

Knowledge Sharing Attempt of Doctors in Teaching Hospital using Partial Least Squares (PLS) Analysis

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ABSTRACT

Communication among doctors in addressing a disease that involves the same disciplines and involves a wide range of different disciplines plays a very vital. Significant aspects of influence in the advancement of medical science are knowledge sharing activities as a form of follow-up communication activities. This study will examine knowledge sharing activities in the 5 (five) department in a teaching hospital in Indonesia. The method used to conduct surveys directly to the doctors who are selected as respondents by random sampling. The number of questionnaire were distributed to respondents as many as 200 pieces, while the questionnaires were returned and processed fruit totaled 192 with a net responses rate of 96%. This study shows that of the five hypotheses, there are three hypotheses supported. The conclusion of this study is that management support has no effect on intention to share knowledge, that doctors are mostly internal-driven, i.e. they share their knowledge because they enjoy doing it, not because management support this, and not that the knowledge involved is useful. This points to the difficulty of promoting knowledge sharing, that is, top management support or leadership may not be that effective (since the results show that management support has no effect) in driving knowledge sharing. Maybe what management can do is to ensure that they select doctors who are intrinsically motivated and like to help people.

Keywords

Knowledge sharing, doctors, partial least squares (PLS)

1. INTRODUCTION

Health conditions in Indonesia had a very significant development in recent decades. For example, the infant mortality rate fell from 118 deaths per thousand births in 1970 to 35 in 2003, and life expectancy increased from 48 years to 66 years in the same period. This displayed a developmental impact of the expansion of the provision of public health facilities in 1970 and 1980, and the impact of family planning programs [1]. Indonesia's health ministry has improved although some remained problems and new challenges continue to increase [1]. The progress achieved including reduced infant mortality and increased life expectancy, but maternal mortality and child malnutrition remains a major problem. Demographic and epidemiological transition accelerated by rising incomes and an aging population. This shift resulted in a rapid increase in health care demands more and better. Indonesia's health system must answer this demand by improving the quality of services and diversified its funding of health [1]. Public health in Indonesia was influenced by many factors. These factors not only from the health sector such as health care and availability of health infrastructure, but also influenced by economic factors, education, social environment, heredity, and other factors. Public health situation can be reflected through morbidity, mortality and nutritional status [2].

Seen from the side a more micro level hospitals, there are several things that can affect the process of integration of health information systems in Indonesia and in other countries, namely concerning the relationship between the readiness of policymakers in the hospital, the patient data documentation system is good (medical record), human resources directly involved both doctors, nurses, midwives and pharmacists as well as other resources that are not directly involved as well as other supporting infrastructure such as server systems and the process of defining all business processes that occur in a hospitals [3]. To realize all of the above, then one of the factors that play a role is communication, direct communication

between all actors involved in the health world with emphasis on the sharing of useful information and knowledge (information and knowledge sharing) as well as through its medium well it software or hardware with respect to effective strategies in implementing information and communication processes for knowledge sharing [4].

2. LITERATURE REVIEW

The implementation of knowledge sharing can take place not only in the formal order, but also in the form of non-formal order is precisely the process of knowledge sharing can be run more effectively [5]. The process of knowledge sharing in the medical world especially among doctors is needed. This happens especially when a doctor with specific expertise found patients with a special case and is not in accordance with the area of competence, then the doctor will naturally consult other doctors are more appropriate competence. These conditions can be considered as the beginning of the process of knowledge sharing. The other thing is when a patient requires treatment not only by a doctor but by a team of physicians, the knowledge sharing process is in progress for this condition.

Previous research focused on the process of knowledge sharing in the field of health, among others References [6] with emphasis on the implementation of decision-making at a health clinic. References [7] discuss the role of information technology in changing society's view of health care. References [8] explained that more than the ability to see the role of knowledge management in healthcare to alter the characteristics of organizational capabilities and human resources, the quality of infrastructure and the decision making process. References [9] described the knowledge sharing behavior of physicians in a hospital. References [10] used deductive databases and database ontology in information integration process and the implementation of knowledge sharing in health care. References [11] using the media storytelling as knowledge sharing media treatment of a disease. References [12] emphasizes the importance of interdisciplinary science in solving problems in health care in particular a hospital. References [13] utilized bioinformatics and centralization-based health services in the process of knowledge sharing.

References [14] further highlight case studies of autism as the main chart roadmap to generate knowledge sharing specifically for people with autism. References [15] described the results of an investigation into the application of knowledge management system for the classification of disease. References [16] designed a process of knowledge sharing after the SARS outbreak. References [17] described the knowledge sharing behavior of consumers in an inter-organizational healthcare community. References [18] conducted research related to knowledge sharing in the hospital more specific. References [19] raised the issue of ease of access and reuse the knowledge and the knowledge sharing process with a case study on the health sector in the Caribbean region. References [20] developed a model of knowledge sharing for pediatricians using a Web 2.0 framework. References [21] stated that the community of practice (CoP) is the best solution in the process of sharing knowledge specific to the case in Kuwait. References [22] used statistical methods and perspectives from existing experience to improve the process of knowledge sharing.

References [23] conducted an analysis of knowledge management mechanisms that occur in health care portal. References [24] described the main factors that influence health professionals to adopt knowledge management. In the end references [25] provide brilliant idea, called the future of healthcare knowledge sharing, where there are several key trends that knowledge ownership, endorsment of informal channels, specialized communities, real-time knowledge sharing, consumer-generated knowledge, Mandated sharing of the "collective intelligence", and improved access to knowledge.

From a full explanation before, we could conclude that with the increase in the number and type of disease in this world requires a qualified medical treatment. To produce high quality medical treatment, the required increase in the quality of research related to medical treatment. However, the increasing amount of research is not enough to be followed also by improving the quality of research that is not directly in dire need of good quality communication between physicians specializing in the dissemination of research results related to medical treatment. One of the main requirements to allow the dissemination of research results can be well established is the need for the process of knowledge sharing among doctors that would lead to the need to improve the effectiveness of the base of knowledge sharing among doctors.

This study tried to look at the relationship level interplay of intention to share knowledge that has been developed by several previous investigators through the Theory of reasoned Action (TRA), the Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM) with Knowledge Sharing Attempt (KSA) which is a positive contribution of references [26]. Some of the factors that have significant influence based on the analysis of the previous studies on intention to share knowledge are management support, enjoyment helping others, perceived usefulness and the interaction frequency. Broadly speaking, this research can be concluded has 4 (four) direct effects on intention to share knowledge, as well as the intention to share knowledge (ISK) is assumed to affect knowledge sharing attempt (KSA). There we propose the following hypotheses:

H1. Management support is influenced to intention to share knowledge

H2. Enjoyment helping others is influenced to intention to share knowledge

H3. Perceived usefulness is influenced to intention to share knowledge

H4. Interaction frequency is influenced to intention to share knowledge

H5. Intention to share knowledge is influenced to knowledge sharing attempt

Further explanation of the conceptual model of this study can be seen in figure 1 below.

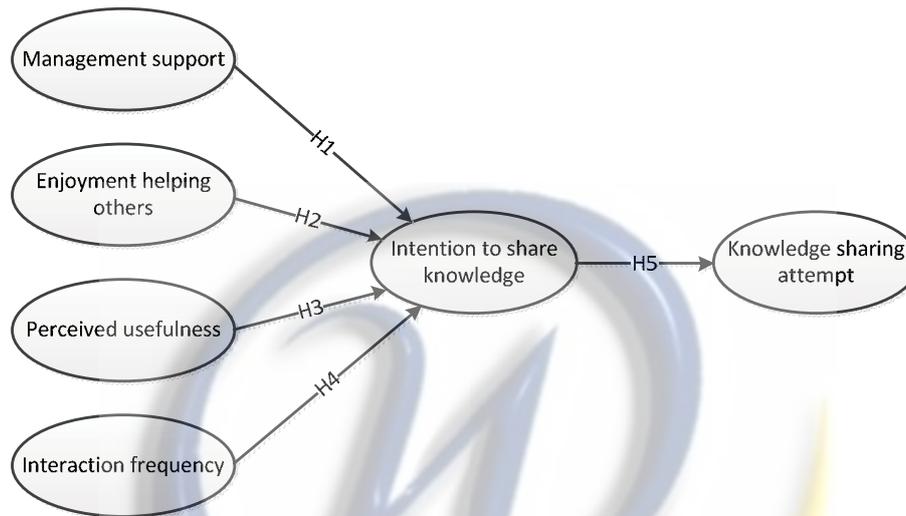


Figure 1: Conceptual Model

3. METHODS

In this study we used the survey method, this is caused by this research work was the focus of the current situation, and then shape the research questions about of who, what, where, how much / many, and does not require control over behavioral events [27]. This research questionnaire using closed questions. The main requirement of the respondents who would fill out this questionnaire is a medical specialist candidate (resident), specialist doctors who are continuing to be the consultants and specialists are a faculty member in the Faculty of Medicine and minimal working together in a hospital for at least 2 (two) years, the reason is that respondent assumed to be representative of the actual conditions in terms of knowledge, skills and experience they have in doing medical treatment. In addition to these criteria, the doctor is concerned with the doctor already knew each other well in the same part or different parts but has a level of interdependence is high especially in dealing with a problem of the patient as a team.

The survey was conducted by the method of paper-based questionnaire distributed directly to the respondents. The main part of the questionnaire in this study was a closed question that contains a list of questions with answers that are available and choose the answer that the respondent lived there [28]. The answer to a closed question questionnaire will be validated using appropriate statistical methods both in terms of descriptive statistics to multivariate statistics. The processes of distributing the questionnaire can only be done after the issuance of a certificate of ethical escaped examine the Health Research Ethics Committee Cipto Mangunkusumo Hospital/Faculty of Medicine University of Indonesia Jakarta. This is a major requirement in the field of health research in Indonesia can be implemented. The certificate is valid passes the review of conduct during the period of 1 (one) year and applied nationally in all hospitals located within the jurisdiction of the Republic of Indonesia. The questionnaire study using the 5 likert-scale with the explanation that the value of 1 indicates strongly disagree and a score of 5 indicates strongly agree. The respondents are sampled both of resident doctors and consultants from 5 different departments in teaching hospitals in Indonesia are Pediatrics, Obstetrics & Gynecology, Anesthesia, Radiology and Clinical Pathology. By using proportional random sampling method, a total of 200 pieces of research questionnaire is given directly to the resident and consultant. The number of questionnaire were returned as much as 199 pieces and questionnaires that can be processed as many as 192 pieces with a net response rate of 96%.

This study shows the following profile of the respondents, aged respondents consisted of 81 people (42,19%) aged under 30 years, 83 people (43,23%) between 31-45 years old, 24 people (12,5%) between 46-60 years old and 4 people (2,08%) aged over 60 years. By sex as much as 82 people (42,7%) were male and 110 (57,29%) were female. The respondents of this study is dominated by the resident with a total of 153 people (79,69%), the staff of as many as 9 people (4,69%), a fellow by 2 people (1,04%), 18 people (9,38%) consultant, head of division by 4 people (2,08%), as well as the professor as 6 people (3,13%). While the composition of the respondents from the five departments under study shows the results of 38 people (19,79%) came from the department of clinical pathology, 40 people (20,83%) from the department of pediatrics, radiology department of 39 people (20,31%), 37 people (19,27%) from the department of anesthesia, as well as 38 people (19,79%) from the department of obstetrics & gynecology. Meanwhile, recent information shows that 142 people (73,96%) have experience of 2-6 years as a doctor, 21 people (10,94%) experienced for 7-10 years, 11 people (5,73%) experienced for 11-15 years, and each group of 9 people (4,69%) for respondents with 16-20 years experienced and above 20 years.

4. RESULT AND DISCUSSION

After all data was collected through the paper based questionnaire with a total of 192, performed the processing and analysis of data using the rules of PLS-SEM with using Smart PLS 2.0 software. The use of software Smart PLS 2.0 is not without controversy, in which the most basic things a matter of debate on the expert was mentioned that when using PLS Smart PLS 2.0 or other software, it cannot be measured Goodness-Fit Test [29]. But if we set aside the controversy beforehand, the actual use of PLS is quite helpful for the research that has little data, because the main rule of the PLS-SEM does not specify a minimum sample size that can be processed [29]. PLS-SEM also has the flexibility in the distribution of population, as well as formative and reflective structure has the power in the process of exploration [29]. The other thing that supports the use of PLS-SEM in the processing and analysis of research data is optimized PLS-SEM on prediction accuracy, and can maximize the value of the variance in the construct variables [30].

The next stage after it is determined that this study will use Smart PLS 2.0 for processing and analysis of data is test reliability. Indicators are widely used by the researchers for this is Cronbach's alpha [29]. Cronbach's alpha values of these will range from 0 to 1, where references [31] explained that the minimum of a variable is said to be reliable 0.7 for the early stages, but in its development some researchers suggest that the minimum is 0.8 or 0, 9 with the aim to increase the confidence of researchers that research instrument used is really reliable. Meanwhile, references [29] suggested that the threshold for each variable is said to be reliable at 0.5. Indicator test reliability than Cronbach's alpha this is a composite reliability or part of research called Dillon-Goldstein's Rho, its value is at least equal to Cronbach's alpha or possibly larger [29].

Indicator reliability used results of the calculation of loadings for all observed variables [29]. The main purpose of the indicator reliability is to check whether there is one or more observed variables of a variable construct that has no reliable indication [29]. The minimum value that can be said reliably is of 0.7 [29]. In the next stage is to test the validity of particular convergent validity, which would be a valid indicator of whether or not a variable is used indigo AVE (average variance extracted). AVE measures the amount of variance that is on variable constructs (latent) in relation to random measurement error [29]. Its value ranges from 0 to 1, and the minimum acceptance amounted to 0.5 [32]. The explanation can be seen in table 1.

Table 1: Indicator reliability

	AVE	Composite Reliability	R Square	Cronbachs Alpha	Communality	Redundancy
ATTEMPT	0,7981	0,9222	0,2222	0,8738	0,7981	0,1761
ENJOYMENT	0,7792	0,9134	0	0,8578	0,7792	0
INTENTION	0,7232	0,9473	0,4023	0,9334	0,7232	0,265
INTERACTION	0,7292	0,8893	0	0,8107	0,7292	0
MANAGEMENT	0,6439	0,8431	0	0,7216	0,6439	0
USEFUL	0,5494	0,8218	0	0,7155	0,5494	0

References [32] describes for discriminant validity verification can be done by using the value of the root of the AVE (average variance extracted) and replace the value 1 in the calculation of correlations between variables constructs. In principle, the value of the root of the AVE should be greater than the value of the correlation between variables and construct the other just said that the variable is valid constructs [32]. Table 2 shows the correlation values for all variables of the same construct was greater when compared with the value of the correlation between different variables.

Table 2: Discriminant validity

	ATTEMPT	ENJOYMENT	INTENTION	INTERACTION	MANAGEMENT	USEFUL
ATTEMPT	0,8934	0	0	0	0	0
ENJOYMENT	0,5492	0,8827	0	0	0	0

INTENTION	0,4713	0,6151	0,8504	0	0	0
INTERACTION	0,4148	0,4522	0,4108	0,8539	0	0
MANAGEMENT	0,4835	0,3793	0,2943	0,3851	0,8024	0
USEFUL	0,5334	0,5415	0,4055	0,4927	0,4922	0,7412

In this study to test the hypotheses on each direct antecedents we used SmartPLS 2.0 software with the generation of data through a bootstrapping procedure [33] & [34]. This research used the number 500 for each time bootstrapping run, there is no definitive reason to choose this 500 number. Previous researchers suggested that the amount of bootstrapping run as many as 500 shows a fairly optimal result for a study specifically related to behavioral research [35]. All tests of this hypothesis using a two-tailed (two-way), on the grounds that all the hypotheses are designed not made to have a tendency towards the positive and negative effects, but rather focus on the exploration of the relationship between the levels of one variable with another variable. Detailed descriptions of the results of hypothesis testing are in Table 3 and Figure 2.

Table 3 Hypotheses test result

Path/Hypothesis	Paper-based Questionnaire (n=192)	
	Path coefficient	t-value
MANAGEMENT → INTENTION	0,020	0,311
ENJOYMENT → INTENTION	0,518	7,571**
USEFULNESS → INTENTION	0,042	0,646
INTERACTION → INTENTION	0,148	2,333*
INTENTION → ATTEMPT	0,471	4,064**

Note: *: significant at $p < 0,05$; **: significant at $p < 0,001$ (two-tailed)

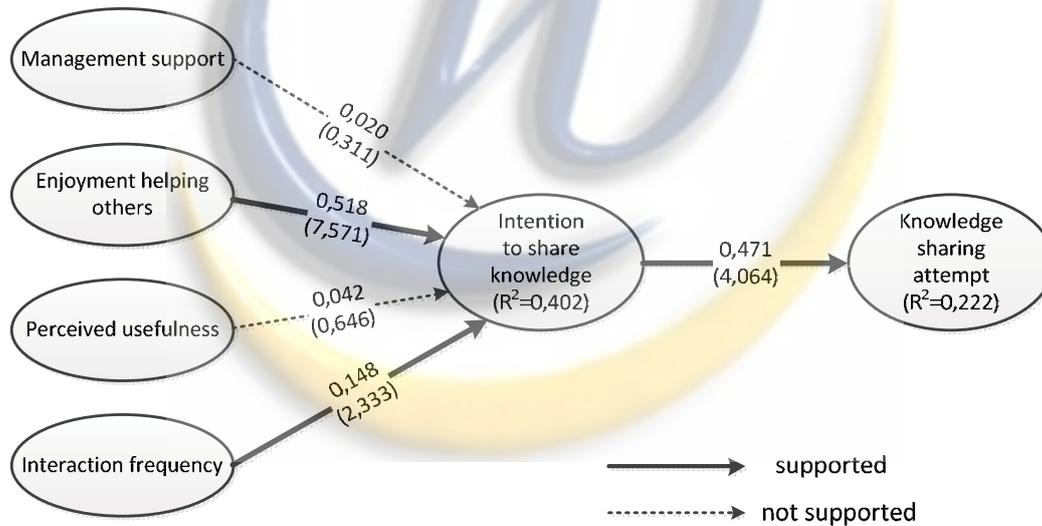


Figure 2: Full Model

5. CONCLUSION

Based on the hypothesis test for the data using the method of paper-based data collection questionnaire with a total sample of 192 pieces, acquired three (3) supported the hypothesis and 2 (two) hypothesis is not supported. Variables that are not declared "relationship" between the antecedents with constructs such as management support and perceived usefulness on intention to share knowledge. This indicates that management support has no effect on intention to share knowledge, that doctors are mostly internal-driven, i.e. they share their knowledge because they enjoy doing it, not because management support this, and not that the knowledge involved is useful. This points to the difficulty of promoting knowledge sharing, that is, top management support or leadership may not be that effective (since the results show that management support has no effect) in driving knowledge sharing. Maybe what management can do is to ensure that they select doctors who are intrinsically motivated and like to help people.

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