



RESEARCH STUDY ON ENHANCING THE SERVICE QUALITY OF INTERACTIVE HEALTH PORTALS: THE COGNITIVE TO ACTION THEORY PERSPECTIVE

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ABSTRACT

Currently, Interactive Health Portals (IHPs) are considered to be suitable mediums for interaction between patients and physicians. In fact, as health care organizations apply more effective levels of electronic service quality (e-SQ), more patients have been using the IHP technology. However, developing countries are still falling behind developed countries in regards to this technology trend. Indeed, developing countries should establish a comprehensive approach to applying e-SQ, which will consequently result in a gradual increase of patients' attraction, trust and loyalty to the system. Therefore, by utilizing the relevance of the cognitive, affective, conative and action theories as the theoretical models of loyalty, the researchers have proposed a framework of a research agenda within the IHP discipline.

Keywords: Electronic Service Quality, Interactive Health Portal, Cognitive To Action Theory, Attraction, Trust, Loyalty

INTRODUCTION

Information and Communication Technologies are widely used in life today. Recently the IHP context problem has received significant attention, meaning that IHP has had a rapidly-growing contribution to the health care industry [1]. Chang et al. [2] proposed that IHP helps patients to obtain required health information, communicate easily, and access all services being offered. In this sense, while utilizing IHP has many advantages for patients, the competitive benefit that putting the system into place can have for health organizations (HOs) should not be overlooked. However, despite an importance of using IHP in developed countries, developing countries such as Malaysia is still lacking behind this trend [3]. The Performance Management & Delivery Unit of Malaysia, serving as the government's transformation programme council and economic transformation programme, states that Malaysian HOs must achieve a good use of IHPs by 2020. Thus, Malaysian HOs have essential requirements to encourage people to use IHPs, and to further improve good situations with their use.

PRIOR STUDIES ON ATTRACTION, TRUST, LOYALTY IN E-SQ

E-SQ is a key factor for the success or failure of any online portal [4]. As stated by Parasuraman [5], e-SQ encompasses "all phases of a customer's interactions with a Web site". The most important factor in developing IHP should therefore be understanding what e-SQ facilities should be offered, in order to streamline the relationship between patients and health care providers, to increase patient's trust, and to make patients loyal users of the IHP [6]. Concerns such as lack of understanding of the facets that gain patients' attraction, trust and loyalty are major obstacles for both

patients and IHPs, in regards to the use of online portals [3, 7].

Attraction is a fundamental precondition for customer interaction, as it can motivate potential customers and improve their opinions of services [8]. Private hospitals are big business in Malaysia [9] but they are failing to provide attractive e-services. However, patients in Malaysia have only a unilateral connection with private hospital portals. Malaysian private hospital providers should shift their interactions with patients from a unilateral to an interactive approach. However, the number of medical tourists to Malaysia was lower than expected [10]. One of the ways through which hospitals can attract overseas patients is through the development of attractive IHPs.

Without attractive web portals, online portals lag behind in the competitive marketplace, and cannot continue their business. Consequently customers will be easily lost to businesses without strong web portals, as they try other portals. IHP providers must recognize the factors of e-SQ that can influence user attraction, or they will otherwise misunderstand user requirements.

Trust plays a vital role in a customer's acceptance of risk [11]. This is particularly true for online businesses, where customers and online services are separated physically. If the online portal is not able to gain patients' trust, the patients will not be guaranteed to complete their deals, even though they have been initially attracted to the system [12]. In addition, if patients do not interact with IHP, all investments made to attract them will be wasted. According to Midha [13], the source of revenue in cyberspace is trust. That is the reason why dealings between patients and IHP would be challenging without trust. Furthermore, Raman and Annamalai [14] have found that Malaysian people are



very conservative, especially while working in online workplaces.

As reported by Chang and Chen [15], “e-loyalty is a commitment of repeatedly buying a preferred product/service in the future”. In the current competitive marketplace, online businesses that acquire the knowledge needed to ensure customer loyalty have an advantage over competitors. Carter, Wright [16] have stated that the key purpose of online businesses, including IHP, is to create customer loyalty [17]. The cost of attracting new customers is greater than the cost of keeping loyal customers. Businesses that lose this asset will fall behind in the competitive market place [18]. Compared to traditional marketing, competitors are able to disseminate their information quickly with the assistance of technology and, as a result, they can obtain other customers very easily [19]. Therefore, it is crucial for IHPs to identify factors that will keep current patients and make them more loyal.

Previous conceptualizations of e-loyalty have emphasized behavioural definitions, such as the repeated use of services. However, opponents believe that it is not correct to consider loyalty in a black and white way, with users either being loyal or disloyal. If clients return to online organizations and use their services again, this will not prove that they are loyal. Accordingly, this area needs further analysis. Certainly, in order to recognize real loyalty, there needs to be some phases that will gradually lead clients to being loyal to organizations [20]. Therefore if it is the intention of IHPs to make patients loyal, there is a fundamental need to focus on theories that look precisely into loyalty, as is the purpose of this study. Moreover, there is a need to focus on the dimensions of e-SQ step by step, based on each transaction stage, for future research regarding the dimensions of e-SQ in IHPs. Therefore, the purpose of this paper is to identify existing gaps in the current literature review regarding e-health loyalty, and to propose a possible framework for answering the potential research questions.

The interaction between customers and e-business is defined as an online transaction [21]. Different online portals have different online transaction stages (OTSs) [22]. Table-1 shows a summary of previous models of transaction in dissimilar contexts. As shown in Table 1, for example, Li and Suomi [23] stated that online transactions involving e-retailers are divided into three different transaction stages. The first stage is the pre-transaction stage (attraction), in which consumers search for information based on the e-services proposed by the Internet. If these services are unable to motivate the users, they will not be able to continue a relationship with those users, and will lose the chance to attract others via the internet. The second stage of gaining customers' trust is to enable the correct technical functioning of the portal. At the last stage, in order to establish long term relationships with customers, the availability of telephone support is

essential. In fact, he believes that dimensions of e-SQ in successful online businesses should be divided into three different categories including attraction, trust and loyalty. Different description of OTSs in different context is not violated the ultimate goal which means attraction, trust and loyalty.

However, IHP is of the e-commerce type, and the prevalent issue is that there is a lack of studies showing how many stages are involved in IHP. Until it is clear how many stages IHPs have, abilities to understand patient needs and requirement will be limited. However, based on the research that has been undertaken by Saedi and Iahad [12] in regards to online businesses, and by Foroutani et al. [Foroutani, Iahad [3], Foroutani, Iahad [6], Foroutani, Iahad [7]] regarding online HOs, it is necessary to determine the numbers of transaction stages in order to understand users' demand. Obviously, success in the business marketplace relates to the degree to which providers understand their customers' expectations [24]. IHP is similar to other online businesses, in that there is a need for researchers to identify the numbers of transaction stages, while discovering patients' demands or requirements based on each transaction stage. To achieve to this goal, there is a need for a theory that covers the transaction stages of IHP.

METHODOLOGY

To find related studies for this paper, the authors searched well-known databases such as Google Scholar, Science Direct, Emerald and IEEE. They also reviewed renowned Information Systems Conference Proceedings including the International Conference on Information Systems (ICIS), the Australian Conference on Information Systems (ACIS), the Hawaii International Conference on System Science (HICSS), and the Pacific Asia Conference on Information Systems (PACIS), in order to undertake required comprehensive research among top journals and conference papers for the main study. As based on the literature review, we conducted research regarding the dimensions of e-SQ that can impact user/patient's attraction, trust and loyalty.

A search through selected databases was undertaken using a combination of different keywords, including 'e-Service Quality', 'Online services', 'user's attraction', 'users' trust', 'users' loyalty' and 'Information Systems'*. These words were selected from identified keywords, and were searched for in topics, abstracts and keywords. They assisted researchers in being able to focus on another title, if one paper does not consider these keywords. The search covered research papers from 2004 and 2015. Table-2 shows the search procedure and the selected criteria.

To make ensure that relevant and appropriate publications were considered in the literature review of this study, two different criteria were used. The first was the inclusion criteria, and the second was the exclusion



criteria. In terms of the inclusion criteria as shown in Table-2, researchers followed a set number of requirements when collecting sources. Firstly, it was determined that the research should investigate attraction, trust and loyalty in e-SQ in general and e-health in particular, and secondly it should be published between 2004 and 2015. In terms of exclusion, those

publications that did not fit the inclusion criteria have been excluded. Selection resulted in a list of 30 publications investigating e-SQ, which can influence the attraction, trust and loyalty of customers/patients. Thereafter, the publications were reviewed and categorized into three groups, namely those related to attraction, trust and loyalty.

Table-1. Prior studies of the transactional models of online businesses.

Author(s)	Context	Stage	Description
Saedi and Lahad [12]	Online Banking	Stage1: Pre-transaction Stage	Customers assess the efficiency of the bank's web site and the availability of information, and the variety of Internet Bank services.
		Stage2: Transaction Stage	The IB service provider and the attracted customers negotiate the conditions of their transaction.
		Stage3: Post transaction Stage	Caring for customers, and responding to customers' problems that may arise after the completed deal.
Li and Suomi [23]	Online Retailing	Stage1: Pre-transaction	Customer searches for information about e-services offered on the internet.
		Stage2: Transaction	Service suppliers and customers agree on the conditions of their transaction, as based on their negotiation, and then the transaction is fulfilled.
		Stage3: Post-transaction	In the last phrase, e-service quality evaluation refers to the capability of service providers to care for customers, and to build long-term relationships with them.
Bauer, Falk et al.[21]	Online Shopping	Stage1: Information	Customers search for information about offered e-services.
		Stage2: Agreement	Service suppliers and customers agree on the conditions of their transaction.
		Stage3: Fulfillment	The transaction negotiated beforehand is accomplished within the fulfillment phase. The ordered goods or services are delivered in exchange for the agreed payment.
		Stage4: After-Sales	Making the quality evaluation refers to the business's capability to care for customers beyond completed transactions, and to build long-term relationships.
Howard [25]	Online Government	Stage1: Publish	Providing information about government activities in an online medium.
		Stage2: Interact	Enabling citizens to have simple interactions with their government, for instance through sending e-mails or participating in chat rooms.
		Stage3: Transact	Providing citizens with the full benefits of transactions over the internet, such as applying for programs and services, purchasing, licenses and permits.

Table-2. Search procedure and selected criteria.

Steps	Criteria	Result
Step one: Select Comprehensive Databases	Includes publications that publish research papers. Offers services such as searching within keywords, abstracts, titles, and years/time periods. Searches through relevant topic areas.	Google Scholar, Taylor & Francis Online, Web of Science, Science direct, Springer link, Emerald, Scopus and IEEE explore
Step two: Use keywords as parts of searches	('e-Service Quality', 'Information System' and 'E-health') and ('online service', 'E-service quality', 'attraction', 'trust' and 'loyalty').	2,142 publications selected
Step three: Screen topics, abstracts and keywords	Related to providing online quality services to online business.	94 publications selected
Screening the full content	Related to step three. Relevant for building motivation, building trust, or retaining users.	30 publication selected

RESULTS

Table-3 indicates the different dimensions of e-SQ, as detailed in relevant prior studies, and as based on attraction, trust and loyalty. Investigations undertaken in regards to attraction within the context of business relationships began in the early 2000s [26]. According to Campbell [27] attraction is defined as the overall evaluation or attitude towards a potential relationship with any online businesses or businesses. Attraction is a prerequisite for the development of trust and loyalty [12]. Additionally, attraction is important not in the

preliminary stage of a business relationship, but also during the entire interaction between customers and providers [28]. Prior studies demonstrated that increasing customers/patients' attraction to hospitals can turn their portals into vital marketing tools, that can influence and assist users in their health care decision-making [8]. For example, providing new technology for interactions between users/patients and online health services, can encourage customers to use online health services.



Secondly, the key to understanding the relationship between online organizations and customers has been identified as trust. According to San-Martín and Camarero [29], trust is more important for maintaining relationships with users in an online context. Moreover, Martín, Camarero [30] state that trust offers a hint of user readiness to be involved with an organization, and a belief that the organization will fulfill its promises and not take advantage of the qualities of online exchanges

for their own benefit. However, a lack of certainty among users indicates that the role and importance of trust is unclear, in regards to interaction behaviors with online service providers. This is especially the case when users have to enter personal information, or make online payments [29]. Based on Table-3, Ponte, Carvajal-Trujillo [31] believe that the different dimensions of e-SQ, including security, information quality and privacy, can all build user trust.

Table-3. Different dimensions of e-SQ as detailed in prior studies, based on attraction, trust and loyalty.

Author(s)	Context	e-SQ Dimensions	Attraction	Trust	Loyalty
Flavian, Gurrea [32]	Web sites	Design	-	-	-
Cristobal, Flavian [33]	Web sites	-	-	-	Customer service, web design, assurance, order management
Schmidt, Cantallops [34]	Web sites	Promotion, navigability, multimedia	-	-	Responsiveness, empathy
Büyükközkın and Çifçi [35]	Web services, health care, Turkey	Usability, web design, animation, information quality	-	Reliability, assurance,	-
Chen, Lin [36]	Web site for job seekers, Taiwan	Aesthetics, navigational usability, organizational culture	-	-	-
Huang et al., [8]	Web site health care, US	Interactive web site, sophisticated tools, promotion tools, target population	-	-	-
Hadwich, Georgi [37]	e-Health care organization, Switzerland	-	-	-	Accessibility, competence, information, user friendliness, security, trust, individualization, empathy, ethical conduct, responsiveness, degree of performance
Ossebaard et al.,[38]	Health web site	Navigation, usability, information quality	-	-	-
Pfieffelmann et al.,[39]	E-recruitment	Usability	-	-	-
Ehrhart et al [40]	e- recruitment	Information quality, web design	-	-	-
Li and Suomi [23]	e-retailing	Efficiency, information quality	-	System availability, fulfillment, privacy	Responsiveness, compensation, contact
Grewal, Krishnan [41]	e-retailing	-	-	-	Availability of services, responsiveness, personalization, pro-activeness
Kim et al.[42]	e- retailing	-	-	Reliability, fulfillment, responsiveness, security, privacy	-
Chen and Dibb, [43]	e-retailing	-	-	Usability, security, speed of download, privacy, information quality, aesthetics	-
Otero, Gallego [44]	e-retailing	Information, usability, ease of use, reputation, loading time	-	-	-
Eid [45]	e-retailing	-	-	Security, privacy, user interface	-
Sadeh et al.[46]	e-retailing	-	-	Privacy, fulfillment, system availability, efficiency	-
Li, Liu [47]	e- marketplace	Web design, Information,	-	Reliability, security, fulfillment	Responsiveness, empathy
Ladhari [48]	e-retailing and consumer services	Web design, ease of use, usability, information quality	-	Reliability, security, fulfillment, privacy	Responsiveness
Alanezi et al.,[49]	e-Government	Web design, information quality, ease of use	-	-	-
Kaisara and Pather [50]	e-Government	Web design, navigability, information quality,	-	-	-



Bastida and Huan [51]	Online travel, tourism	aesthetics Information quality, navigation, reputation	-	-
Ponte, Carvajal-Trujillo [31]	Online travel	-	Security, privacy, information quality	-
Cheng [52]	Online transport	Information quality, navigation	-	-
Al-Hawari [54]	Online banking	-	Security	-
Marimon, Petnji Yaya [55]	Online banking	-	-	Service recovery, responsiveness
Saedi and Iahad [12]	Online banking	Efficiency, information, banking service product quality	System availability, fulfilment, privacy	Responsiveness, contact, compensation
Kheng et al [56]	online banking,	-	-	Empathy, responsiveness
Kim, Chung [57]	Online tourism	Navigation	Security	-
Herrero and San Martín [58]	Online tourism	Information quality, navigation, usefulness	-	-

Table-4. Summary of the dimensions of e-SQ which influence users' attraction, trust and loyalty.

Author																				
Dimensions of e-SQ Based on	Attraction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Trust	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
loyalty		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table-5. Theories applied to the e-health services domain, based on attraction, trust and loyalty.

Author(s)	Objective	Theory	Focus
Huang, Liu [59]	To identify how Chinese hospitals have used online videos as marketing and patient education tools.	-	Attraction
Huang, Chang [8]	To investigate what users deem to be essential, in regards to patient-oriented interactive e-health tools on hospital web sites.	-	Attraction
Crutzen, Cyr [60]	To propose and validate a conceptual model regarding user perceptions and e-loyalty within the field of e-health.	Theory development	Loyalty
Hadwisch, Georgi [37]	To investigate requirements of e-health services, and to develop a measurement model for analyzing the development of "perceived e-health service quality."	-	Loyalty
Matysiewicz and Smyczek [61]	To identify the trust placed by customers in e-health services.	-	Trust
Jung and Berthon [62]	To review the potential benefits and pitfalls of e-health, and to draw on literature related to technological acceptance, in order to develop a theory-based model of e-health acceptance.	TAM	Trust
Gummerus, Liljander [63]	The study sheds light on the factors that determine customer loyalty to a content-based service, specifically to a health care web site.	-	Loyalty

Thirdly, a customer's attraction to a service means less motivation to search for alternatives, and a greater resistance to competitor advertising [64]. Significant research has been undertaken in regards to the primary drivers of most loyalty behaviors, such as service quality within the traditional service context [65]. However, less research has been completed in regards to the factors that influence online loyalty [29]. A number of researchers believe that attaining online user loyalty is far more important, and also much more challenging, when compared to attaining traditional user

loyalty. We should remember that purely accessing a portal is not going to turn users in loyal users [29].

According to Li and Suomi [23], compensation, contact and responsiveness are all dimensions of e-SQ which can influence users' loyalty, within the context of online influence users' loyalty, within the context of online retailing. As can be seen in Table-3, many studies have focused purely on one or two criteria (i.e. attraction, trust and loyalty). For instance, Kim, Chung [57] only focused on trust within the context of online shopping. However, Li and Suomi [23] stated that



attraction, trust and loyalty are crucial for organizations, if they want to survive in the competitive online business era. Moreover, according to Table-2, there needs to be more investigation into attraction, trust and loyalty within the context of IHPs.

Table-4 illustrates the summary of the e-SQ dimensions, which have the greatest influence on user's attraction, trust and loyalty. As shown in Table 4, most of the studies purely focus on the dimensions of e-SQ which influence one criteria. However, there is still a need to undertake a broader investigation into the e-health area. Because of this, IHP is a type of e-commerce that should seek to attract patients, build their trust and make them loyal, if it wishes to be sustainable in the competitive marketplace [3].

Table-5 presents the objectives, theories and focuses, the latter based on attraction, trust and loyalty, which have been at the center of previous research within the e-health services context. For example, Hadwich, Georgi [37] intended that their research consider the requirements of e-health services. They also intended to develop a measurement model for analyzing the establishment of 'perceived e-health service quality'. Their study did not cover the user theory. Moreover, the outcomes of their study helped e-health web services to establish larger groups of loyal patients. Another study conducted by Jung and Berthon [62] showed how promises to patients can be fulfilled, by developing a successful online health care model. In order to establish this successful model and gain user trust, the researchers used the Acceptance Model Theory in their study. In fact, the purpose of their research is to increase patients' trust. However, there has not been any comprehensive research relating to how to attract and work with patients, in order to increase their trust and develop a permanent relationship with them in the future, thereby making them loyal to a particular IHP. In fact, if an IHP is developed with only a focus on attraction, then certainly important trust and loyalty factors will be overlooked. Therefore as mentioned earlier, there is a need for IHP as a type of e-commerce to apply a theory that covers all transaction stages for IHP. It assists IHP in understanding their patients' demands, in regards to different transaction stages.

DISCUSSION

According to Jacoby and Chestnut [66] the psychological meaning of loyalty is purely that of repetitive purchase patterns, without additional analysis. Indeed it is stated that a loyal customer is one who will return and purchase additional products. However, within the concept of business marketing, some researchers such as Oliver [20] have proved that loyalty can be divided into phases or processes. He believes that it can be theorized that consumers become loyal firstly in a cognitive sense, secondly in an affective sense, thirdly

in a conative manner, and lastly in a behavioural manner which is described as 'action inertia'.

In this model, the cognitive loyalty phase involves customers becoming directed towards a particular brand, store or service, because of information related to product attributes. The affective loyalty phase relates to consumers' commitment to and approving of the brand, store or service. Certainly, at this phase customers show loyalty with a deeper level of commitment. Conative loyalty is a commitment to an intention to rebuy from the brand, and is more akin to motivation. In effect the consumer desires to repurchase products, but similar to any 'good intention', this desire may involve an anticipated but ultimately unrealized action. Lastly, within the action loyalty phase the motivated intention of the previous loyalty state is transformed into a readiness to act, accompanied by a willingness to overcome impediments to undertake such an action. Table 6 shows these phases in brief. There is plethora of research on employing the Cognitive to Action Theory (CAT) within the Information Systems era. For example, Harris and Goode [67] have undertaken research related to the online service dynamic use of CAT. Another example is that of Han and Hyun [68], who applied CAT when considering the importance of positive switching barriers.

Table-6. Phases of loyalty adapted from Oliver [20].

Stage	Identifying Marker
Cognitive	Loyalty to information, such as prices, features, and so forth.
Affective	Loyalty to a liking or interest.
Conative	Loyalty to an intention, such as the thought "I am committed to buying the product."
Action	Loyalty to action inertia, coupled with the overcoming of obstacles.

Previous research regarding e-SQ has shown that online users must pass through several transaction stages, before they can be considered loyal to specific online services. Similarly, within CAT, an understanding of the cognitive, affective, conative and action phases of loyalty can assist businesses to establish more loyal customers in their marketplace. In the cognitive phase, customers are somewhat loyal as a result of comparing information gathered from businesses [69]. For instance, customers select an organization of which the most complete information has been provided. As previously overviewed, Oliver [20] attributed the cognitive phase as the first stage of loyalty (Oliver [20]). This phase significantly influences customers' evaluations, before any contract and/or dealing commences. Likewise, in any online businesses including IHP, the first transaction stage involves efforts by businesses to detail what services they can provide, and as a result they try to acquire more customers. For instance, online users look at the numerous online portals and compare their information. The more relevant and useful information



exists, the more interest among users in attracting the businesses.

At the affective phase, the relationship between customer and provider plays a key role in creating positive customers' feel. Then, consumers will be more loyal than they were during the cognitive phase [69]. Gommans et al. [70] stated that trustworthiness, privacy and security are more important at the affective phase. Similarly, trust is a major obstacle of any online businesses, except IHP, where users and online services are physically separated [12]. Indeed, within a virtual environment like IHP, making sure users feel comfortable dealing with online businesses is vital. Therefore this research presents building the trust of patients as the next agenda, after patients are initially attracted to the IHP.

Finally, at conative and action phases, there is a need to maintain a long-term relationship with customers that leads to extended loyalty [20, 71]. In this relationship, customers intend to keep using the product or service [69]. Conation means a purpose, desire or will to perform an action. Thus, the conative stage refers to the desire of customers/users to repurchase or re-patronize, without any action taken. When the intention or desire is converted into actual action, this means that customers have taken on a readiness to act [69]. According to Oliver [20], a readiness to act is analogous with a "deeply held commitment to rebuy or re-patronize a preferred product or service consistently in the future". Similarly, in terms of IHPs, the third phase of loyalty refers to an increase in the patients' retention to portals [69]. Indeed, if patients need any additional medical support online, they will again go back to their IHP instead of choosing another IHP. This proves that building loyalty brings more revenue to online businesses, than does seeking new consumers [72]. According to Chang and Chen [15], the conative and action phases in CAT Oliver [20] can be considered one phase. Accordingly, the conative and action phases of CAT can be addressed within the third phase of the transaction stage, namely loyalty.

In summary, based on CAT, there are four stages which can lead customers to being loyal to businesses. In detail, it can be concluded that two phases of CAT, including cognitive and affective, can be fitted into two different transaction stages of IHP, namely attraction and trust. However, due to the very similar role of the conative and action stages in making customers loyal, these two phases can be fitted into the third transaction stage of IHP (loyalty). In other words, the three transaction stages of IHP can be covered by all four phases of CAT.

THE ATTRACTION-TRUST-LOYALTY FRAMEWORK AND POTENTIAL RESEARCH AGENDAS

Based on the gaps within previous research regarding the IHP discipline, we propose a framework and research questions for the future study. Figure-1

depicts the initial Attraction, Trust, Loyalty (ATL) framework for developing an appropriate IHP for patients, and providing the possibility of a long-term relationship. Moreover, some research questions (RQs) have been recommended accordingly.

RQ 1: "What are the dimensions of e-SQ that attract patients to an IHP?"

As shown in Figure 1, there are three transaction stages involved with IHP. At the cognitive stage, patients try to review the available information and evaluate the IHP. Certainly, this stage is very important for motivating patients to select the specific IHP. Thus, the first research question (RQ) would be "What are the dimensions of e-SQ that attract patients to an IHP?" Determining the answer to this question will enable IHP providers to attract patients.

RQ2: "What are the dimensions of e-SQ that influence patients to trust an IHP?"

To establish a deal between patients and an IHP at an affective stage, there is a need to increase the related trust. Thus, the second RQ would be: "what are the dimensions of e-SQ that influence patients to trust an IHP?" Determining the answer to this RQ will enable IHP providers to continue building patients' trust in IHP.

RQ3: "What are the dimensions of e-SQ that make patients loyal to an IHP?"

At the conative and action stages, patients facing problems may intend to return to a particular IHP, and therefore an interaction can be re-established. The third RQ could therefore be "what are the dimensions of e-SQ that make patients loyal to an IHP?" Answering the RQ will help IHP providers to establish a permanent relationship with patient.

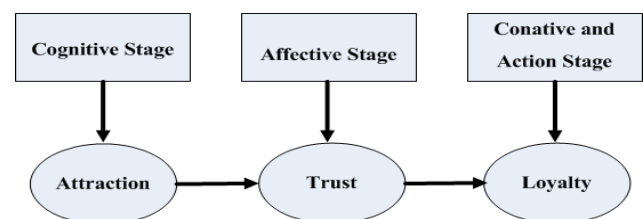


Figure-1. An initial ATL framework for an IHP

Finally, when focusing research onto the national level, Malaysia is a multi-ethnic, multicultural, and multilingual society. Consequently, future research could utilize demographic factors that identify specific results based on the unique perspectives and demands of individual population groups, thereby helping to establish higher quality IHP in Malaysia's hospitals.

In order to answer all the research RQs, researchers can use both literature review and qualitative methods. The most commonly used methods of data collection within qualitative research include unstructured observations and interviews [73]. When



collecting data in qualitative research, the researcher identifies key themes, and describes what was discovered during observations or interviews. It is very important to place emphasis on the description of variables, to explore experiences, and to focus on fewer cases. Subject responses should be narrative and unstructured, and include perceptions and feelings. Flexible and open methodologies are preferred for this kind of research. Therefore, in the context of IHP and in order to become more familiar with the subject matter and to uncover specific dimensions of e-SQ based on patients' attraction, trust and loyalty, a qualitative method can be useful.

CONCLUSIONS

One of the continuous trends of research within medical informatics focuses on IHP, which provides health information and services to patients online. Electronic health care consists of many technological fields, but Malaysia has so far neglected to develop this area. In this paper, the transactional stages of different online business contexts were investigated. In addition, the dimensions of e-SQ have been investigated. These dimensions have been divided into three categories, including attraction, trust and loyalty. However, IHP as a type of e-commerce needs to have a specified number of transactional stages, in order to help patients who have come from the first stage, to pass through intermediate stages and move onto the last stage. In light of this situation, CAT is the most suitable theory that can be applied in this context. This theory explains that loyalty should be achieved in several stages. Despite the fact that CAT is significantly used in online business research regarding IS disciplines, it does not constitute useful components of a theoretical model for e-SQ in IHPs.

This paper provides a framework for scholars and practitioners who are interested in proposing a theoretical transactional model of e-SQ in IHP. This research discussed that CAT is the most appropriate theory for conducting research on transactional models of e-SQ for IHPs. Therefore, as based on the discussions that have been undertaken by this research, the future research can further apply CAT and propose a theoretical transactional model of e-SQ for IHP. In CAT, IHPs can be categorized into cognitive, affective, conative and action phases, which are similar to attraction, trust and loyalty. To bring patients from the first stage to the last stage, all dimensions of e-SQ at each stage should be identified. The researcher expects that by proposing the theoretical transactional model of e-SQ for IHPs, they can provide a better understanding of how IHP providers can attract patients, increase their trust levels, and make them loyal to the IHPs. For Malaysian private hospitals, who receive no governmental financial aids and operate in competition with other private hospitals, this study is especially significant. It can also assist them with providing more

effective and comprehensive services for their patients. Theoretically, this paper discusses the relevancy of CAT in an e-SQ context. However, in practice there is a fundamental need to utilize CAT, and accordingly propose a conceptual model. Furthermore, future research has to test the model and prove the capacity of CAT use within the e-SQ domain.

ACKNOWLEDGEMENT

The authors would like to thank the Ministry of Higher Education, Malaysia and Universiti Teknologi Malaysia for the financial support under Vote No (4J161).

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