

# THE EFFECT OF COMPREHENSIVE QUALITY AND PERCEIVED USEFULNESS TO STUDENT'S SATISFACTION OF ADLP

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## Abstract

The purpose of this study is to evaluate the implementation of Accounting Dry Laboratory Program (ADLP) by looking at students' perceptions of the system quality and information quality, associated with the perceived usefulness and the satisfaction of student through Structural Equation Modeling (SEM). Respondents in this study were active college students in UT's Accounting Department during the registration period of 2014. The results of this study show that the comprehensive quality that consist of information system quality and information quality are significantly positive effect on perceived usefulness and student's satisfaction. Information system quality (statistically significant) affects the perceived usefulness and student accounting software satisfaction. Information quality (statistically significant) affects the perceived usefulness and end-user (students) accounting software satisfaction. Perceived usefulness affects the student accounting software satisfaction. The results also lead to the conclusion that all the instruments of research into student satisfaction indicators have good validity and reliability.

**Keywords:** accounting, dry lab, student's satisfaction

## INTRODUCTION

UT's Accounting Department have a practicum program that cover the weaknesses experienced by students in the Online Tutorial (Tuton). Tuton has not been able to satisfy and meet the needs and objectives of practicum. Students should continue to monitor the initiation of material every week, and should be active in the discussion forum. If students miss the learning process within a week, it will not be able to repeat in the next week. In general, Tuton can achieve cognitive objectives of the course Introduction to Accounting Laboratory, but it can't be used to improve student skills in working on accounting cases as in real business practices.

Though the end goal of accounting practicum is improving student's skills to resolve the case of accounting transactions to the preparation of financial statements in various cases and industry. This skills will appear on the student's ability to resolve the case of accounting on the final exams. When students are not skilled, though diligent in following Tuton, surely will not be able to resolve the case of accounting in the final exam because they're not accustomed to practicing accountancy. That's why UT's Accounting Department makes a practicum program called Accounting Dry Lab Program (ADLP) for accounting introduction course.

Dry lab is an abbreviation of Dry Laboratory which is a lab with simulated via computer and equipped with animation, images, audio, and video that developed to

allow students to carry out practical work with easy, fun and effective and efficient. To assist students in conducting lab, UT's Accounting Department provide a theoretical basis or introductory on accounting concepts before students do the lab working. These concepts being contained in the Dry Lab Introduction to Accounting module which is expected students will not have difficulty in understanding the subject.

Dry Lab can be accessed easily via UT's website, without the constraints of time and place. In addition through the UT website, under certain circumstances dry lab program can also be obtained by the student in the form of a compact disc and the practicum results can be sent to either UT's Accounting Department through the Internet (softcopy) or via mail (hardcopy). The two main requirements to be able to follow the Dry Lab program is: 1). you have to be registered as a student lab course Introduction to Accounting and 2). Having basic computer skills such as excel programs, word, and simple navigation computer operation.

Dry Lab program has been launched, but until now the evaluation of the quality of information and quality of information systems that affect the perception of usefulness and user satisfaction levels itself has not been much done at the Open University. Meanwhile, according to Janson and Subramanian (1996) and Lucas et al. (1998), stated that the problem that usually occurs in the use of accounting Dry Lab package is system incompatibility with the information required by the end user. The discrepancy between the needs of the student's Dry Lab applications as users could pose a significant problem for them. Technical difficulties which interfere in Dry Lab, interfacing problems in the system, and difficulty in hardware can make a lower levels of satisfaction. If students are not satisfied with the Dry Lab program, they will no longer use it. EUCS (End User Computer Satisfaction) can be used as a signal for the Open University in general and specially for Accounting Department to overcome these difficulties and mismatches. Seddon (1997) stated that by overcoming the weaknesses of the better measurement, end-user satisfaction can be used to measure the gain or success of Dry Lab.

Departed from the reasoning and the empirical facts, this study try to evaluate the application of Dry Lab program. The evaluation is done by looking at students' perceptions of the quality of information and quality of existing information systems in the Dry Lab, associated with the perceived usefulness and the level of student satisfaction over the Dry Lab through structural equation modeling. The use of this model is important because it is a powerful way to overcome the problems that arise in information systems research and understanding of emergence.

If the student does not accept or use the system effectively, the benefit of the Dry Lab as a learning system based on e-learning cannot be realized. It is therefore important to investigate the factors and critical success drivers of Dry Lab to provide feedback to designers and teachers to build systems that are useful and accepted by the end user, in this case the student of UT's accounting department. Departed from this facts and the background research, the formulation of the problem in this study are: 1). how the influence of the quality of the information system and the quality of information on student's satisfaction Dry Lab Program, 2). how the variables influence perceived usefulness as an intervening variable in the relationship between the quality of information and quality of information system on student's satisfaction of Dry Lab, 3). how the structure and dimensionality, reliability and validity of the instrument used to measure end-user computing satisfaction (EUCS) made by Doll and Torkzadeh (1988). This study is also the response of Klenke's research (1992) which stated the

need for cross-validation MIS instruments and to re-examine the instrument EUCS with new data.

Meanwhile the objective to be achieved in this study are: 1). To investigate the influence of the quality of information systems and information quality on Student's satisfaction Dry Lab Program, 2). To examine the effect of perceived usefulness as an intervening variable in the relationship between the quality of information systems and information quality and Student's satisfaction Dry Lab program introductory accounting, 3). To examine the structure and dimensionality, reliability and validity of the instrument used to measure end-user computing satisfaction (EUCS).

Hopefully this study can achieve the benefits to:1). Those researchers and practitioners of information systems based learning (e-learning) in assessing the quality of cleaning lab to improve student satisfaction, 2). UT to develop innovations that fit the students need in the future and improvement of the Dry Lab quality, 3). UT's students in order to create an ideal network-based lab.

## **PREVIOUS RESEARCH AND HYPOTHESIS DEVELOPMENT**

### **A. Information System Quality and End-User Satisfaction of information system**

Information System Quality and End-User Satisfaction of information system is an inherent characteristic of the system itself (DeLone and McLean (1992). Defined quality system also Davis et al., (1989) and Chin and Todd (1995) as perceived ease of use that is how big the perceived computer technology is relatively easy to understand and use. Perceived usefulness is defined as the degree to which a person believes that using a particular system can improve the performance (Davis, 1989). Research Adams et al. (1992), showed a positive relationship between the usefulness and ease of use. Iqbaria, Guimaraes, and Davis (1995) in their study using the technology acceptance model (TAM) showed the influence of perceived ease of use on perceived usefulness. Test results Mao and Palvia (2006), as well as Simon and Paper (2007), shows the influence of perceived ease of use on perceived usefulness.

Based on the previous studis, this study hypothesized that based on the perception of the student, the higher the quality of accounting drylab, will further increase the perceived usefulness. A second hypothesis is higher quality accounting information, will further enhance perceived usefulness.

H1: The quality of information systems has a positive effect on Perceived Usefulness.

H2: Information quality has a positive effect on Perceived Usefulness.

### **B. The quality of information systems, information quality and student satisfaction of information system.**

User satisfaction of an information system is how users view information in a real system, not on the quality of the engineering system (Guimaraes et al, 2003). In the research literature and in practice, user satisfaction is often used as a surrogate measure of the effectiveness of information system (Melone, 1990). The results obtained DeLone and McLean (1992), McKiney et al., (2002), Rai et al., (2002), and Livari (2005) indicates that the quality of the information system has positive influence on the wearer satisfaction.

The higher the quality of information produced by an information system, will further enhance user satisfaction (DeLone and McLean, 1992). This opinion is supported by the results of McKiney et al., (2002), Rai et al., (2002), and Livari (2005).

If users believe that the quality of information system and quality system information generated from the system used is good, they will be satisfied using the system.

This study hypothesized the third hypothesis that higher quality accounting introduction drylab used, will increase student satisfaction according to their perception. For the fourth hypothesis in this study is the higher quality of information produced by accounting drylab program will increase student satisfaction based on their perceptions.

H3: The quality of information systems has a positive effect on student’s satisfaction of information system.

H4: The quality of information has a positive effect on student’s satisfaction of information system.

### C. Perceived Usefulness and Student Satisfaction

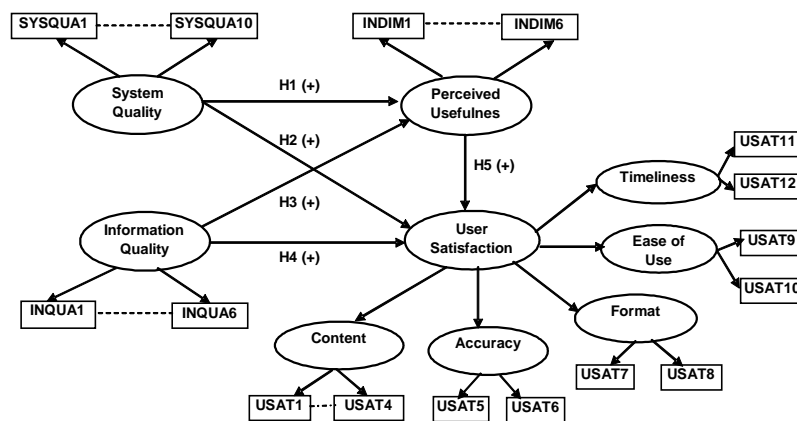
DeLone and McLean Information System (1992), states that the impact of the use of information systems on the performance of the individual to the level of user satisfaction (user satisfaction) have a reciprocal relationship. While Seddon (1997) in his model hypothesizes that the impact of the use of information systems in the form of increasing the performance of the individual, will affect the level of user satisfaction.

Rai et al., (2002) examined the relationship between perceived usefulness to the user satisfaction using three models of information systems success. All three models are models of information systems success DeLone and McLean (1992), the model Seddon (1997), and Model Seddon (1997) modified by adding the relationship between perceived usefulness with system use. Research results indicate overall perceived usefulness affect user satisfaction. Livari (2005), conduct research on the success of the new information system is applied to the users of information systems in an organization which is mandatory. Research results for perceived usefulness variable relationship with user satisfaction shows the influence of both variables. If users feel the benefits of the information system of systems that are used, then they will be satisfied using the system. Based on the above description of this study hypothesized that the higher the perceived usefulness, student satisfaction will increase drylab accounting, according to their perception.

H5: Perceived Usefulness has a positive effect on student’s satisfaction of information system.

Thought and the hypothesis can be stated in the following research framework.

Figure 1. Modified Model of DeLone and McLean (1992) and Seddon (1992, 1997)



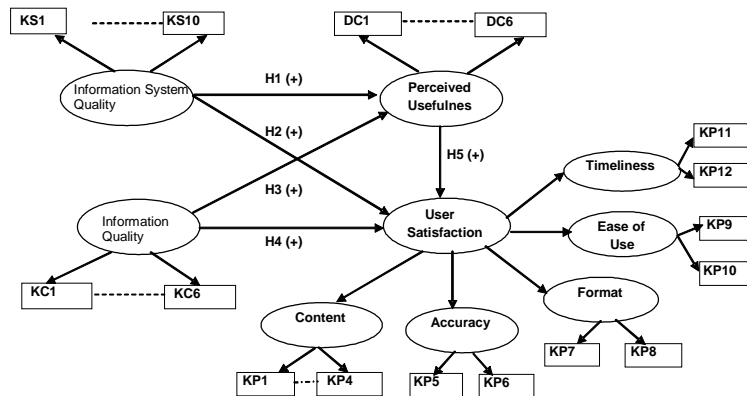
## METHODS AND TECHNIQUES OF DATA COLLECTION

This study uses primary data that is obtained directly from the original sources (Sekaran, 2003). The unit of analysis of this study is all respondents who use drylab introductory accounting at UT's Accounting Department. The data was collected through a questionnaire and sent to the students of UT's Accounting Department. The study period is the period of deployment to the collection of questionnaires from respondents that during the four months from February 2014 until April 2014.

### Research Model

This research uses a model form of Structural Equation Model and uses a modified model of information system success model of DeLone and McLean (1992) and Seddon (1997), by adding a confirmatory factor analysis (CFA) for latent variables student satisfaction. The addition of this model is expected to give a better explanation on the validity and reliability of each instrument in EUCS. The addition of this model is also based on research results Somers, Nelson, and Karimi (2000).

Figure 2. Research Model



### Latent Variable

Operationalization of the latent variables are the key variables that are the focus of attention in this study. This variable is an abstract concept that can only be observed indirectly and imperfectly through its effect on the observed variables (Wijanto, 2006). There are 6 Latent variables in this study which consists of:

#### *Information System Quality.*

The quality of information systems referred to in this study is the quality of accounting drylab used, seen from the student perception. The items to measure these variables adopted from the questionnaire used by McGill et al. (2003). The items are an adaptation of the questionnaire Davis et al, (1988). The quality of information systems in the path diagram abbreviated as KS.

#### *Information Quality*

Information Quality referred to student's perception of the quality produced by the accounting drylab used. Some karakteristik used to assess the quality of accounting drylab of these include the accuracy, timeliness, relevance, informativeness, and Competitiveness (Weber, 1999). The questionnaire used to measure the quality of this information in the adoption of the questionnaires used in the study of McGill et al., (2003). In the path diagrams, quality of the information is abbreviated as KS.

### ***Perceived of Usefulness***

In this study, perceived of usefulness variable is the student's perception of the extent to which the impact of the use of accounting drylab which may be influential in the increase their performance later. The instrument used to measure these variables are taken from Davis et al, (1988), with modifications of accounting drylab using. This questionnaire has also been used in research Sandee (1984) and Goodhue (1995). In the path diagram of this study, the perceived of usefulness variable abbreviated as DS.

### ***User satisfaction***

User Satisfaction in the study is the level of student's satisfaction of using drylab accounting and outputs produced by the drylab. Weber (1999) states that there are five characteristics to assess user satisfaction is the content, accuracy, format, easy of use, and timeliness. Questionnaire to measure user satisfaction of information system in this study was adopted from a questionnaire compiled by Doll and Torkzadeh (1988), which has also been used in studies of Kim and McHaney (2000). In this study, variable user satisfaction is abbreviated as KP.

### **Observed variables**

Observed variables also called manifest variables or observed variables (Ghazali, 2005). Unobserved variables are variables that can be observed or measured empirically which is also often referred to as an indicator (Wijanto, 2006). The observed variable is the effect or the size of the latent variables. Variable is observed in this study consisted of 34 baseline variables that constitute the existing question items in the questionnaire.

### **Latent Variable Scores**

Special for latent variables student satisfaction of is a confirmatory factor analysis (CFA) of five components: content, accuracy, format, ease of use and timeliness. Each of these components in the initial model is a latent variable in the path diagram is written as Content, Accuracy, Format, Ease and Time. Content have been observed by 4 variable, and written in the path diagram KP 1 until KP4. Accuracy in this study has been observed by 2 variables and written in the path diagram as KP 5 to KP6. Format in this study has 2 observed variables, in the path diagram is written as KP7 to KP8. Ease of use in this study has 2 observed variables, in the path diagram is written as KP9 until KP10. Time variables has 2 observable variables, in the path diagram is written as KP11 until KP12. After calculating the scores for the five latent variable content, accuracy, format, Ease and Time, then the five latent variables and the observed variables into the research model will be simpler.

## **TEST ANALYSIS AND RESULTS**

### **Overall Model Suitability**

Structural model in SEM analysis begins with testing the overall model fit is seen by the indicator Goodness-of-fit index (GFI) statistics of the output of LISREL (Hair et al., 1995). Overall summary of the critical value of the test the suitability of the overall model can be seen from the summary in Table 1.

**Table 1.**  
**Overall Model Suitability**

Models Criteria for Suitability	Compatibility Level Indicator	Model Estimation Results	Level of Suitability Model
<b>RMSEA</b>	RMSEA < 0,08	0.22	Not Good
<b>P (close fit)</b>	P < 0.05	0.00	Good
<b>ECVI</b>	Smaller values of Independence and closer to the Saturated Model	M* = 17.13 S** = 5.25 I*** = 97.07	Good fit
<b>AIC</b>	Smaller values of Independence and closer to the Saturated Model	M* = 967.60 S** = 756.00 I*** = 13978.41	Good fit
<b>CAIC</b>	Smaller values of Independence and closer to the Saturated Model	M* = 2806.20 S** = 2259.21 I*** = 14085.78	Good fit
<b>NFI</b>	NFI > 0,90	0.95	Good fit
<b>NNFI</b>	NNFI > 90	0,96	Good fit
<b>CFI</b>	CFI > 0,90	0,97	Good fit
<b>IFI</b>	IFI > 0,90	0,97	Good fit
<b>RFI</b>	RFI > 0,90	0,94	Good fit
<b>RMR</b>	Standardized RMR < 0.05	0.01	Good
<b>GFI</b>	GFI >0,90, <i>good fit</i> ; 0.90 < GFI > 0.80, <i>marginal fit</i>	0,84	Marginal fit

Source: Result of analysis data, 2014 M\* = Model S\*\* = Saturated I\*\*\* = Independence

By looking at the overall results of the estimation based on existing criteria, the overall values obtained are good. So from the results of an analysis of the reliability of the output for testing the overall model, it can be concluded that the model is a good fit or good.

### Validity and Reliability Test Result

If the calculation results of the construct reliability greater than 0.70, and the variance extracted is greater than 0.50, it can be said that the construct had good reliability (Wijanto, 2008). Table 2 show that all the construct are valid and reliable.

**Table 2.**  
**Construct Reliability and Variance-Extracted Value of Each Latent Variable**

Latent Variabel	CR value $\geq 0.70$	VE Value $\geq 0.50$	Summary
System Quality (KS)	0.956	0.741	Good
Information Quality (KC)	0.962	0.809	Good
Perceived Usefulness (DS)	0.932	0.700	Good
User Satisfaction (KP)	0.934	0.740	Good

Source: Result of analysis data, 2014

### Structural Model Suitability

The analysis is performed on the structural equation coefficients by specifying a certain level of significance. Analysis of the structural model to test the hypotheses proposed in this study. For a significance level of 0.05, the value t of structural equation must be greater or equal to 1.96 or greater for practical equal to 2 (Wijanto, 2008). Of the overall hypothesis, generate 3 equations which means there are three structural models proposed.

Structural Equation Model 1:

H1: System Quality has positive effect on Perceived of Usefulness

H2: Information Quality has positive effect on Perceived of Usefulness

$$DS = 0.47*KS + 0.23*KC, \text{ Error var.} = 0.65 ,$$

$$R^2 = 0.35$$

(0.097)	(0.082)	(0.17)
4.80	2.82	3.79

From the first structural equation in the model above can be seen in the figure below, all coefficients have significant t values. This equation is an equation for the first and second hypothesis. It can be concluded that the hypothesis H1 and H2 in this study is significantly proved.

Structural Model 2:

H3: System Quality has a positive effect on the Student's Satisfaction.

H4: Information Quality has a positive effect on Student's Satisfaction.

H5: Perceived Usefulness has a positive effect on Student's Satisfaction.

$$KP = 0.46*DS + 0.47*KS + 0.13*KC, \text{ Error var.} = 0.22 , R^2 = 0.78$$

(0.077)	(0.061)	(0.050)	(0.033)
5.97	7.71	2.57	6.79

For the equation in this second model, also shown that all coefficients have significant t values above 1.96. So the conclusion that can be drawn is that the H3, H4, and H5 are also proven. From the second equation shows that the models have to offer a good level of significance for the t value is above the critical value of 1.96. This shows that all the coefficients for the first and second equation is significant. The Summary of t-value of each latent variable, are presented in Table 3.

**Table 3. T-value for each hypothesis**

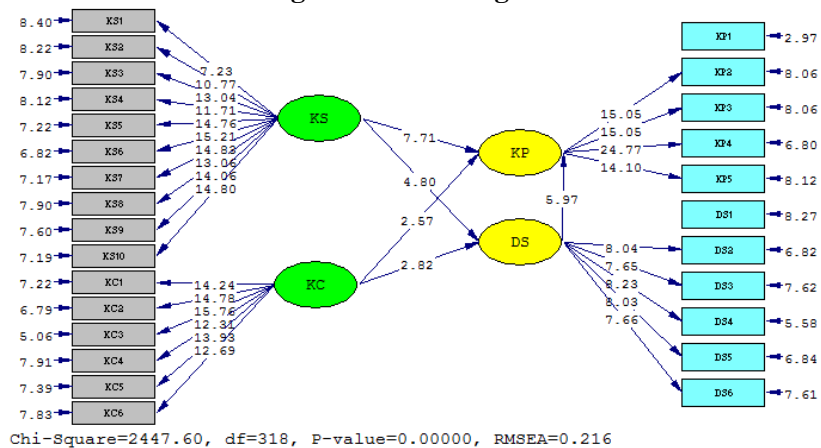
Hypothesis	Path	Estimation	t-value	Summary
H1	KS → DS	0.46	5.97	Significant
H2	KC → DS	0.47	7.71	Significant
H3	KS → KP	0.47	4.80	Significant
H4	KC → KP	0.13	2.57	Significant
H5	DS → KP	0.23	2.82	Significant

Source: Result of analysis data, 2014

The results of the path diagram in Figure 3 below, shows the structural model generated from Lisrel output.



Figure 3. Path Diagram



### Test Results Analysis

Based on structural equation models testing were produced and confirmed that the system quality is significantly affect perceived usefulness. These results reinforce previous studies. The second hypothesis examines the effect of information quality on the perceived usefulness of positive results also proved significant. These results also support the findings of Seddon (1997), Li (1997) and Rai et al., (2002). This indicates that the higher the quality of information produced by the accounting software used, will increase the perceived usefulness views of student perception.

The third hypothesis regarding the effect of system quality on student satisfaction, the results proved to be significantly positive. These results are consistent with the results obtained by DeLone and McLean (1992), McKiney et al., (2002), Rai et al., (2002), and Livari (2005). Meanwhile the fourth hypothesis testing on the effect of information quality on user satisfaction results proved significant positive. These results support the results of previous studies so we can conclude that the higher the quality of information produced by the accounting software used, will further improve student satisfaction, according to their perception. Test results on the effect of perceived usefulness H5 against student satisfaction also proved significant, in line with the results of the research DeLone and McLean (1992). These results also support the model of Seddon (1997), Rai et al., (2002) and also Livari (2005). This gives the conclusion that the higher the level of perceived usefulness, student satisfaction will increase accounting software, based on their perception.

### CONCLUSION

There are five hypotheses developed in this study which is a model of the relationships that exist in the success of information systems of DeLone and McLean (1992) and Seddon models (1997), and summarized by Rai et al., (2002). After testing the hypotheses proposed in this study, it produced some conclusions which are System Quality proved to be significantly positive effect on perceived usefulness. Information Quality proved to be significantly positive effect on perceived usefulness. System Quality proved to be significantly positive effect on student satisfaction. Information Quality proved to be significantly positive influence on student satisfaction. Perceived usefulness proved to be significantly positive effect on student satisfaction. The results also lead to the conclusion that all the instruments of research into student satisfaction indicators has a good validity and reliability.

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