

ELUCIDATING WEBSITE LOYALTY AND ITS ANTECEDENTS IN A GAMIFICATION CONTEXT: CONSIDERING FLOW EXPERIENCE AS A MODERATOR

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ABSTRACT. *Despite the increasing interest in the use of gamification to retain consumers' engagement in various industries, website loyalty requires further exploration due to the acceptance-loyalty anomaly. This study investigates the congruence between self-image and online store image, the impact of trusting beliefs on website loyalty, and how these relationships are moderated by flow experience. The results show that regardless of gamification, the congruence between self-image and online store image affects website loyalty, as do trusting beliefs. Furthermore, these results confirm the moderating effects of flow experience on the effects of the congruence between self-image and online store image, and trusting beliefs on website loyalty in a gamification context. By contrast, flow experience is not a significant moderator without gamification. Finally, based on these findings, this paper presents the theoretical and practical implications for online store business strategies.*

Keywords: Gamification, Congruence, Image, Trusting beliefs, Flow experience, Website loyalty

1. **Introduction.** Game elements have been applied in various forms to our daily lives to change people's attitudes and behaviors [34]. Greatly benefitting from rapid development of technology and the games industry, different types of games surround us on social media and on mobile devices [34]. People are using games and game mechanics more and more for entertainment and enjoyment [38]. The concept of gamification has received worldwide attention [23] and has gradually become a new method of online marketing in many fields. Gamification appeals to people's hedonic nature, and utilizes the motivational traits of games to change people's engagement in processes from a straightforward to an amusing manner [38]. Gaming processes that involve the consumer can boost customer retention and loyalty [13].

One study has shown that consumers prefer online stores that are consistent with their self-image [31], and to form an image of an online store when they experience long-term marketing and when the online store's image symbolizes the consumer's perception of it. When the consumer's self-image matches the online store's image, they tend to develop favorable attitudes toward the store [31]. Thus, the consumer's self-image relates to the store's image. Furthermore, a match between the consumer's self-concept and the personality of a typical user of a brand (i.e., self-congruity) also has a positive impact on loyalty to physical stores [13].

However, a number of disputes and risks are associated with online transactions, which are growing in popularity. The anonymity of online transactions combined with a lack of

application of suitable information technology results in a failure to identify the identity of buyers and sellers, further deepening the mistrust and uncertainty of the parties involved in transactions [2]. Therefore, buyers must select the product features they need from the wide online shopping environment and conduct online transactions with unknown online sellers. In addition, the difficulty of confirming the authenticity of information available online leads to an increase in buyers' distrust of websites. Setting up a trusting relationship between the parties is essential for developing the e-commerce market [37]. It is important to enhance consumers' trust and develop trust mechanisms for improving information systems [19].

A side issue which may have relevance for consumer's website experience is their 'flow' state. When people focus on an activity and overlook all unrelated sensory perceptions, they become immersed in a flow state [6]. Flow is a psychological state most likely to occur in human-computer interactions such as when consumers browse a website. That kind of experience is enjoyable, pleasant, and funny [11]. When website content leads consumers to experience flow, it can positively affect their subsequent attitude and behavior towards the website [28].

However, although previous literature mainly focuses on the application of game mechanisms to non-game environments, there is a lack of research focusing on the effects of congruence between self-image and online store image, and trusting beliefs on website loyalty, as well as the moderating role of flow experience in an online environment. Given the growing importance to website loyalty, it is vital to develop a better understanding via an empirical investigation of the use of game elements within the online shopping process. We extend the theoretical basis of this discussion by studying the wider literature on consumers' responses to games. Specifically, the purpose of this study is to explore, within the gamification context, whether website loyalty is affected by the congruence between self-image and online store image, and trusting beliefs, and explores whether they are moderated by flow experience. The rest of this paper entails the literature review and hypotheses development, method, conclusion, recommendations and suggested areas for future research.

2. Literature Review and Hypothesis Development. Store atmosphere (e.g., decoration or layout) and in-store service (e.g., convenience of payment) positively and significantly affect consumer perception and in turn, influence consumers' preference for a store's image [20]. Consumers can choose to use and purchase goods and services that are consistent with their personal self-image, according to self-congruity theory [32]. This theory focuses on explaining consumers' beliefs and motivation, and on certain activities to strengthen the self-concept. Consumers define, keep, or improve their self-concept through buying and usage processes [12]. When consumers' consciousness toward the store is consistent with their self-image, they achieve self-congruity [1]. Furthermore, when consumers' self-image and the online store image match, consumers are inclined to develop favorable attitudes toward the store [31]. The congruity between self-image and store image (i.e., self-congruity) also influences purchase intentions [3]. Self-congruity also has a positive impact on loyalty [7], and customer loyalty toward the product and the retail store is influenced by self-image congruity [32]. Based on the above discussion, the following hypothesis is constructed.

H1. Congruence between self-image and online store image has a positive impact on website loyalty.

Trusting beliefs mean that people have a belief in and are willing to trust others [22]. In general, consumers' trust and beliefs are derived from the performance of the online store's service. Trusting beliefs comprise three dimensions: integrity, benevolence, and competence [36]. Integrity refers to the belief that a trustee sticks to a set of principles

(e.g., honesty and keeping promises) that are usually accepted by trustors [36]. Benevolence implies that the trustor believes that a trustee is concerned about the trustor and acts in the trustor's interests, and competence refers to a trustor's belief that a trustee has the ability, skills, and expertise to perform effectively in specific areas [36]. Most successful and profitable online stores maintain consumers' loyalty through trust [30]; thus, if a store wants to retain customer loyalty, it has to first obtain the customer's trust [8], as customer trust significantly affects website loyalty [10]. Additionally, trust beliefs affect trust-related behavior. Specifically, when people trust a website, they continue to use it, and they use the information provided on the website to make a purchase decision [24]. The following hypothesis is, therefore, developed.

H2. Trusting beliefs have a positive impact on website loyalty.

Flow experience is a short-term, subjective experience that explains why people are willing to engage in a certain activity [35]. Flow experience can retain consumers, reduce price sensitivity, and generate positive effects on consumer attitudes and behavior [28]. Additionally, positive feelings such as satisfaction and commitment not only increase loyalty toward online games [16], but are also likely to influence customers' trust, making the seller appear reliable to the customer [5]. A customer's positive experience with online shopping lowers perceived risk [26], and thus the levels of trust are likely to increase. Online experience should be examined as a moderator of the effect of trust on customer loyalty, since trust looks to be more important when the customer has less information about the online seller or has not made many online purchases in the past [15]. However, some studies have found that congruence between self-image and online store image plays a crucial role in influencing consumer attitude [18]. Nevertheless, a positive relationship exists between the flow experience and consumers' attitude [21], and this relationship makes the consumer more willing to repeatedly visit and spend more time browsing a website [17]. Flow experience has been found to exert a positive effect on trust and loyalty [4]. Therefore, the following hypotheses are proposed.

H3. Flow experience has a significant moderating effect on the link between the congruence between self-image and online store image and website loyalty.

H4. Flow experience has a significant moderating effect on the link between trusting beliefs and website loyalty.

3. Method. This study uses the most famous online shopping website (Taobao.com) in China as an example to investigate the game mechanism of badges, which the website uses. Customers who had previously used Taobao.com, but have not used the badges mechanism before, were asked to evaluate whether the addition of gamification influenced their website loyalty. Specifically, this study examines whether the virtual badges (i.e., gamification) on websites influence participants' behavior. Data were collected through paper-based questionnaires, and the participants were asked to browse the contents of Taobao badges and measure their perception of the different variables on a scale before and after browsing the badges. Selected through convenience sampling, the participants comprised undergraduate students in Taiwan. Of 343 questionnaires obtained, 43 were invalid, leaving 300 valid questionnaires, giving an effective response rate of 87%. More females (59%) responded than males (41%), and most respondents were aged 19-21 years (45.7%). Most respondents had an average monthly disposable income of NTD 10,001-15,000 (53%).

The congruence between self-image and online store image is the perception of the consumer's self-image with the products, the brands, and the stores [24]. The measurement items were adapted from Kwak and Kang [18] and Sirgy et al. [31]. Trusting beliefs mean that a person believes that other people have good hearts and honesty [25]. The measurement items were adapted from Jarvenpaa and Tractinsky [14] and Mayer et al. [22]. Website loyalty describes consumers who are willing to continue relations with service

providers [27]. The measurement items used to measure website loyalty were adapted from Srinivasan et al. [33]. Flow experience means that when consumers used the Taobao website, they became completely involved in it, almost losing a sense of time and ignoring anything else [29]. The measurement items used to measure flow experience were adapted from Novak et al. [29].

This study first created an initial version of the measurement items for the constructs in the research model through our varied review of earlier studies. We received comments on the initial items from a panel of experts consisting of two university professors, a commercial website interaction designer, a UI designer, a graduate student, and a Ph.D. student. Based on the feedback from the panel, some of the items were revised to better fit the intended meaning of the construct and to improve readability. The initial version of the survey instrument was pilot tested on 30 commercial website users in Taiwan. The pretest was also conducted to examine the reliability of the survey questionnaire. Finally, all variables had a Cronbach's Alpha greater than .70. This suggests that the questionnaire has a high degree of reliability.

4. Results. As shown in Table 1, the Cronbach's Alpha of all variables was greater than .70 (0.81-0.93). This suggests that the questionnaire has a high degree of reliability. Furthermore, regardless of the gamification context before and after, all factor loading of items measured in this study is greater than 0.5; all composite reliabilities are greater than 0.6; all average variance extracted (AVE) is greater than 0.4. Fornell and Larcker [9] indicated that if AVE is below 0.5, and composite reliability is higher than 0.6, then the items have convergent validity.

Table 2 lists the correlations among the constructs, which is the square root of the AVE on the diagonal. The diagonal values all exceed the inter-construct correlations, a condition which indicates the satisfactory discriminant validity of all the constructs.

This study used paired-sample *t*-test analysis to investigate whether the gamification context (before gamification context and after gamification context) has a significant effect on the perceptions of congruence between self-image, online store image, trusting beliefs, website loyalty, and flow experience. The results confirmed that the congruence between self-image and online store image ($t = 16.18, p < 0.00$), trusting beliefs ($t = 23.35, p < 0.00$), website loyalty ($t = 20.98, p < 0.00$), and flow experience ($t = 16.23, p < 0.00$) has significant difference between before gamification context and after gamification context. Specifically, the results showed that the gamification context has a significant effect on the perceptions of congruence between self-image and online store image, trusting beliefs, website loyalty, and flow experience.

Besides, based on a hierarchical regression analysis, in the pre-gamification context, all variance inflation factors were less than 10 (1.43-2.60). There appeared to be no collinearity in the variable, indicating a lack of bias in the analyses of the results. The following steps describe the hierarchical regression analysis. Step 1: Establish the first multiple regression model, the dependent variable (website loyalty), and the independent variables (congruence between self-image and online store image, and trusting beliefs). The determination coefficient was .40, and the F-statistic was 99.92; significance levels of 1% were considered to be significant. Thus, the result supports H1 and H2. Step 2: The second multiple regression model was developed by joining the flow experience interactive effect to the first regression model. The coefficient of determination was 0.50, compared to the determination coefficient of the first multiple regression model, whose increase in value was $\Delta R^2 = .10$; when significance levels of 1% were not achieved, the results were not statistically significant. Thus, the results do not support H3 and H4. In contrast, in the post-gamification context, all variance inflation factors were less than 10 (1.18-3.02). There appeared to be no collinearity in the variables, thus indicating a lack of bias in the analysis of the results. The hierarchical regression analysis was performed as follows.

TABLE 1. Convergent validity

Constructs		Factor loading	Composite reliability	AVE	Cronbach's α
Before gamification context					
Congruence between self-image and online store image	SC1	0.54	0.82	0.60	0.89
	SC2	0.85			
	SC3	0.85			
	SC4	0.84			
Trusting beliefs	TB1	0.82	0.79	0.44	0.81
	TB2	0.59			
	TB3	0.73			
	TB4	0.64			
	TB5	0.74			
	TB6	0.66			
Website loyalty	WL1	0.55	0.81	0.47	0.91
	WL2	0.74			
	WL3	0.69			
	WL4	0.65			
	WL5	0.76			
Flow experience	FE1	0.64	0.76	0.51	0.90
	FE2	0.75			
	FE3	0.75			
After gamification context					
Congruence between self-image and online store image	SC1	0.68	0.79	0.56	0.89
	SC2	0.51			
	SC3	0.59			
	SC4	0.60			
Trusting beliefs	TB1	0.78	0.83	0.49	0.85
	TB2	0.72			
	TB3	0.68			
	TB4	0.58			
	TB5	0.73			
	TB6	0.66			
Website loyalty	WL1	0.76	0.80	0.45	0.93
	WL2	0.53			
	WL3	0.69			
	WL4	0.65			
	WL5	0.76			
Flow experience	FE1	0.64	0.63	0.50	0.91
	FE2	0.55			
	FE3	0.63			

Step 1: Establish the first multiple regression model, the dependent variable (website loyalty), and the independent variables (congruence between self-image and online store image, and trusting beliefs). The determination coefficient was .36, and the F-statistic was 82.71; when significance levels of 1% were achieved, the test was considered significant. Thus, the results support H1 and H2. Step 2: The second multiple regression model was developed by joining the flow experience interactive effect to the first regression model. The coefficient of determination was .62, compared to the determination coefficient of the first multiple regression model, whose increase in value was $\Delta R^2 = .26$; when significance levels of 1% were achieved, the results were significant. Thus, the results support H3 and H4. The results of the hierarchical regression analysis are shown in Table 3.

TABLE 2. Discriminant validity

Before gamification context				
Constructs	1	2	3	4
1. Congruence between self-image and online store image	0.78			
2. Trusting beliefs	0.37	0.67		
3. Website loyalty	0.61	0.33	0.68	
4. Flow experience	0.50	0.42	0.49	0.72
After gamification context				
Constructs	1	2	3	4
1. Congruence between self-image and online store image	0.75			
2. Trusting beliefs	0.23	0.70		
3. Website loyalty	0.60	0.37	0.67	
4. Flow experience	0.63	0.58	0.39	0.71

TABLE 3. Hierarchical regression

Before gamification context				
	First step		Second step	
	β value	t value	β value	t value
Congruence between self-image and online store image	0.21	3.91**	0.34	6.39**
Trusting beliefs	0.82	14.11**	0.64	10.49**
Flow experience	–		0.35	6.88**
Congruence between self-image and online store image \times Flow experience	–		0.06	1.11
Trusting beliefs \times Flow experience	–		0.05	0.65
R^2	0.40		0.50	
ΔR^2			0.10	
F value	99.92		57.97	
After gamification context				
	First step		Second step	
	β value	t value	β value	t value
Congruence between self-image and online store image	0.01**	0.10	0.33	5.75**
Trusting beliefs	0.72**	11.89	0.58	11.72**
Flow experience	–		0.63	13.65**
Congruence between self-image and online store image \times Flow experience	–		0.14	2.82**
Trusting beliefs \times Flow experience	–		0.15	2.60**
R^2	0.36		0.62	
ΔR^2			0.26	
F value	82.71		94.72	

** p -value $< .01$

5. **Conclusion, Implications, and Further Research.** First, regardless of the gamification context (i.e., before gamification context or after gamification context), congruence between self-image and online store image is positively correlated with website loyalty; thus H1 is supported. Therefore, managers should understand the target customers of the website while creating the online store image. This approach could help the store to retain consumers. In addition, inducing consumers to spend more time on the website will help

to enhance their loyalty to the website, thus increasing website traffic, market share, and profitability. Second, regardless of the gamification context, trusting beliefs are positively and significantly related to website loyalty; thus H2 is supported. Therefore, in addition to improving the overall quality of services and entities beyond the stability and security of the equipment, managers should promote consumer awareness of the website's excellent ratings and provide security mechanisms to strengthen consumers' confidence in the security of the website, thus enhancing consumer loyalty and achieving market success. Third, the results show that before gamification, both trusting beliefs and the congruence between self-image and online store image have no moderating effects on website loyalty. On the contrary, after gamification, a moderating effect is evident. Therefore, we conclude that H3 and H4 are partially supported. Thus, managers could mold the online store image to be consistent with the self-image of consumers. Managers should also attempt to increase customers' interest in the website by adding game elements and mechanisms to establish goals for customers to obtain the website's virtual points or badges in its reward system. When consumers feel the congruence between self-image, online store image, and trusting beliefs, they become more loyal to the website, thus increasing customer retention and revenue.

Future research could incorporate different demographics based on age, occupation, or income, or examine consumers in different countries. Also, investigation may be extended to other online shopping websites to obtain results that are more generalizable. Besides, future research should explore other factors such as product involvement, brand image, or brand awareness to understand whether they also have a significant influence on website loyalty.

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