

Postprint: Factors Influencing Consumers' Participation Intention in Online Reviews on O2O Platforms

Authors: Zhang Xinxiang, Jiao Lulu

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Abstract

[Purpose/Significance] With the development of the O2O e-commerce model, online reviews, as an integral component of its successful operation, are increasingly demonstrating their importance. How to motivate consumers to provide high-quality online reviews has also become a critical issue affecting the success of the O2O model. [Method/Process] Based on social exchange theory and public goods theory, this study constructs a theoretical model of factors influencing consumers' participation intention in online reviews on O2O platforms. Through a questionnaire survey, 386 valid responses were collected, and AMOS 17.0 software was employed to verify the relevant hypotheses in the structural equation model. [Results/Conclusions] Helping others, self-enhancement, sense of belonging, and moral responsibility all exert significant positive influences on consumers' intention to participate in online reviews on O2O platforms; helping offline merchants and economic rewards do not have significant positive effects on the participation intention in online reviews on O2O platforms; implementation cost does not have a significant negative effect on the participation intention in online reviews on O2O platforms. The research findings contribute to a deeper understanding of consumers' online review behavior on O2O platforms and provide theoretical references for enterprises to motivate consumer participation in online reviews and improve website service quality.

Full Text

Title

Factors Influencing Consumers' Willingness to Participate in Online Reviews on O2O Platforms

Authors Zhang Xinxiang, Jiao Lulu

School of Information and Safety Engineering, Zhongnan University of Economics and Law, Wuhan 430073

Keywords: Social Exchange Theory, Public Goods Theory, O2O, Online Reviews

Abstract

[Purpose/Significance] With the development of the O2O e-commerce model, online reviews have become increasingly important as a component of its successful operation. How to motivate consumers to provide high-quality online evaluations has gradually emerged as a key topic affecting the success of the O2O model. **[Method/Process]** Based on social exchange theory and public goods theory, this paper constructed a theoretical model of the factors influencing consumers' participation intention in online evaluations on O2O platforms. The study then collected 386 valid questionnaires and verified the relevant hypotheses using structural equation modeling with AMOS 17.0. **[Result/Conclusion]** The empirical analysis results show that helping others, self-improvement, sense of belonging, and moral responsibility have significant positive impacts on the intention to provide online reviews on O2O platforms. Helping enterprises and economic rewards do not exhibit a significant relationship with the intention to participate in the online review system of O2O platforms. Execution cost has no significant negative impact on the online evaluation willingness on O2O platforms. The analysis results will help deepen the understanding of O2O platform consumers' online review behavior and provide theoretical references for enterprises to encourage consumer participation in online evaluations and improve platform services.

1. Introduction

In recent years, with the continuous development of Internet and big data technologies, O2O (Online to Offline) has emerged as a new e-commerce model that integrates offline physical commerce with online network marketing and electronic payment [1]. Attracted by the huge potential profits from this emerging e-commerce market, an increasing number of e-commerce enterprises have begun to focus their development on O2O. Companies such as JD.com, Dianping, and Meituan successively entered the O2O field around 2014. The informatization of financial payment and logistics systems has continuously improved, accelerating the development of O2O. In September 2015, the General Office of the State Council issued the "Opinions on Promoting Online-Offline Interaction to Accelerate the Innovation and Transformation of Commercial Circulation," strongly supporting this emerging economic form. The maturation of multiple environmental factors has driven the rapid development of the O2O market. According to the "2017 China Local Life O2O Industry Research Report," the market size of local life service O2O reached 978 billion yuan in 2017, approaching the 1 trillion yuan mark [2].

However, as more and more competitors join the O2O model, attracting and retaining customers has become increasingly difficult for enterprises. How to create and maintain sustainable competitive advantages in the crowded O2O market is a major challenge facing enterprises today [3]. A statistical report released by CNNIC shows that online word-of-mouth is a primary consideration for consumers when making purchase decisions, with consumer attention reaching as high as 77.5% [4]. As the main form of online word-of-mouth transmission, online reviews play an important role in driving offline customer traffic in the O2O model [5]. After completing online reservation and payment and offline product purchase and experience, consumers return product reviews to the O2O platform. The O2O platform promptly tracks and responds to consumer feedback to optimize customer experience, while also evaluating online merchants based on this feedback [6]. Before making purchase decisions, potential customers often browse existing online reviews or refer to store evaluation values provided by the platform to understand relevant product or service information, using this as a basis for their purchasing decisions. Therefore, a certain quantity of high-quality online reviews is crucial for the successful operation of the O2O e-commerce model, and how to motivate consumers to provide high-quality online reviews has become a key issue affecting O2O model success.

1.1 Online Reviews

In recent years, domestic and foreign scholars have conducted relevant research on the influencing factors of consumers' willingness to participate in online reviews from different perspectives. Y. Tong et al. explained the influencing factors of consumers' participation in online reviews based on social exchange theory [8]. S. Picazo-Vela et al. built a theoretical model based on the extended theory of planned behavior and the Big Five personality framework to help online retailers or intermediaries increase the quantity of online reviews [9]. L. Zhao et al. investigated the three dimensions of social capital and the impact of members' sense of belonging on their willingness to participate in online reviews based on social capital theory [10]. He Wei et al. used the theory of planned behavior to explain the influencing factors of group-buying review participation willingness [11]. Yin Jinggang et al. constructed a model of influencing factors for users' willingness to publish online reviews in mobile Internet environments from five perspectives—altruism, execution cost, economic reward, perceived ease of use, and perceived usefulness—based on social exchange theory and technology exchange theory [12]. Cui Jinhong et al. studied the dissemination motivation of consumer word-of-mouth in online feedback systems based on social exchange theory, innovatively introducing the crowding effect [13].

A comprehensive review of the above domestic and foreign research on the influencing factors of consumers' willingness to participate in online reviews reveals that most studies have focused on B2C websites [8] and C2C websites [10], with few addressing the O2O e-commerce model. Although O2O, like B2C and C2C models, adopts online forms for information and payment, logistics, business

activities, and consumption experiences are provided offline [6]. These differences will affect the factors influencing consumers' willingness to participate in online reviews. Therefore, the influencing factors of consumers' willingness to participate in online reviews in the O2O model need to be reconsidered.

1.2 O2O E-commerce

In 2010, R. Alex, founder of TrialPay, first proposed O2O, arguing that the key to the O2O model lies in motivating online consumers to visit offline physical stores for consumption [14]. Currently, the development of O2O has gone beyond the Online to Offline model proposed by R. Alex, adding three new directions on this basis: Offline to Online, Online to Offline to Online, and Offline to Online to Offline. The emergence and rapid development of O2O have attracted widespread attention and discussion in academia.

1.3 Social Exchange Theory

Social Exchange Theory (SET) is one of the social psychology theories used to understand individual behavior in resource exchange processes [21]. The theory posits that individuals' resource exchange behavior follows the principle of maximizing benefits and minimizing costs [22]. Currently, the SET model is widely used to analyze interpersonal behavior in social groups. For example, S. Wu et al. explored how virtual team members can effectively share knowledge through network technology based on social exchange theory and knowledge-sharing models [23]. W. L. Shiau and M. M. Luo used the SET model to study the factors influencing consumers' continuous willingness to use online group buying and proved that factors such as reciprocity, reputation, satisfaction, and seller creativity have strong explanatory power for consumers' online group buying behavior [24]. Chang Yaping et al. proposed a theoretical model of the influence mechanism of online social support on customer citizenship behavior based on social exchange theory and conducted empirical analysis based on online brand communities [25]. Additionally, experts and scholars have used social exchange theory to explain the main factors influencing consumer participation in online reviews. J. Frenzen and K. Nakamoto proposed that consumer participation in online reviews can be viewed as a social exchange behavior, hoping to exchange valuable returns such as social status and money from this process [26]. Meanwhile, consumers often need to spend time and effort editing language and publishing reviews during the process of providing online reviews. The negative effects generated by this process will limit consumers' behavioral intention to provide online reviews. D. Sohn's research proved that in online environments, according to social exchange theory, when consumers perceive that the benefits of providing online reviews exceed the costs they pay, they will have a strong willingness to provide online reviews [27]. Based on this, social exchange theory is an important theoretical support for constructing a model of the influencing factors of consumers' willingness to participate in O2O platform online reviews.

1.4 Public Goods Theory

Public goods refer to common resources within a group. Every member of the group can benefit from these common resources, but they may not necessarily contribute to these common resources. The utilization rate of public resources will not decrease with group members' use of them, but when every member in the group hopes to benefit from public goods without making any contributions, social dilemmas may arise [28]. In Internet environments, most consumers browse existing online reviews before making purchase decisions to obtain product or service information, but the personal costs of providing online reviews will weaken consumers' willingness to contribute personal reviews. Over time, this may lead to the quantity and quality of online reviews failing to meet user needs, causing online reviews to fall into a social dilemma. M. L. Wasko and S. Faraj believe that if group members provide personal contributions while benefiting from public goods, social dilemma problems can be effectively solved [29]. Therefore, even though public goods may fall into social dilemmas, they can still be created and maintained through group behavior. A large amount of relevant literature in behavioral economics mentions that the intention to participate in public goods contributions is an important motivation for stimulating individual behavior [30]. Existing research has proven that consumers' behavior of contributing personal online reviews may stem from their willingness to maintain online reviews as a public good. For example, C. M. K. Cheung et al. studied the motivations for consumers' electronic word-of-mouth dissemination behavior in publishing online reviews in user review systems from four dimensions—egoism, collectivism, altruism, and principled moralism—based on public goods theory combined with social psychology theory [31]. It is evident that public goods theory is another major theoretical support for building a model of the influencing factors of consumers' participation in O2O platform online reviews.

Given the limitations of existing research and the necessity of research work, this paper will construct a theoretical model of the influencing factors of consumers' participation in O2O platform online reviews based on social exchange and public goods theories, tailored to the characteristics of the O2O e-commerce model. Using questionnaire surveys and structural equation modeling to verify the relevant hypotheses in the established model, the research results aim to provide references for enterprises to motivate consumers to participate in website online reviews and improve website services.

2. Research Model and Hypotheses

2.1 Research Model

Based on social exchange theory and public goods theory, and drawing on the theoretical ideas of C. M. K. Cheung and M. K. O. Lee, this paper argues that a theoretical research model of the influencing factors of consumers' willingness to participate in online reviews on O2O platforms can be constructed from three

dimensions: altruism, egoism, and collectivism. As shown in Figure 1 [Figure 1: see original paper]:

2.2 Hypothesis Development

2.2.1 Altruism Altruism is an important concept in social psychology, referring to the orientation of an individual's desires toward others [32]. According to altruism, we can consider that the ultimate purpose of individuals' behavior in maintaining public goods is for the benefit of others. Altruism reflects a form of social exchange. The altruist's cost is the effort made for others, while the benefit gained is the sense of pleasure and enhanced personal value after giving. Existing research has proven that approximately 30% of netizens publish comments online out of altruism [34]. Virtual communities are social groups formed by people with similar needs or interests gathering via the Internet [35]. O2O platforms provide a virtual environment for consumers with the same consumption needs to exchange product knowledge. Thus, we can consider that consumers' behavior of publishing or browsing online reviews through O2O platforms constitutes their participation in virtual community activities. In virtual communities, helping others and helping offline merchants represent the manifestation of altruism-oriented outcomes. Simultaneously, the pleasure consumers derive from helping others and helping offline merchants is the benefit obtained through social exchange. J. F. Engel et al. found that when consumers believe they need to help others make correct decisions or warn them against making wrong ones, they will proactively provide personal suggestions [36].

In O2O environments, consumers may share their positive or negative consumption experiences with other consumers by participating in online reviews, thereby helping them purchase the right products or services and deriving pleasure from this process. Helping offline merchants is also based on consumer altruism. Research by scholars such as T. Hennig-Thurau [34] and D. Sundaram [37] has demonstrated that when consumers are satisfied with purchased products or services, they develop ideas about helping offline merchants, which may drive their participation in corporate online word-of-mouth dissemination as a form of return to the enterprise. Online review systems are one of the important venues for generating online word-of-mouth [7]. Therefore, when consumers hope to support enterprise development by participating in online word-of-mouth dissemination, they may generate the behavior of participating in platform online reviews. In O2O environments, consumers conduct consumption experiences at offline merchants with online payment vouchers. When they are satisfied with the consumption experience, the immersive and intuitive experience may enhance their willingness to reciprocate offline merchants, and participating in platform online reviews to spread positive word-of-mouth for merchants is the most direct and convenient way. Based on this, the following hypotheses are proposed:

H1a: The pleasure of helping others has a positive impact on consumers' willingness to participate in online reviews on O2O platforms.

H1b: The pleasure of helping offline merchants has a positive impact on consumers' willingness to participate in online reviews on O2O platforms.

2.2.2 Egoism Egoism refers to the orientation of all of an individual's ultimate desires toward the self, with personal behavior motivation deriving from self-interest [32]. From an egoism perspective, we can argue that individuals contribute to public goods because such behavior can increase their own welfare. If people maximize their own benefits and minimize their own costs through obtaining returns in the process of resource exchange, this behavior is considered egoism [31]. In virtual communities, egoism can manifest as economic reward and self-improvement. Economic reward is an important extrinsic motivational factor for improving people's participation and implementation levels [38]. Online review systems often use monetary rewards, coupons, prizes, or points as economic incentives to encourage consumer participation in online reviews. Research by T. Hennig-Thurau [34] and Yin Jinggang [12] has proven that the economic returns from reviews can influence individuals' behavioral intention to participate in online reviews to a certain extent. Unlike traditional e-commerce, O2O can effectively integrate online and offline channels. This operational model makes the forms of economic rewards provided by enterprises to motivate consumers to participate in platform online reviews more diverse and flexible. Therefore, incentives generated by economic rewards in O2O environments are more likely to motivate consumers to participate in platform online reviews. Self-improvement refers to an individual's desire to seek enhancement of their own image or consolidation of community status from others [39]. Dichter once proposed that publishing comments can enable people to gain attention from others and demonstrate their own appreciation ability [40]. In O2O environments, self-improvement manifests as consumers' tendency to publish personal unique insights on purchased products or services to demonstrate a positive self-image. Existing literature has proven that in online environments, self-improvement is a factor influencing consumers' provision of personal comments [36-37]. Therefore, we can consider that self-improvement may motivate consumers on O2O platforms to participate in online reviews. Based on this, the following hypotheses are proposed:

H2a: The incentive of economic reward has a positive impact on consumers' participation in O2O platform online reviews.

H2b: The incentive of self-improvement has a positive impact on consumers' participation in O2O platform online reviews.

2.2.3 Collectivism Collectivism refers to the ultimate purpose of people's participation in social activities being to increase the welfare of the group or collective [33]. Based on the collectivism perspective, we can consider that individuals' participation in public goods maintenance may stem from the intention to safeguard collective interests. Social identity theory posits that everyone hopes to gain recognition from their affiliated group or collective [41]. When individuals identify themselves as members of a group or collective, they define

themselves based on their membership in the collective and align their goals with those of the community. Out of consideration for collective interests, they will be willing to do things beneficial to others that may not necessarily benefit themselves [42-43]. In virtual communities, sense of belonging and moral responsibility represent the manifestation of collectivism-oriented outcomes. Sense of belonging reflects an individual's emotional engagement with the collective. C. M. Chiu et al. proposed that in virtual communities, community identification with members has a significant positive impact on their knowledge-sharing behavior [44]. K. R. Lakhani et al. confirmed that members with a sense of community belonging actively participate in community knowledge sharing. They believe that participating in knowledge sharing proceeds from collective community interests and that such behavior suits community development [45]. Therefore, people with this intrinsic motivation will be driven to participate in sharing activities and help their community peers. This paper argues that when consumers have a certain sense of belonging to the O2O platform they have registered with, they are more likely to proactively provide online reviews, hoping through this action to maintain the normal operation of the platform and help it develop healthily. Moral responsibility refers to people's engagement in community activities out of consideration for morality within the group [33]. S. Bamberg et al., using meta-analysis, found that moral maintenance is an important influencing factor driving individual behavioral intention [46]. N. J. Allen et al. proved that in virtual communities, community members will provide valuable suggestions to other members out of a sense of responsibility [47]. C. M. K. Cheung et al. proposed that consumers with a strong sense of moral responsibility are more likely to disseminate online word-of-mouth through online consumer opinion platforms [31]. Therefore, this paper argues that the moral responsibility possessed by consumers will motivate them to participate in platform online reviews. Based on this, the following hypotheses are proposed:

H3a: Sense of belonging has a positive impact on consumers' participation in O2O platform online reviews.

H3b: Moral responsibility has a positive impact on consumers' participation in O2O platform online reviews.

2.2.4 Execution Cost Cost in social exchange theory refers to the negative outcomes generated during an individual's participation in exchange, which weakens their willingness and frequency of participation [22]. W. J. Orlikowski's research confirms that when knowledge sharing requires substantial time, knowledge-sharing behavior will be hindered [38]. For consumers to participate in O2O platform online reviews, they need to open the operation interface and input review opinions. The time cost required in this process will hinder consumers from providing online reviews, and as consumers' review content becomes more detailed, the time cost required for execution increases. When providing online reviews on platforms, consumers need to integrate their personal opinions on products or services and transform these opinions into text. Integrating opinions requires mental effort, and as time passes, consumers' intuitive feel-

ings about products or services will diminish, thereby increasing the difficulty of opinion integration and further weakening consumers' willingness to provide online reviews. Additionally, the implementation of the review function may incur extra costs in some cases. For example, when consumers access the O2O platform review system through mobile Internet to participate in online reviews, they may need to pay additional network data fees. The additional monetary cost generated in this process makes some consumers resistant to providing online reviews on the platform, and as review content becomes more detailed, the monetary cost required for execution also increases accordingly, further weakening consumers' willingness to provide online reviews on O2O platforms. Based on this, the following hypothesis is proposed:

H4: Execution cost has a negative impact on consumers' willingness to participate in online reviews.

3. Research Methodology

3.1 Variable Measurement and Analysis Methods

This study used a questionnaire survey to collect data. The questionnaire consisted of two parts: the first part collected respondents' personal information and statistics on their basic usage of the O2O platform's online review function; the second part contained variable measurement items. The measurement indicators used in the questionnaire were all adapted from relatively mature scales in existing domestic and foreign literature, with modifications made according to the development of China's O2O platforms and Chinese language conventions. Specific measurement indicators and their complete citation sources are shown in Table 1. The questionnaire used a 7-point Likert scale to measure items, with measurement items for each latent variable composed of a set of statements, using 7, 6, 5, 4, 3, 2, and 1 to represent "strongly agree," "agree," "somewhat agree," "neutral," "somewhat disagree," "disagree," and "strongly disagree," respectively.

3.2 Data Collection

The author distributed questionnaires to consumers with O2O platform shopping experience from May to June 2018. The survey employed both paper-based and online questionnaires. For students at the author's university and surrounding universities, we distributed 100 paper questionnaires and recovered 87 valid responses. To enhance the diversity of respondents, we subsequently conducted an online questionnaire survey using the Wenjuanxing platform, recovering 360 online questionnaires, of which 299 were valid. A total of 386 valid questionnaires were obtained, with 74 questionnaires excluded due to incomplete responses or illogical highly repetitive options, yielding an effective response rate of 83.9%. The sample characteristics of valid questionnaires are shown in Table 2.

3.3 Reliability and Validity Testing

Before analyzing the sample data, this study used SPSS software to conduct KMO and Bartlett' s sphericity tests on the data to determine whether the sample data was suitable for factor analysis. The results showed that the KMO value of the sample data was 0.911, approaching 1, and the chi-square value of Bartlett' s sphericity test was 6,851.238 with a P-value of 0.000, indicating that the sample data met the conditions for factor analysis. The purpose of questionnaire reliability testing is to examine the reliability and stability of the questionnaire. This study used Cronbach' s Alpha coefficient and composite reliability (CR) to test the internal consistency of the questionnaire. The results showed that the overall Cronbach' s Alpha coefficient of the questionnaire was 0.928, and each variable' s Cronbach' s Alpha coefficient was greater than 0.8, proving that the scale had good internal consistency and reliability. All variables' composite reliability (CR) values were greater than 0.8, further indicating that the measurement model had high reliability and the data had good stability. Validity testing was used to examine the effectiveness of questionnaire measurement. As shown in Table 3 , all variables' factor loadings were greater than 0.7, and all variables' average variance extracted (AVE) were greater than 0.6, indicating good convergent validity of the variables. Table 4 shows the square root of latent variables' average variance extracted (AVE) (the diagonal values in the table) and the correlation coefficients between latent variables. The results show that the square root of latent variables' AVE is greater than the correlation coefficients between latent variables, indicating good discriminant validity of the variables.

3.4 Model Testing

This study used AMOS 17.0 for model analysis and validation. The model fit results are shown in Table 5 . Based on a comprehensive judgment of various indicators, the model' s indicators basically meet the standards, and the overall model fit can be considered good. This study used the maximum likelihood method to estimate the path coefficients between factors. The data results are shown in Table 6 , where S.E. represents the standard error of the estimate and C.R. is the critical ratio, i.e., the T-test value. The data results in Table 6 show that the model passed the hypothesis tests.

3.5 Empirical Results Analysis

The path coefficients and significance levels of the model (see Table 6) indicate that except for the coefficients of H1b, H2a, and H4, which are not significant and not supported by the data, the coefficients of other hypotheses are significant at the 0.05 level. Specific analyses are as follows:

3.5.1 Altruism The pleasure of helping others has a significant positive impact on consumers' participation in O2O platform online reviews, with a standardized path coefficient of 0.158 and a P-value less than 0.05. This conclusion

is consistent with the research findings of Y. Tong [8] and T. Hennig-Thurau [34], which did not distinguish between types of consumer websites. From this, we can draw the preliminary conclusion that the pleasure of helping others is an important factor influencing participation in O2O platform online reviews.

The pleasure of helping offline merchants does not have a significant positive impact on consumers' participation in online reviews, with a standardized path coefficient of -0.025 and a P-value of 0.781. To help other consumers make better consumption decisions, consumers will provide useful information about products or services, and online reviews generated for this purpose are relatively objective and do not limit the nature of reviews to positive or favorable ones. In contrast, when consumers develop the intention to help offline merchants, they will be more inclined to provide positive and favorable online reviews, thereby spreading positive word-of-mouth for enterprises to attract other consumers, ultimately achieving the goal of supporting offline merchants to develop in better directions. However, existing research has confirmed that because positive reviews account for the majority of total reviews, consumers are unlikely to examine every single review, so the informativeness of positive reviews does not have a significant impact on consumers' initial trust [51]. From this, we can argue that for consumers who hope to help offline merchants through participating in reviews, the positive reviews they provide are difficult to gain recognition from other consumers, ultimately resulting in helping offline merchants not becoming a positive influencing factor for consumers' participation in online reviews.

3.5.2 Egoism The incentive of economic reward does not have a significant positive impact on consumers' participation in online reviews, with a standardized path coefficient of -0.013 and a P-value of 0.637. This result is consistent with the conclusion of Y. Tong et al. [8]. O2O platforms adopt a business model of online payment and offline consumption, and currently, most offline consumption stores on O2O platforms belong to the service industry, including food ordering, movies, beauty and cosmetics, SPA, tourism, health, car rental, etc. Offline merchants mostly use price reduction promotions to attract online consumers to visit physical stores for consumption, which causes sales costs to rise, thereby prompting offline merchants to cut other costs to ensure profits from sales. Additionally, as shown by the descriptive statistical analysis in Table 2, 49.0% of the survey respondents had undergraduate education, and another 23.8% had master's degree or higher education, indicating that their personal economic levels are higher than those with lower education levels. This survey also found that consumers mostly used O2O platforms such as Meituan and Baidu Nuomi, with Meituan users accounting for as high as 61.9%. Compared with merchants on traditional e-commerce platforms, merchants on group-buying platforms will reduce related expenditures on word-of-mouth publicity. Therefore, compared with traditional e-commerce, the economic rewards provided by offline merchants on O2O platforms are insufficient to motivate consumers to provide online reviews on the platform, resulting in economic rewards not having a significant positive impact on consumers' participation in

O2O platform online reviews.

The incentive of self-improvement has a significant positive impact on consumers' participation in online reviews, with a standardized path coefficient of 0.133 and a P-value less than 0.01. Technological development has diversified the forms of consumer comments in online environments. Unlike the previous text-only review function, the newly added image and video comment functions on existing O2O platforms provide consumers with more ways and channels to demonstrate their appreciation ability and personal competence, thereby enhancing consumers' willingness to participate in platform online reviews.

3.5.3 Collectivism Sense of belonging has a significant positive impact on consumers' participation in online reviews, with a standardized path coefficient of 0.230 and a P-value less than 0.001. This conclusion is consistent with the findings of C. M. K. Cheung and M. K. O. Lee [31]. As members of social groups, people will be willing to engage in affairs that may not necessarily benefit themselves but will certainly benefit other individuals in the collective, out of consideration for safeguarding their collective interests. When consumers on O2O platforms view themselves as members of the platform, their sense of belonging to the collective is an important factor influencing their participation in online reviews.

Moral responsibility has a significant positive impact on consumers' participation in online reviews, with a standardized path coefficient of 0.258 and a P-value less than 0.001. Moral responsibility can serve as an influencing factor motivating consumers to participate in online reviews. This conclusion may be related to the standardization of virtual society. With the popularization of the Internet, all aspects of people's lives are closely connected to the network. Under the constraints of relevant laws and regulations, online virtual communities are developing in a standardized, healthy, and orderly direction. Therefore, in the virtual online world, people are still willing to maintain moral norms in virtual communities out of a sense of responsibility. Before making consumption decisions, consumers refer to online reviews and recognize the reference value of online reviews, which generates a sense of responsibility to provide product information for other consumers after consumption, thereby enhancing their willingness to participate in online reviews.

3.5.4 Execution Cost Execution cost does not have a significant negative impact on consumers' participation in online reviews, with a standardized path coefficient of -0.05 and a P-value of 0.184. Technological progress may have weakened the execution cost for consumers to provide online reviews in platform review systems. At present, most O2O platforms have developed mobile network terminals, and the popularization of smartphones and mobile devices has also made the design of O2O mobile network platforms more practical, simplifying the operational steps for consumers to provide online reviews, thereby reducing the time cost required for them to input reviews on the platform. With

the development of network technology and social progress, healthy competition among O2O platform enterprises has driven O2O platform design to become more rational and user-friendly. The design of O2O platform-related web pages and mobile software should fully consider user needs, further optimizing the operational steps required for consumers to provide online comments and reducing usage difficulty and complexity. As shown in Table 2, the age of survey respondents was mainly distributed between 18-25 and 26-30 years old, with respondents aged 18-25 accounting for as high as 73.6%. Consumers in this age range are more proficient in using O2O platform-related web pages and mobile software, and the impact of execution cost required to provide online reviews on the platform is weaker for them than for consumers in other age ranges to a certain extent. The large-scale application of free wireless networks and increasingly favorable mobile data packages have reduced the Internet fees required for consumers to provide online reviews, lowering the monetary cost for consumers to provide online comments on O2O platforms. Additionally, some consumers choose to provide online reviews during offline consumption processes, and the intuitive feelings at the consumption site can reduce the mental effort required to integrate review statements to a certain extent. More humanized designs can also weaken consumers' resistance to participating in online reviews. Therefore, the conclusion that execution cost cannot negatively impact consumers' participation in online reviews emerged, which does not conform to the expected hypothesis.

4. Conclusions and Implications

This study explored the influencing factors of consumers' online review participation willingness in O2O environments from three dimensions—altruism, egoism, and collectivism—based on social exchange theory and public goods theory. The results indicate that in the altruism dimension, the pleasure of helping others has a significant positive impact on consumers' willingness to participate in online reviews, while the pleasure of helping offline merchants does not have a significant positive impact on consumers' willingness to participate in online reviews. In the egoism dimension, the incentive of self-improvement has a significant positive impact on consumers' willingness to participate in online reviews, while the incentive of economic reward does not have a significant positive impact on consumers' willingness to participate in online reviews. In the collectivism dimension, both sense of belonging and moral responsibility have significant positive impacts on consumers' willingness to participate in online reviews. Additionally, execution cost does not have a significant negative impact on consumers' online review participation willingness.

Information feedback and word-of-mouth dissemination are necessary components of O2O platform operation. How to stimulate consumers to participate in website online reviews is a key issue that managers must consider. The conclusions of this study can provide theoretical references for managers to formulate relevant decisions to a certain extent.

- (1) The pleasure of helping others is an important influencing factor stimulating consumers to participate in online reviews. When consumers publish personal opinions about purchased products or services on the platform, they can transmit useful information about products or services to other consumers. This information differs from the profit-oriented sales information about products or services provided by merchants and, to some extent, reduces the information asymmetry received by other consumers when purchasing products or services, helping them make correct purchase decisions. However, if consumers cannot perceive that their online reviews have helped other consumers, their willingness to continue providing online reviews on the platform will decrease. In response to this conclusion, website online review systems can add some interactive features between consumers, enabling consumers to receive feedback information from other consumers, thereby stimulating consumers' pleasure in helping others and promoting improvements in the quantity and quality of online reviews.
- (2) The incentive of self-improvement has a significant positive impact on consumers' participation in online reviews. Survey results prove that consumers generally believe that publishing reviews with unique personal insights on the platform can demonstrate personal appreciation ability. Many O2O platforms have already recognized the importance of this factor in motivating consumers to participate in online reviews. For example, consumers can obtain corresponding points or increase their personal account levels after providing reviews, and some platforms have opened review like functions, greatly enhancing consumers' personal sense of identity and honor. However, if only the like function or personal account points are considered as incentives for consumers, as time passes and existing reviews increase, newly added online reviews or newly registered users may not receive attention from other consumers, potentially weakening their willingness to participate in online reviews. Therefore, regarding the incentive of self-improvement for consumers' participation in online reviews, website design of online review systems should fully consider consumers' personal needs for self-expression, continuously optimize platform design, and encourage consumers to publish personal opinions on the platform.
- (3) Consumers' sense of belonging to the platform can motivate them to participate in online reviews. If consumers have a certain sense of belonging to the platform, compared with other consumers who have no emotional engagement with the platform, they will have greater expectations for the platform to develop in a good direction. Participating in platform online reviews is a way for consumers to interact with the platform. By providing positive or negative reviews, consumers promote the development of offline merchants in good directions or eliminate poor offline merchants. The results of this behavior, to some extent, drive the platform to develop in a good direction, with consumers participating in platform construction in this new way as members of the platform. Platform managers can consider adding warm elements to platform design based on this, thereby

enhancing the “stickiness” between consumers and the platform, strengthening consumers’ sense of belonging to the platform, and further promoting consumers to provide online reviews on the platform.

- (4) Moral responsibility has a significant positive impact on promoting consumers’ participation in online reviews. Before making purchase decisions, consumers refer to online reviews and recognize the reference value of online reviews, which generates a sense of responsibility to provide product information for other consumers after consumption, thereby enhancing their willingness to participate in online reviews. In response to this, website design should strengthen the “purification” of online review language to provide consumers with a healthy online review environment.

Of course, this study has some limitations. First, the survey respondents were mostly in-school students, with education levels concentrated at undergraduate and master’s levels, resulting in a single demographic structure. Future research can adopt random sampling or stratified survey methods to enrich the demographic characteristics of the survey population. Second, this study mainly used questionnaire surveys as the research method, which may have methodological limitations. Future research can incorporate other research methods. Third, the influencing factors in the model constructed in this study have certain limitations. Future research can add other influencing factors to improve the system of influencing factors for O2O platform online review participation willingness.

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Jiao Lulu: Responsible for paper conception, writing, and revision.

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