IT Adaption with Knowledge Conversion Process (SECI)

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C H R O N I C L E	A B S T R A C T
	The purpose of this paper is to identify the extent of adaptation of information technology in the process of knowledge conversion at the King Abdullah University Hospital. The study develops a model that explores the information technology (IT) adaption with knowledge conversion process (SECI). A questionnaire-based survey is designed to test the aforementioned model based on dataset of 265 doctors at King Abdullah University Hospital. The model and posited hypotheses are tested using SPSS. The results indicate that information technology influences significantly on all knowledge conversion processes. Managements of different organizations are recommended to start planning for the career of their companies by considering successful employees' plans that enhances performance. Organizations managements and researchers in the Arab region and the world are recommended to increase research in career path planning. The use of information technology in health institutions, has great importance for the assessment of the information, because of the sensitivity of work in these institutions, which also reflected positively in increasing the knowledge in these institutions to enhance thinking and innovation skills. The results of the current study might help the hospital identify the technologies that aid doctors in the processes of knowledge conversion.

1. Introduction

The environment of organizations is characterized by the continuous changes, and has brought many challenges, which have led to a focus on knowledge assets that work to elevate the individuals for creativity (Al Zeriqat, 2011; Ababneh & Hatamleh, 2013; Abualoush, 2015; Obeidat et al., 2018). Many decisions made, especially the medical ones were hard to be implemented because of the challenges and difficulties related to the amount of information and knowledge that doctors, decision makers in hospitals, and health care centers must deal with continuously. It has grown and expanded to a point that it has become difficult to deal with in purely traditional ways. Supporting tools must be used to minimize the limited intellectual capabilities of the human being and increase the analytical and predictive capacity needed in decision-making processes (Aldwick, 2010; O'Brien, 1998). Knowledge is the strategic source to promote and advance the organizations for competitive advantage (Bollinger & Robert,2001; Drucker, 1999). Many organizations have strategies to transform their organizational knowledge to create useful knowledge for the organization and their employees (Bertels, 1996). Some of these strategies are involved with the use of information technology to transform their organizational knowledge. This requires

a great deal of efforts by the organization and its staff to invest some advanced technologies in the knowledge transfer processes. There is a general neglect of knowledge transfer in the health sector. Ir-taimeh et al. (2016) suggest that creativity comes not only from the individuals' ideas and experts who work with the organization, but also from modern technology that has contributed significantly to help organizations create new products and processes.

Information technology has played a major role in promoting interpersonal communication and has facilitated the rapid and effective process of obtaining information (Titi, 2010). Information technology has become the main supporting tool for business activities in today's world because of the capabilities and potential of this technology. The human mind (Turban et al., 2002) is an important asset to support organizational processes and the core of the organization's activity, which contributes significantly to the growth and creativity (Barbosa et al., 2014). Information technology also changes the basic nature of knowledge and information for the society and it has the ability to develop lifestyles, learning, and work (Al-Nawashi, 2010; Woods & Cortada, 2013). In the health sector, information technology is an information system, including all computer-based components that are used by healthcare professionals or patients themselves in the context of inpatients, or outpatient care, for processing data, information, or patient knowledge (Ammenwerth, 2004).

Many studies have been conducted in the field of knowledge conversion based on Nonaka Model of knowledge conversion for various organizations and workers, but this study will be the first one which is implemented on doctors in the Arab world generally and in Jordan particularly, in which it is implemented on the working doctors at King Abdullah University Hospital which is administrated by Jordan University of Science and Technology.

Based on the above discussion, the aim of this study is to examine the role of information technology on knowledge conversion processes, to achieve these goals, this study attempts to answer the following question:

Dose information technology impact knowledge conversion processes (SECI)?

The importance of this study is that it deals with an analysis of the reality of knowledge conversion, using information technology in the Jordanian health sector. There are many studies on information technology and knowledge management, but there are two reasons on why this study is important. First: the nature of the transfer of knowledge through the operations (SECI), which becomes more difficult as we turn to the technological side of the transfer. Second: The application of this study on a highly sensitive segment, which uses the process of transferring knowledge between the specialist doctor, and the trainee or intern doctor. The process becomes more sensitive when using the technological side in the transfer of knowledge, given the nature of the knowledge to be converted.

2. Literature review

2.1. Information Technology

Information Technology (IT) is one of the key tools that people invest, especially managers in organizations to face changes and developments around them (Qandilji & Janabi, 2010). IT is one of the many tools managers use to deal with changes. These tools consist of Computer hardware, Computer software, Data management technology, Networking and telecommunications technology (Laudon & Laudon, 2012). They create exciting, rewarding and rewarding career opportunities for millions of men and women around the world (Hashimi & Faizah, 2010). IT has played a key role in re-engineering most of the organization's business processes such as speed, information processing capabilities, and communication. (O'Brien, 2011). The rapid development of information technology has had a profound impact on information, processing, storage, retrieval and distribution methods, and these methods and technologies have become the driving force behind the revolution. Modern technology, which has taken control of various institutions, until the traditional information vessels have faced many challenges (AL Sufi, 2005;

Malkawi et al., 2017). As some consider it to be the use of modern techniques such as computer, printer, Internet, photovoltaic, cellular, and other means of data collection, archiving, processing, distribution and transmission, quickly and accurately, to help in decision support, problem solving and data analysis processes (Titi, 2010), IT and computerized information systems have become an essential means of work and management, especially in the area of health information management, storage, treatment and restoration (Beaver, 2003). Health information systems and technology have rounded distances previously unknown to humans, Digital data, text, audio, and images, as well as provide high-speed data processing, helping to provide critical information to decision makers (Tan, 2005).

The improvement of business performance and the acquisition of the competitive feature are often considered as the results of investment in information technology (Anantatmula & Kanungo, 2008). Thus, organizations must invest in information technology through gathering, organizing, and securing information. They should encourage employees to adopt the behaviors and values required to deal with information technology (Marchand et al., 2000). IT and the knowledge that employees have are considered as high-quality tools. This is due to the fact that IT is the main factor that reshapes all the perspectives of business performance in the digital era (LejaTurulja & NijazBajgoric, 2018).

2.2. Knowledge Conversion (SECI)

Knowledge is one of the most important resources of the Organization (Obeidat & Otibi, 2015; Abualoush et al., 2018), because it lies in the minds, employees, customers, suppliers, documents and routines of the organization. It is the result of the processing of data that has become information. The knowledge that has been understood, assimilated, replicated and practiced has become deeply rooted in the mind of the individuals as a mental and intellectual state; it is clear through the experience, skills and proficiency of the employee of the organization (Jaradat, et al., 2011; Saint-Onge, 1996). Haxel (2001) noted that the use of knowledge is based on a sound and orderly basis and it is one of the key factors for determining the success of a businesses, and the goal is to share the knowledge and use it more quickly and efficiently than competitors.

The concept of knowledge refers to the understanding which gained through experiences or study (Awad & Ghaziiri, 2004). Davenport et al. (1998) defines knowledge as a set of information with experience, understanding and expression of context, and is more valuable and effective than information, its ready to make decision and doing business. Obeidat (2014) defined knowledge as all available information, experiences and experiences, whether expressed or implied, provided within or outside the organization, to be used in the performance of the organization's work in such a manner to enable the organization excellence and success.

The theory of transforming knowledge by Nonaka was strongly influenced by the scientists where distinct aspects of implicit and explicit knowledge were presented as the two main types of knowledge (Nonaka & Takeuchi, 1997). Nonaka and Konno (2000) noted that implicit knowledge is rooted, deep in individual actions and experiences, as well as principles, values, feelings, and inner feelings. The implicit knowledge has two dimensions: the first is the technical dimension, which includes the type of informal personal skills, or the skill that comes from experience and skills. The second is the cognitive dimension, consisting of the beliefs, examples, values, plans and mental models that are deeply implanted in us, which we often recognize, while difficult to pronounce. Fernandez et al. (2004) noted that implicit knowledge includes ideas, intuitions, and intuition. It is difficult to express and formalize them, and thus it is difficult to participate.

The second type of knowledge is explicit knowledge. Hubert (1996), Nonaka and Konno (2000), Seubert et al. (2001) point to explicit knowledge that knowledge can be captured and expressed in words and numbers (quantitative objects) It can be exchanged in the form of data by lectures, self-reading books, technical scientific language, specific specifications, manual form, and so on. This type of knowledge can easily move between individuals in formal and formal form. Awad and Ghaziri (2004) refers to

explicit knowledge, which is defined as encoded, codified, and systematic knowledge in books, documents, reports, charts, memos, and can be retrieved and transported in an easy way.

3. Theory model and hypotheses development

Fig. 1 demonstrates the proposed model of this paper which consists of three hypotheses.
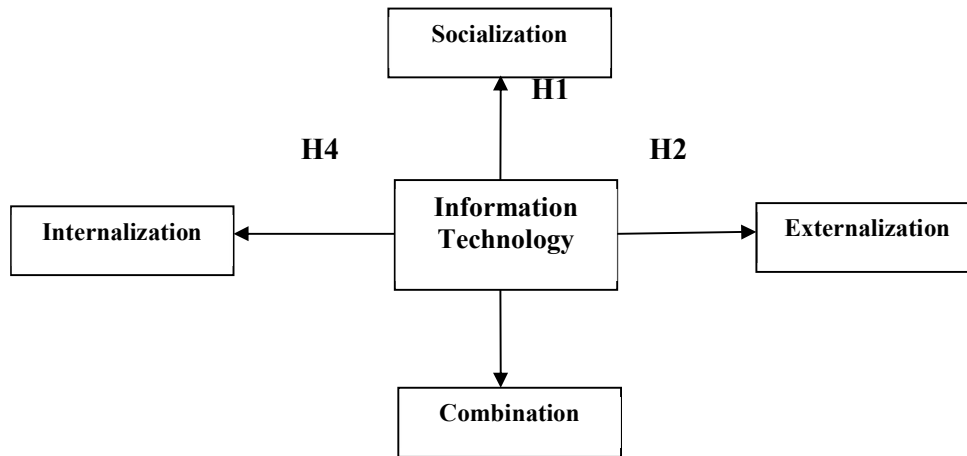

Fig. 1. Research Model

3.1. Information Technology and Knowledge Conversion

Knowledge management operates within a regulatory and social environment through which information technology is used to deal with explicit knowledge and help to enhance the effectiveness of implicit knowledge (Yassin, 2007). Information technology is the main driver in business upgrading and knowledge management which do a huge change with a new rule for employees to become more effective in the service of management (Al Muhairat, 2012). ICTs have been shown to help in the process of acquiring the required knowledge and enabling easy communication between communities and organizations. The availability of information and communication technologies is seen to promote the dissemination of explicit, implicit knowledge and the sharing of best practices effectively among experts in organizations (Vangala et al., 2017). Marwiek (2001) noted that information technology plays an important role in dealing with explicit knowledge and dissemination, but its role in the realm of implicit knowledge remains weak, despite some developments characterized by operations of efficiency and participation such as videoconferences, where gestures and interpretations are still difficult to understand.

Access to information and communication technology, low cost of development tools and knowledge management have been enhanced, as well as a significant impact on knowledge management in organizations (Vangala et al., 2014). Vangala et al. (2014) also noted that the use of information technology in knowledge management effectively improves service quality, processes, achieves desired goals, and rapid developments in ICT - such as rapid mobile penetration, Internet availability, and technologies Web, and communications such as emails, video conferencing, etc. - all help to create faster, store and share knowledge within the organization, as well as organizations where face-to-face meetings are repeated, technology can play a supporting role in recording such meetings for further use (Vangala et al., 2014).

Nonaka et al. (1996) suggest that knowledge is created through four different methods, called knowledge transformation processes:(1) Socialization, the transformation of implicit knowledge into implicit knowledge, (2) Externalization: it is the transformation of implicit knowledge to explicit knowledge, (3) Combination: it is the transformation of implicit knowledge to implicit knowledge, (4) Internalization: Transformation of explicit knowledge into implicit knowledge, as in Fig. 2 as follows.

To	TACIT	EXPLICIT
From **TACIT**	**Socialization**	**Externalization**
EXPLICIT	**Internalization**	**Combination**
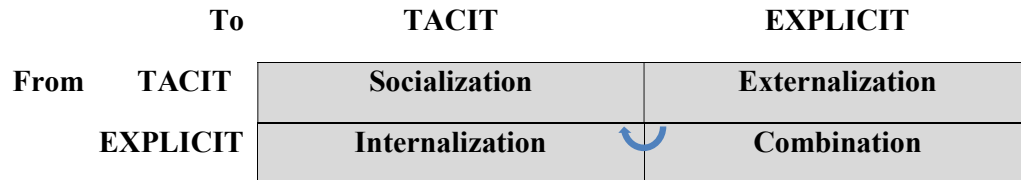
Fig. 2. A dynamic theory of organizational knowledge (Nonaka, 1994)

3.1.1. Information technology and Socialization

This is the process that occurs when one person, with the other, shares his/her implicit knowledge. This is performed through observation, imitation, or discussion (Jaradat et al., 2011), or when implicit knowledge is transferred to new individuals who do not have knowledge, and a new implicit knowledge is generated. As a result of the sharing of implicit knowledge, the individual shares with each other has implicit knowledge through observation, tradition, and practice on conversion (Hijazi, 2010). This is an easy way to share knowledge, because it is done spontaneously on every topic of the work (Baljom & Ben Bayer, 2011; Titi, 2010). Socialization is a process of analysis of tacit knowledge through many individuals. Usually through the integration of activities held in the company rather than verbal instructions or written as informal instructions.

There is a tendency to meetings, interactions between people use the potential of communication technology, and direct search as groupware and use such techniques to complement a number of meetings and traditional meetings (Al-Ali et al., 2006). Based on that, we propose the following hypothesis:

H₁: Information Technology influences significantly on Socialization.

3.1.2. Information technology and Externalization

Jawad et al. (2010) believe that the individual at this stage is able to explain, and clearly articulate his implicit knowledge. It occurs when those who have implicit knowledge of transferring and sharing with others express them in the forms that can be understood by others. This process also indicates where implicit knowledge has gone through the process of socialization and its transformation into a certain concept (objective knowledge). Through the process of incarnation or embodiment the implicit knowledge becomes specific, and takes form (Nonaka, 1998). Information systems are in collaboration with other aggregates (e.g., specialized brainstorming applications) and they can support this type of interaction to a certain extent. Also, databases are another potential tool for capturing implicit knowledge and applying it to immediate problems (Marwick, 2001). And the transformation of implicit knowledge into explicit knowledge that crystallizes it in a systematic, logical, and easy way to share with others (Nonaka, et al., 2000).

Expert systems are considered structured style to transform implicit knowledge into explicit knowledge through software representation, processing, storage, and retrieval of knowledge (Yasin, 2007). Technologies that support the transformation of implicit knowledge into explicit knowledge are participation systems, collaborative and collective software. (Al Ali et al., 2006). Based on that, we propose the following hypothesis:

H₂: Information influences on Technology on Externalization.

3.1.3. Information technology and combination

In this process, explicit knowledge is transformed into more complex groups of explicit knowledge, through the conceptualization of concepts and the transformation of knowledge (Nunaka & Kono, 1998). Also, the knowledge that is generated from the previous stage – after transform and share groups inside the organization or share the knowledge as a regular process. The results are in more implicit knowledge, and are installed in the form of a handbook or guide. Where explicit knowledge is gathered from different

sources of information, and then combined and edited to form a new explicit knowledge, which can be spread among multiple groups, through written document circulation mechanisms and electronic publishing (Nonaka, et al., 2000). Information technology contributes to this area in a clear and wide way. Web pages are accessible to all employees of the organization, making it easier to obtain knowledge (Al Ali et al., 2006). Based on that, we propose the following hypothesis:

H3: Information Technology influences on combination.

3.1.4. Information technology and Internalization

After the individual's participation and the transfer of explicit knowledge to it, assimilates and masters them, and makes them subjective, that individuals should use knowledge that has been subscribe to expand their implicit knowledge and then reshape their minds (Nonaka & Kono, 1998). It is also closely associated with "learning through practice", a process of self-profiling of explicit knowledge and turning it into implicit knowledge (Al-Alwani, 2001).

Knowledge mining systems help to search for explicit knowledge encoded in large data repositories in the context of links and hidden relationships of knowledge that add a better understanding of the reality and future of business (Yassin, 2007). There are also sets of technologies that can be used to secure implicit knowledge through learning, especially through the websites of so-called online education online education or distance learning (Al-Ali et al., 2006). Based on that, we propose the following hypothesis:

H4: Information Technology influences on Internalization.

Socialization	Externalization
Video-conferencing, electronic discussion, e-mail	Expert system, chat groups, best practices and lessons learned databases
Internalization	**Combination**
Computer-based communication, Al-based Knowledge acquisition, computer-based simulation	Databases, Web-based access to data, data mining, repositories of information, Web portals,

Fig. 3. Summarized technologies that help to Conversion of knowledge (Fernandez & Sabherwal, 2015)

Knowledge Management Systems and Processes, New York, Taylor & Francis

Socialization	Externalization
Social networks • Forums • Communities of practice • e-Mail • Groupware • Group decision support systems • Conference systems • Chat groups • IPTV	• Expert Systems • Blogs • Wikis • Good / bad • Examples of god and bad practice • Questions and answers • Decision support systems • Business modelling • Knowledge warehouses • Cognitive mapping tools • IPTV
Internalization	**Combination**
• e-Learning • Using wikis • Using expert systems • Web browsers • Using decision support systems • Using blogs • Using analytical solutions • Using statistical analysis • Using data mining results • Using neural networks • Using social networks • Using forums • Using communities of practice • Using case based reasoning systems • IPTV • Using other KMS Combination:	Wikis • Content management systems • Data bases • Data warehouses • OLAP analytical solutions • Business intelligence • Data mining • Statistical analysis • Machine learning • Neural networks • Intelligent agents • Artificial intelligence systems • Case based reasoning systems • Document systems • Workflow systems • Yellow pages • Knowledge maps • Electronic bulletin boards • Intranets • Web portals • Genetic algorithms solutions

Fig. 4. Technologies that help in the process of Conversion of knowledge (Natek & Zwilling, 2016)

4. Research methodology

This research deals with the relationship between information technology and knowledge conversion processes as contained in management literature, as well as how to use information technology based on the four types of knowledge conversion - based on the SECI model.

4.1. Community and Research Sample

The study population consists of all the 856 doctors who work at the King Abdullah University Hospital, consisting of a consultant doctor, a specialist doctor, a resident doctor and a distinguished doctor. A simple random sample was drawn from the 265 doctors. The questionnaire was distributed to them, of which 217 were retrieved

4.2. Operational measures

The five-point Likert scale was adopted. Each of the paragraphs in the questionnaire was given five degrees of approval from (5-1) respectively, where the 1 (strongly disagree) to 5 (strongly agree). As for the limits adopted by this study to judge the average of the respondents' responses to the paragraphs related to the study variables, there were three levels (high, medium, low) and to verify the validity of the study instrument. The researcher has modified the study tool in the light of the opinions of the arbitrators and their observations to become more in line with their goals, to enable accurate measurement of the study variables and their different dimensions until they have finally emerged. As for the stability of the measuring instrument, the Cronbach alpha coefficient was extracted for the internal consistency of all the measures of the study. As shown in Table 1, the values of stability coefficients (Cronbach alpha) for the dimensions and fields ranged between 0.801 and 0.963 and they represent appropriate and acceptable values for application purposes as well. Most studies have indicated that the coefficient of persistence is 0.70 (Sekaran, 2013).

Table 1
Internal consistency coefficient (Cronbach alpha) for the study instrument

Variables	Cronbach's Alpha
IT	.908
Socialization	.916
Externalization	.925
Combination	.801
Internalization	.914
SECI	**.963**
All fields of study	**.963**

4.3. Describe the variables of the study

In order to study the extent of the adaption of information technology to knowledge conversion processes, a descriptive analysis was used to describe the respondent's attitudes to the questionnaires that are related to the independent and constant variables. According to the five-dimensional Likert scale for the answers given to alternatives for each paragraph through the level of importance, they were determined according to the following mathematical formulas, The number of levels (1.33 – 3 / 1-5) where the level is low if the arithmetic mean from 1.00 to less than 2.33.

Table 2
The arithmetic mean and the standard deviation of the fields of study.

Variables	Mean	SD	Level
IT	**3.729**	**0.668**	**High**
Socialization	3.150	1.003	Moderate
Externalization	3.088	0.954	Moderate
Combination	3.561	0.802	Moderate
Internalization	3.367	0.977	Moderate
SECI	**3.385**	**0.853**	**Moderate**

From the table above, it is clear that the computational mean of the IT variable reached (3.729) at a high level. This indicates the existence of a well-applied information technology. The average of the knowledge transfer dimensions ranged from 3.088 to 3.561 at an average level. This indicates the process of transform knowledge was accomplished in an acceptable manner.

5. Research results

Table 3
First hypothesis test

Dependent Variable	R	R^2	F	DF	Sig**	Independent	β	Std	t	Sig**
Socialization	0.560	0.314	98.47	1, 215, 216	0.000	IT	0.843	0.085	9.923	0.000

* The effect is statistically significant at (α 0.05)

The results of Table 3 show that the simple regression model of information technology in Socialization is significant in statistical terms 0.05, where the calculated of F value is equal to 98.47 at the significance level (Sig = 0.000). The correlation coefficient (0.560) was a sign of a significant positive relationship between the two variables. The coefficient of determination was (0.314), meaning that the independent variable accounted for (31.4%) of changes in the dependent variable. In addition, the value of β was 0.843, which represents the total effect of the variable of information technology in socialization which is statistically significant, where the value of *t* calculated at (9.923) is significant at the level of statistical significance 0.05.

Table 4
Second hypothesis test

Dependent Variable	R	R^2	F	DF	Sig**	Independent variable	β	Std. Error	t	Sig**
Externalization	0.554	0.307	95.128	1, 215, 216	0.000	IT	0.791	0.081	9.753	0.000

* The effect is statistically significant at (α 0.05)

The results of Table 4 show that the simple regression model of information technology in Externalization is significant in statistical terms 0.05, where the calculated F value is (95.128) and the significance level (Sig = 0.000). The correlation coefficient (0.554) was a sign of a significant positive relationship between the two variables. The coefficient of determination was 0.307, meaning that the independent variable accounted for 30.7% of changes in the dependent variable. In addition, the value of the degree of β reached (0.791), which represents the total effect of the variable of information technology in Externalization, which is statistically significant, where the calculated value t (9.753) is significant at the level of statistical significance 0.05.

Table 5
Third hypothesis test

Dependent Variable	R	R^2	F	DF	Sig**	Independent variable	β	Std	t	Sig**
Combination	0.636	0.404	145.941	1, 215, 216	0.000	IT	0.764	0.063	12.081	0.000

* The effect is statistically significant at (α 0.05)

The results of Table 5 show that the simple regression model of information technology in Combination is significant in statistical terms 0.05, where the calculated F value is (145.941), the significance level (Sig = 0.000), and the correlation coefficient value (0.636) and a positive relationship exists between the two variables. (0.404). In other words, the independent variable accounts for 40.4% of the changes in the dependent variable. In addition, the value of β is 0.764, which represents the total effect of the IT variable in Combination. It was statistically significant, with a calculated value of (12,081) at a statistical significance level of 0.05.

Table 6
Fourth Hypothesis test

Dependent Variable	R	R^2	F	DF	Sig**	Independent variable	β	Std .Error	t	Sig**
Internalization	0.592	0.351	116.040	1, 215, 216	0.000	IT	0.866	0.080	10.772	0.000

* The effect is statistically significant at (α 0.05)

The results of Table 6 show that the simple regression model of information technology in internalization is significant in statistical terms 0.05, where the calculated F value is (116.040), and the significance level (Sig = 0.000), and the correlation coefficient value (0.592) and there was a positive relationship between the two variables. The coefficient of determination was 0.351, meaning that the independent variable accounted for 35.1% of changes in the dependent variable. In addition, the value of β was 0.866, which represents the total effect of the variable of information technology in internalization which is statistically significant, where the value of t calculated at (10.772) is significant at the level of statistical significance 0.05.

6. Discussion and Conclusions

The aim of this study was to identify the extent to which information technology was adapted to knowledge Conversion processes (SECI) at King Abdullah University Hospital. The relationship between information technology and knowledge management was strong due to the rapid advances in information technology and the multiplicity of smart applications, which is reflected in the rapid acquisition, storage, and sharing of knowledge among users in all functions in organizations. In this study, we have highlighted the important sector of the medical profession, where the transfer of knowledge is one of the key issues of the development of the medical sector, so that physicians can keep up with the medical developments.

This study highlights the extent to which information technology is adapted to knowledge transfer processes. These four processes are the core of knowledge management, focusing on the types of explicit and implicit knowledge. It is common knowledge that explicit knowledge is easily transferred whether electronically or in other forms. Some part of IT based issues cannot be converted and transferred, others do not want to convert it, and sometimes it is not converted as required. Panahi et al. (2013) noted that the SECI model should assemble and integrate appropriate IT tools in advance by replacing traditional manual methods with modern IT tools. Mustapha (2016) noted that the SECI model acts as a catalyst by accelerating knowledge growth through different forms of knowledge transfer. Given the impact of the SECI model, on can increase the variety of its use through the use of appropriate IT components for each SECI cycle.

The researchers took the views of the King's Abdullah University doctors regarding the availability of information technology and knowledge Conversion processes. The results showed that the availability of information technology has reached a high level, this indicates the hospital administration's interest in providing modern technologies and keeping pace with the advanced technology that helps doctors perform their duties. In terms of knowledge transfer processes, they all came at an average level. This indicates that the transfer of knowledge is not at the desired level. It requires the administration of the hospital to urge doctors, and encourage knowledge transfer among doctors, especially among experienced doctors (consultant doctor) with less experienced doctors (a resident doctor, a doctor of excellence) and especially the conversion of implicit knowledge.

As for the results of the test of the impact of information technology in the processes of knowledge Conversion (SECI), the results came with a positive impact of information technology in the four operations (SECI). This study confirms the results of Hayder et al. (2017), which emphasized at the importance of the SECI model to facilitate communication and cooperation between the employees of the University of Basra, despite the challenges faced by the university, including the introduction of information technology used. Turulja and Bajgoric (2018) pointed out that the investment in IT and its relationship with knowledge has a positive impact on business performance.

7. Implications of the study

The use of information technology in health institutions, especially educational hospitals, such as King Abdullah University Hospital, has great importance to speed up the access to information, because of the sensitivity of work in these institutions, which also reflected positively in increasing the knowledge

stocks of doctors in these institutions, (Chootongchai & Songkram , 2018) that online learning systems are important, to enhance thinking and innovation skills.

The subject of knowledge Conversion is one of the most sensitive topics in the functional society, because of the prevailing culture in this society, and the existence of some of the disadvantages or reservation of the workers of this process, such as fear of losing the job when other people get knowledge, but keeping this knowledge to a limited people does not constitute organized creatively and individual creativity, but reflects the low level of knowledge of individual and organization. The knowledge stored in the minds of the experiences must be stored in the minds of all employees of any organization, by storing them in the organization's database. Organizations, especially hospitals, must adopt and encourage knowledge transfer and use of information technology to facilitate and speed up the four processes: Socialization, Externalization, Combination: Internalization. The results of the current study might help the hospital identify the technologies that aid doctors in the processes of knowledge conversion. This is due to the fact these technologies are fast and easy to convert the implicit and explicit knowledge for other doctors.

8. Limitations and future research directions

This study has many limitations as other ones which will pave the way for future research on that. It was hard to get to all doctors working at King Abdullah University Hospital because of privacy issues related to the hospital and to the refusal from some doctors to respond to the study because they are busy with their patients. As a result, the method of taking random samples was implemented in this study because of its relevance to the research and to all doctors' specialties. The second limitation is that the data collection was implemented in one hospital that reflects a single cultural context. Thus, researchers are advised to utilize questionnaires and samples taking to get a bigger and more various samples that might be implemented on public and private hospitals in Jordan in order to get results that can be more generalized. Thus, the results of the current study should not be analyzed as comprehensive and implemented on organizations in other commercial and economic sectors. In addition, the sample of the current study is only limited to Jordan. Future studies may investigate whether the results of this study can be implemented on neighboring countries or on other developed ones.

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