

Acceleration of the Customer Education Paradox by a Smartphone

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ABSTRACT

This paper primarily intends to explore whether smartphones accelerate the customer education paradox. Smartphone usage is becoming a mainstream habit, and it is changing people's shopping experience and conventional practices, hence presenting new challenges to the market. A smartphone affects customers strongly when they are trying to choose a product/service among a variety of options, and making purchase decisions. With smartphones bringing such changes and challenges to the market, especially to the companies and stores, it is important to understand market trends in order to retain the loyalty of existing customers as well as to attract new buyers. Therefore, companies and stores should offer enhanced and better technical service quality, along with the use of tools such as QR codes. Further, mobile based websites would offer a suitable approach in assisting customers using smartphones to obtain better information of greater value. The results of this study imply that there is an opportunity for organizations to design various methods of imparting customer education by using smartphones, such as loading applications on a smartphone that lead to more information with good quality and present real benefits regarding the products/services.

Key words: Smartphone, Customer Education, Customer Expertise, Perceived Information Quality, Customer Loyalty.

1. INTRODUCTION

1.1 Background and Purpose

The paper has the main purpose of exploring will smartphone accelerate customer education paradox; the relationship between education and customer expertise and their associated effects on customer loyalty not just happen in high-involvement but also in the low-involvement situation. Moreover, it explores technical service quality will mitigate the moderating effects caused by high level of customer expertise. Furthermore, when customers with high expertise, the positive relationship between loyalty and functional service quality will be weaker than with technical service quality.

According to the prior researchers, service organizations, especially in high-involved professional service organizations are finding new ways, concepts, and approaches for their business to differentiate themselves therefore to close the distance from customers and to gain a sustainable competitive advantage.

Customer education is one of them, ranging from relationship manager, personalized web pages to product

bundling, among other things. By put customer education into practice, customers can potentially contribute to the widening gap³-the service performance gap [1].

That is, the customers themselves can influence whether the service meets customer-defined specifications. Sometimes customers contribute to this gap because they lack understanding of what exactly they can do, should do and how to do. Participation by customers in service production and delivery is increasingly viewed as a source of value creation [2], [3].

Increased customer involvement, therefore, provides a means by which firms can achieve deeper positions in specific market segments through increased customization. Therefore, educate customers would help customers understand their role and be more secure of getting into a high professional service.

With the emerging technology - mobile device, more specifically smartphones will be used as the main objectives discussed in this study, customers are enormously empowered unprecedented. With mobile devices, customers don't need a real expert to educate them to gain information, knowledge and skills, the convenience of get into internet (WIFI and LTE service) and the applications (also called "app", is software designed to help the user to perform singular or multiple related specific tasks), customers can get all the information with value - price, reviews, recommendations, competitive company's products, and learn all the things they need for not just service

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but also products. Especially, a smartphone is pushing this into a new climax, because nowadays, with a smartphone anyone can get all the information they need anytime, anywhere, fast and easily. Just like some commercial of smartphone said, Live your life smarter, and smartphones are making people's life smarter indeed.

With smartphone coming to the market, it is changing people's shopping experience and habit. Even if taken a look at the way people shop five years ago, while smartphone yet coming to the market, cellphones were used as a tool just to call or text. With help making purchasing decision, cellphones didn't help much, but used to call friends or family to compare prices and check preferences, in order to purchase products or service with the best value, which was very inconvenient and inefficient, since the person at home would probably be comparing price browsing internet or reading through discount books and then call the people who was in the store. Fast forward a scant five years, now we can routinely get more valuable information by asking questions by our social networks, reading reviews, scanning QR codes (quick response code, also known as scan barcodes), and finding coupons.

Not surprisingly, the youngest demographic is the highest one who uses smartphones while shopping or assisting shopping. Among those under 35, 28% have made purchases with a smartphone, compared with 23% of 35- to-49-year-olds and 10% of those 50 and over [4]. Women are also more likely to use smartphones to find discounts, and men prefer to use them to check online reviews. Nearly a quarter of consumers have purchased an item through their smartphone. The top smartphone purchases are entertainment choices such as music, movies and TV shows (46%), followed by banking (39%), electronics (29%) and online auctions (25%) [4]. It is self-evident that the smartphones are irrevocably changing the way people shop.

1.2 Research Problem and Objectives

Customers are becoming smarter and savvier shoppers through the use of applications on smartphone - means that anyone with a smartphone can be considered as an expert. With smartphone penetration expected to top 50% by the end of the year [5].

Applications like The Find, ShopSavvy, and Google Shopper allows people to scan QR Codes on products and find out more specific information about products and if they are getting the best price, whether that be online or at another store down the road. That same study also showed that 58% of smartphone owners used their phone to find the nearest store location. Smartphones allow apps to utilize the GPS technology and provide directions for specific locations or venues. As mentioned earlier, smartphone empowers customers tremendously.

The main objectives of this research are proving that mobile-commerce (in this paper we are using a smartphone as the example) is becoming mainstream habits, and it is changing people's shopping experience and habit that brings new challenges to the market.

Smartphones are affecting customers strongly when they are trying to choose a product/ service among various kinds of choices, and make purchase decisions.

With the change and challenge smartphones bring to the market, we therefore discuss: a) the paradox of customer education can also happen in low-involved situation, and will smartphones are accelerating this phenomenon, because nowadays, customers can get more valuable information they need, anytime, anywhere, fast, easily and accurately by using smartphone; b) explaining the positive relationship between loyalty and technical service quality is stronger than it with functional service quality. The more expertise that can also be considered as prior knowledge and experience customers get [6], they become more efficient in detail information they got from service providers.

On the other hand, customers with lower level expertise are more dependent on the tangible cues characteristic of the functional aspects of the service because perceiving more risk when making decisions. With the new technologies that come along with a smartphone, for example, QR Code (also known as scan bar), mobile based website, and customers can utilize these tools to help them to have a brand new shopping experience, which is totally different than before, that customers go to a shop, and ask for a salesperson.

We argue that this new shopping experience by using smartphones and the other technical services with new technologies, especially for the younger demographic, is better than the traditional one that to communicate with a salesperson.

2. LITERATURE REVIEW

2.1 Customer Education and Paradox of Customer Education

Consumer education is the process of supporting customers on an individual through skills, concepts and understanding that are required for everyday living to achieve maximum satisfaction and utilization of his resources, therefore to become more skilled, literate and responsible as customers. It is defined as the education given to the consumer about various consumer goods and services, covering price, what the customer can expect, and standard trade practice. It helps people to improve their understanding of goods and services and develop skills and confidence to become more aware of their rights in the market, make better informed choices and know where to go for help.

Behind the clearly revealed advantages of customer education which has been stated previously, however, there are potential problems associated also that come along with it. The common sense in professional services industries holds that teaching customers the "tricks of the trade" does not pay; Improving the service expertise of customers is considered to help them shop around for better alternatives for example lower-cost competitors, and increase their likelihood of switching [7]. Moreover, increasing customer expertise reduces perceived switching costs, especially, for example, costs associated with competitor evaluation, learning, and set-up, are likely to be lower for customers with a high level of expertise [7]. What is more is that the expert customers are likely to have increased expectations of service quality and are less likely to

be satisfied, than non-expert customers, in the service that it delivered.

Therefore, the more service providers try to get closer to their customers by teaching and helping them to use their service, the more vulnerable they are to losing them. Education leads to reduction in information asymmetries between the firm and its customers [8]. Especially expert clients (the clients who have high expertise in this industry), as a result, perceive less risk in switching firms as a result of being more confident in assessing competitive alternatives [9].

In other words, customer education would draw customers closer to the organization at the beginning for a while (the time is dependent on how fast customers feel they are confident enough to switch to a company), it may ironically equip customers to leave by reducing their perceived switching costs. There is, in other words, it's the paradox of customer education.

2.2 Mobile Market

According to research, smartphones are already a significant store traffic generator; "5-7% of total visitors [to brick and-mortar stores] are [driven] by mobile, and 3-5% of revenue" in stores is driven by smartphones in either an app-based or alternative mobile marketing manner [10]. With increasingly faster speeds, robust browsers, refined keypads, dazzling multimedia features, and technologies like augmented reality and social couponing, smartphones deliver retailers a powerful opportunity to engage with shoppers inside of the store environment. The combination of rising smartphone usage, a growing range of mobile retail apps, and location-based capabilities is setting the stage for continued growth of mobile as a marketing channel.

The implications for customers are important as well. According to Forrester Research, U.S. adults are now as likely to own a mobile phone as they are to own a PC. While customers can certainly expect to be inundated soon with highly-targeted retailer advertising via their phones, they should have some recourse in the fact that with smartphones in hand, shoppers are more empowered now than ever before. The mobile phone serves as a potent comparison shopping tool, offering customers a plethora of barcode scanners and mobile websites for efficient access to price comparisons and product review information in real time while they roam the aisles.

The objective, unfiltered nature of this new information available 24/7 through mobile phones puts branded in-store computer kiosks and price scanners to shame and more control in the hands (or fingers) of the shopper. With that said, a very wide variety exists in mobile devices. While there are 82 million mobile devices currently used in the U.S., not all are smartphones. And, while smartphones are the fastest-growing segment of the mobile phone market, they still represent only half overall. As such, retailers must tailor their efforts not only to highly-powerful smartphone devices (e.g., iPhone, Droid models) but also to simply mobile handsets.

2.3 Customer Expertise

Customer expertise describes a customer's general knowledge gathered through customer education and other business-related activities. While customer education is a major component of customer expertise, working experience is a

necessary element as well. Customer expertise can include knowledge acquired from customer education, business activities, literature, and business interactions of any context that help to further a customer's general grasp on the subject [11].

Knowledge is an important factor in customers' purchase decisions, influencing information search and product cue (both intrinsic and extrinsic) evaluation and processing. Two distinct forms of customer knowledge have been distinguished [12], suggesting that customer 'expertise' comprises two dimensions described as objective and subjective knowledge [13]. Objective knowledge is current, accurate information stored by individuals in their long-term memory. This type of knowledge is based largely on cognitive learning coupled with credible experience with many offerings and brands within a product category (instrumental learning) [14]. Subjective knowledge is the customer's perceived level of expertise or 'self-assessed' level of knowledge, more accurately described as product class familiarity. Therefore, true expertise developed as a result of objective knowledge should not be confused with product familiarity or past experience alone when assessing knowledge levels. Consumers typically over-estimate their levels of expertise, creating a gap between their own perception of what they believe to be true regarding products and a more accurate judgment. Empirical evidence has established that customers, in the main, do not possess the level or quality of objective knowledge they believe they do [13], [14].

While the literature highlights the importance of objective knowledge in the accurate assessment of products, this does not preclude the inclusion of familiarity and experience in the development of customer expertise. There are varying degrees of customer expertise in terms of: a) their ability to issue instructions to solicitors acting on their behalf; b) to understand the features and benefits of the service they are receiving; c) their ability to gauge the technical attributes of the service delivered related to these.

2.4 Perceived Information Quality

PIQ represents a user's reaction to the characteristics of output information versus the user's information requirements [15]. PIQ is defined as "cognitive beliefs about the favorable or unfavorable characteristics of the currency, accuracy, completeness, relevance, and reliability of the exchange information [16]." Nicolaou and McKnight(2006) encompasses 1) information integrity, 2) data quality [17], and 3) information quality [18].

2.5 Customer Loyalty

Customer loyalty is the strength of the relationship between an individual's relative attitude and repeat patronage. The relationship is mediated by social norms and situational factors. Cognitive, affective, and cognitive antecedents of relative attitude are identified as contributing to loyalty, along with motivational, perceptual, and behavioral consequences [19]. Loyalty is the likelihood of a customer's returning to a hotel and that person's willingness to behave as a partner to the organization (e.g., spend more while on property, not serve on advisory panels, and tell management when problems occur) [20].

Latent loyalty occurs when customers purchase the service frequently, even though they feel a strong emotional attachment to the service. Situational factors rather than attitudinal influences determine a repeat purchase. To increase the purchase behavior of members of this group, it is necessary to first determine why purchase frequency is low and then develop strategies to overcome these situational factors. The final category is no loyalty. Generally, loyalty programs do not impact these customers.

There are differences between frequency and loyalty. As can be seen, the primary focus of frequency programs is to build repeat business, while for loyalty programs the focus is to build an emotional attachment to the brand. The problems with frequency programs are that the customer focuses on the rewards, not on product superiority or brand relevance. With many frequency programs, one reward is generally as good as another, thus creating a cost with no sustainable differentiable competitive advantage.

The differences between frequency and loyalty lead to different tactics. For frequency, the tactics involve free or discounted products, collateral product discounts, and rewards such as points, miles, or both. For loyalty, the tactics involve customized recognition, emotional “trophy” rewards, and tailored offers or messages.

2.6 Service Quality in Mobile Commerce

While the web is sometimes viewed as a cannibalizing force for brick-and-mortar retailers, the savviest stores are those actively using the internet, particularly mobile technologies, to their advantage. These retailers have recognized that the web presents a unique opportunity to both drive new foot traffic and enhance the shopping experience within their four walls. Such stores are pushing mobile platforms that bridge the gap between brick-and-mortar and e-commerce, rather than bifurcating it, and smartphone applications are paving the way for this new blended, tech-forward shopping experience.

What follows is an in-depth exploration of emerging trends in smartphone and mobile technologies as they relate to shaping the shopper’s evolving in-store experience.

The goal is to shed light on retailers that are encouraging and enabling use of smartphones as a shopping tool for a host of novel purposes, including payment, entertainment, and loyalty rewards, just to name a few. In the brick-and-mortar world, the reality is that mobile presents a disruptive technology. Those stores which choose to resist it risk becoming left behind in the footsteps of those choosing to embrace it.

3. RESEARCH MODEL AND HYPOTHESIS

3.1 Conceptual Framework

In this section we discuss with a smartphone, the expectation for the impact of customer education initiatives on the customer expertise and loyalty. With the services marketing literature, we can see that customer education can be a source of both differential advantages and vulnerability.

We attempt to reconcile these views by examining the dual effects of customer education on customer loyalty by integrating customer expertise as a mediating variable. Briefly, customer education is expected to have a positive relationship with both customer expertise and loyalty.

Expertise, however, we expect to be negatively related to customer loyalty. Finally, Service quality is suggested will have an increased effect on customers’ loyalty decisions. In the following sections we provide a more detailed rationale behind these assertions.

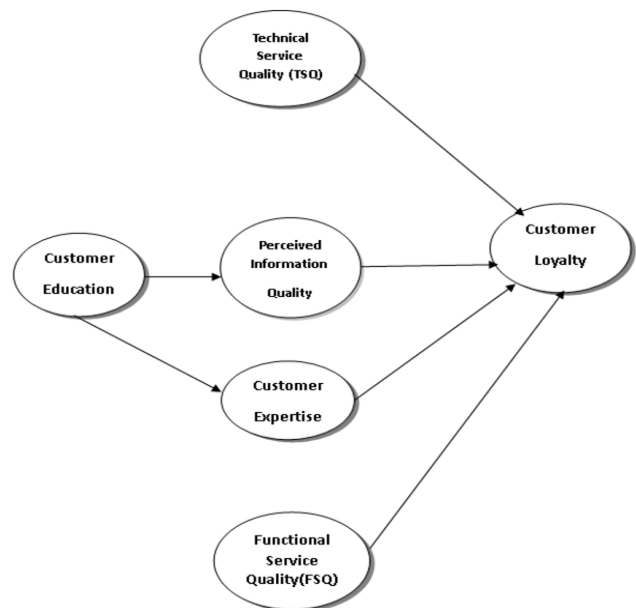


Fig. 1. Research Model

3.2 Hypothesis

3.2.1 Customer Education, Perceived Information Quality, Loyalty

Education has been considered as examining, challenging and changing the factors that impact on consumer ability to act within their context. As long as the information is provided, it is assumed that consumers will make the best choice among the goods and services available in the marketplace [21]. Customer education is concerned with developing skills, attitudes, knowledge and the understanding needed by individuals living in our complex consumer society [22].

Therefore, the educated customer will improve their ability to examine the quality of the information which will assist them to make a purchasing decision. Just like how Perceived Information Quality (PIQ) is defined - cognitive belief about the favorable or unfavorable characteristics of the currency, accuracy, completeness, relevance, and reliability of the exchange information [16].

PIQ reflects information that is accurate, reliable, and correct in detail [23], implying that the source of the information is competent. Therefore, PIQ should positively relate to trusting belief-competence. Since PIQ includes positive information traits as accuracy, it should influence trusting beliefs-integrity in the exchange provider.

With all the information and skills customers can get and learn through the smartphone. Customer education is measured as the extent to which service provider informs customers, and customers learned by themselves through smartphone about the products or services. That is to say, providing customers with the skills and abilities to utilize information requires customer education initiatives which will lead to increases in loyalty for a number of reasons.

Firstly, efforts of educating customers will be perceived by customers as a valuable augmentation of the service process [2]. Secondly, the increased customer efficiency will be contributed by the efforts of educating customers, which is associated with higher customer levels of repeat purchase [24]. Thirdly, investments in customer education initiatives will reinforce customers' perceptions of the firm's positioning as a high quality service provider. Moreover, the quality of information that customers get through the education progress would affect the customer's perception of service provider and product/ service. Therefore, the higher the perceived information, the customer has about a product/ service the more trust customer will have, which would satisfy customers by offering information with quality, customers are more likely to intend to stay with an organization. Accordingly, based on these arguments we offer followings. For young demographic, Customer Education has an effective positive effect on improving customers' Perceived Information Quality (PIQ) of low involved products/services. Also, For young demographic, the higher PIQ customers have, the more Customer Loyalty customers will have for low involved products/services.

H1 : Customer education has a positive effect on Perceived Information Quality.

H2 : Perceived Information Quality has a positive effect on Customer Loyalty.

3.2.2 Customer Expertise, Loyalty, and the paradox of customer education

Customer education has long been seen as a means for creating value for the customer. So does the self-educated customers by using smartphones. It helps customers realize the more specific understanding of what the products they purchase; pre-solve some problems that may arise after purchase; and migrate to new or more sophisticated versions of the product over time.

Yet when customers can get all the information they need by themselves, or don't need help to understand a product's complexities any more, they attain the flexibility to "shop around" for competitive alternatives. In extreme cases, customers may elect to leave the market entirely in favor of producing the service themselves [25], which is the biggest problem that smartphones bring about that it empowers customers by doing so. It's even easier than what customers used to do - asking for information and learning skills from the advisors or the company.

Anyone with a smartphone are an expert, and it's simple, doing a bit finger exercise you will get exactly the information you want. Its effect is obvious in the high-involved situation. In low-involved situation, with smartphone customers can

compare prices in a few minutes. In short, this paradox of customer education underpins three key relationships in this model. First, customer education will be positively associated with both customer loyalty and expertise. Increases in customer expertise, however, are expected to be negatively associated with loyalty.

Besides the positive impact of customer education-can increase satisfaction, it can also increase customer expertise by accumulating customers' knowledge about what a product or service should perform, and a general understanding of the average performance of similar brands in a product category [26]. Accordingly, the following is suggested that customer education will improve enough knowledge for customers' wants for products/ services, therefore customer expertise will be increased.

H3 : Customer Education has a positive effect on Customer Expertise

Along with customer expertise increases that caused by education, the customer's confidence of assessing the quality of service they receive and how this compare with competitive offerings would increase [13].

Especially, with a smartphone, everyone is an expert, so that may lead to more confidence by shopping alone and the dependence to the service provider. More specifically, the sales person will be lower, therefore, educated customers may unbundle service offerings [27].

Especially with smartphone, customers are becoming more confident and independent from service provider, for they can get valuable information; sometimes more valuable information than they get from the salesperson, and learn the necessary skills easily and conveniently by using a smartphone.

Therefore, smartphones are accelerating this phenomenon no surprisingly. Furthermore, increasing customer expertise reduces perceived switching costs, especially procedural costs of switching [28]. Procedural costs, which include costs associated with competitor evaluation, learning, and set-up, are likely to be lower for customers with a high level of expertise. Therefore, expert customers are like to have increased expectations of service quality but less satisfied. Again, with smartphone, customers can save all this money and time cost of asking help for the right thing for them.

Be smarter to save all this, customers can simply use smartphone get through the social network, ask for recommendations, or read the reviews, or just check and then compare for the best price and finally make purchase decisions.

That is to say, compare to the period without smartphone, customers are switching brands or companies more often than before. Accordingly, we expect that even in low involvement situation, along with increasingly high customer expertise that customers have through using a smartphone, that customers are enormously empowered unprecedented, therefore Customer loyalty will be decreased.

H4 : Customer Expertise has a negative effect on Customer Loyalty.

3.2.3 Service Quality, Loyalty

Grönroos (1982) [29] noted that the quality of a service as perceived by customers have two dimensions: a functional (or process) dimension and a technical (or outcome) dimension. Functional quality focuses on “how” - how the service is delivered, for example, consider issues such as the behavior of customer-contact staff and the speed of service, while the technical quality focuses on “what” and considers such issues as the end result of service provision [26].

Technical quality here with a smartphone can be considered as the new technologies come out that would assist people get better information or help customers to have the best shopping experience, the best example would be the QR Code (also known as scan bar), that you take a picture of the QR Code, the specific information offered by companies would be sent to smartphone. Also, there are applications ranging from helping customers have better choice of products/ service to save customers time waiting in the queue. It is a well-established literature that provides empirical support that the high service quality will increase customer satisfaction and loyalty [1], [17], [26].

It was hard for customers to evaluate the service outcome [30], with delivering desirable technical outcomes and the effectiveness in how service is delivered, customers will be more likely to be satisfied. The strong theoretical and empirical support for the relationship will leads to the following expectations: Especially for young demographic, technical Service Quality will still be positively related to customer loyalty, when it is decreased by high level expertise, in the low-involvement situation. Also, especially for young demographic, functional Service Quality will still be positively related to customer loyalty, when it is decreased by high level expertise, in the low-involvement situation.

H5 : Functional Service Quality has a positive effect on Customer Loyalty.

H6 : Technical Service Quality has a positive effect on Customer Loyalty.

3.2.4 The moderating role of customer expertise, mobile technology and loyalty

Prior researches of buyer behavior affirm that the degree of prior expertise a consumer has about a product is likely to influence information evaluation and choice [13].

The more expertise, which can also be considered as the context of prior knowledge and experience customers get [31], they become more efficient in distilling information they got from service providers. Customers with high level of expertise become more confident in evaluating the overall service quality on the basis of technical attributes [32].

On the other hand, customers with lower level expertise are more dependent on the tangible cues characteristic of the functional aspects of the service [26]. They perceive more risk when making decisions [33].

Furthermore, smartphones and the applications put these effects into the climax, because they can offer customers all the information even reviews of a service and products, which would help customers to assess service outcomes and products

and even compare with the competing company’s service and products within a short time.

By the convenient and objective information customers can get from a smartphone, the relative importance of functional service quality dimensions (e.g. Tangible cues, empathy and friendliness of staff) versus technical dimensions (e.g. Assisting customers to get valuable information, the most appropriate products, and giving better benefits to customers) are likely to change. More specifically, the influence of the functional elements of service on customer loyalty will decrease as customer expertise increases especially by using smartphones. For these reasons, we advance the following hypotheses:

H7 : Positive effect on Customer Loyalty will be much stronger in the relationship between TSQ and Customer loyalty than FSQ and Customer Loyalty.

4. ANALYSIS AND RESULTS

4.1 Sample

The 160 persons who are currently using smartphone were selected in the area of South Korea as the target of this study.

Most of them are college students. This study has the main purpose to test how customers perceive low-involved products/service after they gained enough information about them by using smartphones.

First, they were tested about how involved, they are with the product/ service, the knowledge they gain by it and both TSQ (do they prefer to have higher Technical Service Quality by offering for example, QR Code, Applications that assisting them shopping) and FSQ. After this, they were asked to choose how they perceive the quality of the information they gain from smartphone and how much they trust the information source. Because higher PIQ will provide more useful information to support customer’s decision making. This follows the definition of ‘perceived usefulness’ given by Davis (1989).

Data were collected via a self-administered questionnaire that sent in persons. The final sample was representative of the young demographic. All of the participants were between 20 and 28 (male 48.1%).

4.2 Measures

As the survey was conducted in Korean, the prepared originally in English was translated into Korean. It was checked for accuracy by means of the conventional back-translation process.

The measures used in this study were derived from existing published studies. Seven-point scales were used which is ranging from 1 (“Strongly disagree”) to 7 (“strongly agree”). Technical service quality is considered as the outcome-related aspects of the service (e.g. quality and accuracy of the information from the service provider).

The four-item scale was particularly relevant to the study as it was developed specifically to measure technical service quality in the financial services industry [26]. Functional service quality refers to the process-related elements of service

delivery (e.g. accessibility, professionalism, empathy of service providers).

Customer education is the extent to which service provider provides customers with the skills and abilities to utilize information. The four-item of communication effectiveness scale [26] were chosen, for it captures the extent to which service provider explain concepts to customers and provide appropriate information to help customers understanding more about products/ service.

Customer expertise is defined as the extent of a customer’s product knowledge and ability to assess product performance. It was gauged using three items of a four-item scale [26]. Prior product knowledge and information about how a product would perform is similar to established definitions of expertise that emphasize understanding and knowledge as key elements of expertise.

By using perceived information quality (PIQ) scale, with items selected from [34], and [35]. The items represent the currency, accuracy, relevance, completeness, and reliability aspects of the data exchange, which are often-used PIQ dimensions. That shows that PIQ has a direct positive effect on intention to use, and represent what the decision maker wants to know about real-world conditions improve the quality of decision making information.

Lastly, customer loyalty is referred to customers’ intentions to stay with, and level of commitment to, the organization. The four-item scale adapted from [30], behavioral intentions scale and the loyalty dimension of the behavioral intentions scale used by [1].

4.3 Validity and Reliability

The present study estimated the model paths by using Smart PLS 2.0 program. PLS was chosen for several reasons. First, PLS makes minimal demands on sample size, so that it is especially appropriate for testing multi-group structural models with relatively small sample sizes. Furthermore, there is precedence for the use of PLS in marketing [36], [37].

[Table 1] summarize the reliability and the correlations of constructs. In the case of reflective measures (e.g., Customer Education, PIQ, Customer Expertise, TSQ, FSQ, Customer Loyalty), reliabilities (alpha and CR) and average variance extracted (AVE) were examined [36].

The reliabilities of reflective measures were greater than the recommended 0.7. The average variance extracted for each measure was greater than the recommended 0.5, suggesting convergent validity.

A comparison between the average variance extracted from each of the constructs and the shared variance indicates discriminant validity [36]. To test for path significance, the study used bootstrapping (generating a large number of random samples from the original data set by sampling with replacement with 500 re-samples [38].

PLS does not generate an overall goodness of fit index for the research model, because it does not attempt to minimize residual item covariance or make any distributional assumption. Thus, this study examined the R square (recommended above 0.1) values and the structural paths instead [39].

Table. 1. Reliability and Discriminant Validity

	CEdu	Cexp	Cloy	FSQ	PIQ	TSQ	AVE	CR	Alpha
Customer Education	0.826						0.682	0.896	0.845
Customer Expertise	0.353	0.900					0.811	0.928	0.883
Customer loyalty	0.395	0.200	0.935				0.873	0.954	0.927
FSQ	0.588	0.195	0.385	0.752			0.566	0.838	0.744
PIQ	0.413	0.369	0.603	0.412	0.791		0.625	0.930	0.917
TSQ	0.681	0.210	0.438	0.602	0.338	0.855	0.730	0.915	0.878

Table. 2. Cross Loading

	CEdu	Cexp	Cloy	FSQ	PIQ	TSQ
CL1	0.392	0.183	0.943	0.394	0.575	0.434
CL2	0.348	0.196	0.944	0.341	0.564	0.406
CL3	0.366	0.183	0.917	0.345	0.549	0.386
FSQ1	0.465	0.244	0.224	0.673	0.335	0.522
FSQ2	0.432	0.327	0.277	0.699	0.346	0.434
FSQ3	0.383	0.009	0.320	0.797	0.236	0.410
FSQ4	0.505	0.064	0.324	0.828	0.341	0.476
PIQ1	0.190	0.356	0.275	0.203	0.700	0.048
PIQ2	0.186	0.364	0.313	0.211	0.780	0.096
PIQ3	0.279	0.273	0.411	0.353	0.742	0.261
PIQ4	0.245	0.317	0.380	0.338	0.758	0.242
PIQ5	0.302	0.282	0.537	0.236	0.839	0.247
PIQ6	0.348	0.238	0.509	0.406	0.839	0.341
PIQ7	0.459	0.263	0.598	0.397	0.806	0.387
PIQ8	0.431	0.331	0.585	0.370	0.851	0.325
TSQ1	0.533	0.185	0.218	0.515	0.270	0.740
TSQ2	0.509	0.068	0.357	0.459	0.208	0.858
TSQ3	0.628	0.193	0.417	0.539	0.304	0.913
TSQ4	0.650	0.263	0.443	0.563	0.364	0.896
education1	0.826	0.300	0.202	0.461	0.363	0.468
education2	0.838	0.344	0.238	0.460	0.386	0.548
education3	0.854	0.289	0.444	0.526	0.377	0.590
education4	0.784	0.228	0.400	0.491	0.225	0.642
expertise1	0.298	0.891	0.160	0.139	0.264	0.171
expertise2	0.323	0.921	0.233	0.233	0.396	0.199
expertise3	0.331	0.889	0.142	0.147	0.328	0.195

Convergent validity is tested by the average variance extracted(AVE) [40] and discriminant validity by Fornell–Larcker’s criterion and cross loadings.

Fornell–Larcker’s criterion state that the square root of AVE of each factor should be larger than the correlation coefficients between the factor in question and other factors. According to the cross-loading criteria, loadings of items measuring each variable should be larger than the cross-loadings and also larger than 0.7.

4.4 Results Related to Main Effects

[Table 3] summarizes the results of hypothesis tests. The model demonstrates the good explanatory power, because the R square values for the endogenous constructs range from 0.12 to

0.48. All are within the ranges typically reported in structural model research [39].

All developed hypothesis are statistically significant and satisfy [38] recommendation that path coefficients exceed 0.2 in order to be deemed to exert a “substantial” impact, as opposed to “just being statistically significant.” except 1 path (C_exp to C_loy). H1 predicted a positive relationship between C_edu and PIQ, and the results confirm it (g=0.41, t=6.31, p<0.01). H3 predicted a positive relationship between C_edu and C_exp, and the results also confirm this prediction (g=0.35, t=3.87, p<0.01). H2 and H4 predicted that PIQ would influence to C_loy positively and while C_exp influences it negatively. Among these hypotheses, PIQ to C_loy path was supported (b=0.52, t=6.17, p<0.01). Whereas the C_exp-C_loy path was rejected (b=-0.055, t=0.75), the direction was consistent with hypothesis' one. We assume that personal involvement, toward services or products might influence on that.

Further discussion about that is needed. H5 has a positive influence on C_loy has been confirmed by the standardized regression weights for TSQ and FSQ are 0.24. But H6 has been confirmed by the 0.02 respectively, so H6 path was rejected. Hence, also supports H7 that TSQ has a stronger influence to customer loyalty than FSQ simultaneously. In another word, compared to FSQ, TSQ has much more predictive value of customer loyalty.

Table.3. Result of Path Analysis

H	Path	Path Coefficients	T Statistics	R Square	Accept /Reject
H1	CEdu → PIQ	0.413	6.638	0.170	Accept
H2	PIQ → Cloy	0.523	6.467	0.428	Accept
H3	CEdu → Cexp	0.353	3.977	0.124	Accept
H4	Cexp → Cloy	-0.055	0.765	0.428	Reject
H5	TSQ → Cloy	0.248	2.038	0.428	Accept
H6	FSQ → Cloy	0.022	0.216	0.428	Reject
H7	TSQ > FSQ	0.248 > 0.022			Accept

5. CONCLUSIONS AND IMPLICATIONS

5.1 Discussion

The reported findings support the argument that 1) even in low involved situations, both technical and functional elements of service quality were still positively associated with customer loyalty which is in line with largely confirms findings from previous research [17].

2) The positive and significant relationship between customer education and customer expertise was expected. Through the information customers get by the smartphone,

customers were educated - self-educated, therefore, increased their expertise about products which would influence information evaluation and choice [13].

3) The non-significant negative effect that high expertise related to customer loyalty was not expected. There are some possible explanations. The first explanation derives from the number and quality of competitive alternatives; second, since the smartphone (to get in internet with 3g or LTE) is still an emerging technology, there is limited expertise; most of the customers are not familiar with getting information by using smartphones.

4) The findings of the moderating effects of customer expertise suggest that customer with higher expertise, rely more heavily on technical service quality than functional service quality in forming their intentions to remain loyal to the organization. Customers with higher expertise are capable of more elaborate information processing [13].

5.2 Managerial Implication

The results of this study imply that there is an opportunity for organizations to design various kinds of ways of doing customer education by using smartphones, for example to load applications on a smartphone that offers more information with good quality and real benefits of products/ services.

Therefore, the first managerial implication would be that even for low-involved products/ services, companies should elicit customer involvement by engaging customer education into their relationship marketing philosophy.

Second, since customers rely on technical service quality, companies should focus on improving this part, especially on their assisting role, companies should engage smartphones are the business more, just like Macy’s CMO, Peter Sachse, makes a clear case for the importance of mobile technology: “If you don’t enable your store, the millennium [demographic group] won’t walk into stores.” “We have to have connectivity in stores. We are also actively engaged in social media. There’s no question consumers want a two-way conversation. It’s going to explode.”

5.3 Limitations and Directions for Future Research

The first limitation is that customer expertise is something that develops over time and since smartphone is still an emerging technology, it takes time for customers to digest it. The second is the survey is mainly focused on asking customers their perceptions about low-involved products/ services, with most of their answers being low-involved (e.g. clothing, movie tickets) that are supposed to be considered not important. However, there are possibilities that customers consider that product/ service were important to themselves, therefore, the result of the data turned out to be not that significant.

5.4 Conclusion

Smartphones are becoming main stream habits, and it is changing people’s shopping experience and habit that brings new challenges to the market. Smartphones are affecting customers strongly when they are trying to choose a product/ service among various kinds of choices, and make purchase decisions.

With these changes and challenge smartphones bring to the market, especially for the companies and stores, in order to retain the loyalty from the old customers and also attract new customers, they should better follow the trend, offering more and better technical service quality, like we discussed before, such as QR Codes, mobile base website, would be the best way in assisting the customers using smartphone to get better information with value.

And this effort would be Firstly, perceived by customers as a valuable augmentation of the service process. Secondly, the increased customer efficiency will be contributed by the efforts of educating customers, which is associated with higher customer levels of repeat purchase. Thirdly, investments in customer education initiatives will reinforce customers' perceptions of the firm's positioning as a high quality service provider. Moreover, the quality of information that customers get though the education progress would affect the customer's perception of service provider and product/ service. We believe this study has responded in a meaningful way to this call. Although further replications of, and modifications to, our model are undoubtedly required. We hope there will be more research on the subject of customer education combine with new technologies.

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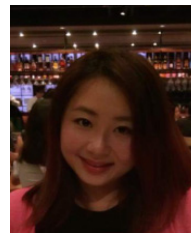
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