ACCEPTANCE OF INFORMATION TECHNOLOGY SYSTEM AMONG PUBLIC HEALTHCARE STAFF' MEMBERS IN MALAYSIA

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Abstract: The application of Information Technology System (ITS) is widely applied in this current century. In every organization, the usage of ITS is vital, specifically in regards to management tasks. In Public Healthcare facilities in Malaysia, Pharmacy Information System (PhIS) has been implemented in order to enhance the information management at Pharmacy department apart from manual procedure to information technology. However, the change management into ITS might either accepted or resisted by system users. Therefore, this study performed in aim to evaluate the acceptance toward Pharmacy Information System (PhIS) among the staffs at public hospital and clinic in Malaysia. There were 300 questionnaires have been distributed and completed by the respondents in the study. From the finding of the study, there were significant positive feedback among the staffs in term of the acceptance in applying ITS in their facility. It draws the conclusion that the acceptance of the current ITS application have shown positive outcomes toward the implementation of it in their facilities. The significant positive feedback expressed in the study would hopefully to enhance the management and performance among the staff members in using the system in their facilities.

Keywords: Acceptance of Information Technology System, Pharmacy Information System, Public Hospital and Clinic Staff Members in Malaysia

INTRODUCTION

Definition of Information Technology System

Information Technology System (ITS) refers to the integrated electronic devices designed and developed throughout the application of Information and Communications Technology (ICT) as digital instruments in order to enhance tasks management in organization or facilities. It works by integrating any business or processes and improving the flow of information within facility. It is also involving the process of getting people together to accomplish desired goals. In line with this, the collaboration of more than one people in organization or exertion to accomplish an objective through delivering appropriate and selected ICT is crucially needed. All of these are involving of human resources, system devices, financial assets, and individual characteristic (Huthaifa & Sammani, 2013; Radaideh, Horani & Harmain, 2004; Han & Gilbert, 2000).

Changing Application using ITS

Based on changing application and implementation of the system, the government hospital and clinics in Malaysia has implemented ITS of Pharmacy Information System (PhIS) after the previous implementation of Hospital Information System.

In reference to HIS feature and requirement of new system development, Pharmacy Information System (PhIS) is an e-management application system that has been implemented and applied thoroughly in all government hospitals and clinics in Malaysia. This new system designed and developed to best suits the requirement by Ministry of Health in Malaysia. The implementation of Phase 1 PhIS has been introduced since 2011 in government's hospitals and clinics under the Ministry of Health. In regard to the application of this PhIS, it is accessible to authorize health service providers which are involving Pharmacists, Assistant Pharmacist, Medical Officers, Nurses and Medical Assistant as well.

Hereof, the Health Ministry in Malaysia has currently implementing PhIS in aim to facilitate a better and more efficient pharmacy system for healthcare provider and patients. Besides that, the purpose of the system developed and implemented is also to encourage the usage of e-management in the health service and pharmacy management system

(Ministry of Health, 2016). It is also involving tender management system for medicine and non-medical supply in all the ministry's facilities. After the training session completed, it will be implemented in approximately 1,300 health ministry facilities in the country, including 137 hospitals, 802 clinics and 141 district health offices. He has also mentioned that an efficient system is needed to cope with the increasing number of patients and medical prescription dispensary, which increases about 4% yearly.

Based from some of the users' reports from the study conducted, some facility and hospital staff that had been implemented the information system has still encountered technical problem which sometime take time to configure such as processing time occurred with long period. This situation influences on their job management after their tasks performed was not run smoothly through the system. Some of the users also mentioned that this system being implemented is only at pharmacy level, prescriptions will still be written manually. However, all the manual processes will remain same, but with advance procedure that will be implemented: in transcribing the prescription to patient. The manual prescription will be transcribed into the system by a pharmacy staff. This is to facilitate the stock checking purpose and statistic for collection purpose. This system will be executed in the outpatient and inpatient pharmacy consistently and should be refreshed whenever dispensing another medicine to patient.

All of these reported negative perspective and bad presumption of using this information system if continuously will definitely cause a bad impact. Thus it is crucially need to bridge the gap between current management and working environments with available system-performance technologies by identifying the possible causes of low motivation and negative behavioral towards change. This type of response and attitude towards using this new technology will become an issue or unwanted result which if left ignored potentially will affecting their job performance. Employees may embrace or could not accept the technology directly or passively accept the usage of system. Thus, there is vital important to evaluate the system performance and impact of using it in the hospital and clinic in Malaysia. The best solutions need to figure out in order to response unto any negative feedback toward achieving the significant benefit of ITS in Hospitals and clinics (Sharon *et al*. 2012).

By understanding how to guide trainee and support staff through a systems change process in order to enhance the culture and environment of an institution that nurtures staff in an organization is not a small matters or challenge. To embrace the challenge of change is to embrace change as a process in which the adults functioning in the institution or organization altered their behavior to facilitate developmental growth in themselves and their colleagues (Hord *et al*. 2006). Here, change is personal within each individual involved with the innovation of current information system. Since change is so unique to the individuals involved within the process of change, how to measure the degree of which an innovation which has been implemented, presents additional challenges.

Here, there is crucially need to evaluate the changing process in line to evaluate their perspective merging with the implementation of the new system innovation. Based on previous study of HIS by Nur Azzah, Noraziah and Noorhayati (2017), the various issues and challenges in using HIS has been triggering the enthusiasm level among users toward the system. Thus, the implementation of PhIS would further evaluate their feedback and acceptance for the current ITS.

PURPOSE OF STUDY

The purpose of the study is to evaluate the acceptance among healthcare staffs at public hospital and clinic in Malaysia towards the implementation of Pharmacy Information System. The research conducted in order to answer the research question as below;

Is there any significance feedback among PhIS users' acceptance toward the implementation of ITS in their facility?

THEORY AND APPLICATION

Model of Planned Behavior

Based on the aspects studied in this model including attitudes, subjective norms, and perceived behavioral control, all of these elements have assisted the researcher to understand the aspects involved in clarifying individual action, regardless of whether the intention is perceived as the best indicator of behavior (Herrero and Rodríguez, 2008). Meanwhile, compatibility is largely used as an antecedent of attitude in the study. It is "the extent to which an innovation is perceived as consistent with existing values, past experiences, and needs of potential users" (Rogers, 1995, p 224; In Eastin, 2002, p. 253).

Change Effects in Organization

Based on study conducted, change effects are manifested through individuals when communication increases and resistance decreases (Hord *et al*. 2006). Not only is the change process unique to the individual, how the interaction occurred with the changing process revolves around will meaningful to each person. A person will be concerned about different aspects of the innovation in the process. On a personal level, the very being of the individual contemplates what they were value and believe which drives their behavior. Change facilitators, supporters for the change effort, meet the needs of the individuals by building relationships while providing assistance to enhance practitioner knowledge and skills. In order to manage the change process internally and externally in respect to the users of the innovation, attention and support were provided through interventions addressing the context and the system in which individual exists.

Implementation and change occurred in the context of the community (Fixsen *et al*. 2005). Knowledge of the strengths and weaknesses of a community is necessary prior to choosing and implementing an innovation. Furthermore, within needs assessment activities, involvement of the stakeholders and buy-in holds true when contemplating change and implementing research based practices, programs, and treatment interventions (Fixsen *et al.* 2005). "Unless a community recognizes or accepts the premise that a change in corrections is needed, is affordable, and does not conflict with its sentiments regarding just punishment, an innovative project has little hope of surviving, much less succeeding" (Petersilia, 1990, p. 144).

Acceptance towards Changing Process

Changing process needs to be further understanding in order to grasp the opportunity for job performance and improvement and other benefits gained through it. By viewing any change in the positive ways will be able to facilitate behavioral changes towards achieving the positive outcomes. Concept of changes also involves learning process towards adopting the change. Among the terms used in the process of change involves defining *"what it is, whom it involves, what are its effects, and how might it be managed"* (Hord *et al*. 2006, p. 4).

Here, it could not be misunderstood unless the probability of encountering problem of accepting the change might be occurred and thus change is not an event. An event is usually considered a one-time occurrence or something that may occur intermittently or even sporadically. Conversely, change occurs over time recursively, developmentally, cyclically, or within stages. The complexities of change relegate those who become change facilitators to recognize and adopt this mantra.

There werere several past studies in regard to implementation of information system in assisting and handling the hospital and administrative task have been conducted. Based on the previous research studies and theoretical framework, the similar model has also been used to study information system applied before. The tested model used in order to compare and assist to support the validity and reliability of this study. Based on study conducted, change effects are manifested through individuals when communication increases and resistance decreases (Hord *et al.* 2006). Not only is the change process unique to the individual, how one interacts with the change process revolves around what the change will mean to each person.

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RESEARCH DESIGN

The implementation of ITS among hospital and clinic staff identified by their feedback of acceptance level among hospital staffs' in which affecting their expectation of applying the Pharmacy Information System (PhIS) in managing Pharmacy administrative task in their workplace. The data collected through questionnaire (survey method) by considering the research questions and the purpose of the study conducted.

The principal mode of enquiry for this study is in quantitative nature towards the evaluation of hospital staff' perceptions in applying Pharmacy Information System (PhIS) in managing Pharmaceutical administrative task. The data were collected at one point by distributing the questionnaire survey as the main source of data collection among the respondents (Creswell, 2008). Meanwhile, the research design is using descriptive and inferential statistics as analyzing tools.

Research Sampling

In this study, the samples are selected among the hospital staff specifically for Pharmacist, Assistant Pharmacist, Nurse and Medical Assistant. The number of participants were more than 500 respondents from different backgrounds.

However, there were just 310 respondents to whom completed the questionnaires form in the study and this amount enough to represent the population by referring to sample size recommended by Krejcie & Morgan.

Research Instruments

In this study, data have been collected from questionnaire which includes trainees' perception and acceptance towards the using Pharmacy Information System (PhIS) as a tool to manage administrative task in their facilities after implemented. Among the criteria of this questionnaire is that it is concerned with the affective, behavioral, and temporal aspects of technology integration in their facility.

DATA ANALYZING INSTRUMENTS

Descriptive and Inferential Statistics

Descriptive and inferential statistics were used in analyzing quantitative data and also using the partial least squares structural equation modelling (PLS-SEM) method in order to find the answers of the research questions in this study

Descriptive Statistics

Descriptive statistics were chosen in this study because the raw data could simply and easily to visualize, especially if there was a lot of data. Descriptive statistics therefore enables to present the data in a more important manner, which permits less complex understanding of the data.

FINDING AND DISCUSSION

Table 1
Internet Usage in Job among Respondents
Internet Job

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	5	1.6	1.6	1.6
	Rare	15	4.8	4.8	6.5
	Seldom	92	29.7	29.7	36.1
	Frequently	98	31.6	31.6	67.7
	Daily	100	32.3	32.3	100.0
	Total	310	100.0	100.0	

By referring to the table 1 above, half (50%) of the respondents in this study showed the tendency of using internet daily compare to 1% that never use internet. There were both 31.6% and 32.3% used internet frequently and daily in their job. On the other hand, there are only 1.6% respondents that never used internet in their job.

Table 2
Frequency of Direct Instruction (Easy Understood)
Easy-understood

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	2.6	2.6	2.6
	Disagree	24	7.7	7.7	10.3
	Neutral	138	44.5	44.5	54.8
	Agree	115	37.1	37.1	91.9
	Strongly Agree	25	8.1	8.1	100.0
	Total	310	100.0	100.0	

Easy-understood

From table 2 above, most of the respondents (44.5%) assumed neutrally in term of easy understood after undergone the Pharmacy Information System training application. Meanwhile, there were 115 of the respondents agreed that the system was easily understood in term of usage and application. From this figure, the feedback seems encourage because some of them have informed that was the first time they have attended such training.

Most of the respondents that shown 'easily understood' usually among the younger users which were still energetic, pro technology users and ready to explore and accept the new thing. Here, the age factor could influence most of the positive feedback as majority of the younger respondents are between 26-30 years old which represents 48.7% of the respondents.

BARRIERS TO TECHNOLOGY INTEGRATION TO ADOPT CHANGE

Meanwhile, in the previous study, Ertmer (1999) reverberated the estimation, in expressing the sources of barriers to the educators and also powerful systems to conquer such barriers, and thus to set up for both initial and maintain compelling and practicing the integration of technology toward standard operating procedures at workplace.

Notwithstanding with vast studies on the goodness of technology integration, there were still need more efforts in order to achieve the objective of the implementation. Among the barriers due to technology integration are the continuous upgrading in technology advancement, worldwide Internet issues and the necessity to increase the computer memory and speed to fulfill the current requirement of technology. Besides, the issue related to technology access particularly in information system (Hadley & Sheingold, 1993; Jacobsen, 1998; Newhouse, 1999; Rogers, 2000; Snoeyink & Ertmer, 2002).

Elimination of Barrier to Adopt Change

Suggestions with regards to the techniques of eradicating the technology integration barriers were differ based on the type and force of the barriers. In any case, paying little mind to the obstructions included, "if teachers don't have adequate devices, time, preparing, or bolster, meaningful integration will be troublesome, if certainly feasible, to accomplish" (Ertmer, 1999, Obtaining Resources Section, p.1).

Referring to Rogers (2000), he composed: the less complex innovation integrator will require more expert improvement (sessions on approaches to coordinate innovation) and more fundamental in term of technology and/ technical support (who to call when the technology breakdown occurred) because of instability. Meanwhile, the more advanced technology integrator will require more sophisticated technology support (things like learning how to make a Compact Disc – CD) and advanced professional development (sharing sessions with other advanced integrators).

In the study, explaining that less advanced levels of professional development could mean that users will need opportunities to figure out thoroughly of integrated technology use, to reflect on and analysis their developing mind

and thoughts with supervisors and peers, and to team up with others on important ventures as they experiment with their new thoughts regarding instructing and learning with innovation or technology. Several strategies are also need to empower users to encounter the capability of innovation by utilizing the innovation as preference, administration assist aid, and communication devices. All of these would be able to assist the wide acceptance of the current ITS.

CONCLUSION

Based on the observation of current trend of using ITS in facilities, trainee or practitioners experience insecurities during the initial phase of implementing this Pharmacy Information System and need additional guidance to overcome personal and external barriers to the change and implementation process. Among the challenge and barriers during the initial implementation stage of this new practice are lack of basic knowledge and application of the new system, fear of change or commit doing any error, forgetting tendency of system procedure (especially among the veteran staff), and question of change in their operational procedure. These opposing forces combining with the complexities of learning new practices produces a snowball effect that has the capacity to stall or possibly disturbing the implementation process of an intervention or innovation by using this new system in their job.

However, based on the finding of the study, the acceptance of PhIS application, users have had choose the appropriate learning strategies and further inquiries to the trainer during the training session in order to find solution on their problems due to the system usage. In line with this, they believe the feature and function of the system as information management in the future would be able to assist them in order to overcome challenging tasks and multitask in administration despite of attribution that worth nothing in reality, particularly at their facilities or working environment (Habibah et al., 2012). Based on the findings in the study, there were significant positive relationship ($p < .05$) between the implementation of e-management towards the users' perspective and acceptance of using the PhIS application after the training conducted in their facilities.

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