shown in table 5. The regression coefficients of introverted and extroverted groups have significant differences only in the SA-NA, that is, extraversion has a moderating effect on the relationship between satisfaction and navigation, which confirms H2 partly. The same conclusion can be made by using hierarchical regression.

Table 5. The comparison of introverted and extroverted student

	extroverted student		introverted student		Coefficient difference ratio
	Regression coefficients	Standard errors	Regression coefficients	Standard errors	
SA-RE	0.737***	0.057	0.662**	0.219	0.33
SA-NA	0.75***	0.051	0.392***	0.099	3.2**
SA-RI	0.763***	0.044	0.596***	0.088	1.7
SA-FR	0.707***	0.049	0.64***	0.099	0.61
SA-AE	0.567***	0.062	0.426***	0.094	1.25

***, ** indicate coefficients are significant at the level of $p < 0.001, 0.01$.

The analysis of regression on agreeableness group is conducted. The dependent variable is satisfaction. The independent variables are reliability, navigability, richness, friendliness, aesthetics. The results are shown in table 6. The regression coefficients of agreeableness and non-agreeableness groups have significant differences only in the SA-NA, SA-AE, that is, agreeableness has a moderating effect on the relationship between satisfaction and navigation, aesthetics, which confirms H3 partly. The same conclusion can be made by using hierarchical regression.

Table 6. The comparison of agreeable and non-agreeable student

	agreeable student		non-agreeable student		Coefficient difference ratio
	Regression coefficients	Standard errors	Regression coefficients	Standard errors	
SA-RE	0.616***	0.064	0.466***	0.064	1.66
SA-NA	0.697***	0.065	0.45***	0.070	2.59**
SA-RI	0.694***	0.065	0.651***	0.061	0.482
SA-FR	0.775***	0.095	0.934***	0.122	-1.03
SA-AE	0.6***	0.100	0.328***	0.060	2.32*

***, **, * indicate coefficients are significant at the level of $p < 0.001, 0.01, 0.05$.

The analysis of regression on conscientiousness group is conducted. The dependent variable is satisfaction. The independent variables are reliability , navigability, richness , friendliness, aesthetics. The results are shown in table 7. The regression coefficients of conscientiousness and unconscientiousness groups have no significant differences, that is, conscientiousness has no moderating effect, which denies H4. The same conclusion can be made by using hierarchical regression.

Table 7. The comparison of conscientious and unconscientious student

	conscientious student		conscientious student		Coefficient difference ratio
	Regression coefficients	Standard errors	Regression coefficients	Standard errors	
SA-RE	0.63***	0.07	0.56***	0.06	0.8
SA-NA	0.68***	0.06	0.58***	0.07	1.05
SA-RI	0.73***	0.05	0.68***	0.06	0.59
SA-FR	0.66***	0.06	0.70***	0.07	-0.39
SA-AE	0.61***	0.14	0.64***	0.13	-0.2

*** indicate coefficients are significant at the level of $p < 0.001$.

The analysis of regression on neuroticism group is conducted. The dependent variable is satisfaction. The independent variables are reliability, navigability, richness, friendliness, aesthetics. The results are shown in table 8. The regression coefficients of neuroticism and non-neuroticism groups have significant differences in the SA-RE, SA-NA, SA-RI, SA-AE, that is, neuroticism has a moderating effect on the relationship between satisfaction and reliability, navigation, richness, aesthetics, which confirms H6 partly. The same conclusion can be made by using hierarchical regression.

Table 8. The comparison of neurotic and non-neurotic student

	neurotic student		Non-neurotic student		Coefficient difference ratio
	Regression coefficients	Standard errors	Regression coefficients	Standard errors	
SA-RE	0.61***	0.05	0.81***	0.07	2.20*
SA-NA	0.66***	0.06	0.84***	0.07	-2.05*
SA-RI	0.71***	0.05	0.89***	0.06	-2.15*
SA-FR	0.73***	0.06	0.78***	0.07	-0.63
SA-AE	0.46***	0.07	0.86***	0.08	-3.95***

***, * , indicate coefficients are significant at the level of $p < 0.001, 0.05$.

The analysis of regression on openness group is conducted. The dependent variable is satisfaction. The independent variables are reliability , navigability, richness , friendliness, aesthetics. The results are shown in table 9. The regression coefficients of openness and non-openness groups have significant differences only in the SA-NA, SA-AE, that is, openness has a moderating effect on the relationship between satisfaction and navigation, aesthetics, which confirms H7 partly. The same conclusion can be made by using hierarchical regression.

Table 9. The comparison of open and non-open student

	extroverted student		introverted student		Coefficient difference ratio
	Regression coefficients	Standard errors	Regression coefficients	Standard errors	
SA-RE	0.59***	0.06	0.48***	0.06	1.22
SA-NA	0.69***	0.07	0.43***	0.07	2.67**
SA-RI	0.92***	0.09	0.87***	0.10	0.36
SA-FR	0.68***	0.07	0.54***	0.06	1.45
SA-AE	0.59***	0.10	0.3***	0.06	2.54*

***, **, * indicate coefficients are significant at the level of $p < 0.001, 0.01, 0.05$.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusion

Based on the survey in Jiujiang University, this paper confirms that the reliability, navigation, richness, friendliness, aesthetics of the online course platform have a significantly positive effect on satisfaction. The moderating effect of personality traits is examined by grouping regression and hierarchical regression. The results show that, apart from conscientiousness, the remaining four personality traits have partly moderating effects.

5.2 Recommendations

Among the factors affecting learners' satisfaction of online course platform, the coefficients of richness and reliability are higher. Therefore, the designers of platform should focus on improving the richness and reliability of the platform in order to increase learners' satisfaction. Personality traits have some moderating effects, which means that the designers of platform should pay attention to the differences of students' personality traits and take the appropriate measures to improve students' satisfaction. Firstly, coefficient of extraverted students is greater than that of introverted students in SA-NA regression, therefore, designers of platform should focus on improving the navigation of platform for the extraverted students. Secondly, coefficient of agreeable students is greater than that of non-agreeable students in SA-NA, SA-AE regression, therefore, designers of platform should focus on improving the navigation and aesthetics of platform for agreeable students. Thirdly, the coefficient of non-neurotic students is greater than that of neurotic students in SA-RE, SA-NA, SA-RI, SA-AE regression, therefore, designers of platform should focus on improving the reliability, navigation, richness and aesthetics of platform for non-neurotic students. Fourthly, coefficient of open students is greater than that of non-open students in SA-NA, SA-AE regression, therefore, designers of platform should focus on improving the navigation and aesthetics of platform for open students.

5.3 limitations and future directions of this study

There are some limitations and scopes for future study in this study. Firstly, the survey can be extended to other universities in Jiangxi Province to obtain more general empirical results. Secondly, students are only given a week's time to use and be familiar with the online course platform so that the recovery rate is not high. Thirdly, in the future, the impacting and moderating factors of teachers' satisfaction can be studied. Teachers use the platform to impart knowledge and students use the platform to learn. The impacting and moderating factors of teachers and students should be different. Therefore, it is necessary to study.

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