What Should Companies Do to Improve Brand Awareness Through Instagram? The Lens of Signalling Theory

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ABSTRACT

Manuscript type: Research paper
Research aims: This study investigates potential factors of electronic service quality dimensions on the improvement of brand awareness among customers through the social media platform Instagram.
Design/Methodology/Approach: The study involves 398 respondents across Java Island, Indonesia, and employed a PLS-SEM approach to analyse the data.
Research findings: The findings indicate that the electronic service quality dimensions of Instagram, in terms of content relevance, content quality, information quality and contact availability, significantly improve brand awareness.
Theoretical contribution/Originality: This study contributes to the electronic service quality and brand awareness literature by validating four potential service quality dimensions of Instagram that are effective instruments for improving brand awareness.
Practitioner/Policy implication: This study offers managerial recommendations for companies that see Instagram as a prospective social media tool for enhancing brand awareness. Companies should focus on managing their Instagram accounts by providing relevant content, qualified content, qualified information, and ensuring the availability of their contact details.
Research limitation/Implications: To enhance generalisability, we suggest future studies examine how brand awareness improvement could be made across social media accounts with broader customer segments, either SMEs or big corporations.

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1. Introduction

Brand awareness is very much linked to companies' objectives when engaging in marketing communication initiatives (Yoo et al., 2000). According to the hierarchy of effects (HOE) model (Lavidge & Steiner, 1961), brand awareness is a fundamental phase that influences consumers' cognitive aspects before any further purchase decision. Consequently, brands continuously improve communication with their intended market through numerous marketing communication channels. Over the last two decades, companies have viewed social media as a revolutionary medium for marketing communication with a high impact on brand awareness (Hutter et al., 2013; Moro & Rita, 2018; Stojanovic et al., 2018; Poulis et al., 2019; Hootsuite, 2021). Stojanovic et al. (2018) assert that intensity is essential in increasing brand awareness on social media and that companies should use social media regularly to establish their digital presence. However, Hutter et al. (2013) state that companies posting too much content on social media risk annoying their fans and consumers. The contradictory outlook indicates that social media usage intensity will only be effective when quality is considered. In other words, if companies use social media without regard to quality, they will get conflicting outcomes, because the intensity of social media usage does not guarantee high customer engagement (Rahmawati et al., 2019). Thus, the present knowledge gap requires an exhaustive investigation to better understand other factors of social media usage, particularly aspects pertaining to quality that can lead to more brand awareness.

In response to the importance of quality, Noorshella et al. (2015) stress that maintaining excellent electronic service quality is an essential strategy for companies that serve their customers online. Although Kao & Lin (2016) and Butt et al. (2018) postulate that electronic service quality indirectly influences brand awareness through the role of other variables, such as trust, satisfaction, and loyalty, electronic service quality dimensions—comprising system efficiency, fulfilment, responsiveness (Elsamen, 2015), and functionality (Rios & Riquelme, 2010) on the website—have a significant direct effect on brand awareness. However, we find various types of electronic service quality dimension scales concern

websites, such as SITEQUAL (Yoo & Donthu, 2001), WEBQUAL (Barnes & Vidgen, 2002), ETAILQ (Wolfinbarger & Gilly, 2003), E-S-QUAL (Parasuraman et al., 2005), ETRANSQUAL (Bauer et al., 2006), and NETQUAL (Bressolles, 2006), with only a few for the social media context, namely SOME-Q (Suryani et al., 2021), and other unnamed scales (Helal et al., 2018; Teo et al., 2019).

Therefore, along with the high penetration of social media usage for business, this study investigates which electronic service quality dimensions on Instagram potentially influence brand awareness. We focus on Instagram because it is where companies concentrate their marketing activities (Hootsuite, 2021). Referring to the framework of signalling theory (Ross, 1977), we argue that four electronic service quality dimensions developed by companies (as signaller)— content quality, information quality, contact availability and content relevance— generate positive signals to their customers (as receivers) regarding their credibility, and that these signals may improve brand awareness among customers at the same time.

Based on the discussion above, this study is expected to make a twofold contribution to the existing literature. Firstly, this study extends the existing literature on electronic service quality by validating content quality, information quality, contact availability and content relevance as potential electronic service quality dimensions for social media platforms, especially Instagram. Second, this study enriches the existing literature on brand awareness by validating that the four electronic service quality dimensions are effective instruments for improving brand awareness via Instagram. This study also offers managerial recommendations for companies, in particular their social media marketing managers, that see Instagram as a prospective platform for boosting brand awareness among customers to pay attention to these electronic service quality dimensions.

2. Literature Review

2.1 Theoretical Overview

2.1.1 Signalling Theory

The framework of this study is established from signalling theory (Ross, 1977). Clark et al. (2002) define signalling theory as a set of universal concepts explaining how a company uses signals that associate its entity with a desired and valued attribute. As a signaller, a company influences the views or behaviour of receivers (customers)

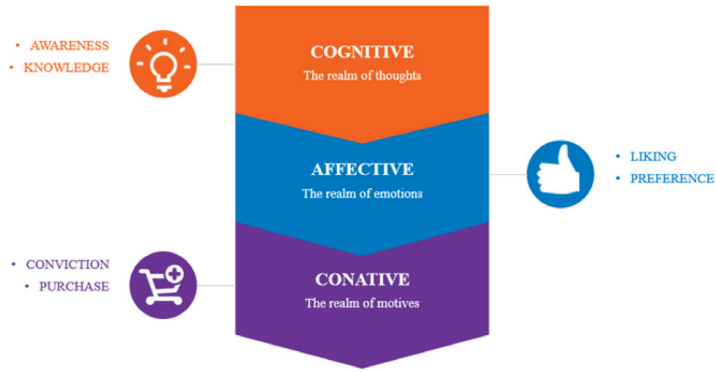
(Zmud et al., 2010). Therefore, the company will continuously send positive signals to its customers to achieve favourable customer perceptions and undoubtedly influence customer decision-making at the point of purchase (Decker & Baade, 2016). The central concern of the signalling theory is information asymmetry (Connelly et al., 2011). In this respect, if a company provides attractive and informative signals, the signals could reduce firm-customer information asymmetry (Decker & Baade, 2016).

Reducing information asymmetry is vital for a company, because it has at least two adverse effects: quality and the receivers' belief in the signaller's reputation or credibility (Stiglitz, 2000). Donath (2007) states that there is a relationship between signal and quality in signalling theory, and the notion of quality has the same characteristics as credibility and prestige (Certo, 2003). In this respect, signals convey information regarding company characteristics, and customers examine these signals to evaluate the credibility and validity of the company's quality (Mavlanova et al., 2012). Under the lens of signalling theory, this study investigates several quality criteria in social media usage, especially Instagram, that benefit a company in improving customer brand awareness. We assume that the company's ability to maximise Instagram usage by providing excellent electronic service quality will positively affect customers' perceptions of brand credibility and simultaneously improve awareness.

2.1.2 Brand Awareness

Brand awareness reflects brand existence in customers' minds (Aaker, 1996; Langaro et al., 2018). In the framework of a hierarchy of effects (HOE) model, as presented in Figure 1, Lavidge & Steiner (1961) demonstrate that purchase decisions made by customers toward specific products or services are strongly influenced by five steps (awareness, knowledge, liking, preference, and conviction) under three mental phases, which are cognitive, affective, and conative. At this point, brand awareness is the critical first step of the purchase decision.

Figure 1: The HOE model proposed by Lavidge & Steiner (1961)



Aaker (1996) suggests six levels of awareness toward a brand: recognition, recall, top-of-mind, brand dominance, brand knowledge, and brand opinion. In response to that awareness level, a brand communication strategy is essential to ascertain awareness (Yoo et al., 2000; Langaro et al., 2018). Consequently, brands should establish awareness by delivering intensive, repetitive, and memorable exposure through various communication strategies—distinctive trademarks, slogans, taglines, logos, packaging, or brand ambassadors. In line with the advancement of digital technology, social media usage, especially Instagram, has become essential in improving customers' brand awareness. Hootsuite (2021) reports that increased brand awareness is one of the top three objectives for a company to achieve while using Instagram for its business. Therefore, referring to the lens of signalling theory, we believe that a company's ability to provide impressive signals by improving electronic service quality on Instagram will heighten brand awareness, because customers using social media rely on informational cues to shape their impressions of the companies they are communicating with (Lim & Van Der Heide, 2015).

2.1.3 Electronic Service Quality: The Extended Form of Service Quality

Creating value and building good relationships are vital in generating functional marketing activities (Kotler et al., 2017). To maintain a good relationship, companies should continuously improve how they interact with their customers by delivering excellent service quality. Parasuraman et al. (1988) state that service quality becomes a critical concern for companies because customers evaluate the delivered

service by comparing their initial expectations to perceptions of the actual products or services. Therefore, Angelova & Zekiri (2011) suggest that companies deliver a high-quality service to ensure business success, especially in a highly competitive market environment.

Table 1: The previous studies on electronic service quality

Researcher	Media Usage	Finding
Yoo & Donthu (2001)	Website	Website quality is determined by the SITEQUAL model comprising (1) ease of use, (2) aesthetic sign, (3) processing speed, and (4) security.
Vidgen & Barnes (2002)		Website quality is determined by the WEBSUAL 4.0 model comprising (1) usability, (2) information, and (3) service interaction.
Wolfinbarger & Gilly (2003)		Website quality is determined by the ETAILQ model comprising (1) website design, (2) privacy/security, (3) fulfilment/reliability, and (4) privacy.
Parasuraman et al. (2005)		Website quality is determined by the E-S-QUAL model comprising (1) efficiency, (2) system availability, (3) fulfilment, and (4) privacy.
Lee & Lin (2005)		Website quality is determined by several features, including (1) website design, (2) reliability, (3) responsiveness, (4) trust, and (5) personalisation.
Bauer et al. (2006)		Website quality is determined by the ETRANSQUAL model comprising (1) functionality/design, (2) process, (3) reliability, (4) enjoyment, and (5) responsiveness.
Bressolles (2006)		Website quality is determined by the NETQUAL model comprising (1) information, (2) ease of use, (3) site design, and (4) security/privacy.
Noorshella et al. (2015)		Several criteria determine website quality, namely (1) website design, (2) information quality, (3) security and privacy, (4) merchandise attributes, (5) customer service, (6) transaction and payment, (7) general belief, and (8) delivery service.
Tsao et al. (2016)		Website design is determined by several website features covering (1) efficiency, (2) system availability, (3) fulfilment, (4) privacy, (5) responsiveness, (6) compensation, and (7) contact.

Researcher	Media Usage	Finding
Fauzi (2018)	Mobile apps	The quality of mobile apps is determined by several essential features comprising (1) information quality, (2) application design, (3) payment method, and (4) security and privacy.
Helal et al. (2018)	Social media	Social media quality is determined by several key features, including (1) content, (2) relevant, (3) exposure, and (4) brand ambassador.
Teo et al. (2019)		Social media quality is influenced by (1) social influence and (2) image quality.
Suryani et al. (2021)		Social media quality is determined by the SOME-Q model comprising (1) clarity, (2) attractiveness, (3) interactive, and (4) relevance.

Nowadays, along with the advancement of digital technology through the intensive penetration of the internet (We Are Social & Hootsuite, 2021), the coverage of service quality has been dramatically extended into electronic service quality. Most companies, whether small entities or big corporations, manage their business through an online platform that virtually produces an open interaction with their customers. Santos (2003) defines electronic service quality as a form of customer evaluation on the service delivered by a company through an electronic or virtual marketplace. Noorshella et al. (2015) assert that electronic service quality has become crucial in establishing a competitive advantage and maintaining the long-term retention of companies operating online. Accordingly, many empirical studies have discussed electronic service quality measurement models on digital media, such as websites, mobile apps, and social media, as presented in Table 1 above.

However, the table shows that prior studies mainly focus on discussing electronic service quality in terms of websites, with limited studies directed to either mobile apps or social media. This study investigates which electronic service quality dimensions of Instagram can improve customer brand awareness. This study contributes to filling the research gap evident in Table 1, and following companies' trends in using Instagram as an essential channel to increase brand awareness (Hootsuite, 2021). Websites and mobile apps have different technological characteristics compared to social media. Both websites and mobile apps are electronic platforms that can be built based on the needs of companies to support interactions with customers, while social media platforms have default systems and interfaces

with several optional features (Fauzi, 2018; Suryani et al., 2021). In this respect, the success of companies using social media depends on how far companies effectively maximise all the features of a platform. As presented in Figure 2, we have identified four dimensions of the quality of electronic service on Instagram that can influence customers' brand awareness.

a. Content quality

We consider content quality an essential electronic service quality dimension on Instagram, because it is categorised as an image-based social media platform (McNely, 2012). Additionally, images posted on Instagram might speak louder (Lee et al., 2015), provide more direct communication (Valentini et al., 2018), and might be more valuable than words (Pittman & Reich, 2016). At this point, we assume that the ability to present high-quality content will simultaneously influence brand awareness, because it sends out positive signals to customers regarding a company's credibility.

b. Information quality

Information quality is considered a crucial electronic service quality dimension on Instagram because it offers a direct communication channel between companies and customers. Bruhn et al. (2012) assert that customers use social media as a strategic channel to investigate products or services and confirm their intuitive buying decisions. On the other hand, Michaelidou et al. (2011) postulate that companies use

Figure 2: The four identified factors of social media influencing brand awareness

social media for several reasons: attracting potential new customers, building relationships, increasing brand awareness, communicating the brand, and gaining feedback from customers and business partners. Companies must be able to present qualified information to help customers confirm their intuitive buying decisions. Thus, the presentation of qualified information can improve brand awareness because it signals credibility to customers.

c. Contact availability

We assume that providing companies' contact details is another important electronic service quality dimension on Instagram. Although Instagram provides communication features to facilitate direct communication among users, such as a comments column and direct messaging, providing contact details—email address, office phone number, website address, or business location—will be beneficial to customers. When customers face problems, they expect a prompt response and a reasonable solution through the contact details provided (Kim et al., 2006). Thus, providing official contact details on Instagram signals a company's willingness to interact with customers openly, and simultaneously increases brand awareness.

d. Content relevance

Content relevance is also a critical electronic service quality dimension on Instagram because gaining relevant information has been considered a primary motivation behind social media usage (Munar & Jacobsen, 2014; Helal et al., 2018). Consequently, presenting relevant content is highly recommended to fulfil customers' expectations. Helal et al. (2018) assert that posting relevant information related to the business positively impacts customers' brand perception. Connected with signalling theory, we can say that companies' ability to present relevant content on Instagram sends positive signals to customers regarding their credibility and will gradually improve brand awareness.

2.2 *Hypotheses Development*

As long as companies want to virtually improve brand awareness, especially on social media, improving electronic service quality is a must. Based on signalling theory, we hypothesise four electronic service quality dimensions in Instagram that can potentially influence brand awareness.

2.2.1 *Content Quality on Brand Awareness*

As mentioned earlier, McNely (2012) categorises Instagram as an image-based social media platform, so the quality of the content (both images and videos) becomes essential, more so than for more textual platforms (Salomon, 2013). In line with this, Teo et al. (2019) recommend that companies post high-quality content on Instagram because it is a more visual-centric platform. Referring to the signalling theory used in this study, high-quality content on Instagram will send positive signals and communicate credibility to customers. Simultaneously, customers are exposed to such high-quality content on Instagram will notice those companies more, thereby gradually increasing brand awareness. Hence, we hypothesise that:

> H_1: *Content quality on the company's Instagram account positively influences improving the brand awareness of customers*

2.2.2 *Information Quality on Brand Awareness*

Information-seeking is an essential trigger for customers using social media (Whiting & Williams, 2013). Bruhn et al. (2012) state that customers seek information from trusted sources, including companies' social media accounts, to confirm their curiosity about products and their intuitive buying decisions. Consequently, companies should be concerned about building trust by providing excellent information to consumers (Vidgen & Barnes, 2002), because it becomes a pivotal factor in determining winners and losers in electronic commerce (Jarvenpaa et al., 2000). If companies provide qualified information on social media, the intuitive buying of consumers will increase due to heightened awareness. Furthermore, based on signalling theory, posting qualified information on Instagram signals that companies can be trusted, making it easier for customers to capture those signals. This could then potentially influence their awareness of the brand. As a result, we hypothesise that:

> H_2: *Information quality on the company's Instagram account positively influences improving the brand awareness of customers*

2.2.3 *Contact Availability on Brand Awareness*

The existence of social media provides customers easy access to direct communication with companies. Unlike traditional communication, both customers and companies do not have to be in face-to-face contact. Alternatively, companies should give excellent service

as reassurance while customers search for information related to products or services (Ahn et al., 2004). As we know that Instagram has been equipped with direct communication access through the comments column and direct messages, providing other contact details on the official Instagram account is essential—i.e., phone number, email address, map, and website link. Kim et al. (2006) assert that contact availability could help consumers seek information about product ideas and selections and solve any problems that may arise while reviewing, shopping, and purchasing online.

Moreover, Tsao et al. (2016) reveal that contact availability shows a company's willingness to respond to any inquiries from consumers and can enhance relationships with both new and existing customers. According to signalling theory, the availability of contact details in Instagram signals a high level of commitment to responding to customer problems. It is suitable for companies to improve their brand awareness. Thus, we hypothesise that:

H_3: *Contact availability on the company's Instagram account positively influences improving the brand awareness of customers*

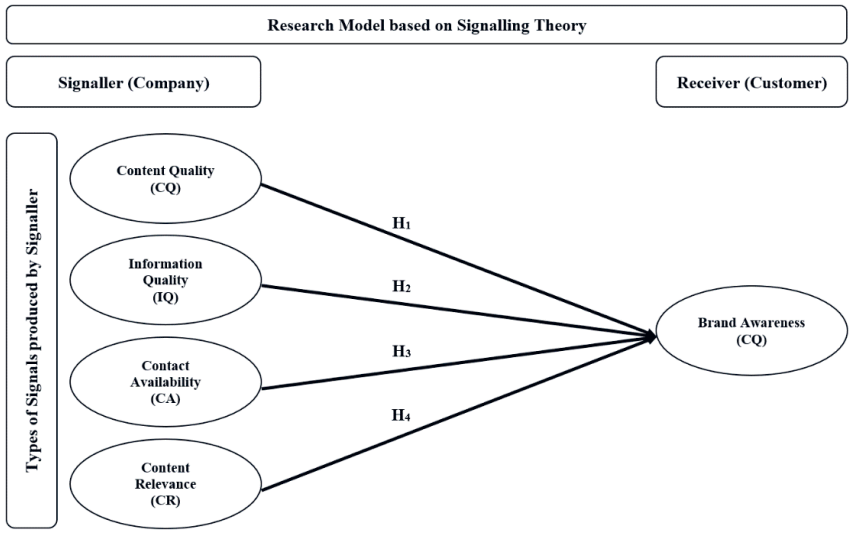
2.2.4 Content Relevance on Brand Awareness

Nowadays, people can easily find information by connecting their electronic devices to the Internet and browsing detailed information. Simultaneously, people are exposed to a wide range of information, such as news, recommendations, opinions, stories, and various product promotions, through websites or social media platforms. However, people do not constantly consume all the information that appears before them. People still need find relevant information by using specific keywords or hashtags. Therefore, besides seeking information, another essential motivation of individuals using social media is gaining relevant information (Munar & Jacobsen, 2014). In line with this, Helal et al. (2018) find that updating social media accounts with relevant information related to their business environment influences customers' brand perception. Referring to signalling theory, posting relevant content on Instagram signals credibility to customers, which linearly improves brand awareness. Therefore, we hypothesise that:

H_4: *Content relevance on the company's Instagram account positively influences improving the brand awareness of customers*

Based on the afore-presented discussion above, Figure 3 exhibits the conceptual research framework proposed in the present study.

Figure 3: The research model



3. Methodology

3.1 The Development of Research Test Items

In developing the research test items, we employed three consecutive steps. First, we conducted a literature review on relevant past studies to capture critical factors in improving brand awareness as well as research instruments. Second, we verified the obtained research instruments by organising small focus group discussions (FGD). We invited academicians in related fields, digital marketing practitioners, social media experts, entrepreneurs, and SME managers who use Instagram as a marketing communication channel, as well as customers who actively engage with social media. In this step, we compared the theoretical perspectives of the social media factors that influence brand awareness to best practices of social media usage based on different perspectives within FGD. Third, we conducted a preliminary study by administrating the first test items to 32 representative samples through a field survey. We adapted and modified the final research test items into five constructs based on the preliminary study results, as exhibited in Table 2. Appendix I presents the translation of the final research items into Bahasa Indonesia, given that the targeted respondents were Indonesian. Furthermore, the final research test items were measured by using

a five-point Likert scale, ranging from (1) 'strongly disagree' to (5) 'strongly agree'.

Table 2: The construct definition of the research model

Latent variable	Definition	Reference
Brand awareness (BA)	The existence of a particular brand in the customers' minds.	Aaker (1996); Rios & Riquelme (2010); Hutter et al. (2013); Langaro et al. (2018)
Content quality (CQ)	The quality of the content posted by companies on Instagram.	Salomon (2013); Teo et al. (2019)
Information quality (IQ)	The accuracy and reliability of the information companies provide to customers on Instagram.	Vidgen & Barnes (2002); Bressolles (2006); Bressolles & Nantel (2008)
Contact availability (CA)	The accessibility of customers to find any contact information provided by companies on Instagram.	Kim et al. (2006); Tsao et al. (2016)
Content relevance (CR)	The companies can post relevant and up-to-date content related to their business on Instagram.	Helal et al. (2018)

3.2 Population and Sample

The population of this study is Indonesian customers who had purchasing experiences with any products offered through Instagram. We focused only on Instagram, because it is seen as a suitable social media platform for business (Abed, 2018; Hootsuite, 2021) and is used by a wide range of industries and businesses (Later, 2018). However, because we could not identify the exact number of the population, we ran a power analysis with G*Power analysis software to obtain a minimum sample size (Hair et al., 2017; Memon et al., 2020). Based on the G*Power analysis results, we confirmed that the required minimum sample size of the research should be 129 to perceive the minimum effect size (f^2) value of 0.15 with a significance level of 0.05 and statistical power β of 95%.

3.3 Sampling Technique

Following Sekaran & Bougie (2016), we applied purposive sampling—particularly judgmental sampling—here because the study intends to select specific respondents capable of providing

the required information, i.e., their purchasing experiences via Instagram. Then, we considered Java Island as our main sampling area, especially the four major cities of Surabaya (East Java Province), Yogyakarta (Yogyakarta Province), Bandung (West Java Province), and Jakarta (Jakarta Province). Java Island contributes over half (58.48% in 2018) of Indonesia's GDP (Badan Pusat Statistik, 2019), showing that many transactions occur in these cities.

3.4 Data Collection Process

A professional surveyor agency assisted us with data collection because we wanted to obtain qualified data promptly. We initially held a coordination meeting with the agency regarding the research objective, to either minimise the double standard in administering the questionnaire or anticipate response bias. The surveyors visited several places, including shopping malls, universities, city parks, and other public service areas, to look for potential respondents. Then, the surveyors invited respondents who wanted to join the survey to confirm if they had purchasing experiences with any products offered through Instagram. After confirming eligibility, the surveyors provided respondents with a questionnaire form and handed over a souvenir after completing the survey.

3.5 Statistical Analysis Technique

The research framework was analysed through the PLS-SEM approach using WarpPLS software (Kock, 2020b). We used PLS-SEM because it offers high statistical power (Hair et al., 2011), and is a robust approach for either an exploratory or confirmatory study (Gefen et al., 2000). Also, Hair Jr et al. (2017) assert that the PLS-SEM provides a higher value of composite reliability and convergent validity with minimal effort in achieving an acceptable good fit for the research model. As presented in Table 3, the PLS-SEM approach requires two consecutive processes in analysing the collected data: measurement model evaluation and structural model evaluation (Hair et al., 2019).

Table 3: The step of PLS-SEM analysis using WarpPLS

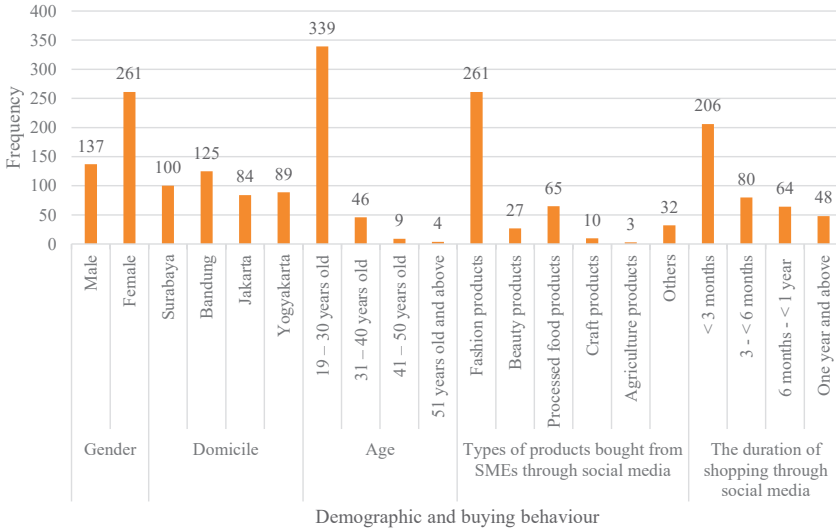
Analysis step	Analysis unit	Rule of thumb	Reference
Measurement model evaluation	Indicator reliability: Indicator loadings	>0.708	Hair et al. (2017); Hair et al. (2019)
	Internal consistency reliability: Composite reliability and Cronbach's alpha	>0.70	
	Convergent validity: AVE	>0.70	
	Discriminant validity: HTMT	<0.85	
Structural model evaluation	*t*-value	>1.96	
	p-value	$P<0.05$	
	R^2	0.75, 0.50, 0.25 (substantial, moderate, weak)	
	Q^2	>0 (small); >0.25 (medium); >0.50 (large)	
	Model fit	Traditional and new additional indices (various)	Kock (2020)

4. Analysis and Results

4.1 Overview of the Respondents

A total of 402 responses were collected from the field survey. Then, we checked all the data and filtered the outliers. Four outliers were deleted, leaving 398 desirable responses. The total collected data was well above the minimum sample size of 129, making it a valid data set. Figure 4 shows an overview of the respondents.

Figure 4: Overview of respondents



4.2 *Controlling Common Method Bias (CMB)*

Survey research mostly suffers from common method bias (CMB). In ensuring that this study is free from CMB, we applied Harman's single factor test using WarpPLS. Kock (2020a) states that if the average variance extracted (AVE) values of all indicators in a single latent variable run using either a composite-based or a factor-based analysis is < 0.5, the study is free from CMB. In this respect, the results of the factor-based analysis show that the AVE value of 17 indicators in the single latent variable was 0.316 < 0.5; thus, we can infer that CMB was not a substantial issue in this study.

4.3 *Measurement Model Evaluation*

Measurement model evaluation focuses on examining the reliability and validity test of the research model. The reliability of the research constructs refers to indicator reliability (indicator loadings) and internal consistency reliability (composite reliability and Cronbach's alpha). As elaborated in Table 4, indicator loading of all latent variables exceeded the minimum threshold of 0.70. Simultaneously, internal consistency reliability was reflected by the composite reliability values, and Cronbach's alpha was more than the minimum required threshold of 0.70, except for the value on contact availability (CA), which was 0.625. In response to this, Hair et al. (2011) argue

that PLS-SEM focuses more on composite reliability values, because composite reliability does not assume that all indicators are equally reliable. At this point, we still maintained the CA variable for further analysis by considering the value of its composite reliability. In short, the reliability of the current research model was highly satisfying.

Then, the validity of the research constructs was determined by the value of both convergent and discriminant validity. Table 4 shows that convergent validity, as reflected by the value of AVE, was above the minimum threshold of 0.50, with brand awareness (BA) at 0.771, content quality (CQ) at 0.852, information quality (IQ) at 0.766, contact availability (CA) at 0.756, and content relevance (CR) at 0.796.

Table 4: The result summary of measurement model evaluation

Variable	Code	Reliability			Validity	
		Indicator reliability	Internal consistency reliability		Convergent validity	Discriminant validity
		Indicator loading	Composite reliability	Cronbach's alpha	AVE	HTMT
Brand awareness (BA)	BA1	0.768	0.854	0.772	0.771	Yes
	BA2	0.773				
	BA3	0.806				
	BA4	0.736				
Content quality (CQ)	CQ1	0.872	0.888	0.810	0.852	Yes
	CQ2	0.840				
	CQ3	0.843				
Information quality (IQ)	IQ1	0.750	0.851	0.765	0.766	Yes
	IQ2	0.774				
	IQ3	0.802				
	IQ4	0.738				
Contact availability (CA)	CA1	0.753	0.800	0.625	0.756	Yes
	CA2	0.779				
	CA3	0.736				
Content relevance (CR)	CR1	0.779	0.838	0.711	0.796	Yes
	CR2	0.811				
	CR3	0.798				

Notes: AVE (average variance extracted); HTMT (heterotrait-monotrait ratio of correlations)

Discriminant validity refers to the heterotrait-monotrait ratio of correlations (HTMT), as presented in Table 5. The HTMT value of all correlations was below the maximum threshold of 0.85.

The convergent and discriminant validity test results presented above show that the validity of the current research model is well-established.

Table 5: The result summary of the discriminant validity test (HTMT)

Variable	CQ	IQ	CA	CR	BA
CQ					
IQ	0.612				
CA	0.585	0.783			
CR	0.588	0.643	0.757		
BA	0.562	0.570	0.608	0.651	

4.5 Structural Model Evaluation

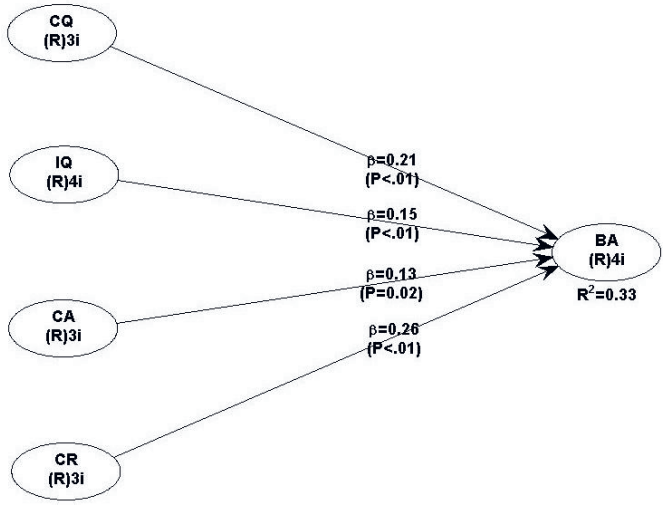
After ensuring the reliability and validity of the research model, we focused on the structural model evaluation following the unit analysis, as presented in Table 3. First, we evaluated the research hypothesis by observing the significance level of the relationships among latent variables. In this case, Hair et al. (2017) state that if the *t*-value on the structural model is higher than 1.96, we can conclude that the relationship among constructs is statistically significant at 5%. As seen in Table 6, the t-values for all relationships were above the minimum threshold. In detail, the *t*-value on the relationship of CQ to BA is 3.765 > 1.96 ($p < 0.01$), indicating H1 is accepted. The *t*-value of the relationship of IQ to BA is 2.786 > 1.96 ($p < 0.01$), indicating H2 is accepted. Next, the t-value of the relationship of CA to BA is 2.158 > 1.96 ($p = 0.02$), indicating that H3 is accepted. Finally, the *t*-value of the relationship of CR to brand awareness (BA) was 4.119 > 1.96 ($p < 0.01$), indicating H4 is accepted.

Table 6: The result summary of hypothesis testing

Hypothesis	Relationship	Path coefficient	t-value	p-value	Significance
H1	CQ→BA	0.206	3.765***	<0.01	Yes
H2	IQ→BA	0.150	2.786***	<0.01	Yes
H3	CA→BA	0.126	2.158**	0.02	Yes
H4	CR→BA	0.256	4.119***	<0.01	Yes

Notes: **t*-value 1.65 (significance level: 10% ($p < 0.001$)); ***t*-value 1.96 (significance level: 5% ($p < 0.05$)); ****t*-value 2.58 (significance level: 1% ($p < 0.01$))

Figure 5: The output of the structural model evaluation



Another essential thing to discuss is the significance of predictor variables' influence on brand awareness by evaluating each relationship's path coefficient (β), as presented in Table 6 and Figure 5. The β of the relationship between CQ, IQ, CA, and CR to BA are 0.206, 0.150, 0.126, and 0.256 respectively. In other words, the β indicates that CQ, IQ, CA and CR would significantly influence BA by 21%, 15%, 13%, and 26% respectively. We can infer that among the predictor variables, CR has the highest impact on BA.

Then, we evaluated the score of variances on the dependent variable (BA) explained by the independent variables CQ, IQ, CA, and CR. The variance score on the independent variable is based on the R^2. According to Figure 5, the R^2 score of BA is 0.33, which we can conclude to be weak to moderate. In addition to R^2, we examined Stone-Geisser's Q^2 of the research model to know the path model's predictive relevance for a particular dependent construct of BA. The Q^2 value of the research model is 0.335, and it is categorised that the path model's predictive relevance for BA is medium.

To ensure the robustness of the current research model, we analysed the model fit based on several indices, either traditional or new indices proposed by Kock (2020b). As exhibited in Table 7, all scores in the traditional indices were entirely satisfying. Notably, the score of AVIF and AFVIF, which were lower than the maximum threshold of 3.3, indicated that this current study was free from

collinearity issues (Kock, 2020b) and common method bias (Kock, 2015). Also, this study offered robust exploratory power, as reflected in the substantial score of GoF (0.456 > 0.36). Meanwhile, all scores in the additional new indices were satisfactory, indicating a good fit between the research model and empirical indicator correlation metrics (Kock, 2020b). In conclusion, the scores of both traditional and additional new indices validated that this study had an excellent model fit.

Table 7: The model fit analysis

Indices	Score	Basic threshold	Notes
Traditional indices			
Average path coefficient (APC)	0.184, $p < 0.001$	$p < 0.05$	Acceptable
Average R^2 (ARS)	0.334, $p < 0.001$	$p < 0.05$	Acceptable
Average adjusted R^2 (AARS)	0.327, $p < 0.001$	$p < 0.05$	Acceptable
Average block VIF (AVIF)	1.563	<5, ideally <3.3	Ideal
Average full collinearity VIF (AFVIF)	1.594	<5, ideally <3.3	Ideal
Tenenhaus GoF (GoF)	0.456	Small > 0.1, medium > 0.25, large > 0.36	Large
Sympson's paradox ratio (SPR)	1	> 0.7, ideally 1	Ideal
R^2 contribution ratio (RSCR)	1	> 0.9, ideally 1	Ideal
Statistical suppression ratio (SSR)	1	> 0.7	Acceptable
Nonlinear bivariate causality direction ratio (NLBCDR)	1	> 0.7	Acceptable
Additional new indices			
Standardised root mean squared residual (SRMR)	0.083	< 0.1	Acceptable
Standardised mean absolute residual (SMAR)	0.062	< 0.1	Acceptable
Standardised chi-square with 135 degrees of freedom (SChS)	2.783, $p < 0.001$	$p < 0.05$	Acceptable
Standardised threshold difference count ratio (STDCR)	0.963	> 0.7, ideally 1	Acceptable
Standardised threshold difference count ratio (STDSR)	0.867	> 0.7, ideally 1	Acceptable

5. Discussion

The findings show that four electronic service quality dimensions on Instagram, namely content quality, information quality, contact availability, and content relevance, have been validated as influential

factors in improving brand awareness. Based on the R2 value, those four dimensions could improve brand awareness by as much as 33%. The findings confirm that content relevance has the highest effect on brand awareness, followed by content quality, information quality, and contact availability.

Content quality has been confirmed as the second most impactful factor on Instagram that affects brand awareness. Content quality relates to how companies maintain their Instagram account by posting images or videos with good quality, proper resolution, and clear visibility. Those three criteria are essential factors in Instagram content management, because the social media platform is categorised as a visual-centric (Teo et al., 2019). The results are in line with prior studies stating that posting quality images on Instagram is critical to success (Salomon, 2013), and that high-quality images could subsequently influence customers' purchase intentions (Teo et al., 2019). Referring to the HOC model, awareness, as a starting point before a purchase decision, is in the cognitive phase that reflects the realms of thought. For instance, when customers are exposed to qualified content associated with particular brands when using Instagram, the visualisation of qualified content will be quickly processed in customers' minds, and customers will start to be aware of the brand. Additionally, the logic is supported by signalling theory, in which qualified content also represent positive signals about companies' credibility, leading to increased awareness of the brand among customers.

Another critical factor on Instagram that affects brand awareness is information quality. We associate information quality with accurate, reliable, understandable information that matches customers' needs. The results confirm that information quality is in line with the common customer motivations in using social media, i.e., in terms of information-seeking (Whiting & Williams, 2013). In other words, in maintaining Instagram accounts, companies should provide concise, precise, and meaningful information, and simultaneously avoid ambiguous information to make customers easily understand. Per a customer-driven marketing strategy elaborated by Kotler et al. (2017), companies are recommended to maintain their Instagram profiles with qualified information to meet the customer objective of using social media to look for information about products they want to buy. Posting qualified information on social media is essential for companies media because it signals credibility to customers. This will then enable the building of brand awareness among customers.

Contact availability was also validated as another critical factor that positively influences brand awareness. Contact availability refers to how companies provide their contact information on Instagram that customers need for further communication, i.e., phone numbers, email addresses, website links, and location information. The availability of contact details helps customers find a proper answer to their inquiries about certain information related to products or brands offered by companies. For instance, the statistical analysis affirms that connecting the Instagram account to the company's website is crucial to customers, as shown by the indicator loading of CA2 (0.779). The findings convey a vital insight: customers who are unsatisfied with product information posted on Instagram will find another source, like a website link, to acquire more detailed information. In other words, when customers feel companies are willing to open broader communication access through various channels, they will receive positive signals on companies' commitment to creating better relationships. This strategy also effectively improves customers' brand awareness of companies' products or brands. Therefore, SMEs must maximise all features on their Instagram profiles by providing their contact details.

Finally, content relevance is the most impactful factor on Instagram that improves customers' brand awareness. The finding is in line with Helal et al. (2018), who find that regular updates with relevant information about business operations affect customers' brand perception. Specifically, content relevance deals with how companies regularly post the latest updates of their products, display product photos or videos relevant to actual products, and consistently provide relevant content with the business being run. Importantly, customers consider that displaying product photos on Instagram that match the actual offered product is crucial, as shown by the indicator loading value of CR2 (0.811). Customers are often disappointed by companies that display irrelevant product photos that are different from the actual products in the post-purchase stage. Consequently, in building brand awareness, companies should provide relevant information about the products on offer regularly, which is relevant to the business, and, most importantly, matches the actual products. Linked to the signalling theory perspective, posting relevant information signals credibility to customers, which will simultaneously improve awareness.

6. Conclusion

6.1 Theoretical Contributions

The theoretical contributions of this study are twofold. First, this study extends the existing literature on electronic service quality, particularly in terms of social media. Content quality, information quality, contact availability, and content relevance have been validated as considerable electronic service quality dimensions on social media. Second, this study extends the existing literature on brand awareness by suggesting that these four electronic service quality dimensions effectively improve customers' brand awareness through social media.

6.2 Managerial Implications

This study offers several managerial implications for companies, mainly social media marketing managers, that see Instagram as a critical social media platform to improve the brand awareness among customers. Hootsuite (2021) reports that one of the top three objectives of a company using social media is to increase brand awareness. Therefore, we recommend that companies consider enhancing their electronic service quality dimensions by providing relevant content, qualified content, qualified information and ensuring the availability of their business contacts. First, companies can use a content management application to help them to set scheduled posts regularly. In addition to regular updates, companies should ensure that their content is relevant to their business profile by avoiding posting any content out of business contexts, such as employees' personal lives, politics, or other irrelevant content. Importantly, companies should enable the display of product photos or videos that are strictly relevant to the actual products. Second, we highly recommend that companies post content with a clear and reasonable resolution, because it can impress customers' perceptions about products, and help them get any information companies provide through the content. Third, companies should provide qualified information for each posted content that is accurate, reliable, understandable, and satisfies consumers' information needs. Fourth, in response to the consumer motivation of using social media to seek information, we strongly suggest companies open broader communication access to customers in their social media accounts by providing contract information, such as their phone number, email address, website link, and location.

6.3 Limitations and Future Research Directions

This study encounters three primary limitations that should be considered. First, this study merely focuses on social media usage, particularly Instagram. Adding other social media platforms, such as Twitter, Facebook, LinkedIn, Youtube, Pinterest, WhatsApp, Tiktok, and Snapchat, might provide different results. Second, this study only invites respondents with purchasing experiences with products or brands of SMEs. Involving big corporation customers might increase the generalisability of this study. Third, although this study offers a robust research model, we find that the impacts of four electronic service quality dimensions on brand awareness improvement are as high as 33%. In other words, other electronic service quality dimensions of social media may offer a more significant impact on brand awareness improvement through social media. Considering that social media platforms are categorised as agile digital technologies that regularly update their features, we therefore encourage future research to consider investigating potential triggers of brand awareness through social media.

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Appendix I

The test items of the research instrument

Brand awareness	
BA1	*Saya mengenal produk UKM* I am familiar with SME products
BA2	*Saya dapat membedakan merek produk UKM dibandingkan pesaingnya* I can distinguish SME product brands from their competitors
BA3	*Saya mengetahui merek produk buatan UKM* I know the brand of products made by SMEs
BA4	*Saya dapat dengan mudah mengingat merek UKM* I can easily remember the SMEs' brands
Content quality	
CQ1	*Akun Instagram UKM menampilkan kualitas konten (gambar/video) yang bagus* SMEs' Instagram accounts display good quality content (images/videos)
CQ2	*Resolusi konten (gambar/video) akun Instagram UKM tampak bagus* The content resolution (images/videos) of SMEs' Instagram accounts looks good
CQ3	*Konten (gambar/video) akun Instagram UKM terlihat jelas* The content (images/videos) of SMEs' Instagram accounts is clearly visible

Information quality	
IQ1	*Akun Instagram UKM menampilkan informasi yang akurat* SMEs' Instagram accounts display accurate information
IQ2	*Informasi yang tersedia pada akun Instagram UKM dapat diandalkan* The information available on SMEs' Instagram accounts is reliable
IQ3	*Informasi yang disajikan oleh akun Instagram UKM mudah dimengerti* The information presented by SMEs' Instagram accounts is easy to understand
IQ4	*Akun Instagram UKM menyajikan informasi yang saya butuhkan mengenai produk yang ditawarkan* SMEs' Instagram accounts present the information I need about the products offered
Contact availability	
CA1	*Saya dengan mudah menemukan informasi kontak pelaku UKM yang dapat dihubungi pada akun media Instagramnya* I can easily find contact information for SMEs that can be contacted on their Instagram accounts
CA2	*Saya mudah menemukan informasi website UKM pada akun Instagramnya* I can easily find SMEs' website information on their Instagram accounts
CA3	*Akun Instagram UKM menyediakan informasi mengenai lokasi toko atau tempat usahanya* SMEs' Instagram accounts provide information about the location of the store or place of business
Content relevance	
CR1	*Akun Instagram UKM menarik karena selalu menampilkan update terkini mengenai produk mereka* SMEs' Instagram accounts are fascinating because they always display the latest updates about their products

CR2	*Akun Instagram UKM menyenangkan karena berusaha menampilkan konten (gambar/video) produk yang sesuai dengan produk asli yang ditawarkan* SMEs' Instagram accounts are fun because they try to display product content (images/videos) that match the offered original product
CR3	*Akun Instagram UKM menarik karena selalu menampilkan konten (gambar/video) yang relevan dengan bisnis mereka* SMEs' Instagram accounts are attractive because they always display content (images/videos) relevant to their business