

Implicit Measurement Method for Consumer Engagement in Online Brand Communities

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Abstract

This paper investigates attitudinal and behavioral factors for Consumer Engagement (CE) in Online Communities of Fortnite. We develop an approach based on an online experimental survey and the Response Time Testing (RTT) method, which allows measuring the level of accessibility of attitudes. The results reveal that the affective dimension of consumer attitude is the key indicator for consumer engagement in online communities of Fortnite, that the frequency of member's participation in online communities of Fortnite defines the intensity level of consumer engagement toward the community, and that strongly engaged consumers are more likely to recommend the community. This study provides the first known implicit experimental investigation of consumer brand engagement in online brand communities.

Keywords: Consumer engagement, implicit measurement, online brand community.

Introduction

With the growth of mass media and digital platforms, a significant research stream in Consumer Engagement (CE) has emerged which aim to understand consumers specific attitude and behavior in the digital context of online communities. The literature characterizes CE by fluctuating intensity levels which occurs within behavioral manifestations such as writing comments, helping other members, and contributing to the co-development of the brand [1]. CE in online brand communities is defined as an emotional involvement based on an identification with and affective attachment to the brand [2]. Moreover, strongly engaged consumers may contribute to raising awareness and building the brand image [3]

Although the growing interest regarding CE, most research have been exploratory in nature, hence leading to a lack of experimental research in understanding the nature of CE in online brand communities [4].

Accordingly, this study proposes to investigate firstly, the attitudinal factors for CE in online brand communities, based on Hollebeeks' multidimensional conceptualization [5], secondly, the role that the consumer participation frequency in these communities has on their engagement toward the brand community and thirdly, the role of consumer engagement on brand community's recommendation. To do so, this study

suggests measuring the attitudinal intensity level of Fortnite gamers engaged in online communities of Fortnite using an experimental survey based on RTT method to test the following hypotheses: H1) The affective attitude is the strongest factor of CE; H2) The stronger the CE, the greater the consumer frequency of participation in the brand community; and H3) The stronger the CE, the higher the consumer's recommendation of Fortnite online communities.

The next section describes relevant literature, following by the research methodology section. Then, succeeding by the theoretical, methodological and managerial implications and finally the conclusion and further scope of the study.

Background and literature review

A. Brand community

Brand community is defined as "a specialized, geographically unrelated community based on a structured set of social relationships between admirers of a brand" [6]. In other words, a brand community is composed of a group of people who share a common interest in a specific brand and who create a social environment builds on collective values and rituals [7]. These people are named members and form a group of consumers who organize themselves around a specific lifestyle, activities, and a philosophy. From consumer perspective, brand communities serve as a relational platform. From brand perspective, they serve to identify and communicate shared brand values [1]. They function as a platform for the company to share their opinions. From a managerial perspective, the community allows managers to monitor consumer perceptions in real time, encouraging them to share their opinions about the brand [8]. In fact, online brand communities provide an environment, which favors consumers to become brand representatives [9].

B. Conceptualization of consumer engagement

Consumer engagement is defined as "a psychological state that occurs by virtue of interactive, co-creative consumer experiences with a focal agent/object (e.g., a brand) in focal service relationships" [10]. More specifically, it refers to the consumer's positive cognitive, emotional, and behavioral investment in a focal object [5][10][11]. In the context of online brand communities, CE refers to members motivations to interact, cooperate, support, and participate in common activities with the other members to value and enhance their own and others' value. In fact, the CE concept give a highly interactive and social view of consumer-brand relationship

[5][12]. Drawing on multiple theoretical backgrounds, several consumer engagement conceptualizations have been proposed in the literature. On one hand, CE is defined as a uni-dimensional psychological construct which integrates the three dimensions of attitude as one and only dimension [3]. On the other, CE is defined as a multidimensional concept based on the three dimensions of attitude: the cognitive, affective, and conative dimensions which reflects the nature of consumers' interactive and co-creative brand relationships [1][5].

C. Consumer engagement in online brand community

In the context of online brand communities, CE is explained by consumer's attitude in brand communities [5]. Strongly engaged consumers may become brand representatives with the role of recommending others to join the community. As such, they can effectively contribute to raising awareness and building the brand image [3]. More specifically, it occurs within behavioral manifestations in online brand communities which are translate into writing comments, helping other members, and thus contributing to the co-development of the brand and thus strengthen brand identity [13][14].

E. Measurement method for consumer engagement

Most research studies use explicit and declarative measurement method for CE [15] which are based, for example, on the classical paradigm of the 7-point Likert scale which consists in rating items on a Likert scale from 1 (completely agree) to 7 (completely disagree) according of the item to be a representative of a specific sub-dimension [16]. Consequently, research that aims to predict behavior solely based on self-reported and declarative field work might be subject to biases because subjects might be in conflict between what they explicitly declare and what implicitly drives their behavior especially in socially sensitive contexts, in which people may declare attitudes that are socially expected and approved [17][18]. In response to this issues, different measurement method has been proposed such as the implicit association test (IAT), which is designed to tap information that may be less accessible in controlled processes [19]. The IAT is based on reaction-time testing method that measure individual's strength of association of certain attributes with themselves. Despite existing controversies about the nature of implicit measurement method [20] and its reliability [21], they have been a growing body of literature which demonstrates the added value of reaction-time testing method [22][23] which is likely to be free of social desirability concerns and provides additional insights as they are not consciously controlled [17][24].

In the literature, there is evidence that consumer behavior plays a central role in the definition of consumer engagement but there have been only a few studies that have investigated the attitudinal factors which could influence consumer behavior and how, depending on the frequency of consumer participation in online brand communities, the strength of consumer engagement could vary. Although the literature theoretically conceptualizes CE as a three-dimensional model using explicit measurement methods, there have been no studies that employ experimental methodology based on implicit measurement methods in the context of online brand communities. In fact, the implicit measurement method can provide valuable insights into the processes underlying social judgment and provide additional insights for

a better understanding of CE. This is the reason for which, this work develops an experimental approach.

Proposed methodology

A. Hypothesis

Based on the multidimensional construct of CE and on the previously described literature gap, this paper addresses the following hypotheses developed and tested using an experimental approach using the only 'Fortnite' community:

H1: The affective attitude is the strongest factor of consumer brand engagement.

This hypothesis consists of investigating the nature of the relationship between each dimension of attitude and brand engagement. This analysis is expected to lead to a better understanding of the strength of interaction between each dimension and their predictive power for CE in online communities.

H2 : The stronger the attitude intensity level, the greater the consumer frequency of participation in the brand community. The analysis consists of investigating the causal relationship between CE, as a multidimensional construct, and the frequency of consumer participation on online brand communities. This analysis aims to investigate if frequency of participation could be a predictor for CE in online brand communities.

H3 : The stronger the consumer brand engagement, the higher the consumer's recommendation of the brand.

The analysis consists of investigating the causal relationship between the engagement and consumer role of brand representatives. This analysis aims to help understand the mental predisposition of engaged consumers to recommend others to join the brand communities.

B. Implicit measurement method

To investigate the addressed hypotheses, this paper uses an experimental survey based on an implicit measurement method and more specifically on the RTT method.

RTT method aims to investigated whether the respondents are confident about the expressed attitude and whether the attitude has the potential to predict behavior. In sum, he more quickly an attitude is expressed, the greater its strength of conviction. In other words, strong attitudes expressed quickly and confidently are better predictors of behavior than weak attitudes [25].

C. Protocol and design

Online surveys have been developed and enriched with the response time methodology to measure the intensity level of consumers' attitudes defined as the CE within the online community of Fortnite. The response time test (RTT) is a computerized test that asks subjects to give a yes or no answer to a question by pressing on the top left or the top right corners of the screen. The strength of the measured attitude depends on the subject's difference in response time. The RTT is composed of several "items" which are a single search screen where response time is measured. It consists of a statement (in question form) and a stimulus (brand image) on which the subjects will have the two options of answering wither with a yes ("yes" button) or no ("no" button). The location of the

buttons and the entire layout are designed to optimize the response time measurement process. Stimuli and affirmations are reversed to minimize the order of appearance effects, calibration, rhythm and pace. The response time test named Icode is provided from NeuroHm (<https://icodert.com/>)

D. Design of the measurement method

The online survey is constructed on a multidimensional conceptualization of CE based on the three dimensions of attitude, known as the cognitive, affective and conative dimensions [5]. To do so, 22 statements are designed with reference to the three-dimensional attitude as presented in Tab. 1.

Dimension of attitude	Statements
Cognitive	COG01 - I am focused when I am watching a stream on social media COG02 - I have a positive opinion of Fortnite community COG03 - Fortnite community have a strong brand identity COG04 - Fortnite community meets my needs COG05 - Fortnite community gives me useful information COG06 - I am familiar with the values of Fortnite community COG07 - COG 07 - When I share with the Fortnite community I do something else at the same time. COG08 - I find Fortnite community interesting COG09 - COG 09 - Sharing with the Fortnite community makes me want to learn more about Fortnite.
Affective	AFF01 - I enjoy sharing with Fortnite community AFF02 - I look forward to sharing with the Fortnite community AFF03 - I am proud to be part of the Fortnite community. AFF04 - I feel good about the Fortnite community AFF05 - Sharing with the Fortnite community makes me happy AFF06 - The Fortnite community gives me a sense of belonging. AFF07 - I am attached to the Fortnite community
Conative	CONN01 - I recommend my friends to join the Fortnite community CONN02 - I share more with the Fortnite community than with other communities. CONN03 - Sharing gaming experiences with the Fortnite community is a pleasure. CONN04 - Sharing gaming opinions with the community is fun. CONN05 - Asking for advice from the Fortnite community is a habit. CONN06 - When I use social media, it's often for Fortnite.

Tab.1 List of Statements according to each dimension of attitude

The COG01 to COG09 statements refer to the cognitive dimension of the attitude, the AFF01 to AFF07 statements refer to the affective dimension and the CONN01 to CONN06 statements refer to the conative dimension.

E. Data collection and sample design

Data is collected from the Fortnite online communities that meet two inclusion criteria: 1) They are Fortnite gamers and 2) They are members of one of the brand online communities. Fortnite gamers are selected because of their important online brand communities on social media. The experimental survey is preceded by a general and technical description of the RTT. The respondents complete the test online from a web link. The experimental survey is distributed to 277 Fortnite gamers. After data cleaning, the sample of subjects includes 167 respondents. This paper treats only positive responses in the data analysis to delineate the study to the investigation of consumer engagement [5][10][11]. Before starting the test, respondents are asked to answer a question about the frequency of their participation in the online community of the brand to classify them into four typologies of gamer (e.g “I regularly participate in the community”, “time to time”, “rarely”, “never”). “Regularly” typology of gamers includes 32 respondents, “time to time” typology of gamers includes 39 respondents, “rarely” typology of gamers includes 69 and “never” typology of gamers includes 27 respondents, for a total of 167 respondents.

F. Data preparation

The first step of data preparation is cleaning the sample from outliers, including responses given too fast suggesting the respondent sped through the test without giving meaningful answers or the response being too slow, suggesting a person got distracted from the test [26]. Responses given with a response time lower than 500ms (suspected to be given randomly) or higher than 1000ms (suspected to have been given after being distracted) are then discarded. Then, individual differences in response time are eliminated. Response time data measured in milliseconds are standardized and combined with explicit answer to create the Reaction Time Confidence (RTC) index which takes values between $-2 < RTC < 2$. For explicit “Yes” answers RTC values range from 0 to 2 and for Explicit “No” answer RTC values range from -2 to 0. The closer the value is to -2 and to 2, the faster the speed of an answer, thus the higher implicit emotional accessibility or certainty of the explicit rational opinion.

Results

A. The affective dimension of attitude is the strongest attitudinal factor of consumer brand engagement.

The correlation matrix investigating the relationship between groups of questions based on the three dimensions of attitude reveals that there is positive correlation coefficient of 0.05 between the cognitive and affective groups of questions, positive correlation coefficient of 0.02 between the cognitive and conative group of questions and a negative correlation coefficient of -0.13 between the conative and affective group of questions, however results are not statistically significant as shown in Tab. 2.

	Cognitive	Affective	Conative
Cognitive	1	0.0502 p-value = 0.5705	0.0214 p-value = 0.803
Affective	0.0502 p-value = 0.5705	1	-0.131 p-value = 0.1448
Conative	0.0214 p-value = 0.8035	-0.131 p-value = 0.1448	1

Tab.2 correlation matrix between questions' categories

On one hand, relationship between cognitive and affective, and between cognitive and conative is positive which may suggest that if the response time increases for the questions related to the affective dimension, the response time for the questions related to the cognitive dimension may also increase as well as for cognitive and conative dimension. However, the p-value is not statistically significant leading to suggest that the relation is not reliable. Moreover, the relation between the affective and conative dimension is negative which suggest that if response time increases for the questions related to the affective dimension, it decreases for the questions related to the conative dimension, and vice versa. However, the p-value is also not statistically significant supposing that the relation is not reliable.

These results may assume that consumer's opinion of the brand (cognitive dimension) is positively related to consumer well-being in the community (affective dimension), as it is related to their predisposition to act in the community (conative dimension). However, consumer well-being (affective dimension) in the community is not positively related to their mental predisposition to act in that same community (conative dimension). However, regarding the p-value which is not statistically significant we cannot attest to the reliability of the results.

We calculate the mean value of the response time for each group of questions. The category of questions related to the affective dimension of attitude obtains a shorter average response time (1.14), than the questions related to the conative (0.9) and cognitive (0.9) dimensions of attitude (see Fig.1).

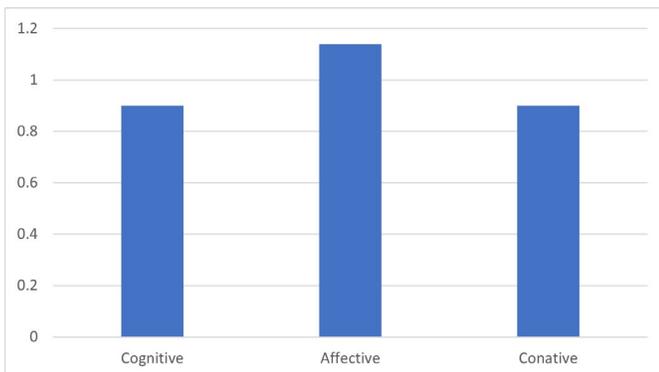


Fig. 1. Mean value of response time for each group of questions

Results show that cognitive dimension questions and conative dimension questions both score on average 0.9 on the RTC index, whereas the affective dimension questions score on average 1.14 on the RTC index. In other words, results show that the affective dimension, i.e., the consumer's well-being in the brand's online community, is the predominant attitudinal factor in the consumer's engagement with the brand. With a similar average result (0.9 RTC Index), it is followed by the consumer's opinion and predisposition to act in this same community. These results imply that the consumer's opinion and mental predisposition to act in this community are equally important factors of engagement, although they are less strongly linked to the consumer's well-being for CE.

Moreover, results are consistent with the conceptualization of consumer engagement as a multidimensional concept, which may reflect a distinct engagement states according to different levels of intensity [10][11][5], as well as the fact that the affective dimension is the strongest predictor of CE [2][25].

B. Frequency of participation in the brand community is a factor of consumer brand engagement in the online brand community

We use a multiple linear regression to measure CE based on the three dimensions of attitude plotted in Fig. 2. A positive coefficient of 0,01 is calculated between the frequency of participation and CE. The linear regression yields statistically significant results (0.01 with p-value < 0.05)

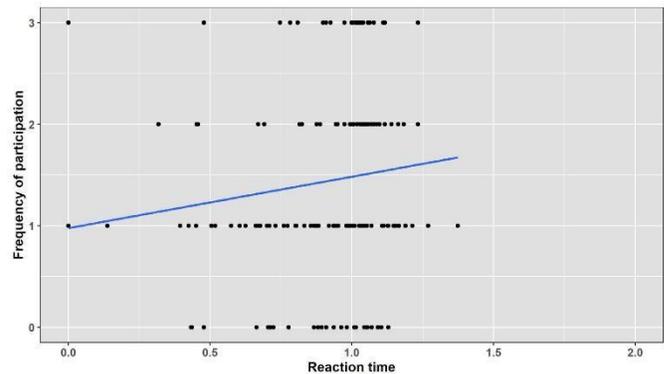


Fig. 2. Multiple linear regression between frequency of participation and response time for each group of questions

We report on the ordinate axis the frequency of participation according to the typology of the player on a scale from 0 to 3. Point 0 represents the players who has never participated in the online communities of the brand, point 1 represents the players who participated from time to time, point 2 represents the players who participate regularly and point 3 represents the players who participate rarely. We plot on the abscissa axis the response time according to the results obtained for all the questions for each dimension of the attitude, respectively, on a scale from 0 to 2. The closer the value is to 2, the faster the speed of an answer.

Results suggest that there is a positive relationship between the frequency of participation in the brand community and response time. The result aims to explain that if the consumer engagement is measured as a multidimensional construct, the significance aims to increase, which means that the more

frequently the consumer participates in the online brand community, the shorter their response time is. In other words, CE as a multidimensional construct could be predicted by the frequency of consumer participation in the community.

Moreover, these results are consistent with CE concept which refers to the motivations for interaction and cooperation with community members [13][27].

C. Strongly engaged consumers are more susceptible to recommend the brand.

We use a simple linear regression to measure the strength of causal relation general response time and response time for CONN01. A positive coefficient of 0.06 is calculated between CE and consumer willingness to recommend the community brand. The linear regression yields statistically significant results (p-value = 0.045)

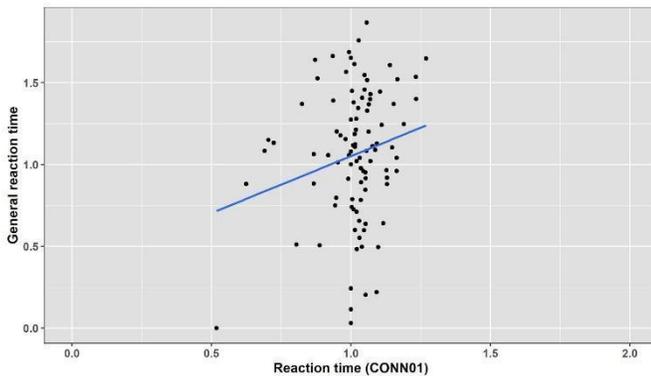


Fig. 3. Linear regression between general response time and response time for CONN01

We plot on the ordinate axis the response time according to the results obtained for all the questions, for each dimension of the attitude on a scale from 0 to 2, respectively. On the abscissa axis, we plot the response time for the question CONN01 on a scale from 0 to 2. The closer the value is to 2 the faster the speed of an answer.

The linear regression result demonstrates a positive cause-effect relationship between consumer engagement in the online brand communities and the consumer willingness to recommend the brand community (see Fig. 3). In fact, the shorter individual response time to the statement CONN01, the shorter individual general response time. In other words, the more a consumer is engaged in online communities of the brand, the more likely they will recommend the brand. Nevertheless, the result is significant supporting that consumer engagement is a predictor of consumer willingness to recommend the brand community.

Moreover, results are consistent with the literature [3].

Discussion

The main interest for measuring attitudes in online brand communities with implicit measurement method is to capture the automatic characters of consumer behaviors in online brand communities which may avoid the effects of self-presentation. The results lead to validate the three-hypotheses: H1) The affective attitude is the strongest factor of CE; H2) The stronger the CE, the greater the consumer frequency of

participation in the brand community; and H3) The stronger the CE, the higher the consumer's recommendation of Fortnite online communities.

Theoretical and methodological implications

This paper has developed a measurement method for CE as a multidimensional construct using RTT method which contributes to the awareness of the nature and dimensionality of the CE concept. Additionally, this paper contributes insights regarding the predictive power of attitudinal factors for consumer behaviors in online brand communities such as the frequency of participation and the intention to recommend the brand and its impact on CE.

Managerial implications

In addition to the theoretical and methodological implications, this research also generates managerial implications. Firstly, by providing an implicit measurement way for measuring CE in online brand communities which may be used in the digital context of online communities of the brand. Secondly, this research may encourage managers to adopt a specific strategy for consumer engagement by promoting consumer well-being in online communities which is the key factor for consumer engagement. Overall, we expect that a better understanding of CE will generate improved consumer brand relationships. Moreover, the use of the proposed methodology is expected to contribute of enhanced brand-consumers interactions and to reconceptualized the nature of specific online brand communities for enhanced effectiveness.

Conclusion

This paper proposes a new implicit measurement method based on RTT for CE in online brand communities constructed on the multidimensional conceptualization of consumer engagement. Consumer engagement may emerge at different levels of intensity, thus reflecting distinct engagement states. Results reveal that the affective dimension of attitude (i.e., consumer well-being) is the key element for CE, that frequency of participation in online communities of the brand defines the intensity level of consumer engagement and that strongly engaged consumers are more likely to recommend joining the brand community. Moreover, they are consistent with the literature and lead to confirm that the affective dimension is the strongest predictor of CE and that CE refers to the motivations for interaction and cooperation with community members. Results are also consistent with the fact that the stronger a consumer is engaged toward a brand community, the more likely they are to recommend the brand.

By proposing an implicit measurement method for CE in online brand communities, biases due to social desirability tendencies that are inherent in self-reported measures are minimized. Moreover, several exploratory insights of this emerging concept are provided. Based on the identified advantage of the implicit measurement method for CE in online brand communities, it will be adopted not only to measure individuals' engagement levels, but also to facilitate the undertaking of enhanced predictability of consumers' future engagement for online communities of specific brands. Therefore, future research directions will examine the negative answers to statements when interpreting RTT results to

examine consumers' attitudinal factors and behavior that are not engaged in any online brand communities.

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