The Impact of Users' Quantified Self Behavior on Their Willingness to Continue Using the Platform

Jing Han[✉] and Jing Zhao

Beijing Jiaotong University, Beijing, China
1538003381@qq.com

Abstract. How to improve users' willingness to continue using the platform becomes particularly important for the competitive e-commerce platforms. This paper uses the questionnaire method to collect 258 data for empirical test, and probes into the internal mechanism of quantitative self-goal orientation affecting users' willingness to continue to participate. It is found that both kinds of goal orientation can play a positive role in generating continuous use intention through self-efficacy, and user flow experience plays a positive moderating role in quantifying self-achievement goal orientation and self-efficacy.

Keywords: Quantified self · Achievement goal orientation · Flow experience · Self-efficacy · continuance usage intention

1 Introduction

With the advent of the "Internet+" era, the number of online shopping users is increasing. In order to improve the stickiness of users to the e-commerce platform, Pinduoduo officially launched "Pinduoduo Orchard", and later major e-commerce platforms also launched similar applications. How to promote users' continuous use of the platform is also a problem that needs to be discussed and solved continuously.

Existing studies have clarified the basic concept of quantified self and its positive utility [1], but few have explored the formation mechanism of users' willingness to continue using in the environment of quantified self [2]. Therefore, this study analyzes the quantitative self-environment of users in Pinduoduo orchard game, and uses SPSS and AMOS to conduct questionnaire data analysis, so as to study the influence path and internal mechanism of different achievement goal orientation on continuous use intention under this environment, which has certain reference significance for e-commerce platforms in how to promote continuous user participation and improve user activity.

2 Research Review and Hypothesis

2.1 Quantified Self-Achievement Goal Orientation and Willingness to Use Continuously

In Pinduoduo Orchard game, users who master goal orientation believe that they can master the changes in the new environment [3], while performance goal oriented users care more about the positive evaluation of others [4]. Therefore, users with two kinds of goal orientation will show their willingness to continue using Pinduoduo Orchard game application for their own requirements or adaptation to the social environment.

H1: Users' quantified self-goal orientation has a significant positive impact on their intention to continue using.

H1a: Mastering goal orientation has a significant positive influence on the willingness to continue using.

H1b: Performance goal orientation has a significant positive influence on continuous use intention.

2.2 The Mediating Role of Self-Efficacy

Among Pinduoduo Orchard users with different achievement motivation orientation, some hope to show success quickly through acquisition, while others hope to use their own social networks to create a sense of competition [5]. When both types of users struggled to complete the task, they experienced positive self-efficacy [6]. The reward system in the app can inspire a strong sense of self-management and make users more willing to continue using the game. Accordingly, we propose the following hypothesis:

H2: User self-efficacy plays a mediating role in quantifying self-achievement goal orientation and continuous use intention.

H2a: User self-efficacy plays a mediating role in mastering goal orientation and continuous use intention.

H2b: User self-efficacy plays a mediating role in performance goal orientation and continuous use intention.

2.3 The Moderating Effect of Flow Experience

Research shows that the degree of arousal of positive and negative emotions of users with achievement goals is different [7], and the positive correlation between self-efficacy and flow experience has different degrees of fun and control [8]. In addition, in the process of the influence of users with different achievement goals on the sense of self-efficacy, the degree of user immersion also plays a role [9]. So, we hypothesize:

H3: User flow experience plays a moderating role between quantified self-achievement goal orientation and self-efficacy.

H3a: User flow experience moderates the relationship between mastery goal orientation and self-efficacy.

H3b: User flow experience plays a moderating role between performance goal orientation and self-efficacy.

Table 1. KMO test

KMO		0.970
Barlett's test	Barlett's Test of Sphericity	4577.290
	df	153
	p	0.000

3   Data Analysis and Empirical Test

3.1   Questionnaire Design and Collection

In order to ensure the effectiveness of measurement results, this study uses a more mature scale and makes targeted adjustments based on the research objects. A total of 258 questionnaires were sent out this time. After screening, 237 valid questionnaires were obtained, and the effective rate of questionnaire collection was 91.86%.

3.2   Reliability and Validity Analysis

In this study, α reliability coefficient method was used for reliability analysis. The data results showed that the Cronbach α value of each variable was above 0.7 and the CITC value was above 0.4, indicating a good reliability level and problem items could be retained.

As shown in Table 1, we carried out factor analysis, and the tested KMO value was 0.934, which passed the Bartlett sphericity test. In addition, the factor loading of all measurement items in the principal component analysis is greater than 0.5, and the cumulative variance is greater than 50%, so the collected sample data has good validity.

3.3   Model Fitting Degree Analysis

As shown in Fig. 1, AMOS22.0 software was used in this study to build a structural model.

As shown in Table 2, the questionnaire data were then processed and corresponding to the structural equation model.

It can be seen from the data in the table that all the index values have passed the test, and the structural equation model in this study meets the standard.

3.4   Robustness Test

3.4.1   An Examination of the Mediating Effect of Self-Efficacy

The PROCESS plug-in in SPSS was used for data analysis, as shown in Table 3. The 95% confidence interval of the mediation effect of the two parts was not 0, indicating that the mediation effect was significant and H2 was established.
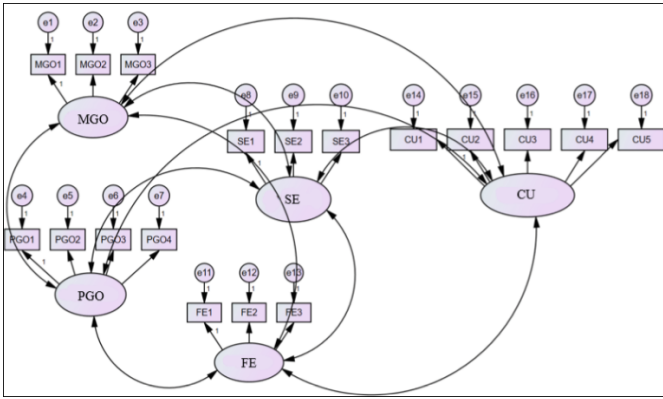
Fig. 1. Structural model

Table 2. Fitness data

Index	SRMR	RMSEA	NFI	RFI	IFI	CFI	PGFI	PNFI
Standard result	<0.05	<0.1	>0.9	>0.9	>0.9	>0.9	>0.5	>0.5
	0.040	0.088	0.925	0.908	0.950	0.950	0.619	0.756

Table 3. Analysis of the mediating effect of two independent variables

	Effect	Boot SE	Boot LLCI	Boot ULCI	Effect	Boot SE	Boot LLCI	Boot ULCI
Total effect	0.9226	0.0389	0.8459	0.992	0.9197	0.0468	0.8274	1.0119
Direct effect	0.4066	0.0454	0.3171	0.4962	0.1846	0.0614	0.0637	0.3055
Mediating effect	0.5159	0.0692	0.3782	0.6467	0.7351	0.0703	0.5954	0.8713

3.4.2   An Examination of the Moderating Effects of Flow Experience

As shown in Table 4, the verification data of the moderating effect show that the interaction between mastery goal orientation, performance goal orientation and flow experience is significant, and p meets the criteria, and H3 is established.

Table 4. Regulation effect analysis

	R^2	F	COEFF	LLCI	ULCI
constant	0.7996	309.8446***	3.5387***	3.4613	3.6161
MGO			0.1457**	0.0169	0.2746
FE			0.9621***	0.8326	1.0915
MGO × FE			0.0611**	0.0051	0.1171
constant	0.8335	388.8998***	3.5093***	3.4381	3.5805
PGO			0.4163***	0.3018	0.5309
FE			0.8029***	0.6908	0.9149
PGO × FE			0.1083***	0.0506	0.1659

4 Conclusions

4.1 Research Conclusion

In the current e-commerce platform, both kinds of goal orientation of users can play a positive role in the generation of continuous use intention, and performance goal orientation has a deeper impact than mastery goal orientation. Meanwhile, user flow experience plays a positive moderating role between the two kinds of goal orientation and self-efficacy.

4.2 Management Enlightenment

Although there are limitations such as samples in the study, the results are still instructive for e-commerce platforms. The platform can increase gamification design, improve the interaction between friends, and enhance the social experience of users. At the same time, the platform can use cloud data to analyze users' gaming habits under the premise of conforming to rules, and design appropriate game elements for the crowd to enhance users' flow experience.

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