

SOCIAL COGNITION THEORY AND ONLINE SOCIAL COMMUNITY USER'S PARTICIPATION ON GREEN ENERGY TECHNOLOGY PRODUCT STICKINESS

Hsin-Hsin Chang, Department of Business Administration, National Cheng Kung University, Tainan, Taiwan, easyhhc@mail.ncku.edu.tw

You-Hung Lin, Department of Business Administration, National Cheng Kung University, Tainan, Taiwan, z10902010@email.ncku.edu.tw

Shih-Shuo Yeh, Department of Business Administration, National Cheng Kung University, Tainan, Taiwan, z11108039@email.ncku.edu.tw

Yun-An Yeh, Department of Business Administration, National Cheng Kung University, Tainan, Taiwan, r48114018@gs.ncku.edu.tw

Chun-Po Chiu, Department of Business Administration, National Cheng Kung University, Tainan, Taiwan, ivory840302@gmail.com

ABSTRACT

This study applies triadic reciprocity from social cognitive theory to explore whether users of green energy technology (GET) products participate in brand online communities, as well as to determine whether participation in a community forum causes users to stick with GET products. Besides, expectancy confirmation is considered to be the moderator. The results of SEM shown the most consistent with our proposal. Thus, managers should increase participation by increasing interaction and community identification with enhancing user perceptions of receiving benefit from their online communities. Furthermore, GET products manufacturers are advised to promote product stickiness by meeting users perceived expectations.

Keywords: Green energy technology (GET), social cognitive theory (SCT), expectancy confirmation, triadic reciprocity, user's participation.

1. INTRODUCTION

According to 2016 Google's Taiwan Digital Consumer Research Report, Gogoro is the most well-known company in Taiwan, with the highest e-scooter market share. It has been shown that 68% of Taiwanese will search for related information about the product on the Internet before shopping. Despite, the Gogoro official page can only provide the latest news about Gogoro and probably have many advertising components. On the other hand, there are many online communities related to Gogoro, for example, Facebook Gogoro Series 2 Fan Club and Gogoro Fan Club. Unlike official websites, the online community provides a place where users can write their own opinions or provide information freely. Gogoro's product can be defined as green energy technology product (GET). Therefore, it is worth exploring how users participate in the online community could influence the formation to the green energy technology (GET) product stickiness.

The triadic reciprocity in social cognitive theory (SCT) provides a clear, triadic reciprocity involves both environmental and personal factors that may increase users' willingness to participate in online communities and the behavioral factors that can explain user behavior (Bandura, 2009). This study aimed to explore the stickiness formation process related to a real product through user participation in online

environments. The main purposes of this study are stated as follows:

- (1) To develop a social cognitive model consisting of environmental factors (virtual interactivity, social norms, and brand community identification), personal factors (brand knowledge self-efficacy and perceived relative advantage), and behavioral factors (creating product-related content and contributing product-related content) to examine its effects on GET product stickiness for Gogoro users in online communities.
- (2) To examine whether environmental factors and personal factors have a positive effect on behavioral factors of Gogoro users in online communities.
- (3) To test the moderating effects expectancy confirmation on the relationship between behavioral factors and GET product stickiness.

2. THEORETICAL BACKGROUND

2.1 Green Energy Technology (GET) Product

In 2001, the Commission of European Communities defined green products as products that use less resources, have lower impacts and risks to the environment, and prevent waste generation already at the conception stage. According to the rise of environmental consciousness, green energy has been deemed to be an effective way to slow down environmental damage. GET is typically referred as energy technologies used in ways that are not damaging to the environment, targeted towards yielding high efficiency and skirting side effects on humans, nature and the environment in the meantime (Harmon & Cowan, 2009). During the period from 2017 to 2018, the sales volume of Gogoro exceeded 23,000 units (MOTC, 2018). Hence, in this study, Gogoro is the GET product under discussion.

2.2 Social Cognitive Theory (SCT)

SCT provides a clear framework from which to discuss what variables of personal factors and environmental factors will influence the following behavioral factors. (Hsu et al., 2007; Lin & Hsu, 2015; Boateng et al., 2016; Ozyilmaz et al., 2018). This study uses of three sub-constructs for further analysis: external environment, internal personal factors, and users' behavior in Gogoro online community. The purpose of this study is to determine what factors influence Gogoro users and make them willing to participate in the Gogoro online community and then to measure whether these user behaviors in the online community will make them stick with a GET product. SCT is used as the main framework to determine what are the possible reasons for forming GET product stickiness.

2.3 Environmental Factors

The online communities provide Gogoro's users a free and two-way communication platform on which to engage with others, and environmental factors refer to external factors that may influence the follow-up behavior of an individual. In this study, environmental factors include virtual interactivity, social norms, and brand community identification.

Virtual Interactivity

Jang et al. (2008) defined virtual interactivity as the degree of information exchange among community members. Most of Gogoro's online community's users have their own usage experience and their own thoughts about Gogoro. Virtual interactivity in this study is defined as the degree of information exchange among members in the online community (Huang, 2018). Hence, This study is an attempt to determine the factors that will lead general consumers to be willing to enter a GET brand (Gogoro) online community.

Social Norms

Social norms as the extent to which an individual believes that other people expect him/her to engage in a specific behavior (Rauschnabel et al., 2017). Luo et al. (2016) claimed that people form a psychological bond will recognize other members as their close friends. Therefore, social norms are defined as the degree to which a user perceives that others who are important to user expect should participate in Gogoro's online community in this study (Hsu & Lin, 2008; Rauschnabel et al., 2017).

Brand Community Identification

Algesheimer et al. (2005) stated that brand community identification refers to whether individuals considers themselves belonging to the brand community. The relationship built by a customer and the brand can easily influence other customers (Luo et al., 2016). This study defines the Gogoro online community as an online community, where the people in it recognize that they are members of this community, which in turn increases their level of community identification.

2.4 Personal Factors

Personal factors are the belief in an individual's ability to execute and organize actions in order to manage outcome expectations and the situation. Brand pages not only provide an environment for consumers with common brand interests to engage in public events but also serve as a way for these consumers to define their identities (Phua et al., 2017). In this study, personal factors include brand knowledge self-efficacy and perceived relative advantage.

Brand Knowledge Self-Efficacy

Self-efficacy as the degree of which individuals believe that they can initiate motivation, cognition, and action to successfully execute certain tasks (Bandura, 2003). Chang et al. (2020) applied knowledge self-efficacy to validate its effects in the field of content management. Hence, individuals who have enough product knowledge and user experience may believe that they have the ability to create or contribute related content with other users.

Perceived Relative Advantage

Relative advantage refers to the degree to which an innovation provides more benefits than its precursor (Lin et al., 2009). Huang (2018) indicated that individuals will execute a behavior when they recognize that this behavior will provide benefits to them. Hence, the perceived relative advantage in this study refers to the Gogoro's online community users' cognition of likely benefits and advantages that the behaviors of creating and contributing product-related contents will produce and then return to them.

2.5 Behavioral Factors

Behavioral factors in SCT have been used to explain personal motivations in the context of knowledge management systems (KMSs) and knowledge sharing (Lin & Hunag, 2010). Lin and Hsu (2015) used the triadic reciprocity proposed by SCT to investigate the factors influencing green consumer behavior. In this study, behavioral factors include creating product-related content and contributing product-related content to Gogoro's online community.

Creating Product-Related Content

Muntinga et al. (2011) defined creating brand-related content as people that create write brand-related weblogs, post product reviews, produce and upload branded videos, music, and pictures, or write articles on brands which all generated by their own. Schivinski et al. (2016) defined creating product-related content as the strongest level of online product-related engagement where the content is generated by consumers. Hence, creating product-related content is defined as a consumer's behavior of creating posts or contents by their own experience and knowledge in the Gogoro online community.

Contributing Product-Related Content

Contributing includes both peer-to-content and peer-to-peer interaction about brands (Schivinski et al., 2016). In comparison with creating product-related content, the biggest difference between these two behaviors is that contributing does not include one's actual creation (own experience or knowledge related to Gogoro). In the Gogoro online community, users tend to share information from online sources such where to take advantage of promotional activities and where to find recommended shops, as well as some useful skills to maintain their Gogoro. Hence, this study defines contributing product-related content as a consumer's behaviors of contributing Gogoro-related information.

2.6 Green Energy Technology (GET) Product Stickiness

The customer's stickiness to a company's social network can ensure that they will revisit and continue to use the company's social network (Li et al., 2006). Kim et al. (2014) stated that an individual's psychological tie with a product is formed by the user's practical usage process, and this psychological tie is the key factor that will make the customers stay with the product. Therefore, GET product stickiness in this study is defined as the degree to which a consumer commits himself/herself continue to use Gogoro and its related products in the future.

2.7 Expectancy Confirmation

Confirmation was first introduced in the expectancy confirmation theory (ECT), which was established to modify the discrepancy between prior expectations and perceived performance after consumption (Oliver, 1980). Confirmation of expectations is influenced throughout the entire sales process and the subsequent product performance. Wu and Padgett (2004) indicated that customer expectations exert significant influences on satisfaction through direct or indirect paths that depend on consumer's psychological consideration of the purchase experience. Confirmation has been defined as the extent to which users perceive their initial expectations of apps as being confirmed during actual use (Hsu & Lin, 2015). Based on previous research, expectancy confirmation is defined as the extent to which users perceive their initial expectations of Gogoro as being confirmed after actual using in this study.

3. RESEARCH FRAMEWORK AND HYPOTHESIS DEVELOPMENT

The research framework is based on social cognitive theory (SCT), including environmental factors (virtual interactivity, social norms, brand communication identification) and personal factors (brand knowledge self-efficacy, perceived relative advantage) that will cause Gogoro's users to participate in the Gogoro online community and to determine how these factors influence user behaviors (creating and contributing product-related content) as well as how they affect GET product stickiness. In addition, the behaviors are moderated by expectancy confirmation to determine if they affect GET product stickiness. The research framework is depicted in Figure 1.

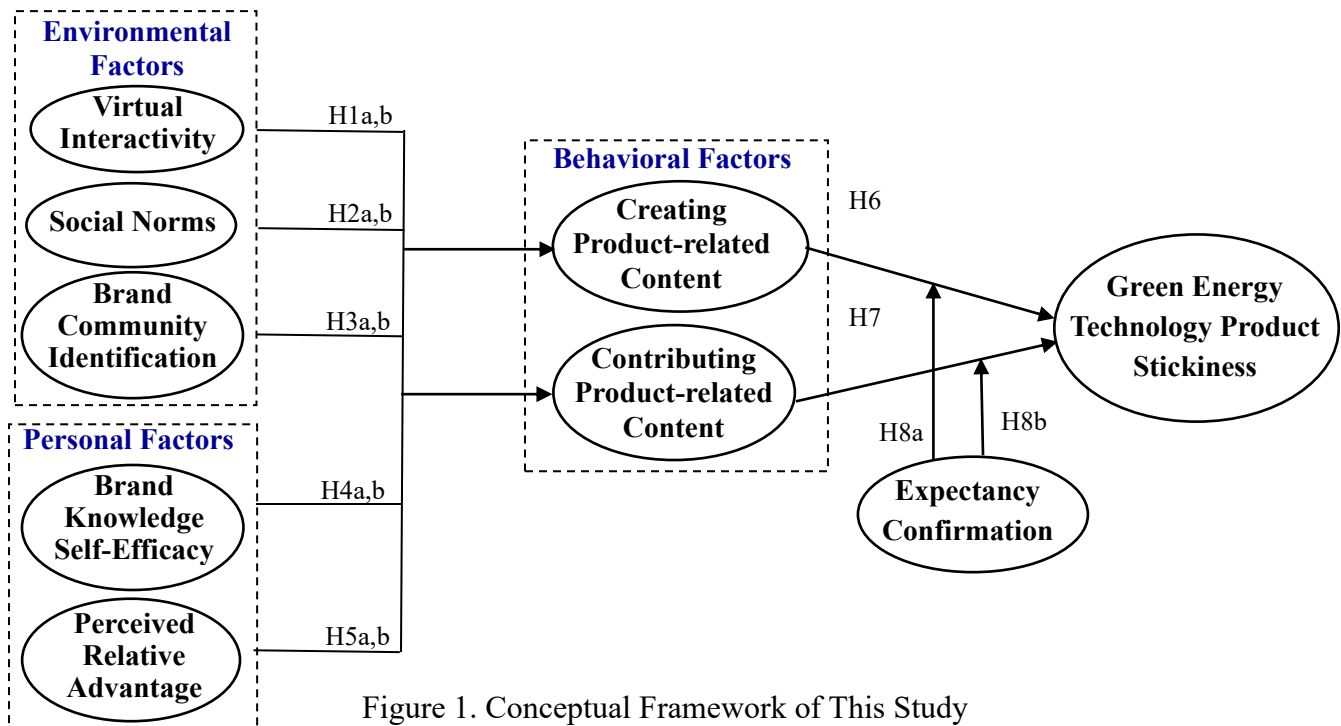


Figure 1. Conceptual Framework of This Study

Virtual Interactivity to Creating and Contributing Product-Related Content

Wu (2005) was first explored how perceived and real interaction affect user attitudes toward websites and indicated that the degree of user-system interaction impacts user motivation. Hu et al. (2016) suggest that an individual will consciously engage in various kinds of activities based on the degree of virtual interactivity. Posting and commenting are the most common ways to interact or communicate with other members in the Gogoro online community based on their own experience and obtain online resources. Based on Phang et al. (2009), if users' virtual interactivity is high, they may be more willing to contribute product-related contents in the online community. Therefore, the following hypothesis is proposed:

H1: Virtual interactivity has positive influences on (a) creating product-related content, (b) contributing product-related content.

Social Norms to Creating and Contributing Product-Related Content

Social norms have been shown to be powerful and important factors leading to behavior (Chen & Hung, 2010). Kim and Nah (2018) claimed that there is a significant positive relationship between data sharing as a social norm and data sharing behavior among internet researchers. In terms of social media, social norms have been found to play a significant role in affecting behavioral intention (Cheung & To, 2016). When the people such as friends, family, or Gogoro's fleet members who are important to them feel that they should share this second-hand useful information with others in the online community, they may follow the suggestions to do so. Thus, the following hypothesis is proposed:

H2: Social norms have positive influences on (a) creating product-related content, (b) contributing product-related content.

Brand Community Identification to Creating Product-Related Content and Contributing Product-Related Content

Algesheimer et al. (2005) found that brand community identification has a positive and significant effect on an individual's community engagement, which in turn increases interaction or collaboration with other members. Demiray and Burnaz (2019) claimed that people who are engaged more interested in helping other members to solve their problems or answer their questions are more willing to engage in a joint activity in the same community. That is, Gogoro users with a high degree of brand community identification will be more willing to provide second-hand information or knowledge to others in the online community. Thus, the following hypothesis is proposed:

H3a: Brand community identification has a positive influence on (a) creating product-related content, (b) contributing product-related content.

Brand Knowledge Self-Efficacy to Creating and Contributing Product-Related Content

Kwahk and Park (2016) found that knowledge self-efficacy positively influences knowledge contribution activities in a social media context. Online communities has emphasized that self-efficacy could be a critical factor in knowledge contribution behavior (Hau & Kang, 2016). Most Gogoro online community users face some common problems such as breakdowns, battery inefficiency, or the tire rim deformation. They may ask other Gogoro users for the solutions. After this, users will have some valuable and useful information or knowledge from experienced people or other online resources. Thus, the user will be more willing to contribute Gogoro-related content due to having a high degree of brand knowledge self-efficacy. Hence, the following hypothesis is thus proposed:

H4: Brand knowledge self-efficacy has positively influences on (a) creating product-related content, (b) contributing product-related content.

Perceived Relative Advantage to Creating Product-Related Content and Contributing Product-Related Content

In the past, perceived relative advantage used to be discussed in technology adoption (Wong et al., 2019) and e-commerce (Chang et al., 2022) contexts. Huang (2018) described perceived relative advantage as perceived advantages and benefits from posting on social media. Chen and Hung (2010) suggested that perceived relative advantage has a positive influence on knowledge contribution behavior in professional virtual community members because these members feel that they can receive benefits such as getting help or advice quicker. Choudhury and Karahanna (2008) found that relative advantage has a positive and significant influence on intention toward web usage. Furthermore, being seen as a skilled or intelligent person, or being respected are also considered as benefits and the primary reason for increases in willingness to contribute something (Chen & Hung, 2010). Based on these arguments, the following hypothesis is thus proposed:

H5: Perceived relative advantage has a positive influence on (a)creating product-related content, (b) contributing product-related content.

Creating and Contributing Product-Related Content to GET product stickiness

Creating product-related content is defined as a consumer's behavior of creating posts or contents by their own experience and knowledge in the Gogoro online community. Creating content behavior is continuous when group members believe that creating provides a reciprocal benefit, or the maintenance of reciprocal relationships contributes to their work (Tseng & Kuo, 2014). Phua et al. (2017) stated that product stickiness can be generated through online community participation, especially in the case of a specific online communities, such as fan pages or clubs. Users will form a psychological tie with a product, which

generates product stickiness (Kim et al., 2014). A high level of creating product-related content will help users become familiar with Gogoro, and they will gain a deeper understanding of the product, which will in turn increase the likelihood of their sticking with GET product. Therefore, the following hypothesis is proposed:

H6: Creating product-related content has a positively influences on GET product stickiness.

Vries et al. (2006) claimed that knowledge contribution refers to passing one's own intelligence on to others. Users can post and comment their own experiences or information provided by others. Casalo et al. (2011) focused on the importance of online community functions that facilitate community users to follow other users' advice, which may eventually make them stick with an online traveling website. In this study, users contribute product-related information heavily in the Gogoro online community that they have a deep knowledge of the and that the likelihood of their sticking with the GET product will be increased, which will be the opposite for users who do not contribute heavily. Therefore, the following hypothesis is proposed:

H7: Contributing product-related content has a positive influence on GET product stickiness.

Moderator: Expectancy Confirmation

People tend to be dissatisfied when the actual performance does not meet their perceived expectations (Bhattacharjee, 2001; Lin et al., 2012). Confirmation of expectations is being influenced throughout the entire sales process all the way to the product's actual performance. Bhattacharjee (2001) and Lin and Hsu (2015) also stated that expectancy confirmation can be modified to determine a user's continuance intention toward a product. The GET product stickiness formation process may be influenced by expectancy confirmation (Menidjel et al., 2017). In other words, whether these expectations are confirmed or not will influence the formation of GET product stickiness. Therefore, the following hypothesis is proposed:

H8a: Expectancy confirmation can positively enhance the effects of (a) creating product-related content on GET product stickiness, (b) contributing product-related content on GET product stickiness.

4. MEHTOD AND RESULTS

The questionnaire items from the literature were modified to match the context of this study. To confirm the applicability and relevance of the questionnaire items, a pilot test was conducted to ensure they were suitable for the formal test. The SurveyCake website was used to distribute on two Facebook club sites, the Gogoro Series 2 Fan Club and the Gogoro Fan Club. 102 valid participants were collected. The results of the pilot test reveals ranged from .826 to .924 and item-to-total ranged from .564 to .878. None of items needed to be removed from the questionnaire.

There were 35 items in the formal questionnaire and data analyze uses SPSS and AMOS, including demographic analysis, confirmatory factor analysis (CFA), reliability and validity analysis, and hierarchical regression. A total of 661 questionnaires received, 80 were invalid (43 respondents had not participated in an Gogoro online community and 37 had inconsistent scores on the reverse item). Finally, there were 581 valid questionnaires adopted for the further data analysis. The participants were 44% female. Most participants were 20 to 29 years old. The top three most frequently used Gogoro online communities were the Facebook Gogoro Fan Club (34%), the Facebook Gogoro Trading Club (28%), and the Facebook Gogoro 2 Series Fan Club (26%). In terms of usage duration and the usage frequency (per

day), most of the participants had participated in the community less than 1 year (64%) and less than 15 minutes for per day (67%). Participants visited the Gogoro online community at least one time (52%), followed by two times (40%) and three times (8%) for per day.

The results of the CFA are shown in Table 1. The mean ranged from 4.94 to 6.10, the standard deviation ranged from 0.625 to 1.134. All the item-to-total correlations were higher than the standard value .50, except GETPS4. Factor loading deleted two items deleted (BCI2 and GETPS6) because they did not meet the standard value. After that item-to-total values ranged from .598 to .879, factor loading values ranged from .687 to .914, and all *t*-value >1.96. To summarize, there were 32 items left after the confirmatory factor analysis. The model fit showed a good fit for the measurement model, the CMIN/DF=2.251, GFI =.921, AGFI=.901, CFI=.961, NFI=.932, and RMSEA=.043.

Table 1. Descriptive and CFA (*n*=581)

Item codes		S.D.	Item-to-total	Factor Loading	<i>t</i> -value
<i>Virtual Interactivity</i>					
VI1	5.74	0.695	.682	.764	17.035
VI2	5.49	0.798	.606	.732	16.427
VI3	5.70	0.746	.639	.774	-
<i>Social Norms</i>					
SN1	5.37	0.785	.657	.776	16.216
SN2	5.40	0.823	.688	.797	16.496
SN3	5.46	0.871	.598	.711	-
<i>Brand Community Identification</i>					
BCI1	5.37	0.986	.603	.702	16.541
BCI2			Deleted		
BCI3	5.33	1.010	.691	.790	-
BCI4	5.17	1.003	.772	.809	18.531
BCI5	4.94	1.134	.642	.696	15.621
<i>Brand Knowledge Self-Efficacy</i>					
BKSE1	5.53	1.079	.698	.798	19.671
BKSE2	5.59	1.009	.767	.841	20.727
BKSE3	5.53	1.074	.675	.782	-
<i>Perceived Relative Advantage</i>					
PRA1	5.70	0.843	.659	.735	20.241
PRA2	5.47	0.864	.780	.875	25.752
PRA3	5.38	0.903	.776	.866	-
<i>Creating Product-Related Content</i>					
CrPRC1	5.80	0.625	.694	.759	-
CrPRC2	5.83	0.626	.707	.762	18.366
CrPRC3	5.83	0.687	.720	.801	19.387
CrPRC4	5.85	0.641	.676	.762	18.351
<i>Contributing Product-Related Content</i>					
CoPRC1	5.44	0.640	.653	.738	16.003
CoPRC2	5.41	0.660	.657	.739	16.033
CoPRC3	5.44	0.691	.634	.722	-
CoPRC4	5.49	0.658	.639	.731	15.872
<i>GET Product Stickiness</i>					
GETPS1	6.20	0.761	.693	.824	-
GETPS2	6.27	0.721	.711	.817	18.316
GETPS4			Deleted		
GETPS5	5.38	1.388	.601	.687	16.114
GETPS6			Deleted		
<i>Expectancy Confirmation</i>					
EC1	5.35	1.016	.833	.885	-
EC2	5.31	1.041	.864	.899	34.189
EC3	5.31	1.060	.838	.877	32.388
EC4	5.43	0.997	.879	.914	35.500

In Table 2, all the constructs met the Cronbach's alpha and showed good reliability for all of the items, composite reliability(CR) >.7, average variance extracted(AVE) >.5, discriminant validity are shown. The results of all the constructs met the criterion. Common method variance (CMV), there were thirty-two

factors extracted from the EFA, and the first factor could explain 37 % of the variance, which was lower than 50% and met the standard. Secondly, a one-factor model was performed and the model fit was compared with the CFA. As a result, the one-factor model fit (chi-square/DF=12.422, p -value=0.00, GFI=.658, AGFI=.612, CFI=.723, RMSEA=.25) was lower than the CFA measurement model fit. Therefore, CMV issues in this current study were not a major concern.

Table 2. Results of the Convergent Validity, Reliability, Discriminant Validity Analysis

Variable	a	CR	AVE	VI	SN	BCI	PRA	BKSE	CrPRC	CoPRC	GPS	EC
VI	.807	.808	.584	.764 ^a								
SN	.805	.807	.582	.605	.763 ^a							
BCI	.856	.858	.548	.530	.529	.740 ^a						
PRA	.856	.864	.681	.589	.627	.603	.825 ^a					
BKSE	.846	.849	.652	.603	.634	.565	.709	.807 ^a				
CrPRC	.860	.860	.605	.558	.671	.627	.737	.769	.778 ^a			
CoPRC	.822	.821	.535	.622	.559	.569	.624	.604	.704	.731 ^a		
GETPS	.814	.819	.602	.358	.415	.443	.480	.473	.491	.413	.776 ^a	
EC	.874	.875	.636	.349	.299	.360	.392	.375	.364	.365	.723	.797 ^a

Notes: ^aSquare root of AVE value

VI=Virtual Interactivity, SN=Social Norms, BCI=Brand Community Identification, PRA=Perceived Relative Advantage, BKSE=Brand Knowledge Self-Efficacy, CrPRC=Creating Product-Related Content, CoPRC=Contributing Product-Related Content, GETPS=GET Product Stickiness, EC=Expectancy Confirmation

Hypotheses Testing

The model fit showed good fit for the measurement model. The CMIN/DF was 2.520; the GFI was .912; the AGFI was .890; the CFI was .946; the NFI was .914, and RMSEA was .051. All the indexes were considered to be in an acceptable. The hypotheses tests were two-tailed tests. The result shows that H1a was not supported ($\beta = -.016$, t -value = $-.374$), which indicates that virtual interactivity does not have a statistically significant effect on creating product-related content. H1b and H2a was statistically significant. H2b was not supported ($\beta = .066$, t -value = 1.267), which indicates that social norms does not significantly affect contributing product-related content. H3a, H3b, H4a, H4b, H5a, H5b, H6, and H7 were statistically significant.

Table 3. Results of the SEM Path Analysis

Hypotheses	Std. Coeff.	t-value	Results
H1a Virtual interactivity → Creating product-related content	-.016	-0.374	n.s.
H1b Virtual interactivity → Contributing product-related content	.264***	4.634	Supported
H2a Social norms → Creating product-related content	.138***	3.309	Supported
H2b Social norms → Contributing product-related content	.066	1.267	n.s.
H3a Brand community identification → Creating product-related content	.119***	4.118	Supported
H3b Brand community identification → Contributing product-related content	.109***	3.025	Supported
H4a Brand knowledge self-efficacy → Creating product-related content	.214***	6.432	Supported
H4b Brand knowledge self-efficacy → Contributing product-related content	.174**	2.653	Supported
H5a Perceived relative advantage → Creating product-related content	.151***	4.602	Supported
H5b Perceived relative advantage → Contributing product-related content	.133***	3.231	Supported
H6 Creating product-related content → GET product stickiness	.587***	7.245	Supported
H7 Contributing product-related content → GET product stickiness	.197**	2.630	Supported

Notes: * $p < .05$; ** $p < .01$; *** $p < .001$ n.s.= Not supported

Moderating Effect– Regression Analysis

A hierarchical moderated regression was used, three models were assessed related to creating product-related content, the direct effect of creating product-related and expectancy on GET product stickiness was significant in both Model 1 ($\beta = .093$) and Model 2 ($\beta = .169$). Model 3 included both the direct effect and the interaction effects (creating product-related content × expectancy confirmation), and the interaction effect in Model 3 was significant ($\beta = .085$). In the three models for contributing product-related

content, the direct effect of creating product-related and expectancy on GET product stickiness was not significant for Model 1. In Model 2, the direct effect on contributing product-related content to GET product stickiness was significant ($\beta=0.085$). In Model 3, the results including both the direct effect ($\beta=.083$) and the interaction effects ($\beta=.077$) were all significant (creating product-related content \times expectancy confirmation). Therefore, H8a and H8b were supported. Table 4 provides the details of the hierarchical regression results.

Table 4. Hierarchical Regression for Moderating Effects

Dependent Variable (β)	GET Product Stickiness					
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Direct Effects						
Creating Product-Related Content (CrPRC)	.093*	.169***	.156***			
Contributing Product-Related Content (CoPRC)				0.064	0.085*	0.083*
Expectancy Confirmation (EC)		.678***	.666***		.662***	.665***
Interaction Effects						
CrPRC \times EC			0.085**			
CoPRC \times EC						.077**
Adjusted R ²	7.00%	46.10%	46.70%	3.00%	44.40%	44.50%
Δ F-value	5.785*	557.196***	8.667**	2.714	516.621**	6.968**
F	5.785*	283.928***	194.377***	2.714	260.728***	177.715***
Durbin-Watson		1.920			1.899	
VIF		1.013-1.042			1.001-1.002	
Results:						
H8a Expectancy confirmation -> creating product-related content and GET product stickiness						Supported
H8b Expectancy confirmation -> contributing product-related content and GET product stickiness						Supported

Notes: * $p < .05$; ** $p < .01$; *** $p < .001$

5. DISSCUSSION AND CONCLUSION

The purpose of this study was to examine whether a GET product's (Gogoro) stickiness would be influenced by previous use of a Gogoro product and participation in the Gogoro online community. The current study was examined through the triadic reciprocity concept derived from SCT, which includes environmental, personal, and behavioral factors. The results of 14 hypotheses except H1a and H2b were not supported, others were supported.

5.1. Theoretical Implications

Some theoretical implications that are worth mentioning in this study. Firstly, few studies have adopted all the triadic reciprocity factors (personal factor, environmental factor, and behavioral factor) simultaneously as antecedents and mediators to discuss GET product stickiness. Most studies have only adopted the personal and environmental factors to assess individual behaviors but did not extend the study to discuss intention after the behavior occurs (Lin & Huang, 2010; Hu et al., 2016). This study combined essential factors which not only potentially fit this study but also lead to a new perspective that could be used for measuring users online community participation.

Secondly, few studies have adopted the variables we selected to explore a real product stickiness. The results of this study indicated that creating and contributing product-related content have a positive and significant influence on GET product stickiness. Therefore, this study contributes to the literature by showing creating product-related content and contributing product-related content can be applied in an online community as participatory behavior to examine GET product stickiness.

Thirdly, few studies have used expectancy confirmation as a moderator, which may accelerate the

stickiness formation process The moderating effect is supported which has pointed out that expectancy confirmation could be used to verify the relationship between online community users' participation behavior and GET product stickiness.

5.2. Managerial Implications

The findings and suggestions in practice are discussed in the following section. GET companies could try to enhance users' intrinsic connection with other community users to increase their brand community identification. As for increasing the level of user knowledge self-efficacy, the company could hold more seminars or webinars to let their product users gain deeper knowledge of the product. These efforts could make the users more willing to participate in the online community.

Furthermore, in the case of governmental agencies, if they want to promote policies encouraging the use of GET products, they can also establish a channel or an online community for people to participate in using the same approach. Furthermore, enhancing the extent to which expectations are met can accelerate the stickiness formation process. For instance, companies could make an effort to improve their product quality and try to make sure their products are consistent with the advertising content.

5.3. Limitations and Directions for Future Research

There are some limitations in this study. In order to explore the most effective way to enhance online community user participation, environmental, personal, and behavioral factors (triadic reciprocity) were adopted to measure the participation and GET product stickiness process. However, as argued by Bandura (2009), these three factors may have an influence on each other and may not point out any variable that correlates directly with the environment, personal, and behavioral factors. In other words, there might have other variables can be adjusted and added to fit the context of the study.

The current study was limited to two behavioral factors, creating product-related content and contributing product-related content. These two variables were used to measure the community users' participation based on whether posts were derived from users' own experiences or those of others. However, there may have been other participatory behaviors in the online community, such as liking, commenting, or sharing. This means that the future studies could adjust the behavioral factors, which might have different effects on GET product stickiness in online brand communities.

REFERENCES

- Algesheimer, R., Dholakia, U., & Herrmann, A. (2005). The social influence of brand community: Evidence from European car clubs. *Journal of Marketing*, 69(3), 19-34.
- Bandura, A. (2009). Social cognitive theory of mass communication. *Media Effects* (pp. 110-140). UK: Routledge.
- Boateng, H., Adam, D., Okoe, A., & Anning-Dorson, T. (2016). Assessing the determinants of internet banking adoption intentions: A social cognitive theory perspective. *Computers in Human Behavior*, 65, 468-478.
- Chang, H.H., Lu, Y.Y., & Lin, S.C. (2020) An elaboration likelihood model of consumer respond action to Facebook second-hand marketplace: Impulsiveness as a moderator *Information & Management*, 57, 103171

- Chen, C. J., & Hung, S. W. (2010). To give or to receive? Factors influencing members' knowledge sharing and community promotion in professional virtual communities. *Information & Management*, 47(4), 226-236.
- Cheung, M.F., & To, W.M. (2016). Service co-creation in social media: An extension of the theory of planned behavior. *Computers in Human Behavior*, 65, 260–266.
- Choudhury, V., & Karahanna, E. (2008). The relative advantage of electronic channels: a multidimensional view. *MIS Quarterly*, 32(1)179-200.
- Demiray, M., & Burnaz, S. (2019). Exploring the impact of brand community identification on Facebook: Firm-directed and self-directed drivers. *Journal of Business Research*, 96, 115-124.
- Directorate General of Highways, MOTC, (2018). *Taiwanese scooter usage status report 2018*. Taipei, Taiwan
- Google's Taiwan Digital Consumer Research Report (2016). Digital consumer in Taiwan. <https://www.bnnext.com.tw/article/40682/BN-2016-08-23-093950-40>
- Harmon, R.R., & Cowan, K.R. (2009). A multiple perspectives view of the market case for green energy. *Technological Forecasting and Social Change*, 76(1), 204-213.
- Hau, Y.S., & Kang, M. (2016). Extending lead user theory to users' innovation-related knowledge sharing in the online user community: the mediating roles of social capital and perceived behavioral control. *International Journal of Information Management*, 36(4), 520-530.
- Hsu, M.H., Ju, T.L., Yen, C.H., & Chang, C.M. (2007). Knowledge sharing behavior in virtual communities: The relationship between trust, self-efficacy, and outcome expectations. *International Journal of Human-Computer Studies*, 65(2), 153-169.
- Hsu, C.L., & Lin, J.C. (2015). What drives purchase intention for paid mobile apps? An expectation confirmation model with perceived value. *Electronic Commerce Research and Applications*, 14(1), 46-57.
- Hu, M., Zhang, M., & Luo, N. (2016). Understanding participation on video sharing communities: The role of self-construal and community interactivity. *Computers in Human Behavior*, 62, 105-115.
- Jang, H., Olfman, L., Ko, I., Koh, J., & Kim, K. (2008). The influence of on-line brand community characteristics on community commitment and brand loyalty. *International Journal of Electronic Commerce*, 12(3), 57-80.
- Kim, K., Park, J., & Kim, J. (2014). Consumer-brand relationship quality: When and how it helps brand extensions. *Journal of Business Research*, 67(4), 591-597.
- Kim, Y., & Nah, S. (2018). Internet researchers' data sharing behaviors: An integration of data reuse experience, attitudinal beliefs, social norms, and resource factors. *Online Information Review*, 42(1), 124-142.
- Kwahk, K.Y., & Park, D.H. (2016). The effects of network sharing on knowledge-sharing activities and

- job performance in enterprise social media environments. *Computers in Human Behavior*, 55, 826-839.
- Li, D., Browne, G.J., & Wetherbe, J.C. (2006). Why do internet users stick with a specific web site? A relationship perspective. *International Journal of Electronic Commerce*, 10(4), 105-141.
- Lin, T.C., & Huang, C.C. (2010). Withholding effort in knowledge contribution: The role of social exchange and social cognitive on project teams. *Information & Management*, 47(3), 188-196.
- Lin, A., & Chen, N.C. (2012). Cloud computing as an innovation: Perception, attitude, and adoption. *International Journal of Information Management*, 32(6), 533-540.
- Oliver, R.L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17(4), 460-469.
- Ozyilmaz, A., Erdogan, B., & Karaeminogullari, A. (2018). Trust in organization as a moderator of the relationship between self-efficacy and workplace outcomes. *Journal of Occupational and Organizational Psychology*, 91(1), 181-204.
- Phang, C., Kankanhalli, A., & Sabherwal, R. (2009). Usability and sociability in online communities: A comparative study of knowledge seeking and contribution. *Journal of the Association for Information Systems*, 10(10), 721-747.
- Phua, J., Jin, S., & Kim, J. (2017). Gratifications of using Facebook, Twitter, Instagram, or Snapchat to follow brands. *Telematics and Informatics*, 34(1), 412-424.
- Polites, G., Williams, C., Karahanna, E., & Seligman, L. (2012). A theoretical framework for consumer e-satisfaction and site stickiness: An evaluation in the context of online hotel reservations. *Journal of Organizational Computing and Electronic Commerce*, 22(1), 1-37.
- Schivinski, B., Christodoulides, G., & Dabrowski, D. (2016). Measuring consumers' engagement with brand-related social-media content. *Journal of Advertising Research*, 56(1), 64-80.
- Wong, K.H., Chang, H.H., & Yeh, C.H. (2019) The effects of consumption values and relational benefits on smartphone brand switching behavior, *Information Technology & People*, 32(1), 217-243
- Wu, G. (2005). The mediating role of perceived interactivity in the effect of actual interactivity on attitude toward the website. *Journal of Interactive Advertising*, 5(2), 29-39.
- Wu, J., & Padgett, D. (2004). A direct comparative framework of customer satisfaction: an application to internet search engines. *Journal of Interactive Marketing*, 18(2), 32-50.