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Developing a Measure for Online Shopping Mall Reputation (OSMR)

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Abstract: This study was conducted with the purpose of developing and validating multidimensional reputation criteria for evaluating online shopping malls, which have been growing explosively since the start of the COVID-19 pandemic. A Delphi study was conducted with a group of 31 professionals, and the initial items for online shopping mall reputation were derived from that study. Those items were used to devise a questionnaire that was administered to 531 consumers. Exploratory and confirmatory factor analysis resulted in 17 items based on four factors: reliability, technical skills, customer service, and accessibility. Convergent and discriminant validity were verified between the factors. Finally, structural equation modeling was used to verify the nomological validity of the scale. This online shopping mall reputation scale is expected to provide a standard for companies to effectively manage the reputations of online shopping malls in the future and for consumers to choose online shopping malls they can trust.

Keywords: online shopping mall; online shopping mall reputation (OSMR), reliability; technical skills; customer service; accessibility

1. Introduction

The COVID-19 pandemic has changed the daily lives of people around the world and has radically altered broad global patterns. For instance, countries worldwide shut down multi-use facilities and closed all stores except those for groceries and medication. The pandemic completely changed consumer trends and, in turn, the entire structure of the distribution industry. Despite a 3.0% drop in global retail sales in 2020 and the global economic recession caused by the pandemic, e-commerce sales grew by 27.6% in 2020 and are estimated to total USD 4 trillion [1]. Offline commerce, however, has declined sharply, and online shopping malls and other forms of e-commerce are experiencing an unprecedented boom.

This phenomenon is expected to continue even after the pandemic conditions lift and societies resume more normal functioning. In Criteo's global research, 53% of consumers said they will continue to use at least one form of online shopping after conditions change. This seemingly permanent shift has made it critical for companies to accelerate their digital transformation efforts and establish strong online sales strategies [2]. For instance, some elder consumers are uncomfortable with online shopping, and the COVID-19 pandemic forced companies to focus on overcoming such reservations.

In fact, even before the spread of COVID-19, the spread of smart phones had triggered the proliferation of a new consumption trend called "untact". Untact refers to providing and receiving services with minimal contact overall and no face-to-face contact. Untact has emerged as a new paradigm that is spreading across entire societies, not only in retail and distribution but also in telemedicine, remote learning, and telebusiness [3], which are social consumption trends accelerated by the COVID-19 pandemic.

The accelerated spread of noncontact shopping methods has included the exponential expansion of online shopping malls. However, this rapid development has created exces-

sive competition and increasing consumer dissatisfaction in the pursuit of profits. In the United States, where 80% of internet users have made at least one purchase from an online shopping mall, 42% of shoppers say they have returned one of their online purchases over the past six months [4]. In Korea, where the Internet is the fastest in the world and the universal rate system allows users unrestricted Internet access without wi-fi and without limitations of place and time, both online shopping and consumer damage cases are increasing. According to the Korea Consumer Agency [5], a total of 69,452 applications for online-transaction-related damage relief were filed between 2016 and 2020, showing an increasing trend every year.

Compared with its market size and quantitative growth, the qualitative growth and management of e-commerce to date have been insufficient. To determine a way to create sustainable online shopping environments that consumers can trust, in this study, we applied the concept of reputation, which has been mainly discussed in offline environments, to online shopping malls.

Organizational reputation refers to an overall assessment by stakeholders over a long period of time. It refers to consistently favorable or unfavorable attitudes toward companies [6] and highlights the rational and emotional relationships between companies and their stakeholders [7]. Positive reputation management can provide a variety of benefits. Reputation is one of the most important intangible assets a company can have [8], and a number of existing studies show that building a positive reputation provides a competitive advantage [7,9,10]. Likewise, online shopping malls with positive reputations will be able to attract many customers and increase profits.

Based on existing findings, we aimed in this study to develop a scale for rating an online shopping mall's reputation to produce data that companies can use to improve the reputations of their online shopping malls. To achieve this study purpose, we collected empirical data to compile reputation measurement items through exploratory surveys and confirmed the reliability and validity of the survey factor structure.

2. Literature Review

2.1. Online Shopping Mall Reputation

2.1.1. Online Shopping & Online Shopping Mall

Online shopping describes commerce using the Internet and refers to the act of trading goods and services among economic entities such as customers, companies, and governments via the Internet. One of the most important issues in the field of e-commerce and marketing is the analysis of factors that affect consumers' online shopping behaviors [11]. The existing studies on online shopping mainly focus on the factors that affect the consumption behaviors of online shopping consumers [12–16].

Since online shopping takes place online rather than offline, we compared consumption behaviors via generation based on the point of development of internet-based and mobile platforms. In addition, studies were conducted to explore the factors influencing consumption behavior. Dang, Wang, and Vu suggested information adoption, personalized services, and perceived switching risks as the most important predictors of the young generation's intention to purchase via online shopping [17]. SivaKumar and Gunasekaran suggested consumer innovativeness, perceived benefits, perceived risks, attitude, and intention as decision factors that influence millennial consumers' online purchasing behaviors [18]. Internet access is higher for Generation Y, but the percentage of people who purchased electronic devices and furniture online was higher in Generation X [19]. Although Generation Y, which has the characteristics of hedonism and luxury, seems to be an attractive marketing target for companies, marketing efforts toward Generation X, which has greater consumption competency than Generation Y, are currently emphasized.

Lastly, in recent years, with the development of technology, explorations into changing online shopping consumer behaviors; research on using mobile applications, Internet of Things, etc.; and online shopping behavior predictions through deep learning have been actively being conducted [20–23].

With the development of technology and the consumption behaviors of online consumers being subdivided and influenced by various factors, it is time for an academic exploration of online shopping malls, a space where online consumers' consumption activities take place.

An online shopping mall can be defined as a collection of online storefronts that sell products in various areas [24]; such malls have also been referred to as electronic or virtual malls, virtual or online storefronts, Internet retail stores, cyber shopping malls, and Internet shopping malls. Irrespective of the term used, online shopping malls are characterized by the fact that their "stores" are virtual—indeed, the websites themselves are the stores [25]. In contrast with offline shopping, the entire shopping process from searching for a product through completing the purchase transaction takes place online in a virtual environment [26].

There are four types of online shopping venues [27]. The first is online marketplaces such as Amazon.com and eBay. In online marketplaces, anyone can sell or buy products, and trade is free and direct [28]. These venues have low entry barriers for sellers, and direct trade expedites the sales process. A second type of online shopping takes place through social commerce, a business model that uses one-person media systems, such as social networking services and blogs. Social commerce offers exceptional discounts for short periods that take effect when a seller's predetermined acceptable number of purchasers is satisfied. This process can also create word-of-mouth marketing effects because it provides a means for consumers to discuss products and distribute relevant information [29]. Third, offline retailers, such as department stores and large discount stores, can also operate websites; these online storefronts mainly provide high-quality brand-name products with proven quality. The last type of common online shopping venue is specialty malls. These sites specialize in selling ranges of products across specific fields and are characterized by a high level of professionalism, diversity, and price competitiveness.

Consumers find online shopping easier than traditional in-person shopping for reasons such as the ability to compare multiple products at once and the ease of accessing the desired products. In a further development, with the proliferation of smartphones and apps developed for such devices, mobile e-commerce sales are expected to account for 54% of total e-commerce sales by 2021 [30]. Mobile online shopping environments have been established to allow consumers to easily search for, order, pay for, and even arrange for delivery entirely in a virtual space.

2.1.2. Online Shopping Mall Reputation

Reputation, which includes a combination of evaluations and judgments, can be defined as people's assessments and determinations of an individual or organization [27]. This is a broad concept that has assumed various definitions in economics, sociology, and business organization theory [31,32] since the 1960s [33–39]. As a concept, reputation is objective and neutral.

Reputation is often confused with image, which is defined as the public's most recent beliefs about a particular subject [40]. However, reputation is an empirical and cumulative evaluation of a particular object formed over a long period of time and is supported by many scholars as a discriminatory concept, although the concept can also include images as an element [41]. Reputation is not simply a spontaneous, fragmentary judgment but an empirical, consistent, holistic assessment accumulated over time with the continuous awareness of relevant stakeholders [42].

In general, researchers on reputation have focused on historical aspects and information related to organizations and individuals [43] from group, organizational, and individual perspectives. Most of the extant reputation research has studied the influence of reputation on corporate performance [9,44–48]. Reputation is an intangible asset that generates market value [49,50], and consumers' assessments of companies depend on those companies' reputations [51,52].

Researchers have devised a variety of methods for measuring corporate reputation. For instance, since 1983, *Fortune* magazine has produced an annual report called the "World's Most Admired Companies" that rates reputation based on the following criteria: quality of management and leadership, quality of products and services, innovativeness, community responsibility, wise use of company assets, effectiveness in running a global business, value as a long-term investment, soundness of financial position, and ability to attract and retain talent.

Additionally, the Reputation Institute and Harris Interactive developed the reputation quotient (RQ) [53], which consists of vision and leadership, social responsibility, emotional appeal, products and services, workplace environment, and financial performance. Finally, the Reputation Institute released RepTrack in 2005, which supplemented the shortcomings of RQ. Reptrack sought to eliminate the multicollinearity of RQ and presented emotional appeal as a factor related to reputation measurements, rather than a reputation factor. Reptrack consists of seven measurement areas: performance, products and services, innovation, workplace, governance, citizenship, and leadership. Reptrack has become a standardized reputation measurement tool worldwide.

The online shopping mall reputation that we sought to address with this study can be approached from the perspective of corporate reputation in that reputation, as an intangible asset, can create market value for these malls. Specifically, we defined online shopping mall reputation as reflecting the evaluations of a range of stakeholders (buyers, sellers, platforms, companies, etc.) based on their accumulated direct and indirect experiences with these malls. Using this definition, we developed a measure for corporate reputation and online shopping mall reputation based on existing research.

2.2. Components of Online Shopping Mall Reputation

Measuring the reputations of online shopping malls requires a variety of perspectives to accommodate the rapidly changing Internet environment and consumer consumption trends. Researchers have made some efforts to evaluate these malls, and the first items we selected for measuring reputation measurement were based on these previous evaluation efforts. For instance, Rishi [54] suggested convenience, accessibility, scope, attraction, reliability, experience, and clarity as important considerations for online shopping mall consumers, and Vasic, Kilibarda, and Kaurin [55] suggested security, information availability, shipping, quality, pricing, and time as influences on customer satisfaction with online shopping.

Chun and Kim [56] classified online shopping malls as general merchandise or specialty malls and identified causal relationships between consumers' ratings based on online shopping mall evaluation criteria and shopping satisfaction, revisit frequency, and repurchase intention. The authors identified entertainment, product authentication, economical prices, and on-time delivery as being strongly related to satisfaction for general merchandise malls, while satisfaction with specialty malls was related to informativeness, economical prices, and on-time delivery.

Mahapatra and Sreekumar [57] attempted to explore the most important influences on online shopping behavior from a customer perspective using the RIDIT approach. The authors found that trust, the ability to test a product or feature before purchase, exposure, and ease of making a purchase (including assistance, product variety, immediate need gratification, ease of navigation, and overall shopping experience) were all important. In addition, Suwunniponth [58] found that quality, perceived ease of use, and perceived usefulness of websites influenced trust in online shopping and that trust influenced attitudes toward online purchasing.

Chen and Wells [59] studied consumer attitudes toward online shopping sites and identified informativeness and entertainment value as important. Informativeness refers to how useful information is provided to visitors, while entertainment relates to how much a site visitor's emotional needs and desires are met. Chen and Wells also presented an organization that measured how quickly and conveniently visitors received their products

and services. Bhattacharya and Anand [60] studied whether brand trust, social linkages, brand awareness, and online retail brand engagement influenced brand selection and purchase intention in the online purchasing environment and identified all four factors as having significant effects.

Earlier, Szymanski and Hise [61] conducted a focus group interview with online shoppers to discuss their purchasing experiences and found that online convenience, merchandising, site design, and financial security were determinants of consumers' online satisfaction. Youness and Valette [62] developed a scale to measure the online reputations of e-commerce websites from the customer's point of view, and the eight relevant factors were customer orientation, good employer, financial strength, reliable delivery, innovativeness and singularity, high standard offerings, and social and environmental responsibility.

In addition, IntelliQuest (2002), an evaluation company specializing in online shopping malls, suggested using contents, technical design, and emotional response for evaluating online shopping malls [63], and the Webby Awards (2003) used contents, structure and navigation, visual design, functionality, interactivity, and overall experience [64]. Finally, Kim and Stoel [65] presented web design, entertainment, informativeness, transaction capability, reaction time, and trust as Internet shopping mall evaluation criteria.

For this study, we aimed to better understand the individual components of overall online shopping mall reputation and identify tools for rating or measuring these components. We also sought to verify whether each component was a reasonable item for measuring online shopping mall reputation. To achieve these goals, we conducted three validity studies, including testing convergent validity to check for consistency among items that measure the same constituent concept, discriminant validity for exclusivity between items that measure disparate constituent concepts, and nominal validity to determine if a constitutional concept has a theoretical or hypothetical relationship. For the work of this study, we used the findings from extant theoretical discussions to construct an initial scale of items for measuring online shopping mall reputation based on our findings for three research questions:

Research Question 1. *What dimensions and items comprise online shopping mall reputation?*

Research Question 2. *What are the convergent and discriminant validity of the online shopping mall reputation dimensions?*

Research Question 3. *What is the nomological validity of the online shopping mall reputation dimensions?*

3. Method

As discussed above, the purpose of this study was to develop a scale for measuring an online shopping mall's reputation based on existing research findings. To achieve this goal, we first conducted a preliminary survey to extract the constituent components of online shopping mall reputation. Specifically, after we reviewed prior domestic and international studies related to online shopping mall evaluation and reputation, we derived initial reputation measurement items and prepared a preliminary list of items to administer in a Delphi survey. We compiled a group of 31 experts with experience and academic knowledge related to online shopping malls, including academics in communication and management (doctoral graduate students, professors), as well as industry representatives (online shopping malls, PR companies). The initial items were revised based on the feedback from the expert group to confirm content validity, and in our second round with the main survey, we verified the reliability of the reputation constituent factors. The design of this study is summarized in Table 1.

Table 1. Online Shopping Mall Reputation Constituent Factors and Measurement Items Process.

	Step	Process
Step 1	Literature review	Organize prior research on online shopping mall reputation and derive initial items
Step 2	Delphi study	Derive additional factors for online shopping mall reputation
Step 3 Step 4	Expert interviews	Expert group interview (n = 31) to assess the suitability of the preliminary measurement items (7-point Likert scale)
Step 5	Presurvey	Exploratory factor analysis Reliability verification Scale development
Step 6	Main survey	Confirmatory factor analysis of data Convergent validity verification Discriminant validity verification
Step 7		Nomological validity verification

3.1. Delphi Method

The Delphi method is a survey method that entails gathering the perspectives of experts or stakeholders to resolve research problems. Specifically, the process entails collecting opinions and drawing a consensus through discussion and feedback with large numbers of experts. We conducted a Delphi survey in three rounds to extract the constituent factors for measuring online shopping mall reputation. In addition to extracting relevant items based on our literature review, we asked a group of 31 experts, including managers who directly operate online shopping malls, related business workers, scholars in media communication and business administration, and online shopping mall users, to draw up initial items for measuring online shopping mall reputation. We then revised these initial items after two rounds of content validity testing for the measurement items.

3.2. Consumer Survey

We administered the presurvey and main survey online to consumers aged 20 to 59 who purchased products at online shopping malls at least three times a month, starting with the preliminary survey using items we derived from the literature review and the Delphi study. Specifically, we administered the presurvey from 16 January to 21 January 2021, and collected data from 264 people. We performed exploratory factor analysis (EFA) on the collected data and used these findings to design the final survey. We administered that main survey to 267 people from 26 January to 1 February 2021. We then performed confirmatory factor analysis (CFA) on the data we collected from the main survey.

3.3. Measure

Each item for measuring online shopping mall reputation was rated on a 7-point Likert scale (1 = strongly disagree and 7 = strongly agree), and attitude, purchase intention, and loyalty were measured using 7-point scales to assess their associations with the variables that were significantly related to the online shopping mall reputation scale. This last step was performed to obtain nomological validity.

Attitude was based on consumers' favorable or unfavorable responses to online shopping malls in general, with reference to Aaker and Keller [66]. Next, purchase intention was based on Mackenzie and Lutz [67] and considered consumers' tendency to purchase products from online shopping malls. Finally, we divided loyalty into emotional versus behavioral [68], measuring emotional loyalty based on Helm [69] and behavioral loyalty based on Raju, Srinivasan, and Lal [70].

4. Results

4.1. Deriving Initial Items through the Delphi Method

The literature review and the first-round Delphi study, with its open-ended questions, resulted in 73 initial items extracted after we eliminated items with the same or overlapping meanings. In a second-round Delphi study using the 73 initial items, each rated on a 7-point Likert scale, we were able to eliminate 26 items that did not meet the average value and content validity ratio (CVR), leaving 47 scale items; we then used Lawshe's [71] CVR and removed items that did not exceed 0.33. The CVR was calculated as follows: CVR (Ne−N/2)/(N/2), where half the total number of respondents was subtracted from the number of reasonable items (with Likert-scale ratings of 5 points or higher), and that value was divided by half the total number of respondents. After the final-round Delphi study, we used the coefficient of variation and Cronbach's Alpha along with mean and CVR to extract 35 final items for measuring online shopping mall reputation.

4.2. Exploratory Factor Analysis

To address the reliability and validity of the final 35 items, we calculated Cronbach's α and used EFA with maximum likelihood and promax rotation to select eigenvalues greater than 1. Many investigators have applied principal constituent factor analysis, but in this study, we used promax rotation, which maintains associations without assuming that there are no correlations between any factors. We identified factor loadings of 0.4 or higher as significant, and, based on those loadings, we extracted 17 items based on 4 factors: reliability, technical skills, customer service, and accessibility. EFA found the total explanatory power for all items to be 68%, and the Cronbach's α for all items was 0.933, confirming the reliability and validity of the scale. Table 2 presents the EFA findings for the individual scale items.

Table 2. EFA (exploratory factor analysis) of Online Shopping Mall Reputation Variables.

Variable	Factor			
	(1) F1	**(2) F2**	**(3) F3**	**(4) F4**
Sells high-quality products	0.940			
Sells genuine, not fake, products.	0.879			
The seller is reliable.	0.838			
Reviews and evaluations of other users are positive.	0.670			
Products can be listed by number of reviews.		0.935		
Products can be listed by sales quantity.		0.890		
Products can be listed by rating.		0.834		
The algorithm recommends products that I need.		0.590		
It is easy to contact customer service			0.904	
Exchanges are quick and the policy is clear.			0.764	
Responses are quick to customer requests and complaints.			0.743	
Customer service is kind.			0.684	
Refunds are quick and the policy is clear.			0.398	
The product search engine is highly accurate.				0.853
Product searching is convenient.				0.766
Products are arranged for good visibility.				0.615
Products are well divided by category.				0.567
Rotation Sums of Squared Loadings	6.125	4.662	6.790	6.253

Table 2. *Cont.*

Variable	Factor			
	(1) F1	**(2) F2**	**(3) F3**	**(4) F4**
Variance explained (%)	47.756	12.551	5.223	2.663
Variance cumulated (%)	47.756	60.306	65.530	68.192
Cronbach's α by factor	0.907	0.894	0.911	0.843
Total Cronbach's α	0.933			

4.3. Confirmatory Factor Analysis

We next performed CFA to verify the construct reliability (CR) and verified the construct and discriminant validity through variance extraction. CR refers to the degree of consistency, or shared variance, between the measurement variables of a constituent concept; based on the factor loading and error variance that are derived, the CR should be 0.7 or more. Construct validity is confirmed if the average variance extracted (AVE) is greater than 0.5 [72].

Furthermore, the AVE of the corresponding latent variables must be greater than the square of the correlation with all other factors, and this condition satisfy discriminant validity. The CFA result was = 270.410 (df = 113, p = 0.000). The χ^2 statistic, a goodness-of-fit measure in structural equation modeling, is sensitive to sample size. In general, if a sample is large enough (at least 200 units), $p < 0.05$ is indicated, and the null hypothesis that the model fit is adequate is rejected. However, with a large enough sample, there can be significant differences in the chi-squared even if the null hypothesis is rejected, so it is also necessary to check other goodness-of-fit criteria [41,73]. Table 3 presents our findings for the absolute (goodness-of-fit index, GFI; adjusted goodness-of-fit index, AGFI; and root mean square error of approximation, RMSEA) and incremental (Tucker–Lewis index, TLI; comparative fit index, CFI) fit indices. The table indicates that all indices met the standard values and that the overall goodness of fit was acceptable [74–76].

Table 3. Goodness-of-Fit Indices for Confirmatory Factor Analysis.

Model	χ^2/df	RMSEA	AGFI	GFI	TLI	CFI
Criterion	<3	<0.08	>0.80	>0.90	>0.90	>0.90
Structural model	2.393	0.072	0.857	0.895	0.942	0.951

Note: absolute fit indices: RMSEA, AGFI, GFI; incremental fit indices: TLI, CFI.

Next, we calculated the CR and AVE, and these findings are presented in Table 4. As shown in the table, the CRs for the reputation measurement items ranged from 0.849 to 0.923, which exceeded 0.7, and the AVEs were 0.586–0.750, which all exceeded 0.5. We confirmed that the factors that constituted an online shopping mall's reputation showed a high correlation with each other.

Next, we calculated the AVE, coefficient of correlation, and squared coefficient of correlation to verify the discriminant validity among the online shopping mall reputation factors we extracted [77]. As Table 5 indicates, the squared correlation coefficients were lower than the variance extracted, ranging from 0.139 to 0.475, which confirmed the discriminant validity of the four factors for rating an online shopping mall's reputation.

Table 4. CFA of Online Shopping Mall Reputation Variables.

Variables			Factor Loading		SE	CR	AVE	CR
			Estimate	Standardized Estimate				
Reliability	→	Q1	1.000	0.800			0.586	0.849
	→	Q2	1.219	0.883	0.114	10.699		
	→	Q3	1.347	0.873	0.113	11.972		
	→	Q4	1.108	0.640	0.099	11.140		
Technical skills	→	Q5	1.000	0.688			0.648	0.879
	→	Q6	1.020	0.738	0.063	16.115		
	→	Q7	0.972	0.853	0.061	15.935		
	→	Q8	0.697	0.774	0.064	10.834		
Customer Service	→	Q9	1.000	0.831			0.693	0.919
	→	Q10	0.930	0.842	0.056	16.648		
	→	Q11	1.127	0.886	0.063	18.013		
	→	Q12	0.975	0.826	0.060	16.169		
	→	Q13	0.953	0.774	0.065	14.693		
Accessibility	→	Q14	1.000	0.819			0.750	0.923
	→	Q15	1.009	0.888	0.057	17.688		
	→	Q16	1.005	0.883	0.060	17.532		
	→	Q17	1.004	0.873	0.058	17.250		

Note: AVE = ($\sum$Standardized Regression Weights2)/[($\sum$Standardized Regression Weights2) + ($\sum$ Measuring error)].

Table 5. Discriminant Validity Testing.

	Reliability	Technical Skills	Customer Service	Accessibility
Reliability	**0.586**	0.139	0.475	0.318
Technical skills	0.373 ** (0.081)	**0.648**	0.259	0.417
Customer Service	0.689 ** (0.073)	0.509 ** (0.113)	**0.693**	0.386
Accessibility	0.564 ** (0.073)	0.646 ** (0.112)	0.621 ** (0.102)	**0.750**

Note: ** $p < 0.01$. **bold text**: AVE; Diagonal Bottom: Coefficient of Correlation; Top of diagonal: Coefficient of Correlation Squared value; ( ): (φ(correlation coefficient) $\pm 2 \times$ standard error)).

4.4. Nomological Validity

Nomological validity means that a constructive concept is related to a theoretically or hypothetically related concept. To confirm the nomological validity of the online shopping mall reputation measurement items we extracted, we used regression analysis to calculate the influence of reputation on consumer attitudes, purchase intention, and loyalty (emotional, behavioral). Researchers have identified that reputation affects future purchase intentions and loyalty to individuals and organizations [78,79]. Table 6 presents our results.

In our calculations, the results for attitude (=523.299, df = 199, /df = 2.630, $p = 0.000$, CFI = 0.930, TLI = 0.919, RMSEA = 0.078), purchase intention (=348.379, df = 160, /df = 2.177, $p = 0.000$, CFI = 0.954, TLI = 0.945, RMSEA = 0.067), emotional loyalty (=361.997, df = 160, /df = 2.262, $p = 0.000$, CFI = 0.947, TLI = 0.937, RMSEA = 0.069), and behavioral loyalty (=302.352, df = 142, /df = 2.129, $p = 0.000$, CFI = 0.958, TLI = 0.950, RMSEA = 0.065) all confirmed the goodness of fit of the structural equation model. Moreover, as shown in

Table 6, all online shopping mall reputation factors, except for the accessibility factor on behavioral loyalty, had statistically significant effects on attitude, purchase intention, and loyalty. These findings confirmed the nomological validity of the online shopping mall reputation constituent factors that we derived for this study: An online shopping mall's positive reputation influenced the formation of positive customer attitudes, purchase intentions, and loyalty toward the malls.

Table 6. Structural Equation Analysis Findings for Nomological Validity.

Dependent Variables		Independent Variables	Estimate	S.E.	C.R.	P
Attitude	←	Reliability	0.268	0.105	3.459	0.000 ***
	←	Technical skills	0.196	0.056	2.911	0.004 **
	←	Customer Service	0.174	0.071	2.22	0.026 *
	←	Accessibility	0.271	0.069	3.536	0.000 ***
Purchase Intention	←	Reliability	0.216	0.108	2.723	0.006 **
	←	Technical skills	0.311	0.058	2.109	0.035 *
	←	Customer Service	0.202	0.074	2.483	0.013 *
	←	Accessibility	0.146	0.072	3.894	0.000 ***
Loyalty	Emotional	←	Reliability	0.176	0.133	2.149	0.032 *
		←	Technical skills	0.164	0.071	2.276	0.023 *
		←	Customer Service	0.252	0.092	2.969	0.003 **
		←	Accessibility	0.317	0.09	3.797	0.000 ***
	Behavioral	←	Reliability	0.149	0.121	1.836	0.066
		←	Technical skills	0.252	0.066	3.474	0.000 ***
		←	Customer Service	0.11	0.083	1.312	0.189
		←	Accessibility	0.302	0.081	3.668	0.000 ***

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5. Discussion

As the e-commerce market has expanded, and competition in online shopping malls continues to intensify, securing competitive advantage is of heightened importance. However, despite the value of reputation as an intangible asset that drives market value and thus competitive advantage, there has been no academic discussion of online shopping mall reputation or research on the components of online shopping mall reputation. To address this gap in the research, we conducted multiple rounds of Delphi studies and consumer surveys to derive 17 online shopping mall reputation items loaded on four extracted factors: reliability, technical skills, customer service, and accessibility.

The four items on our online shopping mall reputation evaluation scale were loaded on the following reliability factors: sells high-quality products, sells genuine (not fake) products, the seller is reliable, and reviews and evaluations of other users are positive. Online shopping venues must be sensitive to customers' reliability concerns given that consumers cannot receive products immediately after paying. Additionally, the virtual nature of the online shopping purchasing process forces customers to rely on the information provided by the shopping mall. Therefore, operators of online shopping sites must ensure the accuracy of the information they present and that they deliver on their promises to customers. Positive customer reviews based on this reliability will, in turn, attract new customers.

The second online shopping mall reputation evaluation factor we extracted was technical skills, for which we derived four items that reflected site functionality: products

can be listed by number of reviews, products can be listed by sales quantity, products can be listed by rating, and the algorithm recommends products that I need. With the expansion of the e-commerce market and related technological developments, consumer perceptions of online shopping malls are evolving, and the number of online shopping malls that provide differentiated services based on high-tech skills is increasing. For instance, the information technology used by Amazon.com, the number one online shopping mall in the United States, recommends products by combining real-time user activity data with tens of millions of data points from existing users. These algorithms quickly determine customer intentions and propose optimized recommendations. This process facilitates customer convenience and increases satisfaction, and Amazon, in turn, earns enormous profits. There is reason to suggest that online shopping malls need to begin providing new customer experiences based on advanced technologies such as artificial intelligence and augmented and virtual reality to optimize their algorithm functions.

Customer service was the third factor we extracted for rating online shopping mall reputations, and five detailed items were loaded on this factor: "It is easy to contact customer service," "Exchanges are quick and the policy is clear," "Responses are quick to customer requests and complaints," "Customer service is kind," and "Refunds are quick and the policy is clear." In the early rounds of this study, most of the responses to the open-ended requests for relevant reputation measurement items related to online shopping mall customer service. It is possible that customer service takes on heightened importance in the online shopping setting because such service cannot be done face to face.

One major customer service concern for both online shopping venues and their users is the policies and procedures related to product refunds and exchanges. Product returns incur processing costs, and returned products are also difficult to resell. According to Amsterdam's cargo transportation company Pazzl [80], the return rate for offline stores is about 8%, but the rate for online purchases is about 25%. However, despite the inconvenience to the sellers, from a customer perspective, prompt refunds and exchanges based on clear rules have positive effects on loyalty to online shopping malls and bring greater profits. Indeed, according to Invesp [81], an industry research institute, 92% of consumers surveyed said that they would purchase again if the product return procedure at the online shopping mall were easy, and 79% wanted free return delivery. In addition to returns and exchanges, in the focus group interview we conducted, the experts listed communications as a major inconvenience of online shopping malls. Customers desire prompt responses to their inquiries about product information, payment, delivery, and refunds and exchanges, and they want those responses to be friendly and accurate.

The fourth and final online shopping mall reputation factor we extracted was accessibility, under which four detailed items were loaded: "The product search engine is highly accurate," "Product searching is convenient," "Products are arranged for good visibility," and "Products are well-divided by category." In the case of the accessibility factors, the nomological validity analysis in this study showed the greatest impact on consumers' attitudes and loyalty; these items related to the efficiency of the process of shopping at online shopping malls. Research shows that online consumers want convenience, including the ability to quickly quick search for products and services [82]. Designing online shopping mall user interfaces with good visibility that allow customers to quickly find the items they want can improve customers' attitudes and loyalty effectively, along with online shopping malls' reputations.

The continuous growth of online shopping malls will require operators to drive customer purchase and repurchase intentions through initial trust formation and maintaining ongoing satisfaction, and these goals will be achieved through reputation management. We expect that the scale we developed for measuring the reputation of an online shopping mall will give consumers a standard for identifying online shopping malls they can trust. Maintaining positive reputations and customer trust will ultimately generate greater profits for online shopping mall operators.

6. Conclusions and Limitations

We conducted this study to empirically identify individual components of reputation in the context of online shopping malls and to develop a scale for measuring these components to provide quantitative ratings of an online shopping mall's reputation. We then related reputation to customer attitudes, purchase intentions, and loyalty toward online shopping malls.

As a result of the study, 'Reliability', 'Technical skills', 'Customer Service', and 'Accessibility' were determined to be important factors for the reputation of online shopping malls. 'Reliability' refers to an evaluation of the reliability of online shopping malls based on user perception. Reliability is also used as an important variable in existing studies on the effects of online shopping intention. Higher levels of reliability can eliminate the ambiguity and perceived risk of online shopping, increase purchase intention, and ultimately make it easier for businesses to retain loyal online customers. Next, 'Technical skills' refer to the functional and accurate technology of the online shopping mall. With the advancement of technology, the forms of online shopping malls are evolving. These online malls should provide convenience to customers based on accurate algorithms and advanced technologies. In addition, customer service refers to the customer responses and communication accessibility of online shopping malls and seems to be one of the most important factors that online shopping mall customers consider, as most items were derived from the Delphi survey and initial question deductions. Online shopping malls should feature smooth customer service based on excellent communication skills.

Finally, 'Accessibility' refers to the efficiency that customers feel when they visit online shopping malls. Specifically, Accessibility was shown in this study to relate to the variables with the greatest influence on Attitude, Purchase Intention, and Behavioral Loyalty, except for Emotional Loyalty. In a future study, positive results are expected by considering accessibility as part of research related to the relationship between online shopping malls and attitude, purchase intention, and behavioral loyalty. In addition, academics could use Reliability, Technical Skills, Customer Service, and Accessibility as important variables for online shopping malls in a study related to online shopping mall production.

Next, we identified the following theoretical implications. First, through this study, we conceptualized reputation as the sum of the consistent and long-term perceptions of a specific target based on the experiences of various stakeholders. We sought feedback related to online shopping mall reputation from experts in academia and the e-commerce and communications industries, and we statistically verified the reliability and validity of the measurement items for rating the reputations of online shopping malls.

Second, we established a novel theoretical framework by applying the concept of reputation, which has been rarely discussed in the field of e-commerce, to online shopping malls. Although there has been abundant research on online shopping malls [55,61,62,83–87], research efforts have focused on evaluating and measuring satisfaction. In contrast, no researchers have examined the effects of online shopping mall reputations on consumer attitudes or behaviors. At a time when e-commerce is exploding and consumers' utilization of online shopping malls is increasing exponentially, our findings offer timely standards for objectively evaluating such malls.

Finally, in this study, we found that online shopping mall reputations have a significant effect on attitude, purchase intention, and loyalty. We expect that managing the reputations of online shopping malls based on the findings from this scale will increase customer growth and satisfaction related to the malls and potentially increase the effectiveness of marketing communications. The scores from this study's scale can also be used as basic data for measuring the effectiveness of online shopping mall marketing campaigns.

Although we validated a set of items for reliably measuring online shopping mall reputation, this study has several limitations. First, we conducted the main survey with only online shopping mall consumers; we collected opinions from experts in a range of fields in the Delphi study but not from multiple stakeholders in the main survey. We expect that incorporating the perspectives of various stakeholders related to online shopping

malls will result in more diverse factors and measurement items. Results from these more diverse perspectives should be more easily generalizable to broad populations.

Second, our survey questions asked respondents to recall their experiences with their most recently and most frequently used online shopping mall and to rank that mall based on the aspects of reputation, attitude, purchase intention, and reliability. However, the nature of this process was such that the respondents would be recalling many different online shopping malls, making the mall a variable we could not completely control. We expect that research on the same specific online shopping malls rated by all respondents would produce more meaningful results. Third, we studied a population that aged from people in their 20s to their 50s who were active online shoppers, but we did not include teenagers, who have the highest Internet and smartphone usage rates. To understand online shopping trends more comprehensively, it will be necessary to include teenagers in analyses to secure external validity and expand on the existing findings.

We believe that the scale we developed here is effective for empirically rating the reputations of online shopping malls in general and that even more robust findings will result from studying one specific online shopping mall—particularly findings related to the impacts of a variety of dependent variables that can affect mall reputation. We also suggest follow-up studies to compare stakeholders' perspectives on domestic versus international online shopping malls' reputations using the scale we developed for this study.

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