

The Impact of Social Media on Consumer Behavior: The Case of Consumer-Generated Content on YouTube

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Abstract

This research examines the mechanism through which YouTube-based consumer-generated content (CGC) shape consumers' CGC adoption and subsequent purchase intention. Drawing on the Elaboration Likelihood Model, a causal model is developed to predict the impact of YouTube-based CGC attributes/cues (i.e., information quality, source credibility, and CGC credibility) on perceived usefulness, attitudes toward CGCs, CGC adoption, and, ultimately, purchase intention. A sample of 204 Vietnamese consumers is used to test the hypotheses. The results show that the central cue (i.e. information quality) and peripheral cues (i.e., source credibility and CGC credibility) can predict the changes in perceived usefulness and attitudes toward CGCs, which in turn have an impact on CGC adoption and ultimately the purchase intention of consumers. This study contributes to the CGC literature and the findings suggest that managers should pay attention to both the central and peripheral cues of YouTube-based CGCs to enhance the effectiveness of marketing strategies.

Keywords: Consumer-generated content, YouTube, Elaboration Likelihood Model, CGC adoption, purchase intention.

1. Introduction

Consumer-generated content (CGC hereinafter), the e-Content generated and published by general consumers (see Hsu et al. [25]) on numerous platforms such as forums, eCommerce sites, review sites, blogs, wikis, and social networking sites, is regarded as one of the most useful and important sources of information that shapes consumer journeys and their decision making process (see Schivinski and Dabrowski [38]). Compared to information posted by firms themselves, CGCs are more trustworthy because fellow consumers are considered to be more honest, with their suggestions and recommendations viewed as more objective and reliable (see Schivinski and Dabrowski [38]). Prior field studies on CGCs also observe that consumers increasingly confide in online product/consumption reviews and turn away from traditional media such as television, radio, and magazines (see Bajde et al. [3], Chu and Kamal [13]). A recent study from Fan and Fuel [17] reveals that 97 percent of consumers denote the worthwhile influence of online

product/consumption reviews on their buying decisions. According to a BI Intelligence [5] report, e-retailers and brand websites attain the corresponding 106 and 75 percent lifted on revenue when customers interact with CGCs prior to purchases. Nowadays, many brands recognize the importance of CGCs, and try to integrate CGCs into marketing campaigns, with some even placing CGCs at the core of their market strategies. For example, Amazon and Walmart invite customers to offer online reviews to aid the judgement of other consumers. eBay utilizes the comments of both buyers and sellers to develop a reputation ranking system. Some firms create Facebook fan pages to allow and even encourage consumers to interact among themselves, a special application of CGC strategies.

Despite the fact that consumption information collected from traditional media and handled by marketers is being gradually replaced by that collected from CGCs, and that studies also show CGCs have a stronger impact on consumer attitudes, behavior and decision-making (see Hajli [23], Schivinski and Dabrowski [38]), the driving forces that determine the adoption or acceptance of CGC content—and ultimately purchase intention—remain unclear (see Schivinski and Dabrowski [38]). This is because the intricate details associated with how CGC attributes (e.g., information quality, source credibility, CGC credibility) influence the affective, cognitive and behavioral components of personal attitudes reflect a complex phenomenon (see Bhattacharjee and Sanford [4]). Furthermore, unknown sources who publish unlimited CGCs can make the validity of this available information uncertain (see Chu et al. [14]), thus complicating the process of how consumers decide to adopt a certain CGC and which CGC is to be adopted. This academic shortcoming motivates the current study to devote its efforts to clarifying the role of various CGC attributes in forming consumer perception and adoption of CGCs, in turn leading to the purchase intention of products discussed in these CGCs.

There are two dominant types of CGCs — text-based and video-based. A comprehensive review of the literature has identified a small number of CGC-related studies, mainly based on text-based platforms such as forums, review sites, wikis, and blogs (see Hajli [23], Hsu et al. [25], Schivinski and Dabrowski [38]). However, only limited exploratory efforts have been devoted to CGCs from a video-based platform perspective (e.g., YouTube). The unique usability and functionality (e.g., images, audio, response videos) of video-based platforms (e.g., YouTube, the dominant one), in contrast to the text-based ones, enables greater content richness and more social interaction features (see Muntinga et al. [33], Susarla et al. [40]). Those distinctive attributes may entail different perceptions, evaluations, and adoption tendencies of the video-based CGCs from conventional text-based wisdom, thereby influencing the subsequent purchase intention differently (see Muntinga et al. [33], Susarla et al. [40]). As a result, it is significant to make an empirical attempt to discern how and why attitudes toward video-based CGCs, particularly those embedded on the video platform of YouTube, are elicited and altered, and how ultimately purchase behavior is shaped. Such a study focus helps advance our understanding of the essential role of YouTube-based CGCs throughout the consumer decision process.

Primarily drawing on the Elaboration Likelihood Model (ELM hereinafter) (see Petty and Cacioppo [37]), the current research develops a theoretically-grounded, 3-stage model concerned with the adoption of YouTube-based CGCs for consumption purposes. The literature has evidenced the applicability of ELM in the diverse contexts of the persuasion communication process, such as explaining the adoption of information systems (see Bhattacharjee and Sanford [4]), health services (see Angst and Agarwal [2]), and consumer attitudes in an electronic-WOM (eWOM hereinafter) context (see Cheung et al. [10]). However, previous ELM field applications tend to oversimplify the process through which consumer attitudes and purchase intention are activated and developed, as such leading to a lack of thorough understanding of the robustness of ELM (see Cheung and Thadani [11]). Furthermore, the association between YouTube-based CGC adoption and product consumption intention is rarely examined under the lens of ELM. Such literature gaps motivate this study to build a comprehensive research model that encompasses the application of ELM. In the model, information quality, source credibility, and CGC credibility are the key central and peripheral cues (see Cheung et al. [9]) that consumers utilize to evaluate the content during the information collection and evaluation process, thus being adopted as the driving forces to persuade consumers to change their resultant attitude. According to Breckler [6], attitude represents a multi-component construct and includes cognitive, affective, and behavioural components, while Bhattacharjee and Sanford [4] operationalize them as perceived usefulness of CGCs, attitudes toward CGCs, and CGC adoption, respectively. The three factors are claimed to act as the variables in the second stage that drive the final outcome of purchase intention in the research model.

By doing so, the current research is anticipated to make contributions to the existing literature in several ways. The following two research questions are empirically addressed: 1) What is the mechanism through which consumers are affected and influenced to adopt YouTube-based CGCs? and 2) How do the adopted YouTube-based CGCs shape their purchase intention? The proposed integrated model, based on a robust theoretical background and in particular the ELM theory, provides a more complete picture about how CGCs affect consumers. Also, the applicability of the examined proposed model on the video-based YouTube further addresses a call for more studies on various social media platforms, so as to provide a deeper and broader knowledge relating to the influence of CGCs, especially in video- or other non-text-based settings, on purchase decisions.

2. Literature review and theoretical basis

2.1. Consumer-generated content

CGC, also called user-generated content, can occur in a variety of online formats that consist of a multitude of features or characteristics (see Hajli [23]) such as product reviews on Amazon, the reputation ranking system based on buyer comments on Ebay, videos on YouTube, or videos, images, and text on Facebook fan pages. As noted, CGCs on the Internet can be categorized into two main types: text-based (e.g., forums, wikis, blogs)

and video-based (e.g., YouTube videos). While text-based CGCs primarily and simply use text messages as a means to express ideas, judgements, and recommendations, video-based CGCs can facilitate the usage of videos as a richer and better social-interaction medium to express the same things. Previous CGC studies mostly focus on text-based CGCs (see Cheung et al. [9], Cheung et al. [12]), particularly eWOM, one of the earliest forms of text-based CGCs appearing in online communities. eWOM is defined as any positive or negative statement made by potential, actual, or former customers about a product or a company, made available to a multitude of people and institutions through the Internet (see Hennig-Thurau et al. [24]). This text-based CGC form is intensively and widely studied and found to have an impact on brand reputation, product attitudes, and consumption decision-making processes, especially when consumers look for information regarding their future consumption in the case of a lack of prior experiences (see Chu and Kamal [13], Schivinski and Dabrowski [38]).

In the last decade, the development of the Internet technology and social media has facilitated the tremendous growth of video-based CGC platforms (e.g., YouTube), enabling high richness and various features of social interactions such as viewing rating, making friends, subscribing channels, commenting, liking/disliking/sharing videos, and posting response videos (see Parameswaran and Whinston [35]). YouTube is one of the most popular means to share experiences with others in the form of videos (see Susarla et al. [40]). Those videos strongly shape public opinions, attitudes and the affects of individuals and have a deep impact on the opinions and thoughts of other consumers (see Mir and Rehman [32]). Compared to their text-based counterparts, video-based CGCs help consumers express their opinions or comments more effectively and in more detail because a variety of visual and auditory contents can be compiled and compressed in video clips. Also, the creativity and self-expression unleashed on the video-based CGC platform promise to transform ways of business and industrial practices through the involvement and engagement of consumers (see Susarla et al. [40]). Because of these differences, video-based CGCs might have a disparate impact on consumer attitudes and behavior in comparison with text-based CGCs; thus, the existing knowledge based on text-based CGCs might only engender limited insight into the effectiveness of video-based CGCs.

A review of the literature has only identified a limited number of video-based CGC articles, mainly exploratory or qualitative in nature (see Susarla et al. [40]). These articles descriptively discuss the role of video-based CGCs in the process of making purchase decisions. There is a scarcity of quantitative evidence regarding the nature and dynamic mechanism of how video-based information is processed, consumer attitudes change, and consumption decisions are made, thus leading to the need to conduct further studies on the impact of video-based CGCs on consumers.

2.2. Elaboration Likelihood Model (ELM) and extended ELM

The ELM describes the links between information processing modes and their influences on attitudinal changes (see Sussman and Siegal [41]). Therefore, it can be

applied to explain how and why consumers are affected and persuaded to change attitudes and subsequently adopt information from video/YouTube-based CGCs. The ELM proposes two main routes—central and peripheral—that information recipients use to process stimuli (e.g., video-based CGCs) (see Petty and Cacioppo [37]). Under the central route, the cognitive response or elaboration of the recipients is much more relevant to the stimuli, and so persuasion and attitudinal change likely result from the careful and thoughtful consideration of the essence of the stimuli's content. Meanwhile, when processing peripherally, recipients may rely on heuristics and other rules of thumb (i.e., peripheral cues) when elaborating on the stimuli (see Bhattacharjee and Sanford [4]).

In the context of YouTube-based CGCs, information quality which refers to the persuasive strength of message arguments embedded in YouTube videos (see Bhattacharjee and Sanford [4]) or the informativeness, helpfulness, valuableness, and persuasiveness of YouTube videos (see Cheung et al. [9]), plays the role of a central cue to persuade consumers to alter their attitudes. Furthermore, as examined by consumers and generally unrelated to the logical quality or essence of messages in YouTube videos, peripheral cues can involve factors such as the credibility of the sources of the video (i.e., source credibility) (see i.e., source credibility; Sussman and Siegal [41]) or the number of views, votes and comments on the video (i.e., CGC credibility) (see Cheung et al. [9], Mir and Rehman [32]). These peripheral cues can be regarded as a shortcut to arriving at persuasion and attitudinal change without having to spend much effort to use central cues so as to elaborate the quality of the required information.

ELM has been widely and extensively adopted to explain the impact of CGCs on consumer attitudes and behaviors (see Cheung and Thadani [11]). Some scholars propose that the central route and peripheral route directly predict purchase intention (see Leong et al. [29], Park et al. [36]) while others suggest these two routes are directly associated with attitudes and information adoption (see Lee et al. [28], Zhang and Watts [44]). ELM aims at simultaneously explaining different ways of processing information, why they are used, and their outcomes on attitudinal and behavioral changes (see Petty and Cacioppo [37]). Thus, the direct relationships posited in prior studies would inhibit the ELM's robustness in providing a deeper understanding of how attitude and behavior changes under the impact of persuasive stimuli. To address this limitation, some scholars add cognitive variables such as usefulness or credibility as mediators between stimuli and attitudinal change (see Cheung et al. [10], Sussman and Siegal [41]). Furthermore, Li [30] argues that persuasive messages can evoke not only a consumer's cognitive system but also their affective system. That is, ELM studies should consist of both cognitive response (i.e., perceived usefulness of CGCs) and affective response (i.e., attitude toward CGCs) to bridge the impact of the two routes and their behavioural outcomes. In the same vein, Bhattacharjee and Sanford [4] posit that ELM can be expanded to include extensive variables and causal relationships, which is particularly useful when examining information influences in different contexts. Accordingly, ELM is utilized in this research to include a number of information evaluation variables (i.e., information quality, source credibility, CGC credibility) as the antecedent precursors and combine

the multi-component model of attitudes that includes cognitive (i.e., perceived usefulness of CGCs), affective (i.e., attitude toward CGCs) and behavioral response (i.e., CGC adoption) (see Breckler [6]). Finally, purchase intention is additionally integrated as the final outcome to cooperatively formulate our research framework. Thus, compared to previous studies, our research model is not only solidly theoretical-based but also more comprehensive and is expected to generate a broader and deeper understanding of the impact of video-based CGCs on forming the purchase intention of consumers.

3. Hypothesis Development and Research Model

In the current research, we apply and extend the ELM theory with variables borrowed from the multi-component model of attitudes to develop our research model. Related hypotheses are developed below, while the research model is demonstrated in Fig. 1.

3.1. Information quality, perceived usefulness and attitude toward CGCs

The availability and accessibility make CGCs attractive to Internet users which leads to the preference of CGCs for consumer advice/references (see Susarla et al. [40]). However, the information quality of CGCs is always a major concern for receivers due to the expertise and motives of customers/users who post the CGCs (see Cheong and Morrison [8], Chu and Kamal [13]). Consumers who search and preview CGCs can be divided into two groups based on their knowledge of products/services: one group includes those who have the ability or motivation to elaborate CGCs (e.g., having already used a previous version, or possessing general knowledge about the product), and another group consisting of those who do not have the ability or motivation to elaborate (having never used the product before) (see Petty and Cacioppo [37], Sussman and Siegal [41]). Consumers who have the ability or motivation to evaluate the content of YouTube-based videos can evaluate and conclude whether those videos are useful and trustworthy. Thus, video quality will have an impact on perceived usefulness and attitudes toward CGCs (see Chu and Kamal [13], Sussman and Siegal [41]). Also, the consumer perception of information quality is an important element of information usefulness, as the consumer will form a positive perception of usefulness and attitude toward the information that meets their needs and requirements (see Bhattacharjee and Sanford [4], Chu and Kamal [13]). Consumers care about the correctness and usefulness of CGCs, while good content quality increases their positive attitudes toward CGCs and willingness to trust CGCs (see Cheong and Morrison [8], Cheung et al. [9]). Park et al. [36] indicate that the high quality of CGCs enhances persuasiveness. In summary, information quality is an important variable that can explain the CGC adoption process when there is a high level of elaboration (see Chu and Kamal [13], Sussman and Siegal [41]). Empirical research has proved that information quality has a significant impact on perceived usefulness and attitudes toward CGCs (see Cheung et al. [10], Sussman and Siegal [41]). Thus, we propose H1 and H2 as follows:

- H1: Information quality has a positive effect on the perceived usefulness of YouTube-based CGCs for consumers.
- H2: Information quality has a positive effect on attitudes toward YouTube-based CGCs for consumers.

3.2. Source credibility, CGC credibility, perceived usefulness, and attitude toward CGCs

Consumers may rely on the advice of other consumers who share their experiences about brands/products through text- or video-based CGCs to recognize their advantages and disadvantages (see Chu and Kamal [13], Sussman and Siegal [41]). Rather than evaluating the content of a video (perhaps due to the lack of ability or motivations to do so), these consumers will rely on source credibility. i.e., the information related to the user/consumer who posts the video, such as the number of videos posted and subscribers, or a perception of competence and trustworthiness (see Cheung et al. [9], Chu and Kamal [13], Mir and Rehman [32]). Further, consumers may also rely on information related to CGC credibility (i.e., number of video views, votes, and comments) (see Cheung et al. [9], Mir and Rehman [32]). If consumers feel that CGCs and their sources possess high credibility, they will have a higher level of perception of their usefulness and develop more positive attitudes toward CGCs and conclusions about their usefulness, eventually developing an intention to purchase the product. Empirical evidence demonstrates that the high credibility of the message source has a positive effect on consumer attitudes toward brands (see Godey et al. [21], Schivinski and Dabrowski [38]). Specifically, the perception of source credibility influences message evaluation, attitudes toward received information and behavioral intention (see Kitchen et al. [26], Mir and Zaheer [31], Zernigah and Sohail [43]). Mir and Rehman [32] empirically provide evidence of the positive effect of perceived CGC credibility on perceived usefulness. To conclude, source credibility and CGC credibility are important factors in the process of informational influence when there is little or no elaboration (see Bhattacharjee and Sanford [4], Sussman and Siegal [41]). Thus, the following four hypotheses are formulated:

- H3: Source credibility has a positive effect on users regarding the perceived usefulness of YouTube-based CGCs.
- H4: Source credibility has a positive effect on attitudes toward YouTube-based CGCs.
- H5: CGC credibility quality has a positive effect on consumers regarding the perceived usefulness of YouTube-based CGCs.
- H6: CGC credibility has a positive effect on attitudes toward YouTube-based CGCs.

3.3. Perceived usefulness, attitude toward CGCs and CGC adoption

The relationship among perceived usefulness, attitudes toward CGCs, and CGC adoption can be explained using the theories of adoption. For example, according to the Technology Acceptance Model (see Davis [15]), perceived usefulness has a positive

effect on attitude, which in turn has a positive effect on behavioral intention. Also, according to TAM, perceived usefulness also has a positive effect on intention. The causal relationship between attitude and intention is also proposed in the Theory of Reasoned Action (see TRA; Fishbein and Ajzen [18]) and Theory of Planned Behavior (see Ajzen [1]). Perceived usefulness is positively correlated to attitude, since consumers tend to develop a positive affect toward CGCs if they expect the CGCs to benefit their decisions (see Bhattacharjee and Sanford [4]). Therefore, the current study hypothesizes that the perception of usefulness of CGCs has an impact on the attitudes of consumers toward CGCs, as consumers tend to form positive attitudes toward CGCs in cases where they believe it to be useful (see Zeng et al. [42]). Further, attitudes toward CGCs and perceived usefulness have positive effects on CGC adoption because individuals tend to maintain beliefs, affect, and behavior consistent with each other (see Bhattacharjee and Sanford [4]). These causal relationships are empirically validated across diverse CGC adoption contexts (see Mir and Rehman [32], Sussman and Siegal [41]). Thus, the next three hypotheses are as follows:

- H7: Perceived usefulness has a positive effect on consumers regarding the adoption of YouTube-based CGCs.
- H8: Perceived usefulness has a positive effect on attitudes toward YouTube-based CGCs.
- H9: Consumer attitudes toward CGCs have a positive effect on adoption of YouTube-based CGCs.

3.4. CGC adoption, perceived usefulness, attitude toward CGCs and purchase intention

CGCs play an important role in the decision-making process. Consumers often adopt information from CGCs to reduce risks, uncertainties and the amount of information needed to be processed when purchasing products (see Senecal and Nantel [39]). Similarly, Hsu et al. [25] study reveals that consumers read online product reviews mainly for saving time and making optimal decisions. According to Fong and Burton [20], seeking product reviews on YouTube can be a sign of purchase intention. Cheung et al. [12] suggest that online recommendations can help to shape consumer attitudes toward products, which in turn motivates purchase intention and behavior. Based on the above arguments, we present the hypothesis below:

- H10: Consumer adoption of YouTube-based CGCs has a positive effect on purchase intention for the products embedded in the CGCs.

Latane [27] delineates the general principle of social impact as “any of the great variety of changes in physiological states and subjective feelings, motives and emotions, cognitions and beliefs, values and behavior, that occur in an individual, human or animal, as a result of the real, implied, or imagined presence or actions of other individuals”. Nowak et al. [34] argue that a model of individual influence which is based on the general principles of social impact can reflect how individuals influence, and are influenced

by, each other over time. In other words, individuals are influenced by the actions of others, entertained by their performance and sometimes persuaded by their arguments (see Latane [27]). Seeking product reviews and recommendations is a signal of purchase intention (see Chu et al. [14]) because the recommendations of other consumers will form attitudes and beliefs toward CGCs and products, which in turn facilitates the intention to buy (see Cheung et al. [12]). In the context of informational influence, we posit that the perceived change in usefulness and attitudes toward CGCs may lead to purchase intention for the products reviewed in video clips. As such, the following hypothesis is formulated:

- H11: Perceived usefulness has a positive effect on the purchase intention of consumers for products embedded in the CGCs.
- H12: Attitudes toward CGCs have a positive effect on purchase intention for products embedded in the CGCs.

4. Methods

4.1. Subjects and sample

Being among YouTube's top ten foreign markets with a fast-growing rate of about 120 percent per year (see Chandra [7]), Vietnam was considered a typical case and then selected for data collection to test the perception and attitudes of consumers toward YouTube-based CGCs. Particularly, Vietnamese consumers usually search for product information and related reviews on the Internet in order to make purchase decisions (see Google [26]). Among the many influential platforms, YouTube is one of the most critical sources because it offers a wide range of advice and rich visual opinions in the form of review videos, thus providing consumers with a multi-dimensional and comprehensive view about the products of interest (see eMarketer [16]). Additionally, YouTube is a popular channel for Vietnamese to comment, rate, and share their purchase experiences (see Google [22]) due to the ease of account registration, channel creation, and video-posting. Moreover, the video search and recommendation systems help consumers find relevant videos easily at a low cost; this also contributes to the proliferation of YouTube in Vietnam. The study conducted by Google [26] shows that 52% of Vietnamese watch online videos daily. In short, YouTube is a popular, low-cost platform rich in content, thus being a notable leading channel for Vietnamese consumers to attain new valuable information and learn from content generated by experienced customers. As a result, it is suitable for collecting data from Vietnamese consumers for testing the hypotheses in the current research.

In order to study the mechanism pertaining to how and why consumers are affected and persuaded to adopt information from YouTube-based CGCs, thereby leading to their purchase intention, field research was undertaken with individuals who exhibited an interest in purchasing smartphones due to the following reasons. Firstly, smartphones are considered an innovative product, and a large number of consumers are not very

familiar with their operations. Consumers are faced with uncertainty regarding the consequences of their decisions to purchase smartphones. They might feel unsure about the appropriateness of their selection of the product, brand, vendor, or mode of purchases, which can contribute to the perceived risk of their selected smartphone purchase (see Flanagan et al. [19]). Hence, consumers tend to seek out online reviews of new smartphone devices, especially reviews in video format on online media sharing sites such as YouTube. In Vietnam, there are many popular YouTube-video channels such as CellphoneS, Tinh-Té, and GenK, which review and comment on cellphones. Those channels have a very large number of subscribers, illustrating the concern of consumers regarding smartphones. Also, cellphone review videos have a great deal of viewers, which implies that Vietnamese consumers seek smartphone reviews before making purchase decisions.

Data were collected through a self-administered survey at the largest smartphone stores such as Mobile World Store, FPT Shop, and Viettel Store during the summer of 2016. For screening participation qualification, respondents were asked two questions about their online product review videos: “Did you seek opinions from smartphone review videos on YouTube before coming to the store?” and “Do you have the intention to buy a new smartphone?”. If the answers were yes for both questions, the questionnaire was given to that respondent. The survey instructions asked respondents to recall the most recent product review video that they had watched on YouTube and then to complete the survey based on their perception of the video. The survey questionnaire took about 15 minutes to complete. A total of 250 questionnaires were distributed and recovered. Out of 250 questionnaires, 46 questionnaires were rejected because of the incompleteness of the questionnaire, such as partial responses or missing data. The profiles of the remaining 204 (97.14%) valid samples were outlined in Table 1 and used for the subsequent data analysis through the SPSS and AMOS statistic software. Cronbach’s alpha, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) were run to test reliability, convergent validity, and discriminant validity. Finally, the structural equation modeling (SEM) technique was used to test the hypotheses.

Table 1: Respondent characteristics.

Characteristics		Quantity	Percentage (%)
Gender	Male	100	49.02
	Female	104	50.98
Age	Under 25	40	19.61
	25–35	60	29.41
	35–45	63	30.88
	From 45	41	20.10
Occupation	Student	40	19.61
	Employees of State companies	55	26.96
	Employees of private companies	60	29.41
	Self-employed business	35	17.16
	Other	14	6.86

4.2. Measurements

All the scale items in the survey were drawn from existing scales that had demonstrated reliability and validity. In particular, information quality (IQ) was measured using four items adopted from Bhattacharjee and Sanford [4]. Source credibility (SC) was measured using four items adopted from Mir and Rehman [32] and Sussman and Siegal [41]. CGC credibility (CC) was measured using three items adopted from Mir and Rehman [32]. Perceived usefulness (PU) was measured using four items adopted from Mir and Rehman [32]. Attitudes toward CGC (ATC) was measured using four items adopted from Mir and Rehman [32]. CGC adoption (CA) was measured using four items adopted from Cheung et al. [14]. Purchase Intention (PI) was measured using three items adopted from Mir and Zaheer [31] and Mir and Rehman [32]. Participants selected their response on a seven-point Likert-type scale with the anchors from (1) strongly disagree to (7) strongly agree (see Table 2).

5. Analysis Results

5.1. Validation of measures: Reliability and validity

The Cronbach's alpha results rejected item ATC4 due to its low item-total correlation. The updated list of 25 items showed that all alphas of measurements were greater than 0.6 and all item-to-total correlations were greater than 0.3, which were eligible to be used for the EFA test.

EFA analysis results rejected item PU4 due to low factor loading. The remaining list of 24 items showed that items were grouped into seven factors as established in the theoretical model. The factor loadings of all items were greater than 0.5, KMO was 0.872, significance level was 0.000, and variance extracted was 66.1%. Hence, all items were eligible for the CFA analysis.

Table 2: Constructs and indicators.

Constructs and indicators	FL	Alpha	CR	VE
Information Quality (IQ):		0.89	0.89	0.66
Product-related YouTube-based CGC is . . .				
. . .complete	0.84			
. . .consistent	0.80			
. . .accurate	0.75			
. . .persuasive	0.86			
Source credibility (SC):		0.79	0.80	0.50
I feel confident. . .				
. . .in users who have many product-related YouTube-based CGC	0.76			
. . .in users who have many subscribers on YouTube	0.64			
. . .that users who post product review CGCs on YouTube are competent	0.74			
. . .that users who post product review CGCs on YouTube are trustworthy	0.68			
CGC credibility (CC):		0.74	0.75	0.51
I feel confident in. . .				
. . .product-related YouTube-based CGC which has many views	0.49			
. . .product-related YouTube-based CGC which has many positive comments	0.74			
. . .product-related YouTube-based CGC which has many thumbs-up	0.86			
Perceived usefulness (PU):		0.82	0.82	0.60
Product-related YouTube-based CGC is . . .				
. . .good	0.80			
. . .valuable	0.78			
. . .useful	0.75			
. . .a convenient source of product information*				
Attitude toward CGC (ATC):		0.84	0.84	0.64
Watching product-related YouTube-based CGC enables me to. . .				
. . .get reliable product information	0.83			
. . .get useful product information	0.80			
. . .know different product aspects	0.78			
. . .get rich product information*				
CGC Adoption (CA):		0.88	0.88	0.65
Information from product-related YouTube-based CGC. . .				
. . .contributes to my knowledge of discussed product/service	0.85			
. . .makes it easier for me to make a purchase decision	0.75			
. . .enhances my effectiveness in making a purchase decision	0.80			
. . .motivates me to make a purchase decision	0.82			
Purchase Intention (PI):		0.96	0.95	0.86
I intend to. . .				
. . .consider the product that is reviewed on YouTube in my future purchases	0.89			
. . .make future purchase decisions based on the product-related information reviewed on YouTube	0.96			
. . .try the products that are reviewed on YouTube	0.94			

Note: FL: Factor Loadings (all significant at $p < 0.001$); CR: Composite Reliability;
 VE: Variance Extracted; *deleted in the accuracy test.

The CFA analysis results showed that research fits data collected: CMIN/df: 1.70, CFI: 0.94, RMSEA: 0.06, SRMR: 0.072, PClose: 0.081. As can be seen in Table 2, all CRs greater than 0.7 meant all measurements were reliable; all AVEs were greater than 0.5 meant all measurements had convergent validity; MSV greater than AVE and square root of AVEs greater than any correlation coefficients meant that all measurements had discriminant validity. Also, means, standardized deviation, and correlations of research variables are listed in Table 3.

Table 3: Means, standardized deviation, and correlations.

Research variables	Mean	SD	1	2	3	4	5	6	7
1. Information quality	3.16	0.95	0.81						
2. Source credibility	2.66	0.91	0.20	0.70					
3. CGC credibility	2.37	0.92	0.69	0.39	0.71				
4. Perceived usefulness	3.44	0.92	-0.26	0.21	0.32	0.78			
5. Attitude toward CGCs	3.91	0.93	0.28	0.35	0.19	0.13	0.80		
6. CGC adoption	2.51	0.95	0.21	0.06	0.56	0.52	0.18	0.81	
7. Purchase intention	2.71	0.98	0.25	0.57	0.58	-0.44	0.63	0.54	0.93

Note: the square root values of AVEs are on the diagonal.

5.2. Hypothesis testing

SEM, in particular the AMOS software, was used to test the hypotheses, and the results are reported in Table 4. As demonstrated, the testing results showed that the measurement model fitted data well. The CMIN/df. was 1.72 and the CFI index was above 0.9 (0.94), while the RMSEA, SRMR, and PClose values were 0.06, 0.075, and 0.055, respectively. The results illustrated that the exogenous variables explained 24 percent of the variation in perceived usefulness, 49 percent of the variation in attitudes toward YouTube-based CGCs, 38 percent of the variation in YouTube-based CGC adoption, and 54 percent of the variance in purchase intention.

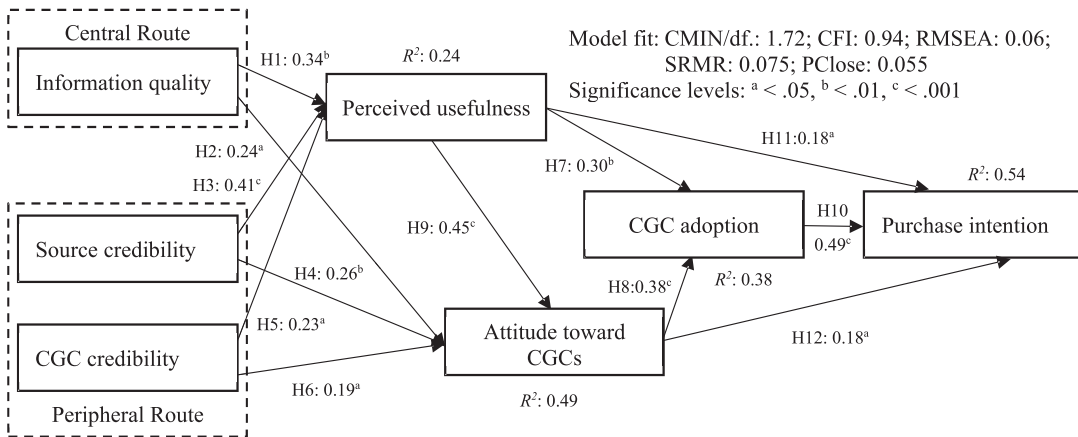


Figure 1: Research framework and hypotheses-testing results.

The testing results confirmed all proposed hypotheses. Specifically, information quality had a strong impact on both perceived usefulness and attitudes toward YouTube-based CGCs (H1: $\beta = 0.34$, $t = 3.2$, $p < 0.01$; H2: $\beta = 0.24$, $t = 2.5$; both $p < 0.05$, respectively). This result was consistent with previously studies in the context of text-based or general CGCs (see Cheung et al. [10], Sussman and Siegal [41]), thereby providing supportive evidence for the significant role of central cues (i.e., information quality) on influencing both cognitive and affective responses of consumers. The informativeness, valuableness, and persuasiveness of product arguments or CGCs embedded in YouTube videos increase consumer expectations about both functional and emotional benefits of the consumption process, in turn enhancing their perception and attitudes toward those CGCs. Moreover, the two peripheral cues of YouTube-based CGCs including source credibility and CGC credibility also had a strong effect on both perceived usefulness (H3: $\beta = 0.41$, $t = 4.0$, $p < 0.001$; H5: $\beta = 0.23$, $t = 2.2$; both $p < 0.05$, respectively) and attitudes toward YouTube-based CGCs (H4: $\beta = 0.26$, $t = 2.7$, $p < 0.05$; H6: $\beta = 0.19$, $t = 2.2$; both $p < 0.05$, respectively). These findings indicated that when processing YouTube-based CGCs, consumers also relied on heuristics and other rules of thumb. Particularly, they referred to the source/owner of the video as well as the number of views, votes, and comments on the video as a shortcut to evaluating the usefulness of

the video. Also, those peripheral cues can easily initiate consumers' emotional responses or attitudes toward the video. Interestingly, the links from peripheral cues to perceived usefulness were stronger than those links to attitudes toward CGCs, implying that both source credibility and CGC credibility have a stronger effect on a consumer's cognitive, rather than emotional, evaluations.

Table 4: Hypotheses testing results.

Paths	Hypotheses	Research model		Conclusion	Model fit indices
		Std. β	t value		
IQ→PU	H1	0.34	3.2 ^b	Support	CMIN/df. = 1.72; CFI = 0.94; RMSEA = 0.06; SRMR = 0.075; PClose = 0.055
IQ→AT	H2	0.24	2.5 ^a	Support	
SC→PU	H3	0.41	4.0 ^c	Support	
SC→AT	H4	0.26	2.7 ^b	Support	
CC→PU	H5	0.23	2.2 ^a	Support	
CC→AT	H6	0.19	2.1 ^a	Support	
PU→IA	H7	0.30	3.0 ^b	Support	
AT→IA	H8	0.38	3.8 ^c	Support	
PU→AT	H9	0.45	5.0 ^c	Support	
IA→PI	H10	0.49	6.3 ^c	Support	
PU→PI	H11	0.18	2.1 ^a	Support	
AT→PI	H12	0.18	2.0 ^a	Support	

Note: ^a $p < 0.05$, ^b $p < 0.01$, ^c $p < 0.001$.

Regarding the relationship among extended components of attitudinal change, both perceived usefulness and attitudes toward YouTube-based CGCs had an impact on the adoption of YouTube-based CGCs, as expected. However, the magnitude of the impact of attitudes toward YouTube-based CGCs on YouTube-based CGC adoption (H8: $\beta = 0.38$, $t = 3.8$, $p < 0.001$) was stronger than the impact of perceived usefulness (H7: $\beta = 0.30$, $t = 3.0$, $p < 0.01$). In addition, perceived usefulness demonstrated a strong effect on attitudes toward YouTube-based CGCs (H9: $\beta = 0.45$, $t = 5.0$, $p < 0.001$). These findings ascertained a consistency across cognitive, affective, and behavioral responses of consumers toward YouTube-based CGCs. The beliefs of CGC usefulness enhanced favorable attitudes, leading to the acceptance of the object. Finally, YouTube-based CGC adoption, perceived usefulness and attitudes toward YouTube-based CGCs had a significant effect on purchase intention. Among them, YouTube-based CGC adoption demonstrated the strongest impact (H10: $\beta = 0.49$, $t = 6.3$, $p < 0.001$). Perceived usefulness and attitudes toward YouTube-based CGCs had an equal magnitude of impact on purchase intention (H11: $\beta = 0.18$, $t = 2.1$; H12: $\beta = 0.18$, $t = 2.0$; both $p < 0.05$). This result supported the link between YouTube-based CGC adoption process and the purchase intention of consumers. When consumers evaluated the product comments on Youtube videos as useful and likable, they then accepted and internalized that product information with favorability and as a reference for purchasing purposes.

6. Discussion and implications

6.1. Discussion and theoretical implications

The supported hypotheses provide evidences to validate the applicability and extendibility of ELM in the context of video-based CGCs. Both central and peripheral cues of YouTube-based CGCs can predict changes in consumers' perceived usefulness of CGCs and attitudes toward CGCs, which then have a significant impact on CGC adoption. In addition, perceived usefulness, attitudes toward CGCs and CGC adoption all affect the purchase intention of consumers.

Regarding the central cue (i.e., information quality) of CGCs, the results show that information quality has a strong positive effect on both perceived usefulness and attitudes toward CGCs. It is worthy to note that this central cue has a stronger effect on perceived usefulness than on attitudes toward CGCs. Since information quality is seen as the informativeness, helpfulness, valuableness and persuasiveness of the product-related message embedded in YouTube videos, the resultant cognitive response should be higher than the emotional one. With the high information quality of YouTube-based CGCs, consumers can expect and relatively clarify the benefits gained from their future consumption; thus, the perceived usefulness of YouTube-based CGCs should be quite prevalent.

The two peripheral cues, source credibility and CGC credibility, are found to have a significant impact on both perceived usefulness and attitudes toward CGCs; these results are in line with prior studies (see Cheung et al. [10], Mir and Rehman [32]). Among the three CGC cues, source credibility seems to have the strongest effect on both perceived usefulness and attitudes toward CGCs. The reasons for this is that consumers refer to the number of videos and the subscribers of video channels to evaluate source credibility (see Mir and Rehman [32]). They usually believe in the voice of the multitude. Therefore, if channel sources/owners are considered trustworthy or the channels have many subscribers and posted CGCs, they will earn credit from customers and can have an impact on customer attitudes. Moreover, customers may perceive usefulness from CGCs posted by well-known YouTube channels, since these channels usually pay more attention to the quality of their CGCs. Notably, the impact of source credibility on perceived usefulness and attitude toward CGCs is also higher than the impact of information quality on the same variables, demonstrating that both central and peripheral routes are viable ways of influencing consumers to adopt new information. These influence mechanisms shape consumers' adoption of information by modifying key perceptions salient to adoption, such as perceived usefulness and attitude. However, consumers tend to adopt less intensive processing of heuristic cues when framing their perceptions and attitudes. The reason might be that the central route requires consumers to have the ability and motivation to elaborate upon the content—the “harder way”—and thus consumers tend to choose the “easier way”.

With respect to the relationships among perceived usefulness, attitudes toward CGCs, CGC adoption, and purchase intention, the perception of usefulness demonstrates a strong impact on attitudes toward CGCs; both of them in turn influence CGC adoption

because individuals tend to maintain beliefs, affection, and behavior consistent with each other (see Bhattacharjee and Sanford [4]). Moreover, CGC adoption has the strongest effect on purchase intention, followed by perceived usefulness and attitudes toward CGCs. It can be explained that information adopted from CGCs can help potential customers not only diminish risks and uncertainties (see Senecal and Nantel [39]) but also save time in searching for new products (see Hsu et al. [25]). Eventually, customer knowledge about discussed products is enhanced; subsequently, purchase decisions can be made more precisely and wisely. Finally, CGC adoption refers to customers' CGC acceptance for advancing nearer to final decisions, while the remaining two attitudes, i.e., usefulness and perceived attitude, are simply perceptions in their mindsets.

6.2. Managerial implications

From a managerial perspective, the research findings provide important implications for managers who intend to use social media as a means of promoting their products/services. In general, perceived usefulness, attitudes toward CGCs and the adoption of user-generated social media, in particular through YouTube, can effectively influence consumer purchase intention. Therefore, in addition to text-mode e-Contents, the use of YouTube-based CGCs is likely to become a practical marketing strategy. Managers can encourage social media users, especially opinion leaders and/or experienced consumers, to upload their constructive evaluation videos of products/services. Among three antecedents to perceived usefulness and attitudes toward CGCs, source credibility emerges as the most influential one. Therefore, in order to enhance perceived usefulness and attitudes toward CGCs from potential customers, the credibility of YouTube channels plays a significant role. Managers can encourage and motivate some well-known channel owners possessing numerous followers to review their products. For example, firms can provide these channel owners trial products to increase the possibility that these owners review the products and post their comments in YouTube. Also, managers can integrate advertising messages into the CGCs with the agreement of YouTube channel owners to enrich the CGC content, and thus may increase CGC adoption. They need to ensure that the recommendation is available online to help consumers make purchase decisions. For example, YouTube-based CGCs about products/services could be collected and embedded in eCommerce websites or mobile applications. Furthermore, with the emergence of smartphone users and over-the-top (OTT) apps such as Viber and iMessage, those CGC links can be sent to consumers through emails and multimedia messages under the case of their agreement. The more YouTube-based CGCs the consumers encounter, the more CGCs will be generated. Thus, consumers' emotions will be more highly aroused, and their purchase intention will be elicited.

The central aim of our research is to provide more insight into how video-based social media contents affect the perception, attitudes and behavior of consumers. Although we use YouTube as our main social media platform in investigating the impact of social media on consumers, our research mainly highlights the role of video-based contents on social media and their influence on consumer behavior. In other words, the research

results could be applicable to other social media platforms, such as the social media site of Facebook, as long as the content is video-based. Therefore, it is expected that video-based CGCs on Facebook could also change consumer perception, attitudes toward CGCs and behavior. Because consumers typically judge the information generated by others as more trustworthy and credible, other social media platforms, such as social networking sites (e.g., Facebook and Twitter) and communities, also provide opportunities for managers and consumers to work together to increase the usefulness of video-based CGCs.

7. Conclusion

Responding to the call for more studies on various social media platforms (see Leong et al. [29], Schivinski and Dabrowski [38]) and better understanding of the relationship from CGCs to consumer behavior, the current research aims to address the two research questions pertaining to the mechanism leading to the adoption of YouTube-based CGCs and the impact of CGC adoption on customer purchase intention. The analysis results based on the data collected from 204 Vietnamese consumers show that information quality, source credibility, and CGC credibility all have positive effects on perceived usefulness and attitudes toward CGCs, which in turn significantly facilitate CGC adoption. In addition, the adoption of YouTube-based CGCs is found to have a positive impact on the purchase intention of consumers. This research contributes to the existing CGC literature in several ways which are delineated as follows.

First of all, mainly based on ELM as the theoretical background, the current research succeeds in clarifying the mechanism in which consumers are affected and persuaded to adopt YouTube-based CGCs. The significant and positive impact of information quality on CGC adoption through the two mediating perceptions of perceived usefulness and attitudes toward CGCs confirms the central route of the persuasion communication process. Meanwhile, the positive effects of source credibility and CGC credibility on CGC adoption via the changes in the same two mediators demonstrate the peripheral route of persuasion. It can be observed from these findings that the central and peripheral routes are both viable ways of influencing users to adopt CGCs. Also, these two routes are not mutually exclusive in a CGC adoption context, but rather consumers may sometimes utilize both routes simultaneously in forming their perceptions. Consumers can engage in the thoughtful processing of issue-relevant arguments embedded in CGCs and, at the same time, pay attention to peripheral cues about CGCs. Particularly, usefulness perceptions and attitudes toward CGCs can be shaped by not only information quality, but also source credibility and CGC credibility (see Bhattacharjee and Sanford [4]).

Moreover, the current research forms a more comprehensive picture of how video-based CGCs affect consumer behavior and purchase intention; this differs from the contexts of previous related studies in forums, eCommerce sites, review sites, blogs, wikis, and social networking sites. Existing literature still lacks an understanding of how consumers utilize YouTube-based CGCs as an information source to develop purchase intention (see Cheong and Morrison [8]). The findings that purchase intention is positively

associated with perceived usefulness, attitudes toward CGCs and CGC adoption provide evidence that changes in consumer perceptions and the adoption of YouTube-based CGCs will lead to purchase intention. These findings help address the second research question and also enrich the CGC adoption literature by addressing a previously unexplored area of relevance, namely consumer-generated contents on YouTube that shape the perceptions of consumers and emotions pertaining to purchase intention.

Additionally, we delineate the attitude construct in ELM into perceived usefulness, attitudes toward CGCs and behavior, respectively, representing the cognitive, affective and behavioral component of user attitude. Extensions such as these may be necessary and appropriate if a theory is taken from one context and applied in an entirely different context. Such theoretical adaptations are useful ways of extending the core theory while simultaneously enhancing its explanatory ability across multiple research domains. Hence, it is anticipated that the proposed model can not only explain the process of CGC adoption in Vietnam, but also be applied in other countries and different contexts, as the proposed model is an extension of a widely-accepted theory, i.e., ELM, in explaining information adoption and knowledge transfer. Therefore, our research provides a fundamental model that can be modified and extended to explain the adoption of information.

8. Limitations and Future Research

The current research has some limitations that provide directions for future research. Firstly, although information quality is an important factor of the influential process, the current research considers information quality as a unidimensional construct which consists of four components: informativeness, helpfulness, valuableness and persuasiveness. This may lead to limitations in improving the quality of CGCs. We suggest that future studies can consider information quality as a multidimensional construct, thus adding new insight into the effect that information quality ultimately has on CGC adoption. Secondly, purchase intention is a self-reported variable which is used extensively in consumer behavior science. However, the use of this variable to judge consumer consumption possibly leads to inappropriate conclusions as intention may differ significantly from actual behavior. As a result, we suggest that future research can also investigate actual behavior in the research model. Finally, the respondents of the studied sample are only customers of the smartphone market. The results of the current research will be more universally applicable if the sampling scope is expanded.

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