

# The Associated of Perceived Service Quality to Customer Behaviour Towards Use and Purchase Intention in Freemium Services

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**Abstract:** *The rise of the freemium business model has presented challenges for service developers in balancing service quality and generating demand for premium offerings. This study examines the relationship between perceived service quality, continued use of freemium services, and the decision to purchase premium content in the context of online events. The research focuses on LombaCademy, an educational platform who currently developing new online program names sharing sessions. Drawing on data collected from participants of LombaCademy's webinars (N = 220), this research utilized the PLS-SEM method through SmartPLS software. the objectives of the study are to examine the impact of service quality dimensions, including tangibility, reliability, responsiveness, assurance, and empathy, on continued use of free services and the decision to purchase premium products or features. The findings reveal significant positive relationships between empathy and tangibility to use intention. Moreover, use intention was found to have a significant direct and total effect on purchase intention, highlighting the importance of fostering use intention to drive purchase behaviour. Notably, reliability was identified as another significant predictor of purchase intention. These findings provide valuable insights for LombaCademy's business strategies in the competitive landscape of freemium services, particularly in the education industry. However, it is important to note the limitations of this study. The findings are based on a specific time and a sample of participants who have attended LombaCademy's webinars, which may limit generalizability to other service contexts or industries. Future research could explore the moderating effects of contextual factors and examine the role of emerging technologies to further enhance service quality and consumer behaviour in online events.*

**Keywords:** Freemium services; Perceived service quality; Continued use; Purchase intention; Online events

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## 1. Introduction

### 1.1 Background

Over the last decade, the freemium business model has become increasingly popular, especially in the online word (Rice, 2022). The freemium business model has spread to such sectors as music (e.g., Spotify, Last.fm), magazines, social networks, data storage, virtual worlds, and most pertinently games. The freemium model also known as “free-to-play” in the gaming industry is a business model where companies offer a basic version of their product for free, while generating revenue through additional premium features or services that customers must

pay for (Segal, 2022). In the freemium model, the careful interplay between the free core service and additional premium offerings is essential to create value (Hamari, Hanner, & Koivisto, 2020).

Developers of freemium and free-to-play services face the challenge of increasing revenue for premium content while maintaining a high-quality core service. This balancing act involves maximizing the quality of the free service while also generating revenue from premium features (Hamari, 2020). The subjective judgment of consumers regarding the overall quality of a product or service plays a crucial role in the success of the freemium business model. This concept is known as perceived service quality (Polyakova & Mirza, 2015). It not only predicts customers' willingness to continue using the free service but also their likelihood of purchasing premium features (Hamari, Hanner, & Koivisto, 2017). Perceived service quality also influences customer retention and word-of-mouth intentions. Research has shown that customers are more likely to pay for premium features if they perceive the free service to be of high quality.

Companies that utilize the freemium model face the challenge of ensuring that customers perceive the quality of the free service to be high enough to motivate them to make premium purchases. However, measuring and managing perceived service quality can be difficult due to its subjective nature (Polyakova & Mirza, 2015). Spotify, a successful company that employs the freemium model, offers a free tier with limitations and a premium subscription-based tier. They have managed to strike a balance between providing value to free users and meeting the needs of paying subscribers.

On the other hand, there have been cases of start-ups that failed to make the freemium model work. These failures can be attributed to offering either too little or too much value with their free products or services (Forbes). Companies like Symform and OnLive encountered service quality issues that resulted in user dissatisfaction and, ultimately, the failure of their business models. The examples of Symform and OnLive highlight the significance of service quality in determining the success or failure of a freemium business model. The quality of the service is a crucial factor in determining whether users will continue using the free version or upgrade to the premium version. Therefore, businesses offering freemium services should focus on continuously monitoring and improving service quality, as well as being responsive to user feedback.

The SERVQUAL model, developed in the 1980s, is the most well-known measurement of service quality. However, it has faced criticism for its measurement scale and the way it assesses customer expectations and perceptions. As a response to this criticism, the SERVPERF model was developed, which simplifies the measurement of service quality by focusing on customers' perceptions of actual service performance rather than comparing them to expectations. While previous research has extensively used the SERVPERF model to measure service quality in various industries, there is limited investigation specifically addressing freemium services in the online event context. Incorporating relevant literature studies can provide insights into how factors of perceived service quality impact consumer behavior, such as continued use and purchases of premium products, in freemium services.

### **1.1.1 Problem Statement**

LombaCademy, an educational platform that helps students prepare for the Saints National Olympiad LombaCademy is one of the companies that also offer freemium services. LombaCademy is currently developing a new program in social media names sharing sessions.

There are two packages that we offer, which are free and premium. However, the number of customers who purchase the free package is always bigger. The average percentage of customers who purchase the premium package is only 31% of all participants. This has become one of the biggest flaws of the freemium model is that a company can burn its cash reserves fast supporting many non-paying customers. Additionally, only a small percentage of free users convert to the paid tier in freemium models, so covering even fixed costs with freemium pricing requires a huge user base.

Reflect to the case of Symform and OnLive who have failed to make the freemium business model work, despite having a solid product and well established. Even when it comes to well established companies, it's quite difficult to motivate the customer to purchase premium features in the freemium service, especially for early startups such as LombaCademy. Research suggests that customers perceive more value with free offers than with premium offers, which can make it difficult to convince them to upgrade to the paid version. This indicates that customers perceive the quality of the free service as not high enough to motivate them to purchase premium features and address the problem of how to increase the revenue for additional premium content. This study aims to investigate the impact of perceived service quality on consumer behavior in a freemium online event service, particularly in terms of continued use and purchases for premium features.

## **1.2 Research Question**

- a. How do factors of perceived service quality of freemium services associated with consumer behavior (continued use and continued purchases for premium products) in online events?
- b. What strategies should LombaCademy consider increasing the purchase intention in freemium services especially online event?

## **1.3 Research Objective**

- a. Investigate how the perceived service quality influence the continued use of free services, and the decision to purchase premium service in online event
- b. To determine the aspect that should LombaCademy consider increasing purchase intention in freemium service especially in online event.

## **1.4 Scope and Limitations**

The research will focus on investigating the relationship between service quality dimensions (tangibility, reliability, responsiveness, assurance, and empathy), continued use of free services, and the decision to purchase premium products or features in the context of freemium services. The scope of the study will involve surveying consumers who have previously participated in LombaCademy's webinars (names sharing session for this context), and the findings may not be generalizable to other types of services or industries. There are several limitations to this study. Firstly, this study was conducted in the context of online event especially educational event results may be slightly different in other kinds of services. Secondly, the study will only involve consumers who have previously participated in LombaCademy's webinar events, which may not represent all potential customers. Future research may change as the research could involve a wider subject of research to guarantee the level of accuracy. Lastly, the research will only focus on identifying investigating the relationship between service quality dimensions and will not delve into the actual implementation and execution of the events.

## **2. Literature Review**

### **2.1 Service quality and its operationalization**

Service quality is typically defined as a consumer's assessment of an entity's overall excellence or superiority (Zeithaml, 1987). Service quality is also referred to as a type of attitude that is related to but not like satisfaction. This attitude stems from comparing expectations to actual performance (Bolton & Drew, 1991; Parasuraman et al., 1988). This model known as SERVQUAL model. Some researchers have argued that the model is too general and does not account for the unique characteristics of different services and industries. Others have criticized the model's measurement scale and the way it measures customer expectations and perceptions. Recently, Cronin and Taylor (1992) challenged the approach based on expectations-performance comparison, arguing that service quality is an attitude based solely on the evaluation of service performance. Later on, the critique of SERVQUAL model led to the emergence of the SERVPERF model. The SERVPERF model emerged as a performance-based measure of service quality, excluding consumer expectations.

### **2.2 Freemium service**

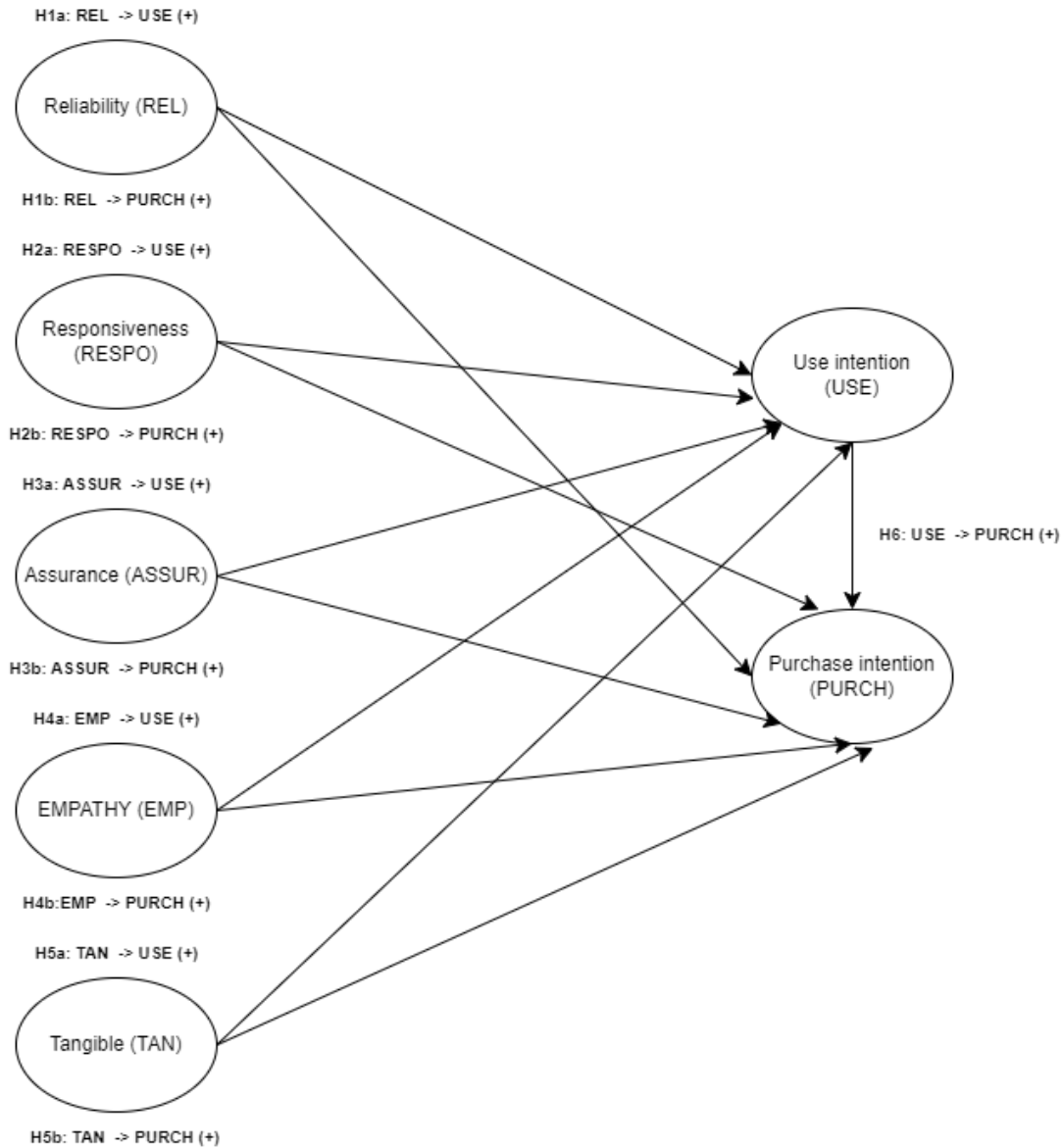
The business model known as "freemium" involves offering a basic product or service for free, with additional features or an improved experience available through a premium subscription or in-service purchases (Anderson, 2009; Anderson, 2013; Liu et al., 2014; Teece, 2010). The ability to convert nonpaying users into paying ones and retain paying users is crucial to the success of this model (Kumar, 2014).

### **2.3 Consumer Behavior**

Consumer behavior encompasses mental and physical activities that consumers engage in when searching for, evaluating, purchasing, and using products and services. In the marketplace, consumers exchange their scarce resources (including money, time, and effort) for items of value. (Cole, 2007). There is a correlation between consumer behavior, use intention, and purchase intention. Use intention refers to the likelihood or intention of a consumer to use a product or service, while purchase intention refers to the likelihood or intention of a consumer to buy a product or service. (Garcia, Saura, & Orejuela, 2020)

### **2.4 Hypothesis development: service quality in freemium service**

The researcher investigates the dimensions of the original service quality perceptions: reliability, responsiveness, assurance, empathy, and tangible in freemium services; particularly in education especially online event. Figure 1 depicts the research model and hypotheses.



**Figure 1: Research Framework**

### 2.4.1 Reliability

Reliability in service quality refers to the technical functionality and accuracy of the service (Zeithaml et al., 2000). Zeithaml et al. defined reliability as the capability of correcting technical functioning and providing the promised services accurately and dependably. Many authors have argued that providing accurate information on a website is the crucial determinant of reliability. This study adopted the reliability dimension as one of the important determinants of LombaCademy sharing session participant’s perceived service quality. As an information-based service, reliability is considered an important aspect and has a direct impact on perceived service quality and satisfaction. Accordingly, researcher hypothesize the following:

- H1a: The perceived degree of reliability is positively associated with use intentions.
- H1b: The perceived degree of reliability is positively associated with purchase intentions.

#### **2.4.2 Responsiveness**

Responsiveness defines the willingness to respond to customers and offer speedy assistance to fulfill their needs. According to Zeithaml et al. (Zeithaml, Berry, & Parasuraman, 1996) responsiveness refers to a quick response and the ability to solve problems or questions immediately. Providing customers with services and information when they require it is also termed responsiveness. Accordingly, researcher hypothesize the following:

H2a: The perceived degree of responsiveness is positively associated with use intentions.

H2b: The perceived degree of responsiveness is positively associated with purchase intentions.

#### **2.4.3 Assurance**

In the online service industry, where the physical presence is absent, assurance plays a crucial role in shaping users' perception of service quality. Researchers have identified various dimensions to assess assurance, including the security of transactions, privacy of sensitive information, and credibility (Cai & Jun, 2003). Furthermore, effectively addressing customer queries and complaints can contribute to the promptness and efficiency of e-learning services for new users. Based on this understanding, researcher propose the following hypothesis:

H3a: The perceived degree of assurance is positively associated with use intentions.

H3b: The perceived degree of assurance is positively associated with purchase intentions.

#### **2.4.4 Empathy**

Customers always want to feel unique and special, which is the main focal point of empathy (Zeithaml, Berry, & Parasuraman, 1996). According to Kassim and Abdullah (Kassim & Abdullah, 2010), empathy is defined as customized/individualized caring and the special attention paid service providers to their customers. Caring for and paying individual attention to every customer increases the level of satisfaction. The customer evaluates the provider positively when they feel that provider is trying to provide individual services according to their personal needs (Vaz & Mansori, 2013). Accordingly, researcher hypothesize the following:

H4a: The perceived degree of empathy is positively associated with use intentions.

H4b: The perceived degree of empathy is positively associated with purchase intentions.

#### **2.4.5 Tangible**

Tangibility in the context of service quality in online events may refer to the perceived physical aspects or features of the online event that users can interact with or experience. Tangibility can include elements such as the website or platform design, ease of use, clarity of instructions, availability of resources, and overall user experience. In online events, tangibility may also extend to the quality of audio and video, interactive features, and technical support. (Cai, Xu, & Yang, 2019). Accordingly, researcher hypothesize the following:

H5a: The perceived degree of tangible is positively associated with use intentions.

H5b: The perceived degree of tangible is positively associated with purchase intentions.

#### **2.4.6 Intention**

The freemium model is commonly adopted to attract a large customer base through free entry pricing as stated by Anderson (2010), Hamari and Järvinen (2011), and Oestreicher-Singer and Zalmanson (2013). However, without strong user acquisition and retention strategies, customers may be less inclined to purchase additional premium products and services.



Therefore, it is crucial for users to continue using the freemium service to generate an intention to purchase premium content, as emphasized in prior research (e.g., Bhattacharjee, 2001; Hamari, 2015; Hanner & Zarnekow, 2015; Mäntymäki & Salo, 2013; Hamari, Keronen & Alha, 2015). Based on these findings, we hypothesize the following relationship in the context of freemium services

H6: Users' intention to use the service will positively influence their intention to make a purchase.

### 3. Methods & Data

#### 3.1 Data

The data collected using quantitative methods, specifically through the distribution of questionnaires. The questionnaires distributed focuses on the participant of sharing session program by LombaCademy through various channels, including direct contact, sharing sessions groups, and email invitations using google forms. The survey was active for 10 days. The only question to verify the profile of respondent is asking for their involvement in LombaCademy's events. Due to the nature of the data available in LombaCademy's database, researcher was not explicitly collected specific demographic information such as occupation and domicile. During the timeframe of the survey, 220 responses were collected.

Figure 2 outlines the demographic details of the respondents using contingency table. It can be inferred that most respondents have participated on the first session of LombaCademy's event previously by representing 40.5% respondents. College student dominated for every session by representing 55%, and most respondents who filled out the questionnaire were mostly from Java Island with the presentation of 67.3% or as many as 148 out of 220 respondents. This most likely reflect the point of view of the participant from the first sharing session held by LombaCademy who mostly from Java Island with occupation as college students.

Count of Occupation	Column Labels					Grand Total
Row Labels	Mahasiswa	SMA	SMA	SMP	Umum	
<b>#1 Sharing Session - Esther Natalia</b>	<b>48</b>	<b>34</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>89</b>
Bali	2					2
<b>Jawa</b>	<b>22</b>	<b>26</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>53</b>
Kalimantan	4	2				6
NTT	4					4
Sulawesi	5	1				6
Sumatera	11	5			2	18
<b>#2 Sharing Session - Eunike Putri</b>	<b>50</b>	<b>24</b>		<b>2</b>	<b>9</b>	<b>85</b>
Bali	1					1
<b>Jawa</b>	<b>35</b>	<b>20</b>		<b>2</b>	<b>6</b>	<b>63</b>
Kalimantan	5	1				6
NTT	1					1
Sulawesi	1					1
Sumatera	7	3			3	13
<b>#3 Sharing Session - Aisha Rizqy</b>	<b>23</b>	<b>15</b>		<b>1</b>	<b>7</b>	<b>46</b>
Bali	1					1
<b>Jawa</b>	<b>16</b>	<b>11</b>			<b>5</b>	<b>32</b>
Kalimantan	3					3
NTT	1				1	2
Sulawesi		2			1	3
Sumatera	2	2			1	5
<b>Grand Total</b>	<b>121</b>	<b>73</b>	<b>1</b>	<b>4</b>	<b>21</b>	<b>220</b>

Figure 2: Contingency Table for Respondent Profile

### 3.2 Measurement

The survey used the SERQUAL scale, which included reliability, responsiveness, assurance, empathy, and tangible as the independent variables. Additionally, the dependent variables were constructs related to intentions for continued use and purchase. The constructs used in the survey were derived from previous literature and were modified to suit the context of freemium especially in online event. Table 1 provides an overview of the constructs included in the survey instrument and the sources from which they were adapted. Each construct consisted of two to five items, which were measured on a five-point likert scale ranging from “strongly disagree” to “strongly agree” but for the item use and purchase intention measured on a ten-point numerical scale ranging from “uncertain” to “certain”. The specific items used in the survey can be found in Appendix A.

It's important to note that the survey was conducted in Indonesia. Therefore, the items adapted from prior research literature were translated from English to Indonesia by the authors.

**Table 1: Measurement**

Construct	Name	Total items	Source
Dependent variables			
USE	Use intention	3	(Bhattacharjee, A. 2001).
PURCH	Purchase intention	3	(Garcia, Saura, & Orejuela, 2020)
Independent variables			
REL	Reliability	5	(Zeithaml et al., 2000)
RESPO	Responsiveness	3	(Zeithaml, Berry, & Parasuraman, 1996)
ASSUR	Assurance	2	(Cai & Jun, 2003)
EMP	Empathy	2	(Kassim & Abdullah, 2010)
TAN	Tangible	3	(Cai, Xu, & Yang, 2019)

### 3.3 Validity & reliability

The model-testing was performed using the component-based Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4.0 M3 (Ringle, Wende, & Will, 2005). Compared to covariance-based structural equation methods (CB-SEM), PLS-SEM offers several advantages. Firstly, PLS-SEM is non-parametric, meaning it does not rely on restrictive assumptions about the data distributions. Secondly, PLS-SEM is particularly suitable for prediction-oriented studies like the present one, whereas covariance-based SEM is more appropriate for testing model fit (Anderson & Gerbing, 1988; Chin, Marcolin, & Newsted, 2003).

Convergent validity was evaluated using two metrics: average variance extracted (AVE), and Cronbach’s alpha (Alpha) (refer to Table 2. All these metrics exceeded the thresholds established in relevant literature (AVE > 0.5, as suggested by Fornell & Larcker, 1981, and Cronbach’s alpha > 0.7 as suggested by Nunnally, 1978). A general accepted rule is Cronbach’s alpha should greater than 0.7 but based on Dahlan et al (2014) if the Cronbach’s alpha is greater than 0.4 indicates the data is reliable enough. Thus, it can be concluded that the model satisfied the requirements for convergent validity and reliability.

Discriminant validity was assessed in two ways. Firstly, by comparing the square root of the AVE for each construct with the correlations between that construct and other constructs (as



recommended by Fornell & Larcker, 1981). In this comparison, the square root of the AVE for each construct should be greater than the correlations between that construct and any other construct (Jöreskog & Sörbom, 1996; Chin, 1998). Secondly, discriminant validity was examined by ensuring that each item had the highest loading with its corresponding construct. Based on these assessments, it can be concluded that the model demonstrated acceptable discriminant validity and reliability.

**Table 2: Convergent and discriminant validity**

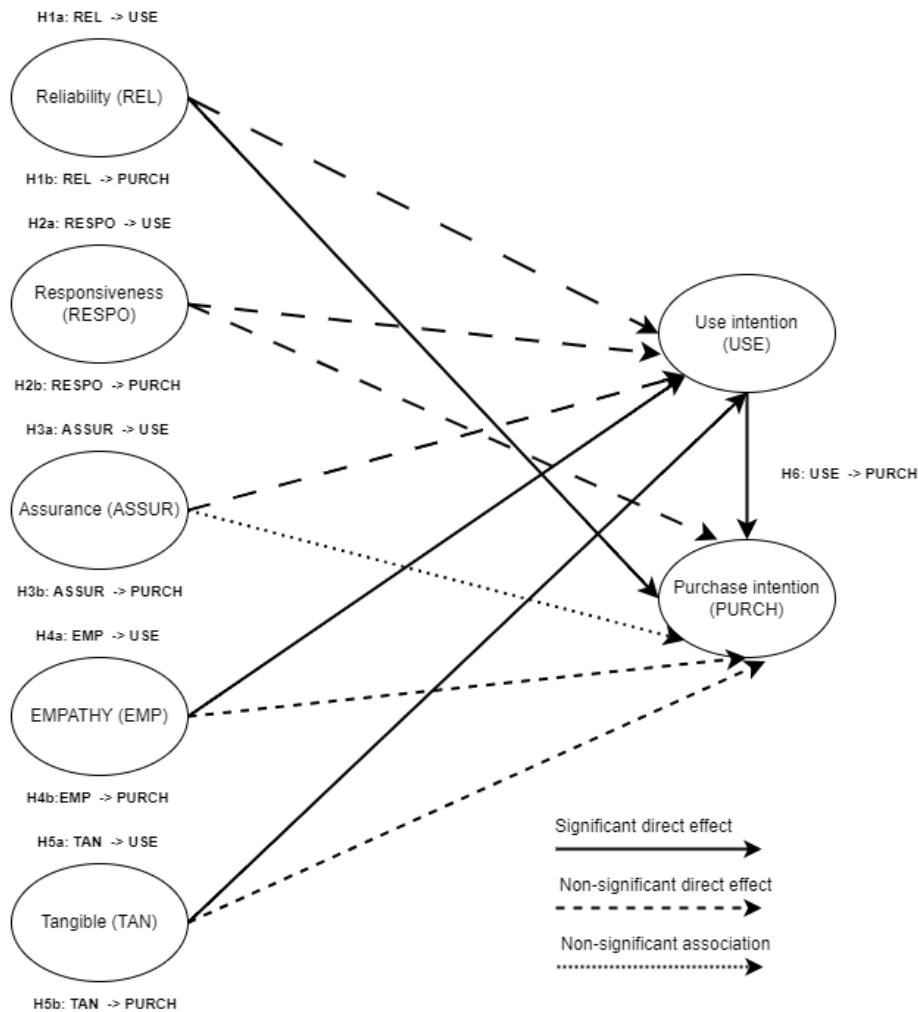
	AVE	Alpha	REL	RESPO	ASSUR	EMP	TAN	USE	PURCH
REL	0.504	0.753	<b>0.710</b>						
RESPO	0.552	0.595	0.647	<b>0.743</b>					
ASSUR	0.654	0.472	0.695	0.575	<b>0.809</b>				
EMP	0.698	0.568	0.647	0.561	0.520	<b>0.835</b>			
TAN	0.542	0.578	0.709	0.661	0.694	0.574	<b>0.737</b>		
USE	0.712	0.798	0.625	0.564	0.571	0.602	0.645	<b>0.844</b>	
PURCH	0.818	0.888	0.442	0.375	0.354	0.373	0.394	0.473	<b>0.904</b>

#### 4. Result

All results can be seen in Figure 3 and Table 3.

**Table 3: Direct and indirect effects**

		H#	Direct Effect	p-value	Indirect Effect	p-value	Total effect	p-value
Use intention	Reliability	H1a	0.141	0.103			Same as direct as there is no mediation in the model	
	Responsiveness	H2a	0.097	0.215				
	Assurance	H3a	0.102	0.160				
	Empathy	H4a	0.249	0.000				
	Tangible	H5a	0.267	0.002				
Purchase Intention	Reliability	H1b	0.196	0.019	0.041	0.178	0.237	0.013
	Responsiveness	H2b	0.062	0.469	0.029	0.244	0.090	0.312
	Assurance	H3b	-0.014	0.877	0.030	0.200	0.017	0.857
	Empathy	H4b	0.032	0.638	0.073	0.018	0.105	0.137
	Tangible	H5b	0.267	0.857	0.078	0.054	0.095	0.324
	Use Intention	H6	0.294	0.004			0.294	0.004



**Figure 3: Research model**

The path model shows that all dimension of service quality positively predict intention to use, but only empathy and tangible shows significant positive direct effect to use intention. (H1a-H3a not supported). Interestingly, none of the service quality dimension were directly effect to the intention to purchase premium content in online event (H2b-H5b were not supported). Howeverm there was a significant positive overall effect between reliability and purchase intention, which was mediated by use intention. All other mediated effects were found to be insignificant. Furthermore, as expected, use intentions showed a positive association with intentions to purchase (H6 supported)

## 5. Discussion

In this study, researchers want to have a deeper understanding of perceived service quality in the online event and the most important dimension of service quality. Other than that, the study also aims to have a better understanding on how service quality affects customer behaviour, which in this case are use and purchase intention in online events.

Based on the PLS-SEM analysis the findings of this research indicate that several factors of perceived service quality have a significant influence on consumer behavior in the context of online events. Reliability, responsiveness, empathy, and tangible aspects of service quality were found to have a positive correlation with both use intention and purchase intention.

Specifically, empathy and tangible aspects of service quality were found to have a positive and significant correlation with use intention. This implies that when online events exhibit higher levels of empathy and tangibility, consumers are more likely to continue using the service.

On the other hand, reliability and use intention was found to have a significant positive association with purchase intention. This suggests that when online events are perceived as reliable, consumers are more inclined to have an increased intention to make premium purchases. And also the positive correlation between use intention and purchase intention indicates that participants who express a higher intention to attend and participate in online education events are more likely to have an increased intention to make future purchases.

Several implications can be drawn to guide LombaCademy in increasing purchase intention in their freemium services, particularly online events:

- a. Enhance reliability: LombaCademy should focus on delivering online events that are well-organized, adhere to schedules, and provide accurate information to instill confidence and trust among participants. This can be achieved through effective event planning, quality control measures, and clear communication with participants.
- b. Building upon the significant influence of use intention on purchase intention, LombaCademy can focus on strategies that enhance use intention as a means to increase purchase intention. This involves considering the variables that have been identified as significant influencers of use intention in the research findings, such as empathy, and tangibility.

Firstly, LombaCademy should focus on enhancing the empathy and tangible aspects of their online events. This can be achieved by fostering a sense of empathy and understanding among event organizers, providing personalized experiences, and incorporating interactive elements that enhance the tangibility of the event.

Secondly, recognizing the significant influence of reliability on purchase intention, LombaCademy should prioritize maintaining and improving the reliability of their online events. This includes ensuring smooth event operations, timely delivery of event materials, and minimizing technical issues.

By implementing these strategies and focusing on the factors that significantly influence use intention (empathy and tangibility) and purchase intention (reliability and use intention), LombaCademy can effectively increase purchase intention and drive the success of their freemium services.

### **5.1 Limitations and future research**

The limitation of this study is the study focused on online educational events within the freemium service context and the population number of the respondents that had previously participated in in LombaCademy's webinars during the period from November 2022 to March 2023. Therefore, the findings may not be directly generalizable to other types of services or industries and may not fully capture the perspectives and behaviors of all potential customers. Future research should consider expanding the scope to include a broader range of services to enhance the external validity of the findings and a more diverse and representative sample to improve the generalizability of the findings.

This research also compared the findings with a reference study conducted in the gaming industry. Future research could further explore and compare the impact of perceived service

quality factors on consumer behavior in different industries, such as education, entertainment, or e-commerce. This would provide valuable insights into the industry-specific nuances and shed light on the generalizability of the findings across diverse contexts.

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