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Evaluating Electronic Public Information Service Quality: A Proposed Model

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Abstract: This research aims to offer a specific model to evaluate the quality of public information service, provided by government organizations. The underlying research model was developed by adopting numerous exisiting evaluation approaches and befiting them as a measurement tool for public information services. Model validation was conducted in two stages a focus group discussion and expert interview. Furthermore, the model was tested empirically in the Regional Board of Communication, Information and Public Relations of Jakarta, Indonesia. A total of 201 respondents participated in this research. Data analysis was performed by Confirmatory Factor Analysis (CFA) using SmartPLS 2.0 Software. The final EPIS-Qual Model (Electronic Public Information Service Quality), consisted of 10 dimensions and 43 indicators, categorized into three main aspects, namely information quality, media quality and people quality. The dimensions of EPIS-Qual include accessibility, accuracy, completeness, understandability, reliability, interactivity, user-friendliness, responsiveness, professionalism and helpfulness.

Key words: Public information, service quality, confirmatory factor analysis, CFA, PLS, understandability

INTRODUCTION

Quality can be defined as the characteristics and traits of products or services that affect their abilities to fulfill customer's requirements. Furthermore, satisfaction can be described as the feeling after a comparison of expectations against realities of products or services received (Kotler, 2000). It is safe to assume that satisfaction develops when services have the qualities that meet user's needs. Some even argue that an increase in service quality will subsequently improve customer satisfaction and lead to increased profits for the organization (Schiffman and Lazaar, 2004). In addition, service quality is easily considered as a critical component of customer satisfaction (Zeithaml *et al*., 2010).

Providing high quality public information is an imperative service of public bodies (government agencies) in Indonesia, mandated through the Constitution of the Republic of Indonesia, Law No. 14/2008 concerning freedom of access to public information (UU KIP). Despite numerous efforts to prevail on this challenge, providing superb public information is still regarded as a painstaking practice and remains a challenge to conquer. The level of user's satisfaction concerning the quality of a service can be assessed through a predetermined evaluation process. Such service quality evaluation requires a framework that is capable of capturing and measuring user's responses on the quality of the services received.

Numerous researches have previously explored a variety of approaches that can be employed to measure the quality of a service. For instance, a classic and more generalist approach on measuring the quality of services can be referred from SERVQUAL (Parasuraman *et al*., 1988) where as an updated version with an emphasis on electronic services is known as ES-Qual (Parasuraman *et al*., 2005). In addition, other works explored the approach used to measure the quality of information services, known as the ISQ (Wang and Strong, 1996). Whereas many other researches were tailored towards the quality of e-Government services, such as E-GovQual, E-GovSqual (Kaisara and Pather, 2011), G-CSI (Kim *et al*., 2005), E-GovSAT (Horan *et al*., 2006).

Although, some of those approaches were designed specifically for the public sector and e-Government services, they lack specificity towards measuring the quality of public information generated by public agencies. In order to develop a novel approach, it is imperative to understand users perception on evaluating public information provided. Therefore, this research attempted to adopt numerous exisiting approaches and befiting them as a measurement tool for public information services. The goal of this research is to offer a more specific model to evaluate the quality of public information services which is one that measures customer's satisfaction towards the quality of public information services provided by government agencies.

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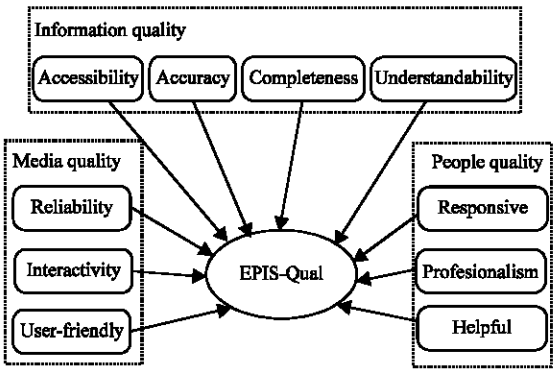

Fig. 1: Underlying research model

Model development: Public information service is provided by a public body and in the case of this research was mandated in the Constitution Law No. 14/2008 concerning freedom of access to public information. Furthermore, the Information Commission Regulation No. 1 of 2010 offers an integral insight towards the necessary means of providing such service. Aside from the quality of the public information presented, the facilities and human resources whom carry out such service are other integral aspects to be considered.

Such understanding served as the foundation of the proposed framework in this research which include three main aspects, namely: information quality, media quality and people quality. Within every aspect, constructs along with their reflective indicators were defined in reference to the seven previous researches aforementioned.

We coined the name EPIS-Qual (Electronic Public Information Service Quality), developed to measure the public's satisfaction towards the quality of public information provided by government agencies. This conceptual model consisted of 59 indicators classified into 10 constructs. A visualization of such model is offered in. The stages involved in designing the underlying research model in this study refers to the measurement model development framework developed by previous comparable research (Churchil, 1979). Broadly speaking, the steps consist of three stages: data collection, model testing and analysis (Fig. 1).

MATERIALS AND METHODS

Information quality: Most indicators of information quality used in this research were adopted from Information Services Quality (ISQ). Although, ISQ would be better suited for the financial industry, we strongly believe that it is also highly relevant to be espoused in the public sector. Information quality has become a critical concern not only for the private sector but also the public sector (Lee *et al*., 2002). Other researchers add that the quality of information becomes the most important aspect in the context of electronic services (Kaisara and Pather, 2011). Finally, other works reasoned that in order to fully grasp the quality of electronic public information services, it is important to ensure the high quality of information submitted (Delone and McLean, 2003).

A total of 22 indicators were gathered from ISQ, E-GovQual, E-GovSqual, g-CSI and E-GovSAT which then were grouped into four constructs based on commonality of topic and meaning. The four constructs of information quality include accessibility, accuracy, completeness and understandability.

Media quality: Information Commission Regulation No. 1 of 2010 argue that facilities play a critical role in the implementation of public information service. The medium used in electronic public information service implementation is usually a website. The indicators included into media quality were adopted from E-GovQual, E-GovSqual, ES-SQUAL and E-GovSAT. A total of 28 indicators were grouped into three constructs, namely reliability, interactivity and user-friendliness.

Security was excluded in this research, despite its presence in several previous models of quality evaluation. We argue that public information service is typically not transactional, hence eliminating the significance of security.

People quality: The quality of service personnel or people quality is the third aspect to be evaluated in this research. The Information Commission Regulation No. 1 of 2010 clearly states that human resources play an integral role in the implementation of public information services. The indicators included into people quality aspect were adopted from E-GovQual, SERVQUAL and g-CSI. This research found nine indicators and classified them into three constructs, namely: responsiveness, professionalism and helpfulness. A summary of all constructs and their respective references is presented in Table 1.

Table 1: Summary of constructs

Construct and indicators	ISQ	E-GovQual	ServQual	E-GovSqual	ES-Qual	g-CSI	E-GovSat
Information quality							
Accessibility	√	-	-	-	-	√	√
Accuracy	√	√	-	-	-	√	√
Completeness	√	√	-	√	-	-	-
Understandability	√	-	-	√	-	-	-
Media quality							
Reliability	-	√	-	√	√	-	√
Interactivity	-	√	-	√	-	-	√
User-friendliness	-	√	-	√	√	-	√
People quality							
Responsiveness	-	√	√	-	-	-	-
Professionalism	-	√	√	-	-	-	-
Helpfulness	-	√	√	-	-	√	-

RESULTS AND DISCUSSION

Model validation: Model validation was conducted in two stages a focus group discussion and expert interview. The two validation stages were designed to provide feedback concerning the underlying constructs and their indicators. The focus group discussion was carried out by involving those who represent the stakeholders of public information. This step was enthused by the way the e-GovSqual Model was developed (Kaisara and Pather, 2011). In addition such focus group discussion can be treated as an overture to early stages of model development. A total of 12 individuals representing distinctive central government offices took part in this discussion (Table 2).

In addition, deep interviews were also conducted as a second validation stage, involving two experts in public information domain. This approach was inspired by the way the E-GovQual Model was developed. The two experts involved in this research were the head of information and documentation and chief information commission, both from the DKI Jakarta Province (Table 3).

Having conducted the two steps aforementioned, the underlying EPIS-Qual Model progressed with adjustments and improvements. The 14 indicators were eliminated, 2 indicators were combined, another 2 had redaction changes and 5 new indicators were introduced to fit the local context. The validated EPIS-Qual Model consisted of 10 constructs and 49 indicators.

Model testing: The previously validated model was then tested empirically to those individuals involved in public information services in the Regional Board of Communication, Information and Public Relations of Jakarta, Indonesia. A total of 201 respondents participated in this research from various backgrounds as depicted in Table 2. Data analysis was performed by Confirmatory

Table 2: Questionnaire respondents demography

Demography/Category	No. of participants
Gender	
Male	121
Female	80
Age in years	
< 20	1
20-29	49
30-39	133
40- 49	14
≥ 50	4
Education level	
High school	31
Diploma	11
Undergraduate	128
Graduate	31
Profession	
Students	12
Teachers	8
Public sector employee	115
Private sector employee	32
Entrepreneurial	7
Others	27

Table 3: AVE, CA and CR values

Construct	AVE	CA	CR
Accessibility	0.719	0.804	0.885
Accuracy	0.742	0.883	0.920
Completeness	0.809	0.765	0.894
Helpful	0.866	0.846	0.928
Interactivity	0.637	0.886	0.913
Professionalism	0.941	0.937	0.969
Reliability	0.600	0.916	0.931
Responsive	0.915	0.907	0.955
Understandability	0.640	0.860	0.899
User-friendliness	0.611	0.908	0.926

Factor Analysis (CFA) using SmartPLS 2.0 Software. This approach places a strong emphasis on evaluating the validity and reliability of the instrument. Additionally, upon evaluating a model with reflective indicators by means of CFA, it is imperative to test for convergent validity, discriminant validity as well as composite reliability and Cronbach's alpha for each construct's group of indicators (Campbell and Fiske, 1959; Chin, 1998).

Convergent validity should exhibit a strong correlation between the measurement items of a construct

Table 4: EPIS-Qual aspects, dimensions and indicators

Aspect/Dimension	Indicator
Information quality	
Accessibility	Information can be obtained in a timely manner (quickly)
	Information can be accessed easily
	Information can be accessed at any time (readily available)
Accuracy	The information provided is trustworthy
	The information provided in correct
	The information provided is neutral
	The information provided is relevant
Completeness	The scope of information provided is adequate
	The information is provided with enough details
Understandability	The information is easy to digest
	The information is concise
	The information used relevant symbols
	The information used relevant measurement units
	The information had obvious/apparent definitions
Media quality	
Reliability	The media can be accessed quickly
	The media can be accessed anytime
	All links provided are in working order
	The media can exhibit information quickly
	Documents can be downloaded easily
	Documents can be downloaded rapidly
	The media can display the information propitiously
	The media offers a sound information organization
	The search engine offers relevant results
Interactivity	The media has dynamic contents
	The media allows for users discussion
	The media offers question and answer (Q&A)
	The media offers service forms
	The media offers contact information
	The media allows to request for further information
User friendly	The media has clear menus
	The media has easy to follow menus
	The media employs easy to digest language
	The media offers a search engine feature
	The media has simple design
	The media has interesting design
	The media offers links to additional informational resources
	The media displays the contents clearly
People quality	
Responsiveness	Questions posed are answered in a timely manner
	User requests are fulfilled in a timely manner
Professionalism	Questions are answered with sufficient knowledge
	Services are provided as promised
Helpfulness	Willingness to help users is exhibited
	Appropriate language is used

(Chin, 1998). The convergent validity of reflective indicators can be demonstrated through their loading factor values >0.7 as well as Average Variance Extracted (AVE) values >0.5 (Hair *et al*., 2011; Latan and Ghozali, 2012) (Table 4).

This research obliterated 6 indicators, for having loading factor values of lower than that previously suggested. Whereas, all constructs showed Average Variance Extracted (AVE) values of >0.5, rendering it convergently valid. Finally, discriminant validity is realized when the square root of AVE for every construct is greater than the correlation to other constructs in the model (Hair *et al*., 2011; Fornell and Larcker, 1981) and loading values for each indicator should be greater than all cross loading values. Both were the cases found in this research and hence, this research has fulfilled the requirements of discriminant validity.

The reliability of a construct can be evaluated by ensuring its Cronbach's alpha value as well as composite reliability value are >0.7 (Hair *et al*., 2011). Therefore, this research has concluded that all 43 indicators as well as 10 constructs have exceeded all measurements requirements as can be seen in Table 3.

CONCLUSION

This research resulted in a novel model, designed to assist the measurement of public satisfaction on the quality of public information services provided government agencies. The final EPIS-Qual Model (Electronic Public Information Services Quality), consisted of 10 dimensions and 43 indicators categorized into three main aspects, namely: information quality, media quality and people quality. The dimensions of EPIS-Qual include accessibility, accuracy, completeness, understandability, reliability, interactivity, user-friendliness, responsiveness, professionalism and helpfulness.

The model has been empirically tested in the Regional Board of Communication, Information and Public Relations of Jakarta, Indonesia and examined using CFA. The results attested that all 10 dimensions and 43 indicators to be valid and reliable instruments of measuring electronic public information services quality.

LIMITATIONS

The researchers also realize that this research has its limitations. First and foremost, this research can be expanded to other government organizations that provide public information electronically. In addition, further research is suggested to involve a more diverse set of respondents to confine respondent's bias as well as to achieve a more generalized results. Finally, we also aspire other researchers to conduct similar research using this EPIS-Qual Model in different government organizations to deepen the understanding in identifying specific dimensions most relevant to affect public satisfaction on public information services.

IMPLICATIONS

This research also carries noteworthy theoretical as well as practical implications. First and foremost, we

believe the results of this research fills a theoretical gap which in recent years was steered more intensively towards the development of frameworks on e-government services yet lacking specificity in the type of service provided in this case public information service. On the practical side, this EPIS-Qual model can serve as a guide for public organizations to evaluate their public information services quality.

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