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The Mediating Role of Knowledge Sharing Between Organizational Culture and Innovation in Syrian Public and Private Universities

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Abstract: Prior literature has pointed out that organizational culture is an important factor affecting knowledge sharing and enhanced innovation in an organization. However, there is a lack of models linking organizational culture, knowledge sharing, and innovation at universities within developing countries, particularly Syria. The purpose of this study was to examine the mediating role of knowledge sharing on the relationship between organizational culture and innovation of the teaching staff in Syria public and private universities. The quantitative method was used in data collection. A random sampling technique was conducted which comprised of 334 valid responses to test the causal relationship between organizational culture, knowledge sharing, and innovation. PLS-SEM technique was used to analyze the direct and indirect relationships between the variables in this study. The results of the study indicated that there was a significant relationship between organizational culture and Knowledge sharing. The results show that there was a significant relationship between organizational culture and innovation. Findings had revealed that the indirect effect of organizational culture on innovation through knowledge sharing.

Keywords: Organizational culture, Knowledge sharing, Innovation

I. INTRODUCTION

Universities can play a critical role in knowledge transfer through working with other organizations to support innovation and solve their problems (Fullwood et al., 2013). Universities can maximize their impact on the community and the wider society (Kim and Ju, 2008). Galang (2010) argued that universities have the ability to change the world through training, researching answers to challenges and informing public policy. Universities are known to be knowledge-intensive environments in which knowledge sharing forms one of the daily activities and in which individuals are the foundation of learning and research (Fullwood et al., 2013).

Based on the intersection between the knowledge sharing perspective and the cultural perspective of innovation, knowledge sharing is a way by which organizations could generate competitive advantage on the basis of innovation. Organizational culture is an important aspect of the organization indicating that the organization must be driven by vision and associated with a shared culture of beliefs and practices. Although organizational culture may affect innovation directly, previous research has suggested that the direct effects may be too complex to isolate.

Organizational culture has been identified as a critical success factor for knowledge management, however, there is little research conducted to understand how organizational culture contributes to knowledge management practices (J. H. Gray & Densten, 2005). Sporn (1996) has indicated that universities have a distinctive set of characteristics which will have a strong impact on the culture of the institutions and has developed a typology of different types of university culture in order to investigate the impact of culture in academia.

Organizational culture has become a powerful determinant of innovative potential in order to sustain an innovative culture (Wan Ismail & Abd Majid, 2007). Organizational culture is also found to be a critical factor to enable knowledge flow in organizations as it allows organizational members to create, acquire, share and manage knowledge.

The concept of Knowledge sharing (KS) has become an important area in organizations today. Knowledge sharing has become type of bases that is adopted in the operation of the organization. Higher Education, as universities whose operations deal with knowledge must also adapt to knowledge sharing for innovation purposes of the university.

The organisational value of an individual's knowledge increases when it is shared (Hislop, 2013). The promotion of KS among the members of an organisation is an important part of the learning process as it helps to convert the tacit knowledge embedded in individuals into explicit knowledge through interaction (Nonaka et al., 2006). Halawi (2008) named KS as a main focal area for knowledge management. Du Plessis (2007) explained that the fundamental aim of KM is to make KS the norm in the organisation. KS is considered a useful indicator for measuring the effectiveness of

organisations (Tan et al., 2010). KS is considered to be a building block of efficient performance within higher education environments and to play a key role in enhancing the innovation of universities (Mathew, 2010).
Lin (2007) noted that understanding KS enablers, processes, and outcomes is highly necessary in organizations. However, a causal link amongst three factors has not been developed to date in Syrian universities. Therefore, this study seeks to examine the mediating role of KS in the relationship between OC and innovation.

II. LITERATURE REVIEW

Organizational Culture

Organizational culture is defined as the components of routine behavior, norms, values, philosophy, work system and feelings shared by personnel in organizations (Dasgupta & Gupta, 2009; Oluwafemi, 2017). Akta et al. (2011) defined organizational culture as a model of norms, values believe and attitudes which have an effect on organizational 18ehavior. Aksoy et al. (2014) defined organizational culture as the value of institution created not only by the manners and behaviors of every single individual in the organization but the collective attitudes and behaviors of the organization in general. Claver and Llopis (1998), as cited in Jantan et al. (2003), defined organizational culture as a set of values, symbols and rituals shared by members of certain firms, describing the way things are done within the organization when solving internal managerial problems. It is an interdependent set of values and ways of behaving that is common to a community and tends to perpetuate them, sometimes over a long period of time (Kotter & Heskett, 1992). Wilkins and Dyer (1988) suggest that culture in an organization is composed of the values, competencies, and beliefs of groups of people that strongly influences whether or how the organizational strategies are implemented. Discussion of organizational culture in Peterson and Spencer (1991) focused on the deeply embedded patterns of organizational behavior and the shared values, assumptions, beliefs or ideologies that members have about their organization or its work (Bartell, 2003; Sporn, 1996).
In relation to universities, culture is viewed as how values and beliefs are associated within the universities (including departments and their respective staff), developed and conveyed by the use of language and symbols (Bartell, 2003). These shared assumptions and understanding can be identified through stories, language and norms that emerge from individual and organizational behavior (Bartell, 2003; Cameron & Freeman, 1991; Sporn, 1996). Kuh and Whitt (2000) defined university culture as the collective, mutually shaping patterns of norms, values, practices, beliefs, and assumptions that guide the behavior of individuals and groups in an institute of higher education and provide a frame of reference within which to interpret the meaning of events and actions on and off campus. University culture can also be distinguished into academic culture and administrative culture (Sporn, 1996).
Culture can also be thought of as having two components: 1) explicit culture which represents the typical patterns of behavior by the people and the distinctive artefacts that they live within; and 2) implicit culture which refers to values, beliefs, norms and premises which underline and determine the observed pattern of behavior.

Knowledge Sharing

The term knowledge transfer has been used frequently in the recent literature on knowledge management to described KS (Massa and Tsesta, 2009). In this regard, some researchers, such as Boyd et al. (2007) and Berggren et al. (2011), have distinguished between the transfer and sharing of knowledge by arguing that knowledge transfer refers to the application of existing knowledge from one context to another. This assumes that the owner is the main source of knowledge and the transfer of knowledge occurs in one direction, from owner to recipient. KS, meanwhile, is a broader concept that includes the interaction, absorption, and creation of new knowledge, which means that KS occurs in two directions, and between two or more participants.
Prior literature has reported different types of KS processes. For instance, Hendriks (1999) distinguished between the knowledge owners who have the knowledge and also called externalisation, and the knowledge receivers who receive the knowledge. Ardichili et al. (2003) proposed that KS includes a supply of new knowledge and a demand for new knowledge. Lin (2007) discussed KS as involving the carrier and the requester of knowledge.
From Kankanhalli et al.'s point of view (2005), KS processes consist of knowledge seekers and knowledge contributors. Weiss (1999) indicated that KS involves two processes: knowledge collection, which includes the accumulation, storage and recording of knowledge, and the connection of knowledge, which, consists of the knowledge seeker accessing a knowledge source and identifying the needed knowledge.
Hooff and Weenen (2004), who divided KS processes into donating and collecting knowledge. The donating of knowledge refers to the exchange process and communicating to others what one's personal intellectual capital is (Hooff and Ridder, 2004). It represents the willingness and eagerness of individuals in organisations to give and share their knowledge with others (Kim et al., 2013). It is argued that without willingness it is impossible for knowledge to be donated and transferred to others (Islam et al., 2010). This refers to the capacity of individuals to share what they know and to use what they learn (Lin, 2007). Knowledge collecting, on the other hand, refers to the recipient of

knowledge who must consult colleagues through observation, listening or practising so as to encourage them to share their intellectual capital (Hooff and Weenen 2004) It reflects the person's willingness to ask for, accept, and adopt new intellectual capital and know-how (Kim et al., 2013). Lin (2007) indicated that this process represents the acquisition of information and knowledge from internal and external sources. Knowledge collecting is a key aspect of organisations' success because the organisation with proficiency in gathering knowledge is more likely to be unique and rare (Lin, 2007).

Innovation

Nystrom (1990) found innovation to be new products/services, and processes that aim to improve the competitive advantage of the organisation and meet customers' changing demands. White and Glickman (2007) stated that the term innovation refers to the introduction of new ideas, methods, and devices. McKinley et al. (2014) stated that innovation refers to any novel product, service, or production process that departs significantly from prior product, service, or production process architectures. Rothaermel (2013) defined innovation as the commercialization of any new product, process, or idea, or the modification and recombination of existing ones. Liao et al. (2008) gave a broader definition, describing it as the generation/adoption of novel ideas, and behaviours regarding products, services, production, operating procedures, and management strategies. Similarly, Demircioglu (2016) defined innovation as the adoption of new ideas, behaviours, products, systems, processes, policies, and programmes that are new to an organisation. Du Plessis (2007) stated that innovation refers to the creation of new thoughts, knowledge and ideas so as to make organisational outcomes possible. Additionally, Vaccaro et al. (2012) explained innovation as a product, process, or distribution method perceived as new by the organisation**.**

Other researchers have expanded the definition of innovation. For instance, Albury (2005) saw it as creating and implementing new products/services, processes, procedures and methods of delivery that enhance the effectiveness of the organisation. From Amabile's (1998) point of view, innovation meant the successful implementation of creative ideas within an organisation. Van de ven (1986) explained that innovation as a process includes the generation, adoption, and implementation of new ideas and practices. Chen and Tsou (2007) found innovation to be the intuition, adoption, and implementation of new ideas or activities used to develop products, services or work practices. Additionally, innovation can be understood as developing, generating, adopting, and implementing new ideas, methods, programmes, and policies so as to achieve the goals of an organisation effectively (Kamasak and Bulutlar, 2010, Nusair et al., 2012). Meanwhile, Tidd et al. (2005) indicated that innovation refers to change that includes the creation of new knowledge and its commercialisation.

These definitions explain innovation as a process that include multiple patterns, stages, or phases, and either the creation or the adoption of a new idea. Indeed, the creation process is different from the adoption process. The former covers all activities from creating new ideas, to developing them, to transferring them so that they can be used by others (Van de ven, 1986). On the other hand, the adoption process includes initiation, decision adoption and implementation (Damanpour and Aravind, 2012).

III. THE RELATIONSHIP BETWEEN THE VARIABLES AND HYPOTHESIS DEVELOPMENT

Organizational culture has become a powerful determinant of innovative potential in order to sustain an innovative culture (Wan Ismail & Abd Majid, 2007, Shahzad et al., 2017, Ceausu et al., 2017). Even though the innovation concepts have been around for many years, the concept of innovation is still in its infancy (Wan Ismail & Abd Majid, 2007). In order to nurture the innovation culture, organizations need to develop a conducive environment where members feel free to contribute.

Previous studies have reported that organisational culture is important in regard to innovation (McLean, 2005). The main reason is that an organisation's culture is instrumental in guiding behaviour and can, therefore, serve to either support or inhibit innovation. Routines tempt employees to solely focus on their own tasks and responsibilities. This singular focus can result in a lack of mutual trust that can have a detrimental effect on cooperation across departments. Organisational culture that is strongly supportive of innovation and permeates all levels of the organisation can serve as a constant reminder to employees to embody the desired values and behaviours. It can also encourage employees to search for new ways of dealing with problems, taking risks, and exploring their ideas even when their value is not clear. Also, creative ideas are seen to transform into innovation in a culture that supports innovation (Miron et al., 2004).

Naqshbandi et al (2015) have shown the existence of the relationship between organizational culture and innovation. This study indicated that organizations with organizational culture that values customer orientation, employee development, social responsibility and harmony, were able to improve their level of innovation activity.

Ikeda and Marshall (2016) indicated that organizational culture enable organizations to be innovative by maintaining their focus on innovation across important business activities, encouraging innovative behaviors as well as identifying the best ways to sustain the innovation momentum. According to the study, the organizational culture of innovative

organizations emphsizes on placing innovation as the core value of their culture, build a climate of innovation and prioritize agility as a critical capability. From the description above, the researcher proposed the following hypothesis:

H1: Organizational culture will positively influence product and process innovation in Syrian public and private universities.

Organizational culture is found to be a critical factor to enable knowledge flow in organizations (Liang et al., 2016, Prystupa, 2017) as it allows organizational members to create, acquire, share and manage knowledge.

Culture appears to be one common enabler of knowledge management in several studies (Kucharska and Wildowicz-Giegiel, 2017). Knowledge management focuses on utilizing culture to develop knowledge as well as promoting collaboration and sharing of knowledge within organizations. Koupoulus from the Delphi group summarizes the need for culture change in organizations with a statement that says "no knowledge management system can work without an organization undergoing a significant cultural change" (Greengard, 1998c). The success of knowledge management depends on how a company can effectively manage its employees. Therefore knowledge management requires changes in the organizational culture (Greengard, 1998a). Karlsen and Gottschalk (2004) suggest that culture shapes assumptions about what knowledge is worth exchanging, and defines the relationships between individual and organizational knowledge. They further suggest that culture also creates a context for social interaction, which determines how knowledge can be shared to shape the process by which knowledge is created, legitimated, and distributed in the organization.

In many research studies, organizational culture is viewed as an enabler of knowledge management processes such as in knowledge transfer (Goh, 2002) and knowledge sharing (Heng, 2005). From the description above, the researcher proposed the following hypothesis:

H2: Organizational culture will positively influence Knowledge sharing in Syrian public and private universities.

It is noted that knowledge is the core component of innovation (Goh, 2005). Through KM processes, and particularly KS, organisations can create opportunities to generate new ideas and develop innovation (Willem and Buelens, 2007).Product and process innovation are shown to solve problems and improve performance (Tsai, 2001). Innovation depends on employees' knowledge, skills, and experience of value creation (Ologbo et al., 2015).

When organisational members share their tacit knowledge and convert it into explicit knowledge through collecting and donating, collective learning is generated, which in turn improves the stock of knowledge available to the organisation (Lin, 2007). It is argued that organisations that promote a KS culture among organisational members are likely to generate new ideas that lead to product and process innovation (Tsai, 2001, Mehrabani and Shajari, 2012, Jones, 2017).

Chen et al. (2010a) identified a positive relationship between knowledge creation and sharing and innovation in a supportive climate that stimulates and encourages the transfer of knowledge into innovation, while organisational structure attenuated the relationship. A qualitative study conducted by Porzse et al. (2012) within professional services firms in Eastern Europe found knowledge to have a unique connection with innovation and suggested that collective organisational knowledge could stimulate innovation.

Furthermore, Ferraresi et al. (2012) showed that the KM processes of capturing, sharing, and application had a significant impact on innovation through strategic orientation within Brazilian companies. Wei and Xie (2008) found that KM could improve innovation performance within industrial companies in China. From the description above, the researcher proposed the following hypothesis:

H3: Knowledge sharing will positively influence innovation in Syrian public and private universities.

According to Lee (2001), in a study of the relationship between Knowledge sharing and information system outsourcing, the empirical result indicates that KS is the determinant predictor to outsourcing success as well as is positively related to it as well, while outsourcing actually is seen as one of the innovation activities.

Many scholars strongly believe KS is the principal process to innovation. For instance, Caloghirou et al. (2004) argue that the firm's internal capabilities and openness towards KS are critical to a firm's innovative performance. The results of Sanez and Rivera (2009) indicate that KS is a key issue to enhance the innovation of firms. Hong et al. (2004) point out that KS has a significantly positive impact on new product development.

Jarvenpaa and Staples (2003) showed that organizational shared values have an important influence on the willingness of knowledge owners to share knowledge with other organizational members. Organizational culture is said to be an important factor to create, share, and use knowledge in that it establishes norms regarding KS and creates an environment in which individuals are motivated to share their knowledge with others.

Organizational culture will affect an organization's learning and capabilities, and will guide it to change and innovate (Lynn, 1999). Daft (2001) argues that a culture encouraging organization to change, especially under such a rapidly changing environment, is an important characteristic to organizational learning. Hurley and Hult (1998) suggest that higher levels of innovativeness in the firms' culture are associated with a greater capacity for adaptation and innovation. Therefore, a strongly adaptive culture to encourage members within an organization to mutually learn and cooperate is required. Organizational culture is considered to be a key element of managing organizational change and renewal.

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Hu et al. (2009) find that if firms expect to achieve high-service innovation performance, they first need to develop KS behaviors plus a better team culture. Zheng et al. (2010) suggest that knowledge management fully mediates the impact of organizational culture on organizational effectiveness. Based on the study of Cao and Long (2009), the results support that organizational culture has a positive indirect impact on innovation by affecting knowledge sharing. According to Chang et al. (2017), in a study of the relationship among organizational culture, KS, and innovation capability in Taiwanese auto industry, the empirical findings indicate that KS plays as a mediator in OC–innovation capability relationship, while OC has significant influence on innovation capability. From the description above, the researcher proposed the following hypothesis:

H4: Knowledge sharing will positively mediate the impact of organizational culture on innovation in Syrian public and private universities.

From the description above, we can describe the research model as follows:

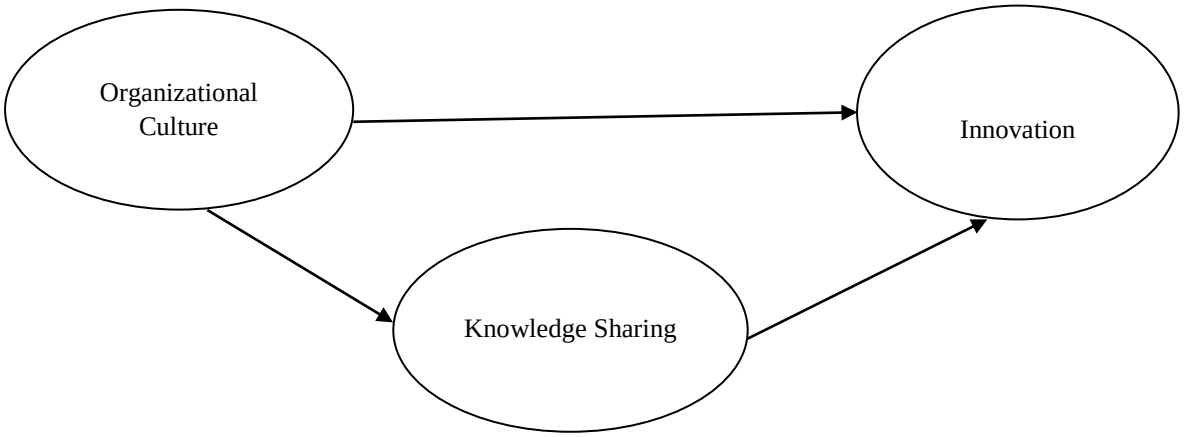

Figure 1. Framework

IV. RESEARCH METHODOLOGY

Research Design: This study uses the quantitative method approach. Thus, this study is carried out based on positivist principles with a deductive approach in order to examine the causal relationships among OC, KS and innovation in both public and private universities in Syria. This study used a self-administered questionnaire, with closed-ended questions, to collect data from members of staff in public and private universities in Syria. The survey questionnaire was designed to be easy and quick for participants to complete. The design of the questionnaire includes five parts besides the introduction.

Population: The target population in this study comprises academic teaching staff at list of the public and private universities in Syria (assistant lecturers, lecturers, assistant professors, and professors). It was to select six universities in the cities of Aleppo and Idleb as the sampling frame.

Sampling design: This study uses the questionnaire approach to gather data, and since the research questions require the researcher to statistically estimate the features of a population, random probability sampling is most appropriate. Since this study is using SEM, the literature suggests that a minimum sample of 200 is required in order to get a statistically significant result and a better performance analysis. Taking this rule into consideration the sample of 334 obtained for this study is therefore sufficient.

V. RESULTS AND DISCUSSION

The results of this study show that first organizational culture affects knowledge sharing with $R^2 = 0.152$, Path Coefficient $\beta = 0.314$, and $Q^2 = 0.076$. Second organizational culture affects innovation with $R^2 = 0.432$, Path Coefficient $\beta = 0.082$, and $Q^2 = 0.288$. Third knowledge sharing affects innovation with $R^2 = 0.432$, Path Coefficient $\beta = 0.450$, and $Q^2 = 0.288$. This study assessed the mediating role of knowledge sharing between organizational culture and innovation in the PLS path model. The product of the coefficient approach using the bootstrapping re-sampling method has been used to examine the significance of the indirect effect (Preacher and Hayes, 2008).

In this study, there are 4 hypotheses tested and based on the results of test. The results showed that all the hypotheses are supported by the data by the data.

Table 1. The Hypothesis Test of Research Model

Hypothesis	Hypothesis Statement	T-Value	Result
H1	Organizational culture will positively influence innovation in Syrian public and private universities.	1.93	Supported
H2	Organizational culture will positively influence Knowledge sharing in Syrian public and private universities.	5.641	Supported
H3	Knowledge sharing will positively influence innovation in Syrian public and private universities.	11.20	Supported
H4	Knowledge sharing will positively mediate the impact of organizational culture on innovation in Syrian public and private universities.	3.106	Supported

The result of testing the hypothesis found that:

Hypotheses 1: The first hypothesis was supported and accepted. The results showed that organizational culture has a positive effect on innovation in Syrian public and private universities.
Hypotheses 2: The second hypothesis was supported and accepted. The results showed that organizational culture has a positive effect on knowledge sharing in Syrian public and private universities.
Hypotheses 3: The third hypothesis was supported and accepted. The results showed that knowledge sharing has a positive effect on innovation in Syrian public and private universities.
Hypotheses 4: The fourth hypothesis was supported and accepted. The results showed that knowledge sharing mediates the impact of organizational culture on innovation in Syrian public and private universities.

CONCLUSION

The objective of this study was to examine the impact of organizational culture on innovation through the mediating role of Knowledge sharing in Syrian public and private universities. The specific problem addressed by this study was the lack of models developed to investigate the links between OC, KS and innovation within universities in developing countries, particularly Syria. The study found that KS plays a pivotal mediating role in the OC-innovation relationship, and that OC would be ideal in an educational context as it would promote KS activities and influences product and process innovation. Meaning that OC promotes and encourages a KS among teaching staff, which in turn develops product and process innovation in public and private universities in Syria. Furthermore, KS is an antecedent of innovation and a source of competitive advantage.

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