
Effects of Information Quality, System Quality, and Service Quality on Taxpayers' Satisfaction in E-Filing System of Bureau of Internal Revenue 21B

Ellaine P. Maglaqui (Corresponding author)

Our Lady of Fatima University – Graduate School (Pampanga Campus)
City of San Fernando, Pampanga, Philippines
epmaglaqui@gmail.com

Jean Paolo G. Lacap

Our Lady of Fatima University – Graduate School (Pampanga Campus)
City of San Fernando, Pampanga, Philippines
jvglacap@gmail.com

Abstract

This study examined the effects of information quality, system quality and service quality on taxpayer satisfaction with e-filing system. The respondents of this current study were random individuals and authorized representatives of corporate taxpayers using e-filing system duly registered at BIR RDO No. 21B-South, Pampanga. This current study used purposive sampling technique and data were collected from 203 respondents using survey questionnaire. A causal-predictive research design was utilized, and partial least squares-structural equation modelling and mediation analysis were utilized to test the identified hypotheses. The results showed that information quality, system quality and service quality have significant and positive effects on taxpayers' satisfaction. The results also showed that service quality, as the moderating variable, does not affect the strength of the relationship between information quality and taxpayer satisfaction, and between system quality and taxpayer satisfaction.

Keywords: *information quality, system quality, service quality*

1. Introduction

Many governments around the world are under pressure to deliver advanced and customized services to their citizens due to high demands at increased functionality of online applications. Thus, to utilize advanced technologies, many local governments have turned to information and communications technologies (Chen, 2002).

Moreover, as e-governmental services become a basic part of modern interaction between local governments and their citizens, the quality of offered services has played a crucial driving role in executing e-government system (Naz, 2009). In this way numerous public organizations have paid attention seriously to this issue and turned to innovation in information technology to offer assortment of e-services at improved degree of service quality (Chen, 2002).

E-filing is one of the system parts of e-government used in taxation and since its initiation, it has produced enthusiasm among government organizations, academicians, and analysts. Governments are actualizing information and communication technologies to empower e-government to improve the effectiveness of taxpayer driven organizations given to citizens, workers, businesses, and agencies (Carter & Belanger, 2005). Also, Mohd (2003) presented that the mission to execute e-government by most nations is expanding because of its potential advantages where e-government can upgrade the way that a government cooperates with citizens and businesses.

Wang and Liao (2008) also suggested that e-government internet-based applications are fit to be studied using the updated DeLone & McLean Information System (IS) Success Model. This theory measures the effectiveness of information system which is then updated by adding the measurement of service quality due to the increased use of information technology. It explained that information quality, system quality, and service quality affect user satisfaction and intention to use. Also, intention to use/use and user satisfaction will affect net benefits.

Furthermore, according to DeLone and McLean's (1992, 2003) Information System (IS) success model, an IS's success may be measured in terms of information, system, and service quality, which affect user satisfaction and system use, resulting in certain benefits for the individual or organization. Hence, generally speaking, the model assumes that users' satisfaction in relation to information system (IS) is influenced by several factors and has consequences for both the organization, employees, and stakeholders alike.

Islam, Yusuf, Yusoff, and Johari (2012) also adopted the updated DeLone and McLean's information system success model and discovered that the user satisfaction's key determinants are the information quality, system quality, and service quality. Furthermore, the user's perceived net benefits can also be analyzed if they have positive relationship with user satisfaction and effect of technology readiness on relationship between electronic service quality dimensions and user satisfaction in e-filing.

1.1 Theoretical Underpinnings

The present study is grounded on two (2) theories: namely, technology acceptance model (TAM) and service quality framework (SERVQUAL). Technology acceptance model or simply TAM is an information systems theory that shows how users come to accept and utilize a technology. When users are presented with new technology, TAM suggests that a variety of factors impact their decision on how and when to use it (Fu, Farn, & Chao, 2006).

According to Davis, Bagozzi, and Warshaw (1989), TAM adopts the theory of reasoned act (TRA) model of Fishbein and Ajzen (1976) to explore the IT acceptance. Each model aims to predict system acceptance and to diagnose design problems.

Furthermore, user acceptance of any technology, measured by a person's intention to use the technology, is determined by two beliefs – perceived ease of use and perceived usefulness – which mediate the effects that external variables have on usage intention. Likewise, Ghazizadeh and Boyle (2012) characterized TAM as a construct that provides a framework

and govern acceptance for evaluating a broad range of factors influencing technology reliance and acceptance.

In addition, Lee, Kozar, and Larsen (2003) described that in the field of Information Systems (IS), TAM is the most extensively used theoretical model to recognize user acceptance of IS applications. Chang, Li, Hung, and Hwang (2005) also indicated that TAM shows to be a substantial model to explain the taxpayers' acceptance of the Internet tax-filers' system and observed the effect of quality antecedents of perceived ease of use and perceived usefulness, which are information system quality, information quality and perceived credibility on adoption intention.

Moreover, Tao (2008) stated that information quality and system quality represent two (2) aspects of e-resources features by serving as external variables that indirectly affect behavior intention by directly influencing perceived usefulness and perceived ease of use. Salloum, Alhamad, Al-Emran, Monem, and Shaalan (2019) likewise indicated that system quality and information quality were among the most common external factors of TAM.

Service quality or SERVQUAL of Parasuraman, Zeithaml, and Berry (1985) is an extensively used model for assessing and measuring service quality in order to ascertain the relationship between the expected service and the actual service received in a certain circumstance (Tan & Kek, 2004). SERVQUAL measurement instrument places emphasis on quality as it indicates the difference among customers' perceptions of the service received and expectations about a particular service (Jordaan & Prinsloo, 2001).

According to Parasuraman, Berry and Zeithaml (1991), in measuring quality of services of an organization, and the perceptions of customers on service quality, the SERVQUAL dimensions and items are used as they represent the core evaluation criteria. The quality of the services is generally measured by the five (5) dimensions of SERVQUAL model, which are: tangibles, assurance, reliability, responsiveness, and empathy (Parasuraman, Zeithaml, & Berry, 1988).

Reliability is described as the capacity of the system to perform or convey the promised service dependently and accurately. Responsiveness is characterized as the eagerness to help the user and serve an instant and quick assistance. Empathy is characterized as the willingness of the staff to give the personal attention, and help, and solve the issues encountered by the user of the system. The two (2) dimensions, tangible which is defined as "the physical facilities and equipment used to access the system" and assurance which is defined as "the knowledge, courtesy, and the ability of the personnel to encourage the user's trust and confidence to the system", were excluded from the measurements since taxpayers mostly used their computers and laptops to access the system and, since the system is owned by the government, the assurance is guaranteed (Simorangkir, 2018).

The researchers observed that information quality, system quality, and service quality are important to taxpayers in using the e-filing system.

2. Research Framework and Hypothesis Development

2.1 Information Quality

Information quality is defined by Chang, et al. (2005) as the degree of how much users are provided with quality information with regards to their needs. Also, Wahyudi, Respati, and Ardianto (2017) concluded that information quality is a measurement focused on outputs the system produces, and the value for user's output.

Wu and Wang (2006) also proposed that one of fundamental antecedents of user satisfaction is information quality. The government's e-filing system is expected to be reliable, user friendly, fast in response. Ease of use could also be a relative term especially when one is more technology savvy than the other.

Information quality has an effect on taxpayer satisfaction since e-filing system is mostly self-service; the taxpayers need information in using the e-filing system. The level of quality is measured in terms of accuracy, informativeness, timeliness, and relevancy of the information it contains (Lestari, 2019).

2.2 System Quality

System quality, according to Jogiyanto (2007) and Chen (2010), means the quality of hardware and software combined. The system quality or the technical quality of the information system is a measure of processing the information system itself or the quality of the system itself. Likewise, system quality has an effect on taxpayer satisfaction. The system supports taxpayers to process fast and complete transactions using e-filing (Lestari, 2019). In addition, indicated system quality is shaped in terms of accessibility, flexibility, reliability, response time, and integration.

2.3 Service Quality

Service quality is another vital factor that has an effect on taxpayer satisfaction because taxpayers need security and responses from the system (Lestari, 2019). The organization requires to have an appropriate service to ensure that technology is fully utilized and for employees to adopt innovations. Service quality and the general support carried by the service provider towards electronic information system are measured in terms of empathy, assurance, responsiveness, and quality dimensions (DeLone and McLean, 2004).

Service quality is evaluated in terms of the performance support and staff's responsiveness to the difficulties that the users encountered from the system. It is also vital that the service personnel have technical competence in addressing complexities related with the system features (Ajoye & Nwagwu, 2014).

2.4 Information Quality to Taxpayer Satisfaction

The information quality has a significant direct impact on user satisfaction as indicated by the study of Wahyudi, et al. (2017), which means higher or lower information quality delivered by the system administrator has a high impact on user satisfaction. Previous study made by Wang, et al. (2008) presented that information quality has a positive influence on user satisfaction, and other studies such as Wang & Lai (2014); Khayun & Ractham (2011); Cho, Bae, Ryu, Kim,

An, & Chae (2015); Lwoga, (2013); Makokha and Ochieng (2014) were also in agreement with the idea that user satisfaction can be predicted by information quality. However, other studies by Cheng, Liu, Qian, and Song (2013) and Serumaga-Zake (2017) discovered that there is no relationship between user satisfaction and information quality.

2.5 System Quality to Taxpayer Satisfaction

Numerous researchers have found that system quality has a positive relationship with user satisfaction; one of these studies was conducted by Isaac, Abdullah, Ramayah, and Mutahar (2017). Other prior studies, which were in agreement, were conducted by Ajoye and Nwagwu (2014) and Wang, et. al (2014) who also concluded that there is significant relationship between system quality and user satisfaction. The studies of Gelderman (2002), Kulkarni, Ravindran, and Freeze (2006), Wu and Wang (2006) and Halawi, et al. (2007) found a strong influence or a significant correlation between system quality toward user satisfaction.

The study of Hudin, et al. (2016) also revealed that system quality and information quality have a significant positive effect on user satisfaction and user satisfaction is significantly positive to the net benefit of information system. However, some studies yielded opposite result such as the studies of Sun, Tsai, Finger, Chen, and Yeh (2008), Chi (2013), Khayun and Ractham (2011), which indicated that system quality does not influence user satisfaction.

2.6 Service Quality to Taxpayer Satisfaction

According to Cho, et al. (2015), utilization of ISs in Korea established that service quality and user satisfaction have a positive relationship, and other previous studies also support that service quality appears to have a positive effect on user satisfaction (e.g., DeLone & McLean, 2003; Wang, et al., 2014; Cheng, et al., 2013; Nikhashemi, Paim, & Yasmin, 2013; Khayun & Ractham, 2011; Makokha, et al., 2014). The study of Wang and Liao (2007) showed that service quality has the strongest positive relationship with user satisfaction followed by information quality and system quality, which are critical dimensions influencing user satisfaction of e-filing system. Other studies revealed that service quality has no effect to user satisfaction (e.g. Wang, et al., 2008; Lwoga, 2013).

As mandated by Section 2 of the Philippine's National Internal Revenue Code of or NIRC of 1997, the Bureau of Internal Revenue or BIR is mandated by law "to assess and collect all national internal revenue taxes, fees, and charges, and to enforce all forfeitures, penalties, and fines connected therewith". In recent years, BIR has improved its tax forms to cope with the taxpayers' needs in processing and transmitting tax return information and taxes through the use of technology-based forms, which can be accomplished electronically via Internet (BIR, 2020).

The Electronic Filing and Payment System (eFPS) of BIR provides taxpayers the advantage of a paperless tax filing experience and make online payment of taxes due to the government through the BIR website and via debit from their enrolled bank account through an internet-banking service conveniently (Agoncillo, 2020).

Wang (2003) suggested that there is a need to understand the acceptance of the users of the electronic tax-filing and payment systems and identify the factors that can affect their

satisfaction. To plan and promote new forms of electronic tax-filing systems in the future, this issue is important because the answer could help the government. Hence, the present research aims to determine how information quality, system quality, and service quality affect the level of satisfaction of taxpayers.

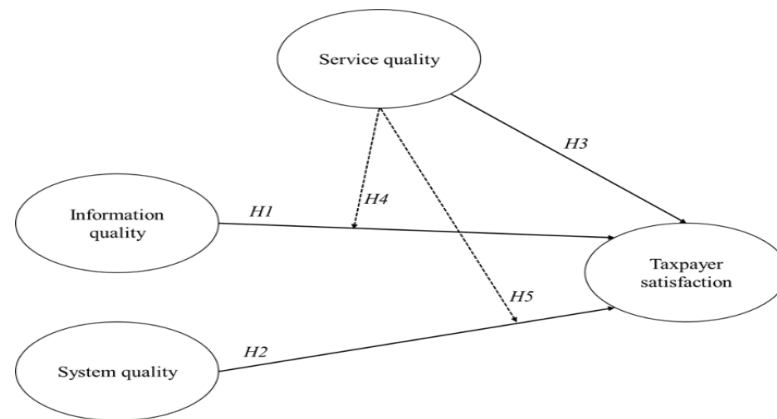


Figure 1. Conceptual Framework

Figure 1.1 presents information quality and system quality which can both contribute to the level of taxpayer satisfaction. Moreover, it includes service quality which also can contribute to the level of taxpayer satisfaction and moderates the relationship between information quality and taxpayer satisfaction and the relationship between system quality and taxpayer satisfaction.

2.7 Hypothesis of the Study

Based on the extended literature review, the hypotheses of the study are as follows:

- H1. Information quality significantly and positively affects taxpayer satisfaction.
- H2. System quality significantly and positively affects taxpayer satisfaction.
- H3. Service quality significantly and positively affects taxpayer satisfaction.
- H4. Service quality moderates the significant and positive relationship between information quality and taxpayer satisfaction.
- H5. Service quality moderates the significant and positive relationship between system quality and taxpayer satisfaction.

3. Methods

The purpose of this research study is to determine the significant relationship of information quality, system quality and service quality to the level of taxpayer satisfaction in using e-filing system of BIR RDO 21B. This research can be considered as quantitative research. The survey method is used to gather information to empirically test the developed framework, and data were used to examine the distribution of statistical population characteristics.

3.1 Research Design

A causal-predictive research design was employed in this current study. This research design is used to measure the hypothesized relationships among the constructs' direct and indirect

relationships (Chin, et al., 2020; Hwang et al., 2020). The partial least squares structural equation modelling (PLS-SEM) and WarpPLS 7.0 were utilized to estimate the parameters of this current study's framework.

3.2 Research Respondents

The present study's participants were random individuals and authorized representatives of corporate taxpayers who have used the BIR's e-filing system duly registered at BIR RDO 21B -South, Pampanga. Purposive sampling is the method used in this study since the targeted population were taxpayers or authorized taxpayers' representatives using e-filing system. The purposive sampling method is a non-probability sampling method, which is used to determine the sample of research with a certain or specific criterion such as the features of the population or other attributes that have been previously known, and aims to have results with more representative data (Notoatmodjo, 2010).

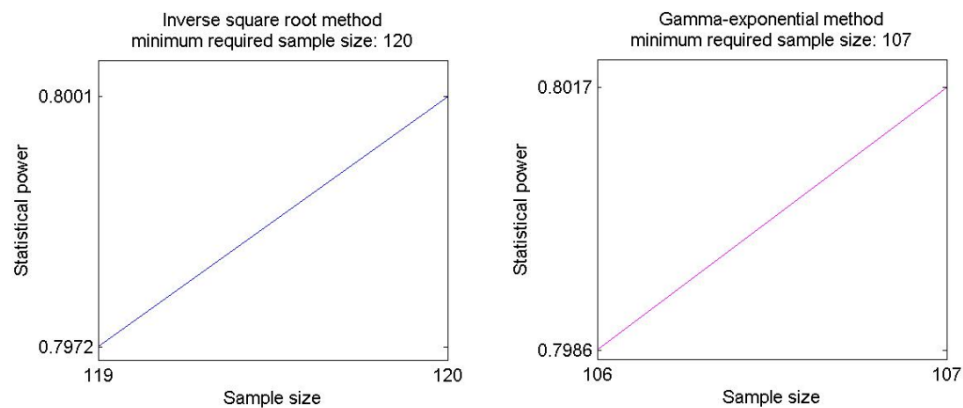


Figure 2.1 Computation of the Sample Size

The sample size was computed using inverse square root and Gamma-exponential methods (Kock & Hadaya, 2018). Using the minimum absolute significant beta coefficient of 0.227, level of significance of 0.05, and power level of 0.80, the two methods suggested sample sizes of 107 from Gamma-exponential, and 120 from inverse square root. The recommended sample size was lower than the actual sample size of 203 which signifies that the results of the PLS-SEM are robust to support the findings of the hypothesis testing.

3.3 Research Instruments

The data gathered for this study were obtained through the use of survey instrument. The questionnaires disseminated were answered by the respondents electronically via Google Forms. The survey form can be accomplished within 10 minutes to 15 minutes. The instrument comprises of five (5) parts. The first part covers demographic characteristics of the respondents including gender, age, civil status, highest educational attainment, occupation, and taxpayer classification. The second part covers items of system quality which has three (3) dimensions; access has three (3) items, interactivity has three (3) items and ease of use has three (3) items. The third part covers items of information quality which has two (2) dimensions; informativeness has four (4) items and accuracy has three (3) items. The fourth part covers items of service quality which has three (3) dimensions; responsiveness has three

(3) items, reliability has three (3) items and empathy has three (3) items. All items used are measured by an interval scale, the 5-point Likert scale, where 5 means strongly agree, 4 means agree, 3 means neither agree nor disagree, 2 means disagree and 1 means strongly disagree. However, in the last part, the semantic differential scale was used to measure the overall experience of the respondents in using the BIR e-filing system. They were asked to rate their overall experience from 1 being the lowest to 5 being the highest. All these items were all taken from the study of Chen (2010).

3.4 Data Gathering Procedures

This current study utilized survey questionnaires to define the participants' demographic profile, and parameters for information quality, system quality, service quality and taxpayer satisfaction. Since the study covered the BIR RDO 21B taxpayers, the researchers were able to easily administer the survey questionnaires. Gathered data were processed using the WarpPLS, employing proper statistical tools.

3.5 Statistical Treatment

Different statistical tools were used to handle the transformation of data into useful information. Below are the statistical tools used in this present study with brief descriptions, to wit:

Cronbach's alpha or coefficient alpha. It is used for assessing internal consistency and to determine the reliability of adopted instruments.

Frequency and percentage. These tests are used to describe the respondents' demographical data.

Partial Least Squares – Structural Equation Modeling (PLS-SEM). It is a suitable statistical method when there are mediators in the research model because it measures the hypothesized estimates, and statistical significance. This statistical test gives the values of the path coefficients. Moreover, PLS-SEM is appropriate since the present research comprises of a complex structural model with formative and latent constructs.

Moderation. These tests are used to check whether a third variable influences the strength or direction of the relationship between independent and dependent variables.

Weighted mean and standard deviation. These tests are used to illustrate the descriptive statistics of each construct.

4. Results

Descriptions of the survey results and data analyses are provided in narrative and tabulated manner in this chapter. Demographic profile of the respondents and hypotheses testing were presented, analyzed and processed using statistical tools and WarpPLS.

4.1 Demographic Profile of the Respondents

Table 3.1 presents the demographic characteristics of the respondents. Out of 203 respondents, 69% were female taxpayers. In terms of civil status, 51.2% were married, while 43.8% were single. Out of the total respondents, only 6 were widowed/widower, and the remaining were separated/annulled.

Moreover, 81.3% of the participants finished college degrees and 15.8% graduated with master's or doctorate degrees. Only 2.5% indicated that they finished high school. With regard to occupation, 82% were employed. In terms of age, 49.8% belonged to 18 to 30 age group, while 27.6% were in the 31 to 40 age cohort. Out of 203, 41 were in the group of 41 to 60 years old, and the rest were more than 60 years old.

In terms of classification, 89.7% were individual taxpayers.

Table 3.1 Demographic Profile of the Respondents

Demographic Profile	Frequency	Percentage
Sex		
Male	63	31.0
Female	140	69.0
Civil Status		
Single	89	43.8
Married	104	51.2
Separated/Annulled	4	2.0
Widowed/Widower	6	3.0
Highest Educational Attainment		
High School/Secondary	5	2.5
College/Bachelor's Degree	165	81.3
Master's/Doctorate Degree	32	15.8
Others (Bachelor of Laws)	1	.5
Occupation		
Employed	168	82.8
Self-Employed	35	17.2
Age		
18-30	101	49.8
31-40	56	27.6
41-50	20	9.9
51-60	21	10.3
> 60	5	2.5
Taxpayer Classification		
Individual	182	89.7
Non-individual	21	10.3

4.2 Respondents' Assessment on the Constructs of the Study

Table 3.2 manifests the assessment of the respondents on the following constructs – information quality, system quality, service quality, and taxpayer satisfaction. Analysis of the data revealed that the respondents agree that information quality is evident in the e-filing system of BIR ($M = 4.18$, $sd = 7.72$). On the other hand, the participants strongly agree that the quality of system in the e-filing system of BIR is much evident ($M = 4.25$, $sd = .72$). In terms of service quality, the respondents agree that they observe service quality in the e-filing system of BIR ($M = 4.13$, $sd = .83$). Additionally, the level of satisfaction from the taxpayers

is very strong ($M = 4.20$, $sd = .75$) signifying that they are strongly satisfied with the e-filing system of BIR.

Table 3.2 Assessment of the Respondents on the Constructs of the Study

Construct	Mean	SD	Interpretation
Information Quality	4.18	.72	Agree
System Quality	4.25	.72	Strongly Agree
Service Quality	4.13	.83	Agree
Taxpayer Satisfaction	4.20	.75	Strongly Agree

Legend: 1.00-1.79: strongly disagree; 1.80-2.59: disagree; 2.60-3.39: neither agree nor disagree; 3.40-4.19: agree; 4.20-5.00: strongly agree.

4.3 Results of PLS-SEM Model

The present study utilized partial least squares – structural equation modelling (PLS-SEM) to gauge all hypothesized relationships in the present student. PLS-SEM is a second-generation statistical test and has two (2) primary phases of evaluation. The first phase involves the assessment of the measurement model. The second phase, on the other hand, is the evaluation of the path coefficients (Hulland, 1999; Dimaunahan & Amora, 2016; Lacap, 2019).

To examine the robustness of the measurement model, both reliability and validity tests were conducted. Reliability tests are conducted to measure the quality of research instrument used in a study. An instrument is said to be reliable if the measures or items for each latent variable are understood in the same way by different participants (Kock, 2017). In the present study, both Cronbach's alpha (CA) and composite reliability (CR) were gauged. The acceptable coefficient for both CA and CR is 0.70 and above (Fornell & Larcker, 1981; Nunnally, 1978; Nunnally & Bernstein, 1994; Kock, 2014; Kock & Lynn, 2012). Moreover, Kock and Lynn (2012) identified a more relaxed criterion for the coefficient of CA and CR; that is, one of the two reliability measures should be equal to or greater than 0.70. Based on the coefficients of CA and CR as shown in Table 3.3, the latent variables – user satisfaction, system quality, information quality, and service quality – are highly reliable.

When it comes to validity measurements, both convergent and discriminant validity tests were performed. Discriminant validity is another measure of quality of a research instrument. An instrument is said to have a discriminant validity when the items or measures of each latent variable are not confusing with regard to their meaning, and are well-understood by the respondents. On the other hand, an instrument is said to have a convergent validity when the respondents and the designer/s of the instrument have the same understanding with the items or measures of each latent variable under scrutiny (Kock, 2017).

In order for the measurement model to be acceptable, both convergent and discriminant validity should be reported. Assessment of convergent validity includes the evaluation of the loadings of each item for every latent variable. The p-values of each loading must be equal to or lesser than 0.05 and each loading must have a value of 0.5 and above (Hair, Black, Babin, & Anderson, 2009; Kock, 2014). When the factor loading of an item is below 0.5, that item must be removed or deleted from the construct in order to achieve convergent validity (Kock,

2017). As seen in Table 3.3, the following were retained SAT 2 and SAT 3 (for user satisfaction); SQ1, SQ2, and SQ7 (for system quality); IQ3 and IQ6 (for information quality); and SERV1, SERV4, SERV5, SERV6, SERV7, AND SERV9 (for service quality). Those items which were not mentioned were deleted due to low factor loadings. After the identified items were deleted, the structural model was tested again for convergent validity and based on the results in Table 3.3, the latent variables, namely, user satisfaction, system quality, information quality, and service quality are within the acceptable thresholds for convergent validity.

Table 3.3 Reliability and Convergent Validity Tests

Construct / Item	Factor Loading	Average Variance Extracted	Composite Reliability	Cronbach's Alpha
User satisfaction				
SAT2	0.965			
SAT3	0.965	0.931	0.964	0.925
System quality				
SQ1	0.640			
SQ2	0.678			
SQ7	0.683	0.750	0.900	0.833
Information quality				
IQ3	0.761			
IQ6	0.777	0.887	0.940	0.873
Service quality				
SERV1	0.761			
SERV4	0.777			
SERV5	0.761			
SERV6	0.777			
SERV7	0.761			
SERV9	0.777	0.815	0.964	0.955

All item loadings are significant at 0.001 ($p < 0.001$).

Furthermore, assessment of discriminant validity of the measurement model includes evaluation of the values of the average variance extracted (AVE). The values of the AVEs must be equal to or greater than 0.5 (Fornell & Larcker, 1981; Kock & Lynn, 2012). Looking at the results in Table 3.3, the coefficients of AVE for all latent variables satisfied the acceptable validity.

Additionally, discriminant validity assesses the correlations among variables with square roots of AVE coefficient (Kock, 2017; Lacap, 2019). For every latent construct, the square root of the AVEs should be greater than any of the correlations involving the said variable (Fornell & Larcker, 1981). In short, the diagonal values must be greater than any of the values to their left or right in the same row (Kock, 2017). Thus, the results in Table 3.4 indicate that the measures used in the study – user satisfaction, system quality, information quality, and service quality – have discriminant validity.

Table 3.4 Discriminant Validity

	SAT	SQ	IQ	SERV
SAT	0.965			
SQ	0.769	0.866		
IQ	0.817	0.807	0.942	
SERV	0.744	0.586	0.689	0.903

Figure 3.1 and Table 3.5 present the results of the path coefficients of the hypothesized relationships and the moderation analysis. Analysis of the data showed that information quality significantly and positively influences taxpayer satisfaction ($\beta = 0.314$, $p < 0.001$) with a medium effect size ($f^2 = 0.258$). This result indicates that, when the quality of information is evident, the level of satisfaction of taxpayers increases. Hence, H1 is supported.

The results also showed that system quality and taxpayer satisfaction are significantly and directly related ($\beta = 0.227$, $p < 0.001$) with a medium effect size ($f^2 = 0.213$). This result suggests that the quality of system used by the organization positively affects the level of satisfaction of taxpayers. Therefore, H2 is supported.

Furthermore, service quality was found to be significantly and positively related to taxpayer satisfaction ($\beta = 0.327$, $p < 0.001$). This finding indicates that the level of service quality and the level of satisfaction of taxpayers move in the same direction; meaning, as service quality increases, the level of satisfaction of taxpayers also rises. Hence, H3 is supported.

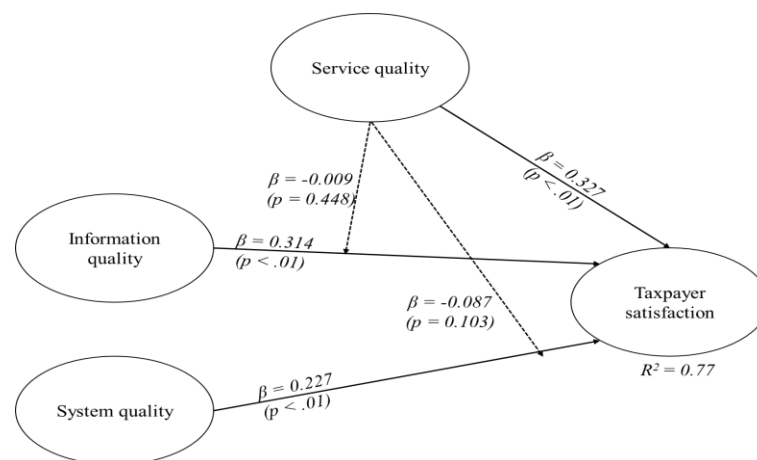


Figure 3.1 Structural Model with Parameter Estimates

The present study also tested the moderating effects of service quality on the relationship between information quality and taxpayer satisfaction and on system quality and taxpayer satisfaction. The results showed that service quality has no moderating effects on the link between information quality and taxpayer satisfaction ($\beta = -0.009$, $p = 0.448$), and between system quality and taxpayer satisfaction ($\beta = -0.087$, $p = 0.103$). The results suggest that service quality does not affect the strength of the relationship between information quality and taxpayer satisfaction, and between system quality and taxpayer satisfaction. Therefore, H4 and H5 are not supported.

Table 3.5 Results of Hypothesis Testing

Hypothesis	Path			Effect Size	Decision
	Coefficient	P-value	Standard Error		
Direct Effects					
H1. IQ → SAT	0.314	<0.001	0.066	0.258	Supported
H2. SQ → SAT	0.227	<0.001	0.067	0.213	Supported
H3. SERV → SAT	0.327	<0.001	0.066	0.249	Supported
Moderating Effects					
H4. SERV*IQ → SAT	-0.009	0.448	0.070	0.004	Not supported
H5. SERV*SQ → SAT	-0.087	0.103	0.069	0.041	Not supported

5. Discussion and Conclusion

Analyses and discussions of findings based on the literature reviews and results of each hypothesis are given focus in this chapter. This current study attempted to examine the relationship of information quality, system quality and service quality to taxpayers' satisfaction of BIR RDO 21B South Pampanga. Moreover, it also tested the moderating effects of service quality on the relationship between information quality and taxpayer satisfaction and on system quality and taxpayer satisfaction.

In terms of demographic characteristics, the descriptive makeup of the respondents' profile revealed that the majority of respondents (69%) was composed of female respondents. Male respondents, on the other hand, composed 31% of the sample population. Almost half of the respondents, 49%, are between the ages of 18 and 30, 27.6% are between the ages of 31 and 40, 10.3% are between the ages of 51 and 60, 9.9% are between the ages of 41 and 50, and 2.5% are between the ages of 60 and above. In terms of civil status, the frequency distribution of the respondents indicated that most of the respondents are married (51.2%), while single respondents make up 43.8%, and separated/annulled respondents make up 2% and widow/widower respondents make up 3% of the population. Majority of the respondents (81.3%) attained a Bachelor's degree, 15.8% attained a Master's or Doctorate Degree, while 2.5% attained High School or Secondary level and 0.5% attained Bachelors of Law. In terms of occupation, 82.8% of respondents are employed, while 17.2% are self-employed. And as to taxpayer classification, majority of the respondents (89.7%) are individual, while 10.3% are non-individual.

Analysis of data revealed that the respondents agreed that information quality is evident in the e-filing system of BIR ($M = 4.18$, $sd = 7.72$). On the other hand, the participants strongly agreed that the quality of system in the e-filing system of BIR is much evident ($M = 4.25$, $sd = .72$). In terms of service quality, the respondents agreed that they observe service quality in the e-filing system of BIR ($M = 4.13$, $sd = .83$). Additionally, the level of satisfaction from the taxpayers is very strong ($M = 4.20$, $sd = .75$) signifying that they are strongly satisfied with the e-filing system of BIR. All items were gauged using the 5-point Likert scale where 5 means strongly agree and 1 means strongly disagree, except in the last part, wherein the semantic

differential scale was used to measure the overall experience of the respondents in using the BIR e-filing system.

Based on the analysis of the data, result showed that information quality significantly and positively influences taxpayer satisfaction ($\beta = 0.314$, $p < 0.001$) with a medium effect size ($f^2 = 0.258$). Results indicate that when the quality of information is evident, the level of satisfaction of taxpayers increases. Hence, H1 is supported, and is consistent with the studies of Wahyudi, Respati, and Ardianto, 2017; Wang and Liao, 2008; Wang and Lai, 2014; Khayun and Ractham, (2011); Cho, et al., 2015; Lwoga, 2013; and Makokha, et al., (2014) which presented that information quality has a positive influence on user satisfaction. However, based on hypothesis test, result showed that it is not consistent with the studies of Cheng, et al., (2013) and Serumaga-Zake, (2017) which indicated that there is no relationship between user satisfaction and information quality.

The results also showed that system quality and taxpayer satisfaction are significantly and directly related ($\beta = 0.227$, $p < 0.001$) with a medium effect size ($f^2 = 0.213$). This result suggests that the quality of system used by the organization positively affects the level of satisfaction of taxpayers. Therefore, H2 is supported and is consistent with the studies of Isaac, et al., (2017); Ajoye and Nwagwu, (2014); Wang, et al, (2014); Gelderman (2002); Kulkarni, et al. (2006); Wu and Wang, (2006); Halawi, et al., (2007); Hudin, et al., (2016) which concluded that system quality has a positive relationship with user satisfaction. However, based on the hypothesis test, the result is not consistent with the studies of Sun, et al., (2008); Chi, (2013); Khayun and Ractham, (2011) which found that system quality does not influence user satisfaction.

Additionally, service quality was found to be significantly and positively related to taxpayer satisfaction ($\beta = 0.327$, $p < 0.001$). This finding indicates that the level of service quality and the level of satisfaction of taxpayers move in the same direction; meaning, as service quality increases, the level of satisfaction of taxpayers also rises. Hence, H3 is supported and is consistent with the studies of Cho, et al. (2015) DeLone and McLean, (2003); Wang, et al., (2014); Cheng, et al., (2013); Nikhashemi, et al., (2013); Khayun and Ractham, (2011); Makokha, et al., (2014). On the other hand, based on the hypothesis test, the result is not consistent with the studies of Wang, et al., (2008); Lwoga, (2013) which revealed that service quality has no effect to user satisfaction.

The present study also tested the moderating effects of service quality on the relationship between information quality and taxpayer satisfaction and on system quality and taxpayer satisfaction. The results showed that service quality has no moderating effects on the link between information quality and taxpayer satisfaction ($\beta = -0.009$, $p = 0.448$), and between system quality and taxpayer satisfaction ($\beta = -0.087$, $p = 0.103$). The results suggest that service quality does not affect the strength of the relationship between information quality and taxpayer satisfaction, and between system quality and taxpayer satisfaction. Therefore, H4 and H5 are not supported and are not consistent with the study of Wang and Liao (2007) which showed that service quality has strongest positive relationship with user satisfaction followed by information quality and system quality, which are critical dimensions influencing user satisfaction of e-filing system.

Overall, the respondents are strongly satisfied with the e-filing system of BIR 21B as indicated by the very strong level of satisfaction from the taxpayers. The respondents also agree that the quality of information and service is evident, and the respondents strongly agree that the quality of system provided by BIR RDO 21B in using e-filing system is much evident.

The findings showed that information quality significantly and positively influences taxpayer satisfaction. This result indicates that, when the quality of information is evident, the level of satisfaction of taxpayers increases.

The results also showed that system quality and taxpayer satisfaction are significantly and directly related. This result suggests that the quality of system used by the organization positively affects the level of satisfaction of taxpayers.

Furthermore, service quality was found to be significantly and positively related to taxpayer satisfaction. This finding indicates that the level of service quality and the level of satisfaction of taxpayers move in the same direction; meaning, as service quality increases, the level of satisfaction of taxpayers also rises.

The results showed that service quality has no moderating effects on the link between information quality and taxpayer satisfaction, and between system quality and taxpayer satisfaction. The results suggest that service quality does not affect the strength of the relationship between information quality and taxpayer satisfaction, and between system quality and taxpayer satisfaction.

References

- Agoncillo, F. (2020). eServices - Bureau of Internal Revenue. Retrieved 4 July 2020, from <https://www.bir.gov.ph/index.php/eservices.html>
- Ajoye, M. B., & Nwagwu, W. E. (2014). Information systems user satisfaction: A survey of the postgraduate school portal, University of Ibadan, Nigeria. *Library Philosophy and Practice*, 0_1.
- BIR Mandate - Bureau of Internal Revenue. (n.d.) (1997). Retrieved July 6, 2020, from www.bir.gov.ph/index.php/transparency/transparenc-y-seal/bir-mandate.html
- Bureau of Internal Revenue. Retrieved 6 July 2020, from <https://www.bir.gov.ph/index.php/downloadables/features.html>
- Carter, L., & Bélanger, F. (2005). The utilization of e-government services: citizen trust, innovation and acceptance factors. *Information systems journal*, 15(1), 5-25.
- Chang, I.C., Li, Y.C., Hung, W.F., & Hwang, H.G. (2005). An empirical study on the impact of quality antecedents on taxpayers' acceptance of Internet tax-filing systems. *Government Information Quarterly* 22, pp. 389-410.
- Chen, C. W. (2010). Impact of quality antecedents on taxpayer satisfaction with online tax-filing systems—An empirical study. *Information & Management*, 47(5-6), 308-315.
- Chen, H. (2002). Digital government: Technologies and practices. *Decision Support Systems*, 34 (3), 223-227
- Cheng, D., Liu, G., Qian, C., & Song, Y. F. (2008, October). Customer acceptance of internet banking: integrating trust and quality with UTAUT model. In *2008 IEEE International Conference on Service Operations and Logistics, and Informatics* (Vol. 1, pp. 383-388). IEEE.
- Chi, N.T.M. (2013) *Factors Affecting Customer Satisfaction in Group Buying in Vietnam*, University of Economics Ho Chi Minh City.
- Chin, W., Cheah, J. H., Liu, Y., Ting, H., Lim, X. J., & Cham, T. H. (2020). Demystifying the role of causal-predictive modeling using partial least squares structural equation modeling in information systems research. *Industrial Management & Data Systems*.
- Cho, K.W., Bae, S-K., Ryu, J-H., Kim, K.N., An, C-H. and Chae, Y.M. (2015) 'Performance evaluation of public hospital information systems by the information system success model', *Healthcare Informatics Research*, Vol. 21, No. 1, pp.43–48.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management science*, 35(8), 982-1003.

- DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information systems research*, 3(1), 60-95.
- DeLone, W.H. & McLean, E.R. (2003) 'The DeLone and McLean model of information systems success: a ten-year update', *Journal of Management Information System*, Vol. 19, pp.9–31.
- DeLone, W. H., & McLean, E. R. (2004). Measuring e-commerce success: Applying the DeLone & McLean information systems success model. *International Journal of electronic commerce*, 9(1), 31-47.
- Fishbein, M., & Ajzen, I. (1976). Misconceptions about the Fishbein model: Reflections on a study by Songer-Nocks. *Journal of Experimental Social Psychology*, 12(6), 579-584.
- Fu, J. R., Farn, C. K., & Chao, W. P. (2006). Acceptance of electronic tax filing: A study of taxpayer intentions. *Information & management*, 43(1), 109-126.
- Gelderman, M. (2002). Task difficulty, task variability and satisfaction with management support systems. *Information & Management*, 39(7), 593-604.
- Ghazizadeh, M., Lee, J. D., & Boyle, L. N. (2012). Extending the Technology Acceptance Model to assess automation. *Cognition, Technology & Work*, 14(1), 39-49.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C. and Sarstedt, M. (2016) A primer on partial least squares structural equation modeling (PLS-SEM). Sage Publications.
- Halawi, L. A., McCarthy, R. V., Aronson, J. E. (2007). An empirical investigation of knowledge management systems' success. *Journal of Computer Information Systems*, 48(2), 121-135
- Hwang, H., Sarstedt, M., Cheah, J. H., & Ringle, C. M. (2020). A concept analysis of methodological research on composite-based structural equation modeling: bridging PLSPM and GSCA. *Behaviormetrika*, 47(1), 219-241.
- Hudin, J. M., & Riana, D. (2016). Kajian keberhasilan penggunaan sistem informasi accurate dengan menggunakan model kesuksesan sistem informasi delon dan mclean. *Jurnal Sistem Informasi*, 12(1), 1-8.
- Isaac, O., Abdullah, Z., Ramayah, T., & Mutahar, A. M. (2017). Internet usage within government institutions in Yemen: An extended technology acceptance model (TAM) with internet self-efficacy and performance impact. *Science International*, 29(4), 737-747.
- Islam, M. A., Yusuf, D. H. M., Yusoff, W. S., & Johari, A. N. B. (2012). Factors affecting user satisfaction in the Malaysian income tax e-filing system. *African Journal of Business Management*, 6(21), 6447-6455.

Kulkarni, U. R., Ravindran, S., & Freeze, R. (2006). A knowledge management success model: Theoretical development and empirical validation. *Journal of management information systems*, 23(3), 309-347.

Jogiyanto, H.M. (2007). Information system behavior. *Yogyakarta: Andi Offset*.

Jordaan, Y., & Prinsloo, M. (2001). *Grasping service marketing*. Grapevine News.

Khayun, V. and Ractham, P. (2011) 'Measuring e-excise tax success factors: applying the DeLone & McLean information systems success model', in *Proceedings of the Annual Hawaii International Conference on System Sciences*, pp.1–10.

Lacap, J. P. G. (2019). The mediating effect of employee engagement on the relationship of transformational leadership and intention to quit: Evidence from local colleges in Pampanga, Philippines. *Asia-Pacific Social Science Review*, 19(1), 33-48.

Lee, Y., Kozar, K. A., & Larsen, K. R. (2003). The technology acceptance model: Past, present, and future. *Communications of the Association Lwoga for information systems*, 12(1), 50.

Lestari, R. P. (2019). The influences of Information Quality, System Quality, And Service Quality on Taxpayer Satisfaction With E-Filing System.

Lwoga, E. (2013) 'Measuring the success of library 2.0 technologies in the African context: the suitability of the DeLone and McLean model', *Campus-Wide Information Systems*, Vol. 30, No. 4, pp.288–307

Makokha, M.W. and Ochieng, D.O. (2014) 'Assessing the success of ICT's from a user perspective: case study of coffee research foundation in Kenya', *Journal of Management and Strategy*, Vol. 5, No. 4, pp.46–54.

Mohd, S. S. (2003). The Multimedia Super Corridor (MSC) and E-government Initiatives in Malaysia.

Naz, R., (2009). E-governance for Improved Service Delivery in Fiji. *Journal of Service Science and Management*, 2 (3), 190-203.

Nelson, R. R., Todd, P. A., & Wixom, B. H. (2005). Antecedents of information and system quality: an empirical examination within the context of data warehousing. *Journal of management information systems*, 21(4), 199-235.

Nikhashemi, S.R., Paim, L. and Yasmin, F. (2013) 'Critical factors in determining customer satisfaction toward internet shopping in Malaysia', *International Journal of Business and Management Invention*, Vol. 2, No. 1, pp.44–51.

Notoatmodjo, S. (2010). *Metodologi Penelitian Kesehatan*. Jakarta: Rineka Cipta.

- Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991). Perceived service quality as a customer-based performance measure: An empirical examination of organizational barriers using an extended service quality model. *Human resource management, 30*(3), 335-364.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of marketing, 49*(4), 41-50.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *1988, 64*(1), 12-40.
- Salloum, S. A., Alhamad, A. Q. M., Al-Emran, M., Monem, A. A., & Shaalan, K. (2019). Exploring students' acceptance of e-learning through the development of a comprehensive technology acceptance model. *IEEE Access, 7*, 128445-128462.
- Serumaga-Zake, P. A. (2017). The role of user satisfaction in implementing a Business Intelligence System. *South African Journal of Information Management, 19*(1), 1-8.
- Simorangkir, A. V. (2018). *Understanding the Effects of Service Quality on Taxpayer Satisfaction and Continuance Intention of Using E-Filing* (Doctoral dissertation, President University).
- Sun, P-C., Tsai, R.J., Finger, G., Chen, Y-Y. and Yeh, D. (2008) 'What drives a successful e-learning? An empirical investigation of the critical factors influencing learner satisfaction', *Computers & Education, Vol. 50, No. 4*, pp.1183–1202.
- Tan, K. C., & Kek, S. W. (2004). Service quality in higher education using an enhanced SERVQUAL approach. *Quality in higher education, 10*(1), 17-24.
- Tao, D. (2008). Understanding intention to use electronic information resources: a theoretical extension of the technology acceptance model (TAM). In *AMIA Annual Symposium Proceedings* (Vol. 2008, p. 717). American Medical Informatics Association.
- Wahyudi, F., Respati, H., & Ardianto, Y. T. (2017). Study on DAPODIK information system: User satisfaction as mediation of system quality and information quality on net benefit. In *Information and knowledge Management* (Vol. 7, No. 7).
- Wang, Y. S. (2003). The adoption of electronic tax filing systems: an empirical study. *Government Information Quarterly, 20*(4), 333-352.
- Wang, Y. S., & Liao, Y. W. (2008). Assessing eGovernment systems success: A validation of the DeLone and McLean model of information systems success. *Government information quarterly, 25*(4), 717-733.
- Wang, W. T., & Lai, Y. J. (2014). Examining the adoption of KMS in organizations from an integrated perspective of technology, individual, and organization. *Computers in Human Behavior, 38*, 55-67.



Wu, J-H. & Wang, Y-M. (2006) 'Measuring KMS success: a respecification of the DeLone and McLean's model', *Information & Management*, Vol. 43, No. 6, pp.728–739.