

An Empirical Study on the Relationship between Service Quality and Active Use of Social Media in Internet Retailing

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[Abstract] This study finds a rationale behind the use of social media from retailers' service quality. Investigation of more than 600 internet retailers confirms active use of social media among them. For major three social media, Facebook, YouTube, and Twitter, this study validates the positive relationships between service quality and active use of social media. However, the strength of the relationship is not consistent. It changes by individual social media and the area of service quality. Findings suggest that internet retailers consider their service quality for the use of social media. In addition, different patterns of the focal relationship found in this study advise retailers that they should understand the implications of social media use regarding increased information transparency.

[Keywords] active use of social media, information economics, order procurement, order fulfillment

Introduction

Social media has changed the marketing paradigm significantly. Their popularity is manifested by consumers' daily habit that spends significant time on social media. One online marketing company reveals that more than 60% of people in the world use social media, for 2 hours and 23 minutes a day, on average (Smart Insights, 2024). This individual habit became the obvious target for the companies who looked for new marketing tools. Social media marketing appears to be effective as it increases consumer purchases intention (Ao et al., 2023; Manzoor et al., 2020; Romadhoni et al., 2023). Many studies empirically validated that customer expressions on social media about certain products or services affect the image and brand value of those companies that produce or deliver those products or services (Weiger et al. 2017; Lawrence et al. 2010; Kumar & Mirchandani 2012).

Accordingly, customer relationship management (CRM) by using social media became a critically important component in business (Dabbous et al., 2020; Chua & Banerjee, 2013). Social media provided easy access to customer voice for companies who wanted to chase customer interests, and this opened the social CRM era (Maecker et al., 2016; Elena, 2016). The collection of customer need and preference data online from the vast number of customers in different locations certainly helps companies understand market trends and adjust their marketing strategies. The authenticity of data is self-validated because electronic words of mouth (e-WOM) include unplanned naïve and candid customer expressions.

Social media marketing may have both positive and negative effects on retail performance. Social media users' technical skills, consumers' acceptance, and companies marketing strategies may determine whether it is positive or negative (Bhatt & Singh, 2024; Davis et al., 1989; Manzoor et al., 2020; Parasuraman, 2000). However, the recent stress on social media marketing often pushes companies to focus on the positive side only. It is because social media's innovative technological abilities anesthetize their anxiety about the negative side. The negative side of social

media use should not be neglected simply because consumer expressions on social media may target companies' service failures as well. Those failures can spread instantly into social communities (Pfeffer et al., 2014; Daugherty & Hoffman 2014). Any customer complaints can go viral online because people are provoked by other people's anger or indignation more than actual service failures (Pfeffer et al., 2024, Du et al., 2014).

Internet retailers have widely adopted social media as a cost-effective marketing tool. Using social media, retailers can save costs for informing potential customers of their new and existing goods and services. Retailers also can share customer positive reviews for marketing their individual items on their social media. More importantly, social media lets retailers develop consumer communities that favor their online stores and brands. Given the positive and the negative effects of social media use exist, however, retailers stay under constant pressure to ensure high service quality (Cho et al., 2023; Izquierdo & Izquierdo 2007).

This research addresses the negative side of using social media in internet retailing. This study intends to examine whether retailers' service quality affects their active use of social media or not. Certainly, using social media has big risks for internet retailers. If a certain retailer's service quality is known to be poor in social communities, social media will play as an information channel to spread that negative information. For instance, if the internet retailer delivers wrong items or its deliveries arrive late, customers who experienced those service failures, have higher chance to express his/her disappointment on the retailer's social media (Cho et al., 2003; Holloway & Beatty 2003; Pfeffer et al., 2014). If retailers understand the negative impact of social media use, those retailers who have lower service quality are less likely to use social media in a full range. It is obvious that no internet retailers want to promote their ugly sides of business on social media or any other communication channels. As a result, the retailers' concern with social media use is expected to create a positive relationship between retailers' service quality and their active use of social media.

The internet retail sector was chosen for this study because this sector has widely used social media marketing, and their service quality is essential for creating customer repurchase intention (Laroche et al., 2012; Li et al., 2015). With more than 600 internet retailers in the sample, this study investigated the relationship between retailers' service quality and their active use of social media. Our examination of previous literature indicates that not much research has been done on this relationship with the notion of negative implications of social media. This study contributes to advancing our knowledge on companies' social media use, its benefits and risks, and their adaptation to the social media marketing era.

Literature Review and Hypotheses

Social Media and Information Sharing

Social networking sites such as Facebook, YouTube, Twitter, etc. connect people and create communities. The key function of social media is providing online platforms where people share information and opinions. It is online and the information is updated on a real time basis connecting individuals on the platforms which outperforms traditional marketing tools in terms of social presence (Kaplan & Haenlein 2010; Singh and Chakraborty, 2024; Zhang et al. 2012). People feel that they are connected and constantly interacting with people on social media. With this enhanced social presence, people on social media obtain new information fast and they feel it intimate because it is from others who use the same social media and share similar interests. In addition to the salient social presence, social media is an effective communication tool that minimizes information ambiguity. Thanks to informational technologies, social media facilitates mass

transportation of information, which is formatted in many ways including text, picture, audio, video, etc. This media richness reduces information equivocality as contended by media richness theory (Daft & Lengel 1986; Daft et al., 1987).

Plenty of previous literature studied the impact of social media marketing and many of them confirmed social media marketing activities have a positive effect on consumers' relationships to the brand and their purchase intention. Kim and Ko (2012) found that social media marketing activities make customers better understand product value, engage with the brand, and appreciate brand value, as confirmed by another recent study by Bushara et al. (2023). The study by Laroche et al. (2012) focuses on relationships a social media community creates. They found that all four relationships (customer-product, customer-brand, customer-company, and customer-customer) increase brand trust and loyalty. Those relationships appear to strengthen overall relationship quality and create social identification, the notion that individuals become a part of community. Both relationship quality and social identification increase trust and satisfaction with the community (Wibowo et al., 2020; Jamil et al., 2022). As a result, social media enhances companies' customer relationship management (CRM) capabilities (Trainor et al., 2014).

Social media's capabilities to share information in the online domain change the keyword of information economics. Information economists focus on information asymmetry and attribute market instability to information asymmetry between buyers and sellers (George, 1970; Spence 1973). Thanks to advanced information technologies in recent decades, information sharing among the public, including buyers and sellers, became highly feasible and efficient. As a result, the main message of information economics should move to the opposite way by highlighting information symmetry that contributes to market stability (Izquierdo & Izquierdo, 2007). Social media enhances information symmetry significantly and retailers cannot hide much about their service quality which, otherwise, had been their positional advantage for maximizing profit in transaction (George, 1970; Spence, 1973; Stiglitz, 2000; Izquierdo & Izquierdo, 2007). In other words, today's consumers can pay risk premium less from lack of information about sellers, thanks to social media.

As a result, social media forces retailers to work on their service quality. If any retailer wants to use social media marketing, they should make sure that positive information overflows on their social media. It is not only because positive information on social media enhances brand value and purchase intention as validated by previous studies explained earlier, but also negative information spreads much faster than positive information does, and the net impact on brand value is influenced in much more dynamic manner by negative information (Pfeffer et al., 2014; Du et al., 2014). To create and maintain positive information on social media, retailers should make sure that their customers are happy about transactions with them and want to share their excitement with others on their social media (Li et al., 2015; Laroche et al., 2012).

Customer satisfaction requires offering high quality services in online retailing processes (Collier & Bienstock, 2006; Szymanski & Hise, 2000; Parasurama et al., 2005). Obviously, the marketing potential of social media is enormous, but their business operations reflected by service quality should be proven to be good – at least on social media users' look – to support social media marketing. The enhanced information symmetric environment that social media established ironically forces retailers to use their social media in awareness of its potential risks.

Service Quality of Internet Retailing

Service quality of an electronic channel has been extensively studied since the internet opened the e-commerce era. Even before the era, service quality was considered a critical concept that affects customer satisfaction which leads to purchase intention (Parasurama et al., 1985; Parasurama et

al., 1988. Cronin et. al., 1992). Many studies have proposed measurement of service quality and validated its impact to customer satisfaction, customer loyalty, and purchase/repurchase intention (Collier & Bienstock, 2006; Szymanski & Hise, 2000; Parasurama et al., 2005).

Internet retailing requires both online and offline operations. Therefore, they require different service quality metrics to assess the achievement of their individual goals. As expected, online operations target receiving customer orders by providing customers with convenient and fun shopping experience on retailers' websites (Koufaris, 2002; Szymanski & Hise, 2000). This order procurement requires organization of web content in a customer-friendly manner. In contrast, using offline operations, retailers fulfill orders by delivering items to individual customers. This order fulfillment is different from order procurement because customers cannot see details until they receive orders or order-tracking messages. Therefore, service quality in online and offline operations should be measured by different quality metrics.

Since amazon.com opened their online bookstore in 1995 and many others followed, service quality studies have flooded in academic outlets, particularly during the first decade after the new millennium (Rowley, 2006; Ladhari, 2010). Those studies proposed service quality measurement including online and offline operations. For online order procurement, they recognized website design as a key quality factor. According to them, web design should ensure that all the necessary information is provided including product selection and necessary information about individual products and services (Collier & Bienstock, 2006; Parasurama et al., 2005; Szymanski & Hise 2000). They advise that retail web designers should consider not only functionality, but also the cosmetic aspect of retail websites. Online shoppers stay a longer time on better organized retail websites and seek pleasant feelings out of them (Vijay et al., 2017; Koufaris, 2002; Mummalaneni, 2005). Previous studies validate online shoppers judge online stores based on their overall experience with their websites from initial logging into the website to placing an order (Blut et al., 2015; Li et al., 2015).

For offline order fulfillment, a retailer should arrange an order delivery process after order reception. This process is less related to the retail website, that is, online order procurement. The goal of order fulfillment is to deliver the right items on time in a secure form (Jain et al., 2015; Kumar & Anjaly, 2017; Cao & Zhao 2004). For on-time delivery, retailers should keep the ordered items available upon customer orders, which will affect their inventory practices. In fact, order fulfillment is where most customer complaints are concentrated in their online shopping (Cho et al., 2003). It is why order fulfillment quality critically determines customer loyalty (Collier & Bienstock, 2006; Heim & Sinha, 2001). If any delivery failure happens, a responsive recovery will help restore customer loyalty (Holloway & Beatty, 2003).

Retailers' Service Quality and Social Media Use

Enhanced information symmetry between retailers and their customers by social media is expected to affect retailers' decision on their social media use. Retailers can promote on their social media their high service performance by providing high quality services from both order procurement and order fulfillment. Under high information symmetry, retailers are expected to work hard to provide high quality services so that customers enjoy their websites and use their websites for transactions. This way, they can attempt to minimize the harmful impact of negative information on social media that will devastate their reputation overnight (Pfeffer et al., 2024, Du et al., 2014). Enhanced information symmetry by social media will allow potential customers to predict the service level that a retailer offers, which makes the value of using a retailer clear to their customers (Izquierdo & Izquierdo, 2007). As a result, retailers with high service quality, who do not need to

be concerned about enhanced information symmetry and/or want to promote their high service quality, will want to actively use social media. On the other hand, if any retailers are struggling to provide high service quality, they would not want to use social media actively. They will be concerned with the use of social media that will point to their poor service quality (Cho et al., 2023).

This study contends that retailers' service quality is positively associated with their active use of social media. We believe that higher service quality performers will more actively use their social media, such as Facebook, YouTube, Twitter. This is exactly what they want to achieve for maximum effectiveness of social media marketing (Wibowo et al., 2020; Jamil et al., 2022). This means internet retailers with higher service quality will leave their social media open to online customers, which will result in higher volume of active use signals such as the number of "likes" in Facebook, the number of "views" in YouTube, and the number of "tweets" in Twitter.

Based on information economics and social media's contribution to information symmetry, this study hypothesizes the positive relationship between retailers' service quality and the volume of active use signals for these three social media that retailers widely use. Service quality in order procurement and fulfillment is expected to be equally associated with the volume of active use signals because both quality information is subject to customer review.

H1: Internet retailers' service quality, both order procurement and fulfillment service quality, is positively associated with the number of "likes" in those internet retailers' Facebook.

H2: Internet retailers' service quality, both order procurement and fulfillment service quality, is positively associated with the number of "views" in those internet retailers' YouTube.

H3: Internet retailers' service quality, both order procurement and fulfillment service quality, is positively associated with the number of "tweets" in those internet retailers' Twitter.

Methodology

To test hypotheses, this study needed to collect data about internet retailers' social media use and their service quality. Two areas of internet retailers' service quality need to be examined which are online order procurement and offline order fulfillment. Order procurement quality represents internet retailers' service quality from the retail process online while customers use retailers' websites for shopping. Order fulfillment quality represents internet retailers' service quality offline using their distribution channels for delivery of order items to individual customers.

This study collected retailers' service quality data from a retailer review site. This review site conducted a two-phase survey to measure order procurement and order fulfillment quality. The survey asked customer perception of retailers' service quality that previous studies recommended (Rowley, 2006; Szymanski & Hise, 2000; Parasurama et al., 2005). The first-phase survey was conducted just after online customers placed orders on retailers' websites. At this phase, the survey asked retailers' order procurement quality. The second-phase survey was conducted after customers received orders. This second-phase survey asked about retailer's order fulfillment quality. The surveys used a 10-Likert scale. We collected a total of 619 retailers' service

quality data that had more than 50 customer reviews for data validity. After collecting retailers' service quality data, exploratory factor analysis was used for scale refinement. Results of factor analysis are summarized in Table 1. As shown in the table, two latent factors were found. The first latent factor, *order fulfillment quality*, includes the measurement items from the earlier survey conducted after order delivery. In the same way, the second latent factor, *order procurement quality*, includes the measurement items from the later survey that was conducted after order placement on retailers' websites.

Table 1

Results of the Principal Component Factor Analysis and Cronbach's α

Construct (Latent factor named)	Indicators	Component ^a		% varianc e	Cronbach' s alpha
		1	2		
Order fulfilment quality	"On-time delivery"	.933	.203	62.3	0.915
	"Order tracking"	.926	.176		
	"Availability of products you wanted"	.845	.240		
Order procurement quality	"Easy finding what you are looking for"	.174	.930	24.2	0.922
	"Design of site"	.147	.916		
	"Clarity of product information"	.338	.866		

^aMeasured by a 10-point Likert scale (1=lowest; 10=highest).

After determining retailers in the research sample, we examined if individual retailers actively used three social media. Results of the examination are summarized in Table 2. As shown, among 619 retailers in the sample, 531 used at least one of three social media. The most used social media was Facebook. The next most used social media was Twitter. Compared to high percentages of using Facebook and Twitter among retailers in the research sample (85.6% and 77.4%, respectively), less than 40% of retailers used YouTube. I

Table 2*Use of Three Social Media by Internet Retailers in the Research Sample*

Social media users	Number of social media used	Social media
(Among 619 retailers, 531 retailers used at least one of three social media)	None: 88 (14.2%)	Facebook: 529 (85.6%)
	One: 45 (7.3%)	Twitter: 479 (77.4%)
	Two: 256 (41.4%)	YouTube: 239 (38.6%)
	Three: 230 (37.2%)	

Each social media has unique mechanism of developing social communities (Kaplan & Haenlein 2010). As such, the volume of active use signals is viewed in a distinctive way in each social media. When a retailer uses Facebook, the number of “likes”, compared to the number of “friends”, reflects how actively its Facebook is being used. In the case of YouTube, the number of “views”, compared to the number of ‘subscribers’, better represents the volume of active use. Similarly, in the use of Twitter, the number of “tweets”, rather than the number of “followers” better represents the volume of active use signals. This study examined the volume of active use signals because active users of social media strongly participate in expressing their emotions on social media using e-WOM (Bigne et al., 2020). Given that most social media users are passive observers, studying active signals is useful (Park & Macy, 2015).

Further examination of individual social media was conducted to examine active use of social media for those retailers in the research sample. To measure active use of social media, the number of “likes” was recorded from the retailers that used Facebook. From the retailers that used YouTube, the number of total “views” was recorded. For Twitter, the number of “tweets” was recorded. Elon Musk acquired Twitter in 2022, rebranded it under the new name of X, and enabled additional functions such as long texts, audio-video calls, and some features from artificial intelligence. However, all the data in this study was collected before that event, and the old name, Twitter, is used in this study.

Hypothesis testing was conducted by using regression analysis. A high number of retailers used multiple social media, and multicollinearity was an issue (Pedhazur & Schmelkin, 1991). To avoid multicollinearity, we conducted regression analysis for each social media separately. We had to add retailer reputation as a control variable because it was known to affect social media use. According to Rapp et al. (2013), retailers with high reputation are likely to use social media with higher probability than those with low reputation. Reputation was measured according to previous research (Cho et al, 2023).

Results

Results of the regression analysis are summarized in Table 3. As shown, reputation is a significant control variable for all three models ($p=0.01$). This confirms that reputable retailers use social

media more actively (Rapp et al., 2013). Order procurement quality is significantly associated with the signals of active social media use in all three models. However, the strength of this relationship is not the same among the three social media. The relationship strength of Twitter was weaker than those of other two social media. The different strengths are indicated by the significance level (p). The relationship in Twitter is significant at $p=0.05$ which is contrasted with $p=0.01$ in Facebook and YouTube. These results verify that order procurement quality is the better predictor of active use of Facebook and YouTube than Twitter. The relationship strength between order fulfillment quality and social media use shows even greater differences among the three social media. Order fulfillment quality is not significantly associated with the active use signal in Facebook or Twitter at all, but it is significantly associated with the active use signal in YouTube at $p=0.01$. Overall, only the order procurement quality consistently plays as a significant predictor of active use signals for all three social media. Order fulfillment quality is a good predictor of the active use of YouTube only. As summarized in Table 4, these results show partial support for Hypothesis 1 and Hypothesis 3, and full support for Hypothesis 2.

Table 3*Results of Regression Analyses*

Social media	Facebook (# likes)		YouTube (# views)		Twitter (# tweets)	
	B ^a	Sig. ^b	B ^a	Sig. ^b	B ^a	Sig. ^b
Constant	4.023	.000**	5.292	.000**	3.069	.000**
Reputation	1.329	.000**	.905	.000**	.624	.000**
Order procurement quality	.137	.001**	.252	.001**	.060	.050*
Order fulfilment quality	-.023	.593	.197	.005**	.019	.534
F(df=3)	67.498**		18.409**		28.151**	
Adj. R ²	0.284		0.186		0.154	

^a unstandardized; ^b ** $p<0.01$; * $p<0.05$

Discussion and Implications

This study delivers compelling evidence that service quality influences firm behavior on technology use. Findings suggest that Internet retailers are concerned about their service quality when they decide to use social media. This adds a new perspective to previously established understandings on firm use of technology. Adoption of new technologies is a challenging task because of personal and organizational resistance to them (Bhatt & Singh, 2024). It is why

technology acceptance theory suggests that firms show their employees ease and usefulness of the new technologies that they are going to adopt (Davis et al., 1989). This study introduces another plausible theory about information or communication technologies like social media use, which is potential users' service quality.

More specifically, this study offers a new insight regarding the use of social media by internet retailers. It suggests that retailers judge the value of using social media high which is demonstrated by the high percentage of retailers that use social media. However, this study also suggests that they consider the negative effect of using social media, which results from improved information transparency by using social media (Cho et al., 2023; Izquierdo & Izquierdo 2007). Retailers that deliver high quality services, particularly order procurement service quality, appear to consider social media valuable and actively use social media. Retailers that are unable to deliver high quality services seem to consider social media less valuable which appears to make their use of social media inactive. Overall, findings in this study imply that internet retailers are cautious about using social media. It is understandable because firms that use social media marketing would want to spread and overflow positive information only on their social media.

Table 4
Summary of Hypothesis Test Results

Hypothesis	Results	Details of supported relationships
<i>H1</i> : Internet retailers' service quality, both order procurement and fulfillment service quality, is positively associated with the number of "likes" in those internet retailers' Facebook.	Partially supported	Order procurement quality (p<0.01) Order fulfillment quality (not significant)
<i>H2</i> : Internet retailers' service quality, both order procurement and fulfillment service quality, is positively associated with the number of "views" in those internet retailers' YouTube.	Fully supported	Order procurement quality (p<0.01) Order fulfillment quality (p<0.01)
<i>H4</i> : Internet retailers' service quality, both order procurement and fulfillment service quality, is positively associated with the number of "tweets" in those internet retailers' Twitter.	Partially supported	Order procurement quality (p=0.05) Order fulfillment quality (not significant)

Our findings indicate that order procurement quality is significantly associated with the volume of active use signals in all three social media while order fulfillment is associated with them only in

YouTube. Close association of order procurement quality with all social media might be explained by the common playground effect (Cho et al., 2023). Social media works online, and customers use social media online. It is the same playground where they evaluate internet retailers' order procurement services given that internet retailers order procurement is performed online using their retail websites. This makes sense because surfing retailers' webpages and finding wanted information from them require similar skills and actions with using social media. In contrast, order fulfillment occurs offline in the retailer's supply chains. From a customer standpoint, it typically occurs at the customer's physical location where the customer receives the order.

It is noticeable that the positive relationship between order procurement quality and the volume of active use signals is less strong on Twitter compared to on Facebook or YouTube. Certainly, 5% and 1% significance levels are different in terms of relationship strength. The gap may come from different mechanisms of social media. Kaplan and Haenlein (2010) explain that each social media occupies a unique position on the map of social mechanisms. According to their taxonomical study of social media, Facebook and YouTube offer stronger social presence and medium richness than Twitter does during communication. This difference appears to produce the gap in the hypothesized relationship strength.

Another noticeable finding regarding the difference among social media is the relationship between order fulfillment quality and the active use signals. Among three social media's active use signals, only the total number of views in YouTube is significantly associated with order fulfillment quality. This requires some different explanations from the common playground effect because YouTube videos show online only. Two different reasons from popularity and required resource level may team up to explain this exceptional relationship. As explained in the methodology section, Facebook and Twitter were the two most popular social media in the sample of internet retailers in this study. This may imply that the use of YouTube requires more amount of resource and effort. Only a small portion of retailers is assumed to possess plentiful resources and, therefore, are ready to use YouTube effectively for social media marketing. Order fulfillment differs from order procurement because it relates to management of entire supply chains outside the online order procurement process. As such, only the retailers with sufficient resources can achieve high order fulfillment quality. Given the high resource requirement, the connection between order fulfillment quality and active use of YouTube is understandable.

From a retailer's standpoint, enhanced information symmetry by social media asks them to reassess their business strategy. Particularly, they are asked to answer these questions before the active use of social media: Is our current service quality sufficient for social media use? Are our service processes sustainable enough to provide high service quality continuously? To a certain degree, a concern with information symmetry will ask retailers' attention to move to the ugly side of their business as people respond to negative e-WOM even more frantically than positive ones (Pfeffer et al., 2014; Du et al., 2014). Certainly, redefining the strategy is inevitable, particularly if retailers have considered the positive side of social media marketing only.

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