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How Web Content Types Improve Consumer Engagement through Scarcity and Interactivity of Mobile Commerce?

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Abstract: The emergence of various web contents gives customers influence according to characteristics. The characteristics of the content can distinguish the three types of commerce: branded content-type commerce, review content-type commerce, and home shopping content-type commerce. The purpose of this study is to identify the difference between customer engagement and reuse intention according to the three types of content characteristics. To identify the research questions, we conducted experiment and survey for three different commerce types. Randomized participants were exposed to different three web contents. Analysis of variance (ANOVA) was applied to compare three groups on average to analyze the differences between those groups. After testing the manipulation of experiment, structural equation modeling for various antecedents was performed. Interaction had a positive effect on engagement, as we prove within the paper. Content information had a positive impact on engagement, as you can see within the research. The effect of attention on engagement was confirmed as positive. Results of analysis proved our hypotheses; thus, scarcity of time had a positive effect on engagement and scarcity of quantity had a positive effect on engagement, as we prove within the paper. Ubiquity has a positive effect on engagement. System quality positively affects engagement. Ease of use has a positive effect on engagement. Consumer engagement had a positive effect on reuse intention. Finally, there are differences among the three kinds of mobile commerce as a conclusion within the findings.

Keywords: content characteristics; mobile commerce; scarcity; engagement; interactivity

1. Introduction

Users use social networking sites (SNSs) to create personal profiles, define their identities, and connect with other users and brands, as well as to view, share, upload, and comment on images, messages, videos, and other news feed content [1]. SNSs are growing more prevalent in people's daily lives worldwide. Kepios analysis shows that there are more than 4.62 billion social media users around the world as of January 2022, equating to 58.4% of the total global population. Furthermore, the Social Media Examiner's industry report reveals that over 96% of companies use SNSs for their own brands and product marketing because of the increased brand exposure, website traffic attraction, loyal fan cultivation, and market intelligence acquisition capabilities. Through these SNSs, marketers can provide additional touchpoints to consumers. The prevalence of social media, with millions of enterprises seeking brand communication, necessitates the understanding of how social media exposure influences brand-related outcomes [2].

With the global outbreak of the new coronavirus, we face huge societal transformations in labor, healthcare, education, culture, and the arts [3]. The migration to online platforms was a successful entrepreneurial strategy during the COVID-19 pandemic. As the national lockdowns and governmental restrictions changed consumer behaviors, a change in terms of entrepreneurial behavior was also required. The entrepreneurial activities that provided

health-related materials used against SARS-CoV-2, online services, e-commerce, teleworking, distance learning and education, and home delivery services were the winners [4]. Manufacturers believe that goods and services within the intact economic-based online platform will compete for competitive advantages [5]. This will have an impact on consumption, as people prefer to "shop alone" without feeling burdened, and therefore choose to do so [6].

Within the existing open market and mobile shopping centered on online shopping companies, such as group buying, the mobile commerce market with multi-channel shopping strategies, such as department stores, hypermarkets, TV shopping, and mobile shopping, is highly competitive [7]. Mobile shopping has grown in popularity as the number of smartphone users has increased and has become a significant distribution channel for businesses [8].

M-commerce has become a growing business model that has attracted the attention of both businesses and researchers [9]. While some studies have defined m-commerce as an extension of e-commerce [10], others have argued that m-commerce is more than an extension of e-commerce due to its differences in interaction styles, usage, and value [11]. m-commerce is a new and a much more powerful way to communicate with customers. Prior studies on m-commerce characteristics have proposed generic characteristics, such as instantaneity, ubiquity, localization, personalization, and identification [12]. For example, some studies explore the influence of the attributes of mobile devices on their ease of use [13], perceived usefulness [14], social influence, trust [15], perceived behavioral control, and subject norms [16]. Other studies explore the intention to adopt, from the viewpoint of flow and impulse buying, perceived value [17], motivations, and the unified theory of acceptance and use of technology [18]. Portability allows consumers to shop "anywhere, anytime" and enables consumers to get quick responses to their needs, while visual appeal enables consumers to read the mobile commerce content easily. In most studies of mobile commerce contexts, these characteristics are the main research factors.

With the development of techniques and mounting engagement in m-commerce among consumers, business innovations in the m-commerce market are continuously emerging. Product presentation on m-commerce platforms has shifted from simple textual and graphical descriptions to formats with more vivid consumption content [19]. For example, m-commerce livestreaming vividly demonstrates intricate products to attract and retain the viewer's attention. m-commerce videos have become popular among users across the globe due to the high quality of the internet [20]. Especially, product videos created by consumers have become increasingly important to the buying decision of the user [21]. Seeing the success of video content, all merchants are investing heavily in video marketing [22]. Many companies insist on displaying video ads on various m-commerce platforms as well [23]. However, it is not yet clear how effective these video contents are in predicting customer behavior outcomes [24]. Through addressing the limitation in the literature, we classify content-based m-commerce into three types: brand content-type commerce, review content-type commerce, and home shopping content-type commerce.

The purpose of this study is to identify the difference between customer engagement and reuse intention according to the three types of content characteristics. Through the preliminary research, this study selected the main variables used in m-commerce. The content characteristics were classified as interactivity, content information, and attention. Scarcity was classified as time limit and quantity limit. Mobile characteristics were classified as ubiquity, system quality, and ease of use. An empirical study of consumer engagement and reuse intention was conducted. Finally, we investigated whether there are differences in consumer engagement and reuse intentions across the three different content types of mobile commerce. The research questions of this study are as follows. First, what characteristics will impact on consumer engagement in m-commerce? Second, how does consumer engagement impact on consumer reuse intention in m-commerce? Finally, are there differences in consumer engagement and reuse intention between the three types of m-commerce?

This study focuses on classified m-commerce into three types, as well as other factors: brand content-type commerce, review content-type commerce, and home shopping content-type commerce; the factors concerning content characteristics, scarcity, mobile characteristics, and engagement in m-commerce were discussed; and the relationship between engagement and reuse intention was demonstrated. The contributions of this paper are manifold. First, we verified the relationship between content characteristics, scarcity, and mobile characteristics with engagement through empirical analysis. Second, we verified the differences of the three content types of commerce.

This paper is organized as follows. Section 2 provides a review of existing studies about m-commerce. Section 3 details the research hypotheses and model. Section 4 details the research methodology that experimental design and stimuli and data collection, and the Section 5 is the results. Finally, Section 6 is the discussion that details the conclusion and implication.

2. Theoretical Background

2.1. Mobile Commerce

Mobile commerce refers to e-commerce in a mobile environment [25]. Mobile commerce, unlike commerce on a personal computer (PC), provides strong convenience characteristics as it does not require the process of starting or launching to run applications, and therefore has few spatial constraints and is highly real time [26].

Researchers have provided various attributes of m-commerce. To distinguish the features of mobile commerce from those of online commerce, convenience, personalization, flexibility, and transferability have been proposed [27]. Another study identified seven mobile commerce attributes: ubiquity, convenience, accessibility, security, location, instant access, and personalization [28]. When comparing online and mobile shopping, four distinct attributes of mobile shopping have been presented: convenience, accessibility, location-based attributes, and personalization [29]. Instant connectivity, content information, accessibility, playfulness, usefulness, and evaluation are the six factors [30].

2.2. Content Types and Characteristics of Mobile Commerce

Video content has always attracted consumer attention. The portable and mobile nature has demonstrated distinct characteristics from TV shopping in terms of information and interest over a short period of time. With the development of multichannel networks, it is difficult to ascertain whether the goal is to shop or watch videos. The goal of mobile commerce is to enhance sales through shopping by replaying various video contents, but with the element of entertainment, interesting content is expanding to multiple channels indefinitely [31].

Depending on the type of content in mobile commerce, the attributes and multiple elements of the content can be used to categorize it. Content of fun-based products and brand descriptions or storylines are categorized into three types: brand content-type commerce, review content-type commerce, and home shopping content-type commerce.

Branded content-type commerce promotes products for sale by creating a brand in a story through video exposure. If a story is added to the video, it is more unique and freer than a general advertisement, and it will be shared quickly across numerous SNSs [32]. As the service or product require advertisement, the story is edited into a video according to the content.

Review content-type commerce is a method of advertising the sale of services or products directly or indirectly through interesting stories on various social media platforms, aimed at ordinary people or celebrities who have popularity or influence [33]. They are mainly used to convey their experiences to consumers before and after scenes of product use, such as product usage method application functions.

Home shopping content-type commerce is a live-streaming method of selling the appearance, function, and use of products to shopping sites [34]. TV shopping differs from home shopping content-type commerce in that consumers actively participate in watching

videos, and if promotions such as products or discount events are difficult to differentiate, the time spent watching varies depending on the response of the program host.

3. Research Model

This study was designed as an experiment with different types of content to determine content characteristics, scarcity, and mobile characteristics, which affect engagement and reuse intentions. According to content type, branded content-type commerce, review content-type commerce, and home shopping content-type commerce were created, and responses to those types of commerce were analyzed. To test the hypotheses of this study, a structural equation analysis was conducted by PLS. Analysis of variance (ANOVA) was conducted to identify manipulation of three experimental groups. The research model is as follows in Figure 1.
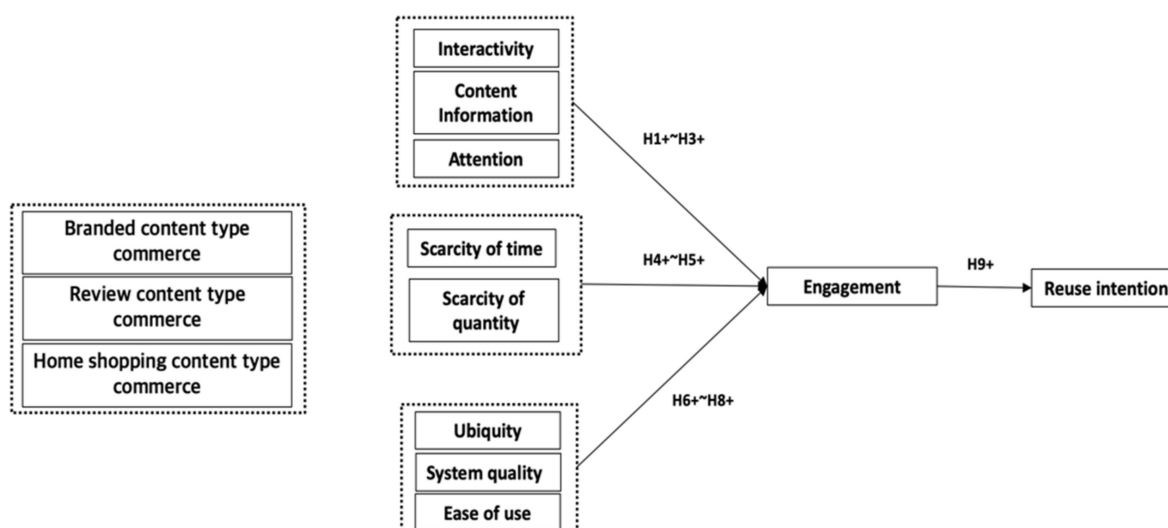

Figure 1. Research Model.

3.1. Relationship between Content Characteristics and Consumer Engagement

Interactivity is defined as a two-way exchange of meanings between consumers and sellers, or the degree to which consumers and sellers can communicate and exchange meanings during the meaning exchange process [35]. Consumer interaction with messaging refers to the ability of consumers to produce and modify messages, and interactive media such as mobile machines and the Internet are more interactive than traditional media [36].

The majority of existing studies on the impact of interactivity focus on the effect of the online environment on information retrieval, and studies can be distinguished by factors such as the applicant's attitude toward advertising effectiveness, the effect of the mobile environment on the consumer's intention to accept and purchase goods, or the effect on perceived interactivity [37]. The importance of content-based consumer-perceived interactivity in mobile commerce is highlighted in this study. Therefore, we propose the following hypothesis.

Hypothesis 1 (H1). *Interactivity has a positive (+) impact on consumer engagement.*

Content information is obtained through observation or measurement, and information quality is the evaluation of the quality of the outcome when information or content is delivered to a person [38]. Content information was defined as accurate and mutually relevant in a study on the impact of O2O services on consumers' perceived value utilizing location-based information provided by smartphones [39]. In a study regarding consumer responses to distribution companies' provision of location-based mobile shopping services,

it was asserted that this information is vital [40]. Therefore, the following hypothesis is proposed.

Hypothesis 2 (H2). *Content information has a positive (+) effect on consumer engagement.*

The term "attentionless" refers to how powerful the ability is to attract people's attention [41]. Ways to elicit attention include item color, Jun-jae form, deformation, humor, change, and contrast [42]. Consumers recognize morphology based on their mindset, attention, interest, and attention level. Therefore, deformation of the form that is inversely proportional to the peripheral size or unexpected can be used to draw new attention and interest to consumers in the design of products or services. Consumers can find a variety of content as they browse social media. Therefore, establishing content attention is more crucial than guiding consumer attitudes or behaviors [43]. Companies will develop unique designs that immediately catch the eye to capture customer preferences, and customers will be drawn to these designs to choose their products or services [44]. We thus propose the following hypothesis.

Hypothesis 3 (H3). *Attention has a positive (+) effect on consumer engagement.*

3.2. Relationship between Scarcity and Consumer Engagement

Scarcity emphasizes that consumers' ability to use and purchase a service or product is limited, as is the quantity of the service or product or the time available. Therefore, the psychological oppression of consumers who are not easily available can be used to influence their intention to use and purchase [45]. Time limitation refers to the extent to which goods are available for purchase for a limited period or sale. Quantity restriction refers to the extent to which the number of items available for purchase or sales is restricted [46]. Therefore, the following hypotheses are proposed.

Hypothesis 4 (H4). *Scarcity of time has a positive (+) effect on consumer engagement.*

Hypothesis 5 (H5). *Scarcity of quantity has a positive (+) effect on consumer engagement.*

3.3. Relationship between Mobile Characteristics and Consumer Engagement

Convenience refers to the ability to access important information and content regardless of time and location via a smart device that you carry [47]. Mobile application characteristics (paranoia) are employed as influential variables in research on the impact of the intention to use m-commerce [48]. For consumers who use mobile and online services as an important factor of differentiation, convenience can increase their usefulness and satisfaction with a service, impacting their acceptance of new technologies or purchase intention at shopping centers [49]. Therefore, we propose the following hypothesis:

Hypothesis 6 (H6). *Ubiquity has a positive (+) impact on consumer engagement.*

System quality is the extent to which users consider a system to be used effectively [50]. It is easy to use, enabling the user to achieve a certain goal; it has adaptive reliability in terms of whether it works effectively at the right moment, flexibility to alter content to the consumer's needs, and response time [8]. The system quality of smartphones had a substantial impact on users in research on smartphone acceptance intentions [51]. Since the learning environment is a virtual space based on an online network, system quality can have a significant impact on how well learners learn [52]. In e-commerce empirical studies, several researchers have confirmed that information quality, system quality, and service quality have a direct and significant effect on intention to use [53]. It can be observed that the system quality of online shopping positively influences intention to use, and the relationship between quality factors and intention to use is stronger than

the relationship between quality factors and user satisfaction. Therefore, we propose the following hypothesis:

Hypothesis 7 (H7). *System quality has a positive (+) effect on consumer engagement.*

Ease of use is the degree to which individuals believe a system is easy to use [54]. If ease of use is defined as the concept of effort, then an evaluation of the process of user's system can be expected; thus, ease of use is defined as process expectation [55]. The utility of mobile app services has a substantial impact on customer satisfaction, and ease of use is considered an important determinant of system use and affects attitudes toward that factor system [56] Therefore, the following hypothesis is proposed.

Hypothesis 8 (H8). *Ease of use has a positive (+) effect on consumer engagement.*

3.4. Relationship between Consumer Engagement and Reuse Intentions

Immersion refers to the emotional state experienced when a person is completely immersed in an object or activity. The effects on consumers' behavioral intentions were analyzed, and the findings revealed that immersion affects consumers' purchase intentions [57].

Reuse intention implies the extent to which consumers want to use and buy the good or service again, and the likelihood of continuing to use the service in the future [58]. The data reveal that customer satisfaction has a considerable impact on reuse intention for mobile commerce. Therefore, we propose the following hypothesis.

Hypothesis 9 (H9). *Consumer engagement has a positive (+) effect on reuse intention.*

4. Research Methodology

4.1. Experimental Design and Stimuli

The six most appropriate products (Table 1) were selected to conduct this investigation. To evaluate the hypotheses of this study, an experimental questionnaire was given to consumers who used mobile commerce as the study population. The experiments were allocated by random sampling online or through each mobile chat tool, and they were configured to six by three dimensions, as presented in Table 1. Six stimuli in three dimensions were presented to 20 university students independently to determine the feasibility of each experiment, and each dimension was identified for differentiation before the content was modified.

The stimuli listed in Table 1 were employed for this study. The first is for two types of branded content-type commerce stimuli: utility goods and pleasure goods. The utility item is a video advertising grandmother's shampoo, and the pleasure item is a video advertising a toy bicycle. The second is a practical and pleasure product for review-based commerce. The practical product is a video selling a hammer drill, and the pleasure product is a video selling toy crystal clay. The third is a useful and a pleasure product for home-shopping content-type commerce. The practical goods are videos selling electric screwdrivers, while the pleasure goods are videos selling Skittles toys.

Table 1. Experimental Stimuli.

Type of Content	Utilitarian (U)	Hedonic (H)
Branded content type (BC)		
Review content type (RC)		
Home shopping content type (HSC)		

Six Experimental Groups: Contents with Product types.			
Product Types	Content Types	Product	Characteristics
Utilitarian (U)	BC	Shampoo	-The grandmother returned home from her farm work. She washed her hair because it was hot. Show the characteristics of shampoo by washing hair.
	RC	Motor Drill	-Through actual comparison and use, introduce to consumers how to use the motor drill, its efficiency in various situations, and the performance of the motor drill itself, etc.
	HSC	Electric Screwdrivers	-Sales of electric screwdrivers on the online platform through home shopping modeThe two hosts introduced the performance and price of the electric screwdrivers and told the audience about their feelings during the sales process.
Hedonic (H)	BC	Toy Sports Bikes	-Vlad and Nikita ride sports bikes with the kids and pretend to play with toys. The children's magic transformation bike.
	RC	Toy Slime	-The video introduces his childhood toy, introducing the play and price of this toy, as well as his own feelings about this toy.
	HSC	Toy Sewing Machines	-The video is about selling toy sewing machines on an online platform through home shopping mode. In this video sales process, the host shows the audience how to make clothes and bags with toys.

4.2. Data Collection

According to the study of Kerlinger and Lee (2000), the principle of a minimum of 20 samples per group was met at the time of the comparative study of each group [59]. This study was based on six stimuli, and each group was expected to collect 60 samples. This study employed an online questionnaire for data collection. We used purposive sampling. Our participants were people who have experience in adopting mobile shopping in South Korea. Thus, participants were recruited from user online community of Naver Live Shopping at (https://shoppinglive.naver.com/home (accessed on 23 October 2021)). When participants entered the survey page through a suggested web link, they were automatically assigned to one of the six types of content-specific experimental pages. Respondents were asked to answer whether they had any experience with m-commerce. Those participants with the experience continued the survey and those without the experience were automatically redirected to the end of the survey. Our data collection time was two weeks, and each

group met our expectation of more than 60 samples. After closing experimental pages, we excluded several outliers that took less than a few minutes to complete (our questionnaire takes at least 20 min to complete), as well as those that were incomplete. A total of 384 (81.2%) responses were used for this research. The total number of responses for each group was 63 for UBC, 66 for HBC, 64 for URC, 65 for HRC, 62 for USHC, and 64 for HSHC.

The demographic characteristics of the respondents were the same as those in Table 2. Of the 384 collected respondents, 163 (42.4%) were male and 221 (57.6%) were female. In terms of age group, 19 (4.9%) were in their late teens, 209 (54.4%) in their 20s, 112 (29.2%) in their 30s, 36 (9.4%) in their 40s, and 8 (2.1%) in their 50s. In terms of the average number of respondents who used cell phones for business each week, 23 (6.0%) used it for less than 1 h, 47 (12.2%) for 1–5 h, 79 (20.6%) for more than 5–10 h, 131 (34.1%) for more than 10–15 h, 83 (21.6%) for more than 15–20 h, and 21 people (5.5%) for more than 20 h.

Table 2. Demographic Characteristics.

Demographics		N	%
	Male	163	42.4
Gender	Female	221	57.6
	Total	384	100
	10s	19	4.9
	20s	209	54.4
	30s	112	29.2
Age	40s	36	9.4
	50s	8	2.1
	60s	19	4.9
	Total	384	100
	Less than 1 h	23	6.0
	1–5 h	47	12.2
	5–10 h	79	20.6
Average time spent in mobile commerce per week	10–15 h	131	34.1
	15–20 h	83	21.6
	More than 20 h	21	5.5
	Total	384	100

4.3. Convergent and Discriminant Validity

In this empirical study, hypothesis testing is based on 384 empirical data points. Exploratory factor analysis was conducted to measure the feasibility of all variables in the research model. Factor analysis was performed by removing questions from the questionnaire that were mismeasured with 20 professionals for content validity, and the results confirmed that all factors had a factor loading of 0.7 or above. The results of the plausibility measures for all variables were the same as those in Table 3. All variables had Cronbach's alpha values greater than 0.7, indicating that they were statistically reliable.

To determine the convergence feasibility of all variables in this study, the mean variable expansion (AVE) greater than 0.5 was calculated, resulting in a conceptual confidence level greater than 0.7. The square root of AVE was greater than the carrying capacity of each lower variable, confirming the discriminative feasibility of the model. In this study, the model's AVE values ranged from 0.720 to 0.957, all of which were proven to be greater than 0.5. The conceptual confidence values ranged from 0.882 to 0.993, all of which were confirmed to be higher than 0.7, indicating the feasibility of the study's conceptual convergence. As depicted in Table 4, the discriminative feasibility of this model is confirmed.

Table 3. Convergence Feasibility Analysis and Normality.

Variables		Factor Loading	Reliability	AVE	Construct Reliability	Skewness	Kurtosis
Interactivity (IN)	IN1	0.803	0.971	0.848	0.882	−0.827	−0.065
Interactivity (IN)	IN2	0.809	0.971	0.848	0.882	−1.181	−0.061
Interactivity (IN)	IN3	0.810	0.971	0.848	0.882	−0.452	−0.167
Interactivity (IN)	IN4	0.816	0.971	0.848	0.882	−0.650	−0.914
Content Information (CI)	CI1	0.830	0.824	0.815	0.890	−0.956	−0.548
Content Information (CI)	CI2	0.818	0.824	0.815	0.890	−0.793	−0.980
Content Information (CI)	CI3	0.839	0.824	0.815	0.890	−1.146	−0.066
Content Information (CI)	CI4	0.743	0.824	0.815	0.890	−1.036	−0.447
Attention (AT)	INT1	0.834	0.848	0.837	0.899	−0.884	−0.270
Attention (AT)	INT2	0.889	0.848	0.837	0.899	−0.393	−0.198
Attention (AT)	INT3	0.823	0.848	0.837	0.899	−0.613	−0.814
Scarcity of Time (SCT)	SCT1	0.925	0.722	0.922	0.972	0.066	−0.757
Scarcity of Time (SCT)	SCT2	0.891	0.722	0.922	0.972	−0.442	−0.745
Scarcity of Time (SCT)	SCT3	0.797	0.722	0.922	0.972	0.014	−1.032
Scarcity of Quantity (SCQ)	SCQ1	0.865	0.857	0.957	0.985	−0.279	−0.913
Scarcity of Quantity (SCQ)	SCQ2	0.877	0.857	0.957	0.985	−0.392	−0.642
Scarcity of Quantity (SCQ)	SCQ3	0.923	0.857	0.957	0.985	−0.600	−0.652
Ubiquity (UB)	UB1	0.861	0.720	0.720	0.911	−0.519	2.483
Ubiquity (UB)	UB2	0.899	0.720	0.720	0.911	−0.863	0.206
Ubiquity (UB)	UB3	0.912	0.720	0.720	0.911	−1.281	0.310
Ubiquity (UB)	UB4	0.917	0.720	0.720	0.911	−0.429	0.002
System Quality (SQ)	SQ1	0.958	0.874	0.974	0.993	−0.645	−0.782
System Quality (SQ)	SQ2	0.971	0.874	0.974	0.993	−1.063	−0.201
System Quality (SQ)	SQ3	0.981	0.874	0.974	0.993	−0.891	−0.753
System Quality (SQ)	SQ4	0.981	0.874	0.974	0.993	−1.178	0.046

Table 3. *Cont.*

Variables		Factor Loading	Reliability	AVE	Construct Reliability	Skewness	Kurtosis
Ease of Use (EU)	EU1	0.738	0.906	0.895	0.943	−1.130	−0.268
Ease of Use (EU)	EU2	0.812	0.906	0.895	0.943	−1.040	−0.143
Ease of Use (EU)	EU3	0.823	0.906	0.895	0.943	−0.459	0.044
Ease of Use (EU)	EU4	0.831	0.906	0.895	0.943	−0.564	−0.753
Engagement (EN)	EN1	0.813	0.890	0.904	0.909	−0.146	−1.031
Engagement (EN)	EN2	0.807	0.890	0.904	0.909	0.449	−0.632
Engagement (EN)	EN3	0.819	0.890	0.904	0.909	−0.285	−1.029
Engagement (EN)	EN4	0.815	0.890	0.904	0.909	−0.475	−1.046
Reuse Intention (RI)	RI1	0.765	0.905	0.796	0.896	−1.073	−0.164
Reuse Intention (RI)	RI2	0.786	0.905	0.796	0.896	0.045	−0.973
Reuse Intention (RI)	RI3	0.783	0.905	0.796	0.896	−0.108	−1.185

Table 4. Convergence and Discriminant Validity.

	AT	EU	CI	EN	IN	RI	SCQ	SQ	SCT	UB
AT	0.915									
EU	0.749	0.946								
CI	0.735	0.788	0.910							
EN	0.021	0.033	0.020	0.951						
IN	0.027	0.023	0.024	0.803	0.921					
RI	0.022	0.025	0.025	0.847	0.836	0.892				
SCQ	0.065	0.131	0.151	0.022	0.020	0.010	0.978			
SQ	0.056	0.031	0.037	0.272	0.290	0.279	0.008	0.987		
SCT	0.006	0.126	0.146	0.017	0.001	0.001	0.703	0.021	0.961	
UB	0.198	0.225	0.228	0.107	0.081	0.104	0.027	0.064	0.030	0.849

Leading diagonal shows the squared root of AVE of each construct.

In this study, we conducted partial least squares structural equation modeling (PLS-SEM) to examine the validity and reliability and the hypothesizes through structural equation modeling. As structural equation modeling (SEM) requires that the condition of normality for each variable is fulfilled, and data do not violate the assumption of normal distribution [60]. Thus, we tested skewness and kurtosis. As shown in Table 3, the results showed that the value of skewness ranged from −1.281 to 0.449, and the kurtosis value ranged from −1.032 to 2.483. These results met the acceptable criteria of normality of univariate distribution [61]. Therefore, the model's feasibility and reliability were confirmed in this study, and the hypotheses were tested.

5. Results and Discussions

Video content is an aid in attracting consumer attention [62]. Mobile commerce content can be classified depending on various factors, including the content's attributes and the distribution channel [63]. This study classifies brand content-type commerce, review content-type commerce, and home shopping content-type commerce, according to content

type. Therefore, the content type of mobile e-commerce determines the differences between the three types of e-commerce.

The average difference between the three groups of brand content-type commerce, review content-type commerce, and home shopping content-type commerce was tested in this study to confirm whether there are differences in consumer input and reuse intention based on three types of content-based commerce, and the comparison results in Table 5 were obtained. Unlike the other factors, the mobile characteristics had no statistically significant values, while the consumer input and reuse intention variables did. Therefore, a manipulation test of the experimental groups was used to confirm the results.

Table 5. ANOVA Analysis.

	Group	N	mean	F	Sig.
Interactivity (IN)	RC	129	5.3217	500.618	0.000
	BC	129	1.9147		
	HSC	126	6.1687		
Content Information (CI)	RC	129	4.9554	610.596	0.000
	BC	129	1.9186		
	HSC	126	4.8313		
Attention (AT)	RC	129	1.7416	605.964	0.000
	BC	129	6.6796		
	HSC	126	1.7440		
Scarcity of Time (SCT)	RC	129	4.3416	70.596	0.000
	BC	129	1.6899		
	HSC	126	4.7772		
Scarcity of Quantity (SCQ)	RC	129	1.6061	91.301	0.000
	BC	129	1.5969		
	HSC	126	4.6227		
Ubiquity (UB)	RC	129	4.6919	0.408	0.665
	BC	129	4.8605		
	HSC	126	4.7500		
System Quality (SQ)	RC	129	6.1919	0.050	0.951
	BC	129	6.0997		
	HSC	126	6.2098		
Ease of Use (EU)	RC	129	4.8295	0.051	0.950
	BC	129	4.8120		
	HSC	126	4.8758		
Engagement (EN)	RC	129	1.9748	589.899	0.000
	BC	129	5.8837		
	HSC	126	1.4603		
Reuse Intention (RI)	RC	129	1.9793	856.338	0.000
	BC	129	6.0000		
	HSC	126	1.3413		

RC: review content type; BC: branded content type; HSC: home shopping content type.

ANOVA post hoc tests were conducted to determine the differences between the groups, and the results were the same as those in Table 6. The results were as follows: (1) In terms of consumer input, there were variances in the means of all three groups. Review content-type commerce outperformed home shopping content-type commerce, while brand content-type commerce outperformed both. (2) Validation of the repurposing intentions resulted in dividing the groups into three. Review content-type commerce outperformed home shopping content-type commerce, while brand content-type commerce outperformed both.

Table 6. Ad hoc Test for Group Comparison.

(1) Engagement				
Groups by Content Type	N	1	2	3
HSC	126	1.4603		
RC	129		1.9748	
BC	129			5.8837

(2) Reuse Intention				
	N	1	2	3
HSC	126	1.3413		
RC	129		1.9793	
BC	129			6.0000

RC: review content type; BC: branded content type; HSC: home shopping content type.

A PLS-SEM was used for this study since the parametric approach (CB-SEM) requires the condition of univariate normality of data distribution. Partial least square structural equation modeling (PLS-SEM) has been used as a well-established algorithm increasingly compared to its advantages over covariance-based SEM (CB-SEM) [64,65]. PLS-SEM can estimate causal relationship models. According to the previous study, PLS-SEM allows for formative measures, which are largely different from reflective measures to be used in PLS-SEM-based analytical tools. [66].

First, we determined the Q^2 of predictive suitability evaluation result of hypothetical model as shown in Table 7. The coefficient for engagement is 0.409 and for reuse intention is 0.396. Next, we determined the coefficient of determination R^2 of the explanatory power of the study model. The coefficient for engagement is 0.437 and for reuse intention it is 0.424. Therefore, the explanatory power of the model in this study is greater than 0.1 in the social sciences, which has a slightly higher explanatory power and yields no problems with hypothesis testing. Among the variables explaining engagement, we found the effect size of interactivity ($f^2 = 0.041$, $p < 0.001$), content information ($f^2 = 0.272$, $p < 0.001$), attention ($f^2 = 0.241$, $p < 0.01$), scarcity of time ($f^2 = 0.383$, $p < 0.001$), scarcity of quantity ($f^2 = 0.336$, $p < 0.001$), ubiquity ($f^2 = 0.041$, $p < 0.001$), system quality ($f^2 = 0.217$, $p < 0.01$), ease of use ($f^2 = 0.262$, $p < 0.001$), and the variables explaining reuse intention and the effect size of engagement ($f^2 = 0.459$, $p < 0.001$).

Table 7. Predictive Relevance Analysis.

Path			f^2 (p)	Acceptable Status	R^2	Q^2
IN	⟶	En	0.041 (<0.001)	Accepted		
CI	⟶	En	0.272 (<0.001)	Accepted		
AT	⟶	En	0.241 (<0.01)	Accepted		
SCT	⟶	En	0.383 (<0.001)	Accepted	0.437	0.409
SCQ	⟶	En	0.366 (<0.001)	Accepted		
UB	⟶	En	0.041 (<0.001)	Accepted		
SQ	⟶	En	0.217 (<0.01)	Accepted		
EU	⟶	En	0.262 (<0.001)	Accepted		
EN	⟶	RI	0.495 (<0.001)	Accepted	0.424	0.396

The relationship between content characteristics and engagement had a path coefficient of 0.199 for interactivity ($p < 0.001$) from the path of this study to the model. Therefore, H1 is supported. The path coefficient of content information was 0.340 ($p < 0.001$). Consequently, H2 is supported. The path coefficient for the attention was 0.266 ($p < 0.01$). Therefore, H3 is supported. Our research hypotheses were confirmed, showing that the content characteristics, i.e., interactivity, content information, and interaction, have a positive impact on consumer engagement.

The relationship between scarcity and consumer engagement was also explored. The path coefficient of the relationship between scarcity of time and consumer engagement was 0.411 ($p < 0.001$). Therefore, H4 is supported. The path coefficient of the relationship between scarcity of quantity and engagement was 0.401 ($p < 0.001$). Therefore, H5 is supported. Our research hypotheses were confirmed, showing that the scarcity of time and the scarcity of quantity have a positive impact on consumer engagement.

The relationship between mobile characteristics and engagement showed a path coefficient of 0.199 ($p < 0.001$) for ubiquity. Therefore, H6 is supported. The path coefficient indicating the system quality was 0.228 ($p < 0.01$). Therefore, H7 is supported in this study. The path coefficient for ease of use was 0.319 ($p < 0.01$). Therefore, H8 is supported. Our research hypotheses were confirmed, showing that the mobile characteristics, i.e., ubiquity, system quality, and ease of use, have a positive impact on consumer engagement.

The path coefficient of consumer engagement and reuse intention was 0.847 ($p < 0.001$). Therefore, H9 is supported. Consumer engagement has a positive effect on reuse intention.

The results show that all of the proposed hypotheses in this study were accepted in Figure 2
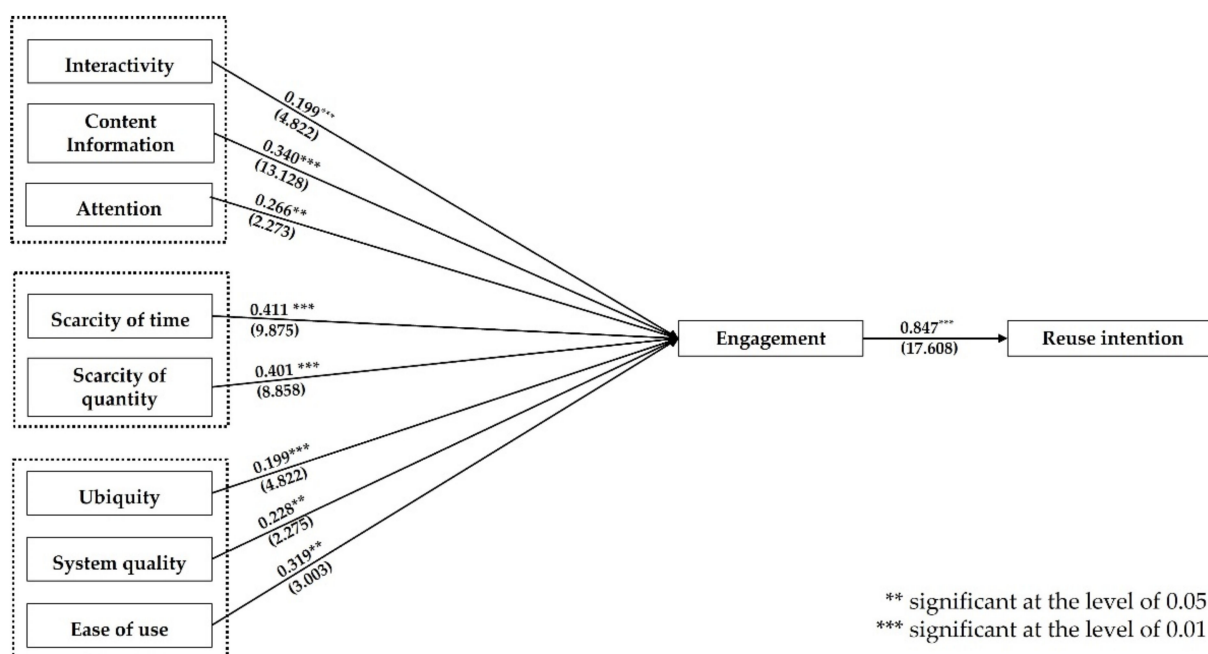

Figure 2. Path Analysis.

In the experimental design in this study, the difference in the three content types is well classified. Among them, in the case of interactivity or attention related to mobile information, the experiment could not be conducted in the same form as the real mobile shopping site. To materialize these antecedents, it is necessary to develop an additional experimental environment, and the results may also cause some changes.

Our findings investigated what content-based antecedents exist for consumer participation. The findings also show how the derived antecedents affect the customer's engagement behavior. From the research results, it can be seen that interactivity, content, and attention are content characteristics for customer engagement. Interaction and attention can be seen as a major measure for consumer socialization in mobile commerce. Unlike traditional e-commerce, users in mobile commerce share their experience of using mobile commerce through interaction anytime, anywhere. In other words, mobile commerce may increase accessibility through bidirectional information processing rather than unidirectional information processing. Nevertheless, in the experimental design of this study, the experiment was conducted through a similar platform without using an actual

mobile shopping platform. Therefore, there is a possibility that the user's response to interactivity in this study is slightly different from the situation using the actual mobile commerce platform.

In addition, in the case of scarcity in this study, the participants responded to it as a perceived concept. Therefore, providing specific examples about scarcity also needs to be added in extra experimental designs. Although this was not the scope of this study, a real form of scarcity on mobile shopping pages is necessary to improve the complete experimental design.

The ease of use felt by consumers related to mobile commerce may vary from person to person. For example, it is possible that ease of use of electronic products is not important for people with high utilization capabilities. In other words, each person will have a different level of ease of use depending on their usage habits. In the case of mobile e-commerce, ease of use becomes important when it is difficult for customers to use the mobile commerce platform, such as the page layout and menu design, rational information retrieval, and the sensitivity and accuracy of functions. The similar experimental environment set by this study could not proceed in the same form as the actual mobile shopping site. Another reason is that each mobile shopping site has a different type of platform. Therefore, this study implemented a mobile commerce shopping page as a similar experiment, which may cause differences in the results of our study from the actual shopping environment. However, the mobile commerce environment proposed in the experiment is judged to be sufficient to demonstrate the important role of the ease of use for mobile commerce as the purpose of this study.

In the experimental design of this study, the manipulation between the three content types was well classified. As shown in Table 6, the customer's engagement and reuse intent for BC, RC, and HSC appear to be different. Among them, BC shows a very large difference. This seems to be because BC content constitutes the content through a humor appeal, so the familiarity and concentration of the content users are much higher. On the other hand, HSC and RC show relatively very low levels of customer engagement and reuse intension. This is because HSC and RC simply explain the function or use of the product. Therefore, it can be confirmed that drama-type BC content can be used as very useful content in mobile shopping commerce rather than simple learning content like HSC and RC. Nevertheless, a limited number of content types were used for the contents evaluated in this study. A large number of content types may result in more accurate results. The use of limited content types may have some limitations in generalizing the results of this study.

6. Conclusions

6.1. Concluding Remark

The mobile commerce industry has seen numerous changes as a result of the continuous integration and growth of related fields and related platforms, among other things. In contrast to the solely commercial transactions formerly available on the Internet, whenever a mobile and media platform is launched, the first service mentioned is mobile commerce, and social media and smart media are no exception. The researchers in this study found that this expansion of mobile commerce with various listing backgrounds eventually led to the phenomenon of smart media convergence to the apex, and they evaluated it using several criteria to distinguish between several types of smart media and summarize their marketing cases in the field.

Based on content type, this study classified mobile commerce into three types: brand content-type commerce, review content-type commerce, and home shopping content-type commerce. The factors concerning content characteristics, scarcity, mobile characteristics, and engagement in m-commerce were discussed, and the relationship between immersion and reuse intention was demonstrated. The criteria were derived from a prior study, and their respective correlations to engagement were empirically analyzed and validated; alternatively, the distinctions between the three types of commerce were examined according to content type. The results of the study's analysis are as follows: First, content

characteristics influence consumer engagement positively, and interaction has a positive impact on engagement as well. The digital native generation naturally embraces the online environment, builds social relationships, and interacts through a variety of services based on mobile networks and SNSs, and lives a life of self-ordering the content and services they wish to consume. Second, scarcity affects consumer engagement. The time constraint has a positive impact on engagement. Quantity restrictions have a positive impact on engagement. Third, mobile device characteristics affect engagement. Preferred presence, system quality, and ease of use have a positive impact on engagement. Finally, in terms of consumer engagement and reuse intention, mobile commerce and review content-type commerce outperform TV shopping content-type commerce, while brand content-type commerce is the most effective. At this level, the short-term effects of branded content are limited. However, for consumers' perceptual and underlying attitudes and behaviors, the effects of brand content can readily continue without changing attitudes if sustained efforts are made from a long-term perspective. Therefore, although review content is effective in eliciting short-term, immediate action, brand content is more effective at sustaining long-term impacts through a long-term brand–consumer relationship.

6.2. Implications

The following are the study's academic insights. First, the impact of content characteristics variables (such as interactivity, content information, and attention) on consumer engagement in mobile commerce can be confirmed. Second, it is academically valuable that scarcity in mobile commerce does not affect consumer purchase behavior, but it does influence consumer engagement. Third, determining the impact of mobile characteristics on immersion, such as bias ubiquity, system quality, and ease of use, is academically valuable. Finally, in mobile e-commerce, the differences between the three types of e-commerce may be examined based on the content type, which has a high level of academic spiciness.

In this study, each characteristic variable was found to have a positive impact on consumer engagement; therefore, according to the study's results, companies can be more effective in attracting consumers. Second, brand content-type commerce, review content-type commerce, and home shopping content-type commerce each have their own strengths, and companies can employ diverse mobile commerce to maximize profits depending on their needs. Finally, this study's practical implication includes that, in terms of consumer engagement and reuse intention, review content-type commerce is more effective than TV shopping content-type commerce in mobile commerce, while brand content-type commerce is the most effective. At this level, the short-term effects of branded content are minimal. However, if sustained efforts are made from a long-term perspective, the effects of brand content can readily continue without changing attitudes for consumers' perceptual and underlying attitudes and behaviors. Therefore, although review content is effective in eliciting short-term, immediate action, brand content is effective at sustaining long-term effects through a sustained brand–consumer relationship. Those in charge of businesses should expect better results when developing marketing strategies that take full advantage of the results identified in this study.

The limitations of this study are that it only used one platform; however, future studies could select multiple platforms to compare the differences. Second, no comparison of different types of products was made in this study, and future studies should analyze the differences between different products.

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