Applying Path Analysis on Service Quality to Users' Satisfaction and Intensity Using Delone and Mclean Method at Jember Paru Hospital in 2017

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Abstract:
The management information system of hospital denotes an attempt to provide accurate, timely, and apt information so as to support managerial functions and decision making in providing health service at hospital. Manual data management is fraught with downsides, due to not only requiring long time, but also hardly acceptable accuracy as it error margin is so huge. Problems faced by the user of hospital management information system were obtained from interview results, inter alia, 1) service quality: users found it difficult to input data; 2) users' and system users' intensity: users did not implement hospital management information system using tablet (Android smartphone) provided by hospital management; 3) users' satisfaction: the researcher's survey finding as seen from the subjectivity of system users, from which 9 heads of installation voiced their opinion; 4 persons stated satisfaction, and 5 persons indicated disatisfaction. The present study was projected to analyze the influence of system quality to users' satisfaction and intensity. The study was quantitative analytical in nature, which was coupled with cross-sectional approach. It delved into determining hypothesis concerning where there was direct influence of exogenous variable, system quality, to endogenous variable, users' intensity. The findings evinced that service quality exerted significant influence to users' satisfaction as corroborated by black figure of 5.22. Users' satisfaction significantly influenced users' intensity, indicated by black figure of 3.28. As a result, the study concludes that information quality is directly influential to users' intensity. Backgrounded by the research findings, the hospital is recommended to retain the service quality of its management information system for optimal service to patients.

Keywords: hospital management information system, service quality, users' satisfaction and intensity

1. Introduction

Hospital management information system is an undertaking devoted to providing accurate, timely, and apt information to support managerial functions and decision making in providing health service at hospital. Hospital management information system can manage patients' data better so their data become more easily searched and located. Hospital data management denotes a crucial component to bring about particular hospital management information system. Manual data management possesses copious shortcomings, due to not only requiring long time, but also unacceptable accuracy, as the margin of error is quite huge. With the support of prevalent information technology, manual data management tasking can be substituted by computer-based information system. Not only does it provide prompt and easy system, but data management accuracy is improved.

Issues encountered by the users of hospital management information system in the present study were revealed by interview on several aspects, encompassing: 1) Information quality: information generated by the system was incomplete. For instance, the form template in SIMRS had yet to be complete, making poly clinics staffs unable to input data regarding examination in comprehensive manner and the result of laboratory examination.; 2) Information quality: information generated by the current system was incomplete. For example, form template in SIMRS was incomplete, so poly clinics staffs could not input the data on examination in comprehensive manner and the result of laboratory examination; 3) Service quality: users found it difficult to input data. For instance, the staffs in laboratory division and in-patient division found data input difficult. According to these staffs, the program operative was not so user friendly; 4) Users' intensity and system users: the users in fact did not implement the existing management information system using tablet (Android smartphone). For instance, specialists, upon carrying out patient visit, had to complete medical resume and SOAP result by entering the data regarding the visit into hospital management information system via tablet (Android smartphone). However, in reality, that process only went on for 1 to 2 months, and then it was no longer continued by the doctors inasmuch as they had to spend more time on that particular duty and found data input regarding patients visit difficult. The process, which already ran

on electronic platform, thus applied the manual system; 5) Users' satisfaction: the researcher's survey finding, by subjective assumption, found that, of all system users comprising 9 heads of installation; 4 persons voiced satisfaction and 5 others indicated dissatisfaction.

Backgrounded by the abovementioned issue, the hospital party foresaw negative impact. This impact was the under-qualified information generated by the hospital management information system. An information is said to be low-quality when it is untimely, incomplete, inaccurate, and irrelevant. Based on the aforementioned issues and negative influences pertinent to the hospital management information system, the researcher proposed a solution to the issues at hand by carrying out analysis on the implementation of hospital management information system using DeLone and McLean method. The method operationalized was to describe and analyze system quality, information quality, service quality, users' intensity, system users, users' satisfaction, and net-benefit. This elaboration has led the researcher to apply DeLone and McLean method as it is aptly suitable with the characteristics of issues under investigation, pertaining to system quality, information quality, service quality, users' intensity, system users, and users' satisfaction.

Referring to the study by Roldan and Lean (2003) concerning executive information system which substantiates that system quality and information quality yield positive influence on users' satisfaction regarding hospital management information system. Another study by Abdul Latih (2010), focusing on the analysis on *Siskohat* (an integrated Hajj information system and computerization) success rate using DeLone and McLean method reveals that information quality is significantly influential to users' satisfaction. In addition, as corroborated by study by Masrek *et al* (2010) regarding the effectiveness of library's academic portal, service quality poses significant impact on the users' satisfaction regarding management information system.

DeLone and McLean (2003) opine that several essentials contribute to the urgency for information technology within an organization. This is strongly related to decision making, which is not founded by the abundance of irrelevant, useless, untimely, inaccurate information and inflexible data management. Based on this issue, it is important to create a system which can support decision making process.

In reference to the regulation by The Ministry of Health Affairs number 82 of 2013, concerning hospital management information system, every hospital in Indonesia is to embark on applying system so as to levitate service quality. This system is computerized one which can perform rapid, accurate, productive data management in interconnected fashion for all hospital management levels. Information analyzed in the form of report can set the basis of decision making in the light of improved health service. Hospital management information system functions to control service quality, quality control and productivity assessment, service simplification, benefit analysis and need estimation, clinical research, education, and program planning and evaluation. Referring to above elaboration, this study delves into a research entitled "The Analysis on The Implementation of Hospital Management Information System using DeLone and McLean Method at Jember Paru Hospital". However, the researcher in this case focus on the discussion surrounding the implementation of path analysis concerning service quality to users' satisfaction and intensity using DeLone and McLane method at the very hospital.

2. Research Method

The present study was quantitative in nature, with cross-sectional approach. The population in the study were all officials at the hospital applying SIMRS, comprising of 180 persons. Research sample was part of the total population, including only 125 SIMRS users at the hospital. This sample was determined by disproportionate stratified random sampling with three levels of access authority, *inter alia*, top management, middle management, and lower management. Research variables were system quality, users' satisfaction, and users' intensity. Required research data were primary, obtained directly from the respondents. Data resource of the study resulted from the questionnaire completed by respondents. This questionnaire was designed in reference with 3 research variables. Data analysis operated several phases: 1) validity and reliability test; 2) normality test; 3) homogeneity test; 4) colinearity test; 5) auto-correlation test; and 6) path analysis.
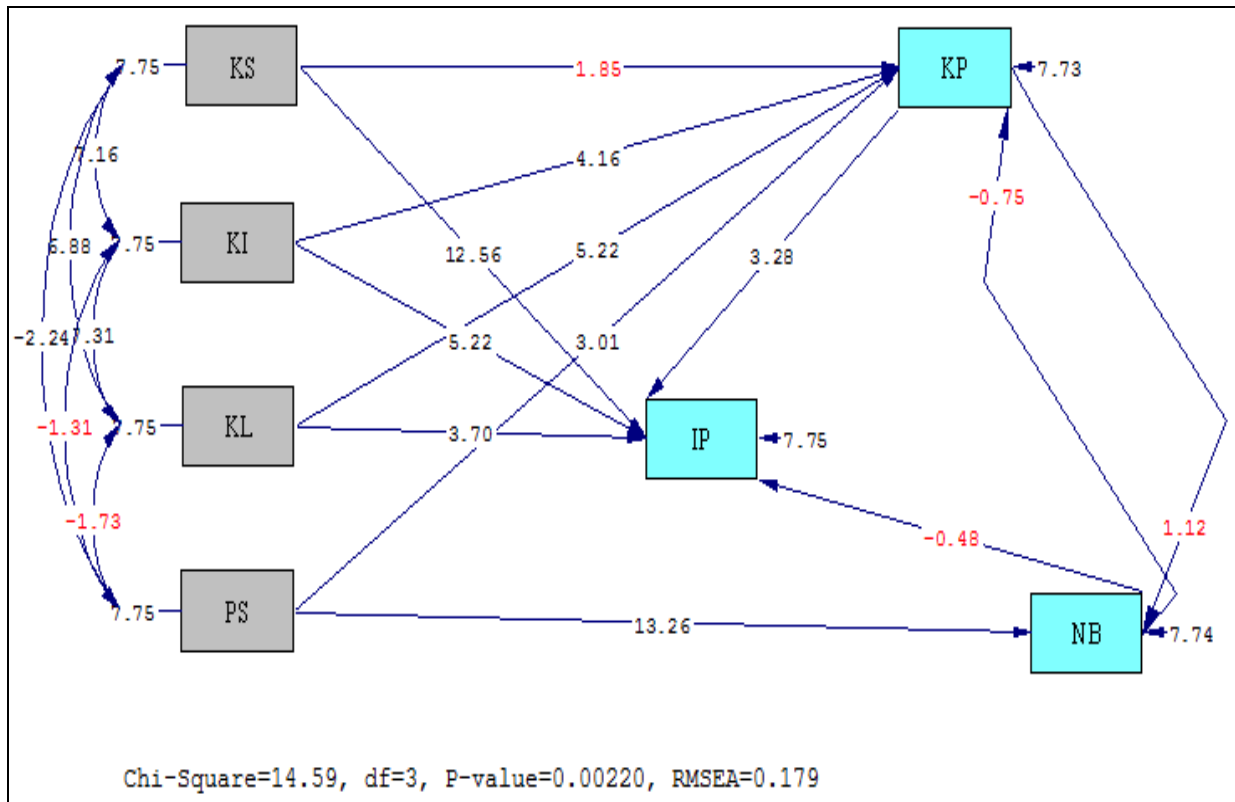
3. Findings and Discussion

Figure 1: T-Value of Lisrel Program

As shown in the figure above, it is obvious that exogenous variable, service quality, yields significant influence on users' intensity as indicated by black t value of 3.70. The exogenous variable, service quality, possesses significant influence on endogenous variable, which is users' satisfaction, as black t value shows 5.22.
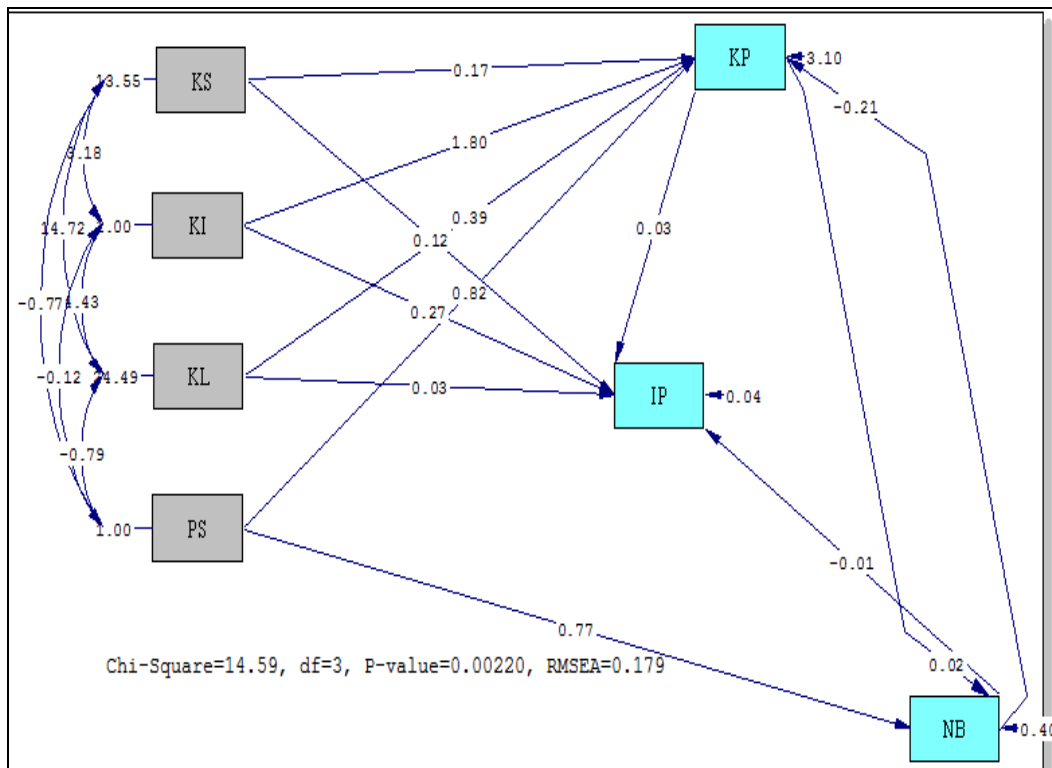

Figure 2: Estimate of Lisrel Program

Based on the Estimate of Lisrel Program above, it is found that the influence of exogenous variable, service quality, on endogenous variable, users' intensity, poses an estimation value of 0.03. The influence of exogenous variable to endogenous variable has an estimation value of 0.39. The standardized estimation obtained in path diagram at this juncture is similar to that of SIMPLIS generated above.
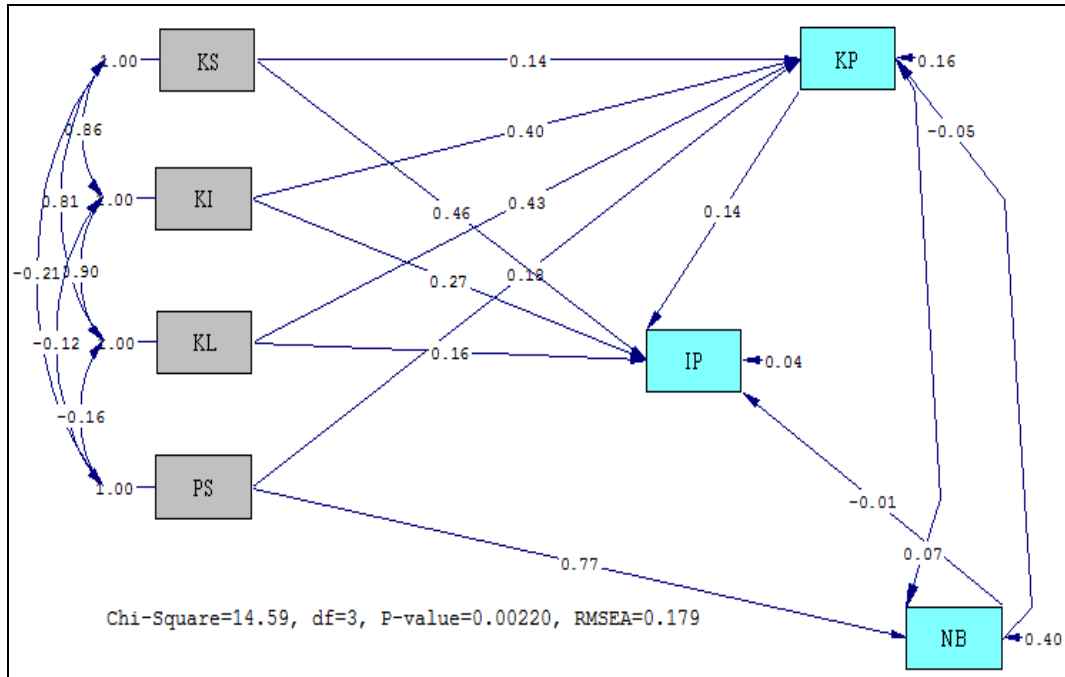

Figure 3: Standardized Solution of Lisrel Program

As shown in the Standardized Solution of Lisrel Program, it is clear that exogenous variable, the service quality, influences to significant extent the endogenous variable, which is users' intensity by 0.16 or 16%. Exogenous variable, pertinent to service quality, poses significant influence to endogenous variable, users' satisfaction, by 0.43 or 43%.

Figure 4

The output above informs the total influence quality service exerts to users' intensity, which is 0.03. That figure is similar to the direct influence of service quality to users'satisfaction as evinced by the SIMPLIS output, inasmuch as the correlation between service quality and users' intensity is direct in nature and denotes indirect one. By contrast, the total influence of service quality to users'

intensity reaches a value of 0.05, obtained by calculating the sum of direct influence by service quality to users' intensity and the indirect influence by service quality to users' intensity. As a result, 0,03+0,01=0,05.

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Indirect Effects of X on Y

        KS        KI        KL        PS

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KP     0.00     -0.01      0.00     -0.16

      (0.00)    (0.01)    (0.00)    (0.22)

      -0.51     -0.53     -0.53     -0.75


IP     0.01      0.06      0.01      0.01

      (0.00)    (0.02)    (0.00)    (0.02)

       1.61      2.58      2.78      0.92


NB     0.00      0.03      0.01      0.01

      (0.00)    (0.03)    (0.01)    (0.01)

       0.96      1.09      1.10      1.08
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Figure 5

The output above puts forward the indirect influence between variables. The indirect influence by service quality to users' intensity is shows a figure 0.01. The estimation of indirect influence by service quality to users' satisfaction is obtained by multiplying estimation value of service quality to users' satisfaction (intervening variable) and estimation value of users' satisfaction to their intensity. Thus, 0.01 results from 0,39 x 0,03 = 0,01.

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 Total Effects of Y on Y

        KP        IP        NB

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KP     0.00      - -      -0.21

      (0.01)              (0.27)

      -0.53              -0.75


IP     0.03      - -      -0.02

      (0.01)              (0.02)

       3.29              -0.74


NB     0.02      - -       0.00

      (0.01)              (0.01)

       1.13              -0.53
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Figure 6

The output of total effect including Y on Y is the output from LISREL, which informs the total influence of observed variable with endogenous variable to another endogenous variable. As a corollary, the total influence of endogenous variable, users' satisfaction, to users' intensity is 0.03, while the total influence of users' satisfaction to net benefit reaches a figure of 0.02.

The above findings corroborated researcher's conclusion accentuating that service quality poses significant influence to users' satisfaction. Their satisfaction significantly affects their intensity. As such, the study draws on the conclusion, which substantiates the direct influence of service quality to users' intensity.

The variable concerning service quality to users' satisfaction in the present study is in line with findings in Andika's study (2016), which evinces that service quality is significantly influential to users' satisfaction. Another research finding by Dony (2016) reveals that service quality yields significant influence to users' satisfaction. Similar study by Stacie (2008) proves that service quality is significantly influential to users' intensity. In addition, research findings by Yeni (2015) signifies the significant influence of service quality to users' satisfaction.

The researcher is of the opinion that the conformity between the present study and the former studies is due to the fact that SIMRS has complied with users' need inasmuch as the medical record is electronic-based, which comprises of patient's identity format, patient's anamnesis, general checkup, physical checkup, ICD-10, and ICD-9CM, therapy scheme, supporting checkup, medical treatment, doctor consultation, cost, visit record, supporting uploader, document uploader, medical resume, nursing care, pharmaceutical care, and result of laboratory checkup. The respondents, including doctors and nurses, also state that service quality available is already complete, easily accessible, and easy to read.

The variable concerning users' satisfaction to users' intensity in the present study confirms the research finding in Andika's study (2016), revealing that users' satisfaction is significantly influential to users' intensity. A study by Manik (2016) finds that users' satisfaction is significantly influential to users' intensity. Muhimmah (2016) also confirms that users' satisfaction poses significant bearing to users' intensity. These findings are in line with that of Yeni (2015), claiming that users' satisfaction poses significant influence to users' intensity.

The researcher is of the opinion that the congruity between the present study and previous studies results from the characteristics of SIMRS, which is already clear in that medical record is made electronic-based encompassing patient's identity format, patient's anamnesis, general checkup, physical checkup ICD-10, and ICD-9CM, therapy scheme, doctor consultation, cost, visit record, supporting uploader, document uploader, medical resume, nursing care, pharmaceutical care, and result of laboratory checkup. Doctors and nurses also voice that information available has been made complete, easily accessible, and easy to read. For information generated by SIMRS is considered clear, users use SIMRS on daily basis when dealing with their official duty

4. Conclusion
Service quality dose pose significant influence to users' satisfaction, as marked by black figure reaching 5.22. Users' satisfaction is proven influential to significant extent to users' intensity, evinced by black figure of 3.28. All in all, it can be concluded that service quality poses direct influence to users' intensity.

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