

Statistical and Interpretative Analyses for Testing Customer Trust Questionnaires on IT Governance

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Abstract. The purpose of the research is testing customer trust questionnaires on ITG trust through statistical and interpretative analyses. ITG questionnaire data obtained will be analyzed using SMART PLS 3.28 that included testing a formative construction and causal modeling capabilities. The result of this research is interpretive data analyses to confirm the results of the statistical analysis in the testing questionnaire of ITG trust. The results of this study are expected to be a literature or reference for stakeholder in school who are running their ITG and actually can give other solution for ITG in high school institution (HSI). The school with the media-based on ITG trust model has Effectiveness, Productivity, Efficiency, and increasing the management quality in a sustainable manner and resulting high performance achievement.

1. Introduction

The use of statistical analysis and analysis of interpretations by researchers on their research was carried out through a research questionnaire and this is a common procedure that is often done. This step is used to determine the impact of regulatory compliance awareness on the performance of IT capabilities [1] and assess information technology governance trust using a model of readiness and usability [2]. The combination of data analysis is often not clearly revealed in the literature. The use of questionnaires adopted and adapted from previous works in connection with the question of what new instruments are suitable for research including technological developments that have developed since the beginning of the study as well as to determine the effect of ITG on organizational performance as a mediating effect of absorptive capacity [3].

The technology readiness of parasuraman, usability concept of nielsen, concept of trust in ICT by Lee and a conceptual model for ITG in public sectors are the basis to create ITG trust using a model of readiness and usability [4-7]. The trust variable is hoped can influence quality of ITG trust model.

The progress of the publication of the methodological questionnaire assessment study is relative to a limited respondent number. Therefore, ongoing studies on this topic are still very much needed. The purpose of this study was to test the customer confidence questionnaire about ITG trust through statistical and interpretive analysis. Assessment based on respondents' perceptions and exploration using the researchers' point of view is the goal.

2. Method

This research used descriptive analysis method using case study of several ITG in High School Institution Indonesia by collecting related data systematically. By Data collection techniques used are



observations and exposing the analysis the latest data from the facts or reveal the analysis from the data obtained that has been done is more objective.

3. Results and Discussion

The population used in this study are teachers, vice principals, principals, non-academic staff (administrative staff, library employees) who are in high school institutions. The data population used in this study were some teachers and employees in several high school in the city of Bekasi whose data was taken from <http://www.dapo.dikdasmen.kemdikbud> in December 2018 were teachers and employees consisting of SMAK PENABUR Summarecon Bekasi with the number of respondents are 20 people, SMA Alzhar 8 Bekasi with the number of respondents are 20 people, SMA Ananda Bekasi with the number of respondents are 20 people, SMAN 1 Bekasi with the number of respondents 20 people, SMA Marsudirini with a total of respondent are 15 people. The sample is determined using the calculation of Krejcie and Morgan [8]. The general formula for taking sample sizes according to Krejcie and Morgan is as follows:

$$n = \frac{\chi^2 . N . P (1 - P)}{(N - 1) . d^2 + \chi^2 . P (1 - P)}$$

Where: n = sample size
 d = estimation error
 P = population proportion
 χ^2 = chi squared value
 N = population size

The data used in this study were analysed using the questionnaire method given to respondents consisting of 9 (nine) sections of questions that represent research variables. It was found the readiness variables, i.e.: Hopefulness (HOP), Breakthrough [BTH], Discomfort [DSC], and Insecurity [INS]. On the other hand, the usability variable contains Quality of Information [QOI], Quality of System [QSY], and Quality of Service [QSV]. By adding trust variable [SYT] then it produce IT governance [ITG] as the main objective (Figure 1).

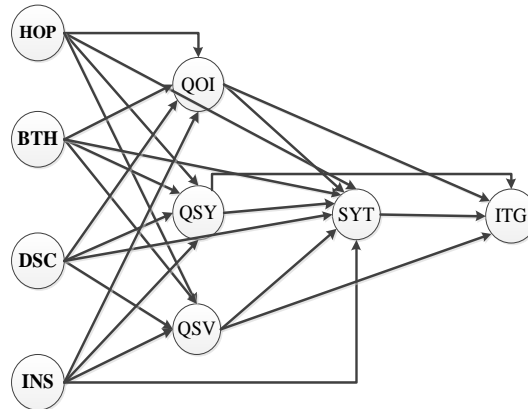


Figure 1. ITG Trust model [2].

Data of questionnaire questions of 5 School with 95 teachers and employees. Then Continued with determine the sample to analyze using the calculation of Krejcie and Morgan. Then, 76 data samples were used and put in the table 1. Continuing by exploration the ITG trust variables and indicators (Table 2). The questionnaire ITG trust is created and share to 5 located School before analyze using smart PLS 3.28 through statistical and interpretive questionnaire questions analysis (Table 3).

Table 1. Basic Data on Primary and Secondary Education

No	School	Teacher		Non Educator Staff		Students	
		Male	Female	Male	Female	Male	Female
		Teacher	Teacher	Staff	Staff	Students	Students
1.	SMAK Penabur Sumbek	10	13	1	3	135	189
2.	SMAN 1 bekasi	21	46	17	6	495	724
3.	SMA Ananda	11	10	1	1	197	162

4	SMA marsudirini	190	22	6	3	464	414
5	SMA Al-Azhar 8 bekasi	20	22	2	0	293	258

Table 2. Basic Data on Primary and Secondary Education

Variable	Indicators
HOP	Convenient, Access Time, Efficient Way, Effective Way, Productize
BTH	Solution, Freedom, Heavy lifting, Encourage Improve, Convincing Win
DSC	Sophistication, Trouble, Reliance, Loss of Support, Unsuitable
INS	Fiasco, Menace, Cut down Communication, Interaction, Uncertainty
QOI	Precision, Suitability, Complete Way, Continuity, Appropriate
QSY	Ability to use, Stabilize skill, Interlude, Access Time, Harmless
QSV	Sensitiveness, Move Easily, Sanctuary, Access Time, Extra Service Time
SYT	Efficient Way, Effective Way, Resilience, Generally Pleasure
ITG	IT Efficient Way, IT Effective Way, User Pleasure, Productivity Development, Competitive advantage

Table 3. Questionnaire Questions

Variable	Questions
HOP 1	There are still problems, difficulties, and problems with IT (Computer / WIFI / LCD projector / Printer) at school
HOP 2	IT access (Computer / WIFI / LCD projector / Printer) in schools is easy to use / connect with other systems (notebook / netbook).
HOP 3	IT is used efficiently by the user (resources / systems are still minimal).
HOP 4	IT is used effectively by users (maximum results).
HOP 5	IT is used productively by users (efficient and effective)
BTH 1	IT is used to help users work.
BTH 2	IT is used to control work / help users.
BTH 3	IT supports and completing users work.
BTH 4	IT encourages users to achieve their work goals.
BTH 5	IT supports users to better understand their work than other workers.
DSC 1	IT (computer/printer/LCD projector/WIFI) is foreign to users
DSC 2	IT (computers) are not supported by a good operating system.
DSC 3	IT (computer / printer / LCD projector / WIFI) is confusing to users.
DSC 4	IT (computers) is not easy to use (especially to use an operating system).
DSC 5	IT (WIFI, Computer) is not free to use (There is a password to protect system).
INS 1	IT (computer / WIFI/ printer / LCD) is not safe for users to use.
INS 2	IT (computer / WIFI / printer / LCD) causes harm to users.
INS 3	IT causes less interaction with other users.
INS 4	IT causes users not to focus on other jobs.
INS 5	IT damaged the tool system.
QOI 1	IT (computer / LCD projectors / printers) is accurate and easy to learn.
QOI 2	IT (WIFI) can be accessed (no password) in use.
QOI 3	IT (WIFI) has speed and efficient access as needed.
QOI 4	IT (computer / WIFI/ printer / LCD projector) works efficiently.
QOI 5	IT (computer / WIFI/ printer / LCD projector) works effectively.
Variable	Questions
QSY 1	IT (LCD / access WIFI / computer usage) is convenient to use (fast / safe / easy).
QSY 2	IT (LCD / WIFI access / computer usage) is easy to use.
QSY 3	IT (LCD / WIFI access / computer usage) fast access / response when used.
QSY 4	IT (LCD / WIFI access / computer usage) is modern / sophisticated school / and according to user needs.
QSY 5	IT provides services according to the functions that are needed by users.
QSY 1	IT has good and fast connection / usage (WIFI) access.
QSY 2	IT is desired by users.

- QSY 3 IT is easy to maintain and harmless to users.
- QSY 4 IT matches the criteria (quality) needed by the user.
- QSY 5 IT provides functions that are needed by users.
- SYT 1 IT is trusted and efficient
- SYT 2 IT is trusted and effective
- SYT 3 The new IT (currently) is easy to use and trust.
- SYT 4 IT (currently) is preferred because it believes in its performance.
- ITG 1 IT is efficient for the needs of school administration, management functions, and institutional decision making.
- ITG 2 IT is effective according to the needs of school administration, management functions, and institutional decision making.
- ITG 3 Satisfaction with IT increases if it is associated with the completion of school administration, management functions, and institutional decision making.
- ITG 4 IT helps user administration work.
- ITG 5 You are satisfied with the performance of IT governance at school.

3.1 Data analysis

The results of distributing questionnaires to 76 samples were given an alternative answer code consisting of: 1. strongly disagree; 2. disagree; 3. don't know; 4. agree; 5. strongly agree. Data processing carried out is assisted by Smart PLS applications, path diagrams can be seen in the following Figure 2.

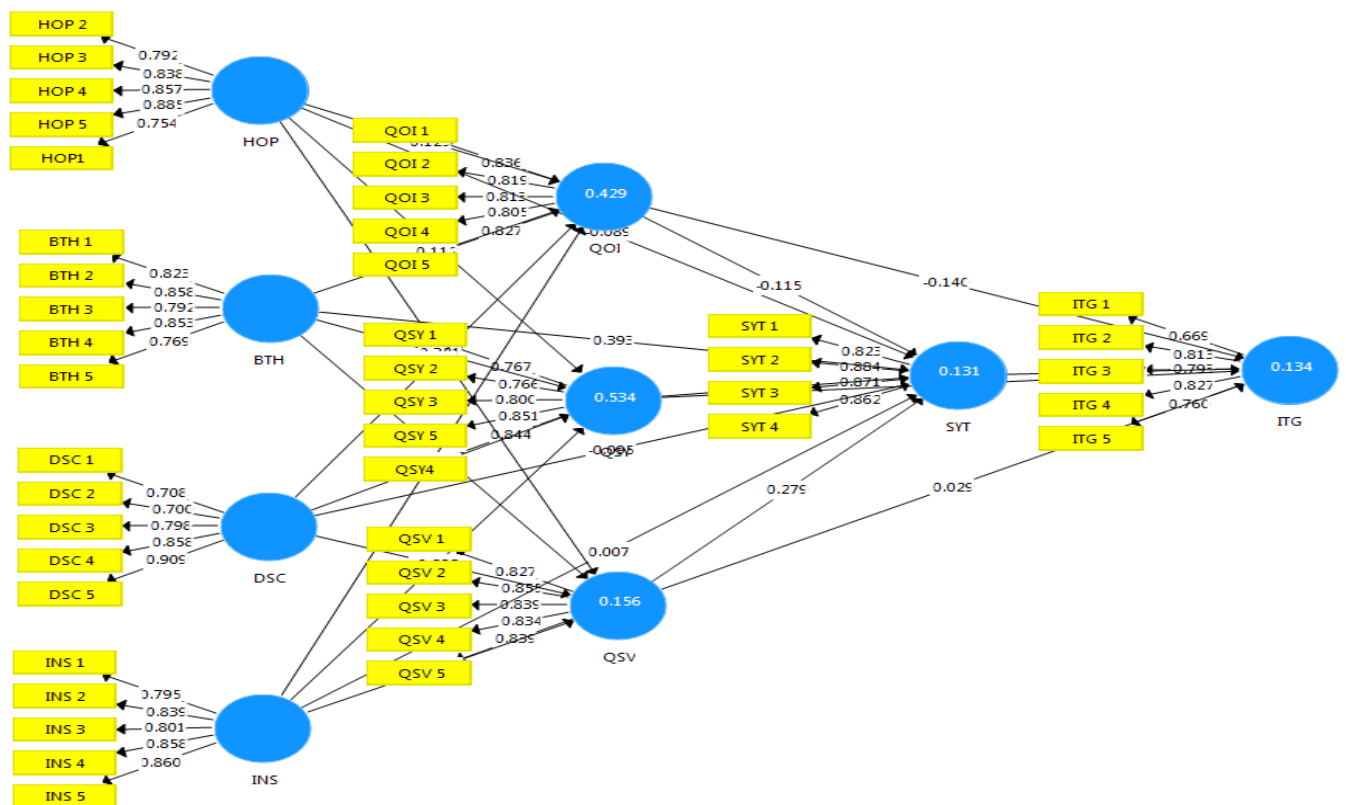


Figure 2. Path diagram with the Value of Loading Convergent Validity

The stages in processing data from Figure 2 as follows:

3.2. Evaluation of Outer Model Indicators

Evaluation of the outer model with refractive indicators is assessed through convergent validity and discriminant validity (Figure 2)

3.2.1 Convergent Validity

The correlation between the item score / component score and the construct score is said to be high if it correlates more than 0.70. For initial research, loading values of 0.5 to 0.6 are considered sufficient (Figure 3).

3.2.2 Value of Loading Convergent Validity of Modified Models.

From the results of loading Convergent Validity from the diagram (Figure 3) above, the loading value of IT governance is found at a value above 0.70. Thus producing a diagram with a good Loading Convergent Validity value because the correlation between the item score / component score and the construct score has a high value if the value of the correlation is more than 0.70

Construct Reliability and Validity

	Cronbach's Alpha	rho_A	» ²	Copy to Clipboard:
	Cronbach's Al...	rho_A	Composite Rel...	Average Varian...
BTH	0.878	0.884	0.911	0.672
DSC	0.873	1.091	0.897	0.638
HOP	0.887	0.935	0.915	0.683
INS	0.888	0.898	0.918	0.691
ITG	0.834	0.859	0.882	0.599
QOI	0.879	0.884	0.911	0.672
QSV	0.895	0.897	0.922	0.704
QSY	0.865	0.866	0.903	0.651
SYT	0.883	0.897	0.919	0.740

Figure 3. Reliability and Validity ITG Trust model

3.2.3. Construct reliability and Validity

From the results of testing reliability and validity (Figure 3), the first time seen is the alpha Cronbach's Alpha value and the resulting value turns out to be more than the standard value of 0.7, so the data is declared reliable. Likewise the results shown in the AVE value with values above the standard value of 0.5 are shown in green in the value displayed. If the value is below 0.5, the color displayed will be red.

3.2.4 Collinearity statistics

The next test is a multi collinearity test (Figure 4). It is used by looking at the test of collinearity statistics (VIF). The values seen in the outer values are below 3.3 as the ideal value of a collinearity statistical test which means that the data in the research model are free from the influence of multi-linearity data from the results of the PLS analysis algorithm.

Collinearity Statistics (VIF)

Outer VIF Values	Inner VIF Values						
		HOP 3	2.831	ITG 3	1.863	QSV 4	2.329
		HOP 4	2.822	ITG 4	2.099	QSV 5	2.263
		HOP 5	2.547	ITG 5	1.915	QSV 1	2.057
BTH 1	2.319	HOP 1	2.596	QOI 1	2.194	QSV 2	2.413
BTH 2	2.517	INS 1	1.971	QOI 2	2.211	QSV 3	2.542
BTH 3	2.399	INS 2	2.459	QOI 3	2.413	QSV 5	2.851
BTH 4	2.465	INS 3	2.043	QOI 4	2.265	QSV 4	2.851
BTH 5	2.239	INS 4	2.407	QOI 5	2.236	SYT 1	2.032
DSC 1	2.023	INS 5	2.343	QSV 1	2.307	SYT 2	2.439
DSC 2	2.154	ITG 1	1.550	QSV 2	2.518	SYT 3	2.244
DSC 3	2.240	ITG 2	1.842	QSV 3	2.316	SYT 4	2.439
DSC 4	2.505						
DSC 5	2.257						
HOP 2	2.565						

Figure 4. Collinearity Statistic

3.2.5 Test of the influence of independent variables

Test of the influence of independent variables is about how much influence the independent variable has influence on ITG (proposed model). The R square data is data that shown how high ITG is the influenced by variables of [HOP], [BTH], [DSC], [INS], [QOI], [QSY], [QSV], and [SYT] on ITG trust model [9]. The influence value of the dependent variable and independent variable to ITG trust variable is 13.4%. So, it happened to other variable that a variable influenced by other variable, i.e.: SYT variable influenced the variable [HOP], [BTH], [DSC], [INS], [QOI], [QSY], [QSV] by 13.1%; QSY variable influenced the variable [HOP], [BTH], [DSC], [INS], by 53.4%; QSV variable influenced the variable [HOP], [BTH], [DSC], [INS] by 15.6%; QOI variable influenced the variable [HOP], [BTH], [DSC], [INS] by 42.9%.

Based on the smart PLS analyze, this study has a good result because of there is influence from dependent variable and independent variable to ITG trust variable. Besides, the other indicator that the model shown a good result is based on the reliability, and validity [10]. The result of reliability shown by alpha Cronbach’s Alpha value is more than the standard value of 0.7 and the result of validity shown by AVE value with values above the standard value of 0.5. So, the ITG trust model is a good model and it can be used to analyze ITG in HSI (Figure 5).

R Square

Matrix	R Square	R Square Adjusted
ITG	0.134	0.084
QOI	0.429	0.396
QSV	0.156	0.108
QSY	0.534	0.507
SYT	0.131	0.041

Figure 5. R-Square analyses

4. Conclusion

The utilization of information technology in the education system is needed, especially for a senior high school in Indonesia. Several countries in South East of Asia such as Singapore, Malaysia, Thailand and some other countries have implemented IT-based education system. In some schools in Indonesia have already implemented IT-based education which the whole system that is integrated and utilizes the Information and Technology system. Based on the results of the research discussion, it can be concluded that the trust factor in IT governance is influenced by hopefulness, breakthrough, discomfort, insecurity, quality of information, and quality of system, quality of service and system trust from the use of technology. Effective IT governance generates business benefits, such as improved reputation, trust, reduced costs, and the last is increase the stakeholder value suggestions based on the results of the research can be conveyed. In increasing trust in IT governance there needs to be a change in the user's perspective through various kinds of education and training that refers to all kinds of changes in systems that are influenced by technology. Thus, the role of technology in helping the system work properly can be achieved.

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