Factors Affecting on Knowledge Sharing Among Undergraduate Students

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***Abstract*—The purpose of this study is to examine the impact of trust, attitude, and information communication technology on knowledge sharing among undergraduate students. However, the previous studies paid little attention to examine knowledge sharing among students, particularly in the Iraq setting. The study conducted at Cihan University-Erbil, Iraq, in the College of Administrative and Financial Sciences. The data collected by the questioner tool and the questioners randomly distributed among students by self-administrative. The data were analyzed by AMOS software. The results showed that all three variables, namely, trust, attitude, and information communication technology, have a positive and significant impact on knowledge sharing among undergraduate students. However, trust showed is the most vital factor that enhances and increases the sharing of knowledge among students. University should improve the culture of knowledge sharing among students to increase their productivity and knowledge.**

***Keywords*—Knowledge sharing, Trust, Attitude, Information and communication technology, Undergraduate student.**

I. Introduction

Knowledge share (KS), the main research area from an organizational point of view, has emerged as an effective and widely has been discussed aspect of knowledge management (KM) in the past three decades. It is seen as an essential tool for successfully implementing KM strategies in organizations and concepts (Alaarj et al., 2017). It is also crucial to know due to participants in KS must disseminate existing knowledge and develop new knowledge through explanation, clarification, critical consciousness, and reflection from various prospects. Individuals also hoard information and knowledge, which is considered a personal resource that could be of use to them in reaching an acceptable level of value, recognition, and bonuses from institution's (Hashim and Tan, 2015). Persons cannot be obliged to KS but should be inspired or support. Factors such as hierarchy, authority, tools available, help, extrinsic rewards, and culture can hinder or encourage people's KS behavior (Javadpour and Samiei, 2017). Students share knowledge in their college areas and KS with their colleagues (Wei et al., 2012). University authorities need to encourage information exchange initiatives through the development of capable policies for KS and KM, and procedures to facilitate and promote the sharing of knowledge (Al-Kurdi et al., 2018; Alaaraj et al., 2018; Alaarj et al., 2017; Alaarj et al., 2016). In a university environment, some cultural dimensions influence on KS, trust is one of these dimensions. KS and trust are a vital a mixture in which trust is the only way to foster interaction between people and allow people to share with those who trust in their innovative and creative ideas and establish long-term relationships with them (Raza et al., 2018). However, trust deems one of the obstacles facing KS among individuals (Mousa et al., 2019).

The prior studies paid more attention to KS among the individuals in the organizations (Samadi et al., 2015). However, Malaysia earned more coverage compared with other countries (Chong et al., 2014; Moghavvemi et al., 2017; Wei et al., 2012). Meanwhile, few studies which explore the effects on KS among students at universities, particularly in Iraq. Despite growing curiosity in understanding students' KS behavior, it entirely concerns that there have been limited studies about KS among students (Ayodele et al., 2016). The learning activities and KS are an essential activity to create a healthy relationship and trust between students. Students are associated with the various resources available to help them improve their learning (Osman et al., 2015).

This study aims to examine the impact of attitude, trust, and information and communication technology (ICT) on KS among undergraduate students in Iraq setting and enrich the body of knowledge in the Iraqi context.

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II. Literature Review and Hypotheses Development

A. Knowledge Sharing

Efficient KS between students at all levels enhances collaborative learning by implementing an attitude of sharing, which contributes to higher performance during the examination. In education and development of learners, sharing of information, skills, ideas, and personal experiences is crucial. Knowledge sharing as a series of activities involving KS or assistance to others (Mousa et al., 2019). Riege (2005) describes KS as the cornerstone of many institutions. An essential factor in the evolution of the overall institutions is the interactive knowledge sharing of employees in every institution (de Vries et al., 2006; Salam, 2020). Effective and inclusive KS is an essential element for a useful and practical college education, and knowledge was considered the intellectual asset of an individual and competitive advantages gained in life (Chong et al., 2014). KS refers to activity through which people within the organization exchange information, skills, or expertise (Ayodele et al., 2016). According to Bartol and Srivastava (2002), KS refers to action in which individuals disseminate necessary information to others throughout the institution. The sharing of knowledge through the work of individuals or groups of employees is depicted as the transferor distribution of explicit or tacit information, inspiration, experiences, and technologies (Wang and Noe, 2010). Amayah (2013) adds KS concentrations on knowledge – how to help others and solve organizational issues. Mousa et al. (2019) have clarified that the KS includes two sides: The knowledge source and the knowledge seeker, whereas the exchange of information applies only to the flow of knowledge through an entity, not between individuals. For all institutions, including higher education institutions, sharing knowledge is critical. Universities use KM and KS to earn a competitive in the knowledge economy and improve their intense public funding rivalry (Ahmad et al., 2021).

B. Attitude

Wei et al. (2012) confirmed through their study that the students recognize the importance of KS to their classmates. However, Yaghi et al. (2011) confirmed that the exchange of information between students was a valuable learning experience for the participant and the beneficiary. Hussain et al. (2011) students would likely make the team to update the understanding of specific subjects for knowledge sharing. Most of the time, the attitude of the student to knowledge sharing is optimistic, which is the reason why the student feels confident and relaxed, and the audience evident (Raza et al., 2018). A positive attitude regarding KS will improve the use of students in their working in the future after they finish their study. On the other side, when their inability to exchange knowledge with colleagues continues unregulated, they would likely continue to share the same attitude in their workplace (Ghran et al., 2019; Jer Yuen and Majid, 2007a; Mousa et al., 2019). Positive attitude provides a favorable environment for active KS at the university level. It establishes a strong basis for students to support their institutions better if they enter the workplace after graduate studies (Yuen and Majid, 2007). KS positively impacted by attitudes of students (Jer Yuen and Majid, 2007a; Wei et al., 2012). Likewise, Raza et al. (2018) reported the student attitude indicated the highest effect on KS among students.

H_1: KS significantly impacted by attitude among undergraduate students.

C. Trust

Trust leads to the readiness to share knowledge among peers, particularly students and the level of trust play a key role in this process. A large number of researchers agree that trust is among the critical factors in creating an environment for knowledge sharing. Trust is a crucial element of every information society since it allows a social and KS exchange (Alaarj et al., 2016; Jameel et al., 2020). An individual is readier to involve to KS when they trust each other within a community. If people trust each other, fear of exploitation by others is eliminated. Mutual exchanges between actors also facilitate confidence building. If network individuals participate actively in KS operations, they can demonstrate their talents, compassion, and honesty that enable other participants to assess their trust (Evans et al., 2015; Massoudi et al., 2020). Institutions want to build a culture that has a high degree of trust among individuals that will ensure a high degree in sharing knowledge (Jameel and Ahmad, 2020; Mousa et al., 2019; Rutten et al., 2016). This culture of trust encourages members without hesitation to share knowledge. This improves not only the behavior of knowledge sharing but also performance (Ahmad and Jameel, 2020; Chen et al., 2007; Jameel and Ahmad, 2020a). For successful corporate efficiency, it is necessary to develop knowledge sharing between employees, which is only based on the factor of high trust among individuals (Chen et al., 2007; Karem et al., 2019; Rutten et al., 2016). Several studies confirmed the impact of trust on KS. Holste and Fields (2010) and Rahman and Hussain (2014) reported that the trust has a positive and significant effect on KS. The previous studies indicate that trust greatly influences the willingness to share information with another. Meanwhile, according to Raza et al. (2018), KS impacted by trust among students in positive and significant ways. Similar finding reported by Rahman and Hussain, 2014, which find that trust has a positive and significant effect on KS among students.

H_2: KS significantly impacted by trust among undergraduate students.

D. Information Communication Technology

ICT plays an essential role in facilitating the KS with colleagues. ICT assists the exchange of knowledge across efficient communication channels and the identification of the source of information. Development in ICT, like other fields, has revolutionized the industry by opening new outlets of training and KS and today. However, students have a plentiful amount of research knowledge in contrast to the

pre-information technology age, particularly after the World Wide Web explosion (Jameel, 2018; Jer Yuen and Majid, 2007a). Nevertheless, ICTs potential role in facilitating KS goes beyond an intranet's facilities, while many of these features can be bundled through the default interface intranet (Farooq, 2018; Jameel, 2018; Jameel et al., 2017). To improve effective knowledge sharing, ICT can promote access to information and knowledge contained to databases (Jameel et al., 2021). Technology provides direct access to a wide range of data and information and facilitates long-term relationships that promote collaboration (Riege, 2005). Jameel (2018a) indicates that ICTs may help improve KS. Technology can help students to communicate and KS with their classmates (Jameel, 2018; Wangpipatwong, 2009). It can be achieved by reducing temporal and spatial obstacles and improve access to knowledge workers (Jameel and Ahmad, 2018; Osman et al., 2015). Support for educator and equipment is positively linked to patterns of knowledge sharing. This demonstrates that teacher support and promotion and positive reinforcement such as praise and reward for the sharing of knowledge between students are necessary (Chong et al., 2014; Jameel et al., 2020; Jameel and Moshfeghyan, 2017). The students may face several issues regarding the ICT which may they are unfamiliar with program and method. In line with this attitude toward adopting new technologies, it is essential to facilitate, promote, and support the sharing of knowledge between students (Jameel, 2018). Technology support has a significant and critical impact on KS among the students (Chong et al., 2014; Jameel et al., 2020; Rahman et al., 2017; Wangpipatwong, 2009). However, Mousa et al. (2019) reported KS impacted by ICT in a significant way.

H3: KS significantly impacted by ICT among undergraduate students.

III. Methodology

A. Sampling

Undergraduate students in the Faculty of Administration and Finance at Cihan University-Erbil were the target for this research.

The questionnaires randomly distributed among the students and from 250 questionnaires distributed, only 173 returned, and only 151 were valid responses. Data collected were analyzed by SPSS software version 23 to find Cronbach's alpha. However, the primary analysis conducted by moment structure (AMOS) version 2.1 to test the hypotheses.

B. Questionnaire

It consists of the three independent variables and one independent variable which is adopted from the previous studies; the number of total items is 15. Table I illustrates the source and the number of items of each variable. All the questions were translated into the Kurdish language to be easier understand by students due to all the questions adapted from the previous studies in English, "translation-back translation" process (Brislin, 1980). However, the study used five Likert scales to measure all the items form 1 – strongly disagree to 5 – strongly agree.

IV. Results

In this study, AMOS 23 used as a confirmatory factor analysis (CFA) which was introduced as a method within SEM and was used to help researchers confirm or deny pre-conceived theories. According to Hair et al. (2009), there are two main steps in AMOS; first is to find the validity and reliability of model called measurement model and the second step is to examine the hypotheses by path analysis called structural model.

A. Measurement Model

The purpose of this step is to assess the CFA of the model; the CFA consists of three main tests which are validity, reliability, and model fit.

Construct validity and reliability

Cronbach's α has calculated the reliability of the questionnaire after data collection by SPSS. Table I illustrates the value information for each item. For all items, the α value of Cronbach was above the limited 0.70 which

Table I: Cronbach's alpha, item-total correlation, factor loading composite reliability, and AVE

Factors	Items	Item-total correlation	Cronbach's alpha	Factor loading	Composite reliability	AVE	Source
KS	KS1	0.371	0.832	0.61	0.832	0.565	(Rahman et al., 2017; Wangpipatwong, 2009)
	KS2	0.642		0.80			
	KS3	0.794		0.89			
	KS4	0.455		0.67			
Attitude	ATT 1	0.771	0.908	0.88	0.864	0.713	(Jer Yuen and Majid, 2007a; Wei et al., 2012)
	ATT 2	0.656		0.81			
	ATT 3	0.731		0.86			
	ATT 4	0.694		0.83			
Trust	TR 1	0.714	0.886	0.85	0.855	0.663	(Rahman and Hussain, 2014)
	TR 2	0.724		0.85			
	TR 3	0.712		0.84			
	TR 4	0.505		0.71			
ICT	ICT1	0.658	0.824	0.81	0.830	0.623	(Wangpipatwong, 2009)
	ICT2	0.763		0.87			
	ICT3	0.446		0.67			

is recommended by Nunally and Bernstein, 1978. The questioner was therefore reliable. However, to assess the convergent validity of each factor, we used CFA. According to Hair et al. (2009) to examine the convergent validity, you should find the factor loading for each item, the composite reliability (CR), and the average variance extracted (AVE). The results inducted factor loading range between 0.61 (KS1) and 0.89 (KS3) higher than recommended 0.5 by Bryne (2010). However, all variables composite reliability outweigh the required level of 0.7 recommended by Hair et al. (2009). AVE is higher than the minimum acceptable level of 0.5 (Hair et al., 2009). Table I describes the convergent construct validity outcomes. The validity has been achieved for this framework.

Model fit

The fit of model evaluated with absolute fit measures, and the findings showed that all model indices in this study are acceptable. Table II depicts the results of model fit with the recommended criteria and sources.

B. Structural Model

After ensured the model fit (Fig. 1 and Table II), the next step is to construct an SEM to examine the three hypotheses of the study by structural model assessment.

Regression weights were used to determine if there was an impact of the research factors, as hypothesized from the literature review. Table III indicates the regression weights of the model evaluating.

The results mentioned in Table III KS among students at Cihan University have been positively and significantly impacted by the attitude with the level of $\beta = 0.176$, $P = 0.138 < 0.05$. Hypothesis one has been accepted. Similar findings reported by Jer Yuen and Majid, 2007a; Mousa et al., 2019.

The second proposed hypothesis accepted too which is confirmed the impact of trust on KS among students at Cihan University ($\beta = 0.454$, $P = 0.00 < 0.001$); this results in line with Rahman and Hussain, 2014.

ICT has a positive and significant impact on KS among student ($\beta = 0.169$, $P = 0.029 < 0.05$). Thus, the third hypothesis is accepted. Similar results reported by Chong et al., 2014; Mousa et al., 2019; Rahman et al., 2017.

Table II: Goodness-of-fit result

Indices	Recommended criteria	Sources	Results
×2/df	≤5	(Hair et al., 2009)	1.431
RMSEA	<0.08	(Byrne, 2001)	0.054
NNFI (TLI)	≥0.90	(Hair et al., 2009)	0.963
AGFI	≥0.80	(Hair et al., 2009)	0.870
CFI	≥0.90	(Chau, 1997)	0.969
GFI	≥0.90	(Hu and Bentler, 1999)	0.906
NFI	≥0.90	(Chau, 1997)	0.905

n=151. CFI: Comparative fit index; RMSEA: Root mean square error of approximation; GFI: Goodness-of-fit index; NFI: Normal fit index; IFI: Incremental fit index; TLI: Tucker–Lewis index

Table III: Hypotheses results

H	DV		IV	Estimate	S.E.9	C.R.	*P*	Remarks
1	KS	<---	Attitude	0.176	0.071	2.461	0.0138	Significant
2	KS	<---	Trust	0.454	0.084	5.366	***	Significant
3	KS	<---	ICT	0.169	0.077	2.176	.029	Significant

*P*** Significant at level 0.001

V. Discussion

The purpose of this study has been achieved through the results mentioned in the above section. Students are expected to be interested in sharing their knowledge in their communities, and students may not feel confident when sharing their knowledge with unknown students they prefer to share their expertise with known students. The students were asked to express their overall attitudes toward the sharing of information. Students generally believe that knowledge sharing with others is essential that they willingly share knowledge. When students are asked to indicate whether they should only share their information when confronted, their answer is neutral. University students disagree with the statement that the exchange of information must be avoided. However, students also disagree that KS is a kind of plagiarism.

Trust showed the most important factor that enhances the KS among the students at Cihan University. The KS depends heavily on mutual trust because it is often owned by the individual and regarded as unique. Trust is also widely known as a motivation for KS. Students if they have previous knowledge or experience or personal characteristics, such as rationality, trust, and positive attitudes toward KS, they are most likely to share knowledge quickly and smoothly. Because mutual respect and trust are deemed vital in the sharing of knowledge, universities should endeavor to cultivate friendly relations between students through sufficient possibilities of interaction by organizing informal social events.

This study shows that ICT is essential for fostering the exchange of information among university students. ICT can help students to communicate and share their knowledge with their classmates. Improving the willingness of the students to communicate is also essential. The help of instruction and software is strongly linked to trends in knowledge sharing. This shows how important it is for students to engage in information sharing to support and encourage lecturers and enhance positive aspects of learning, such as appreciation and rewards.

Meanwhile, students tend to share information if they operate in a culture that promotes them to that. The university should motivate the students to KS readily and serves as are the reinforcement of university trust culture among students. Students are more willing to make use of the available expertise if they trust it to be a credible and unbiased source of information.

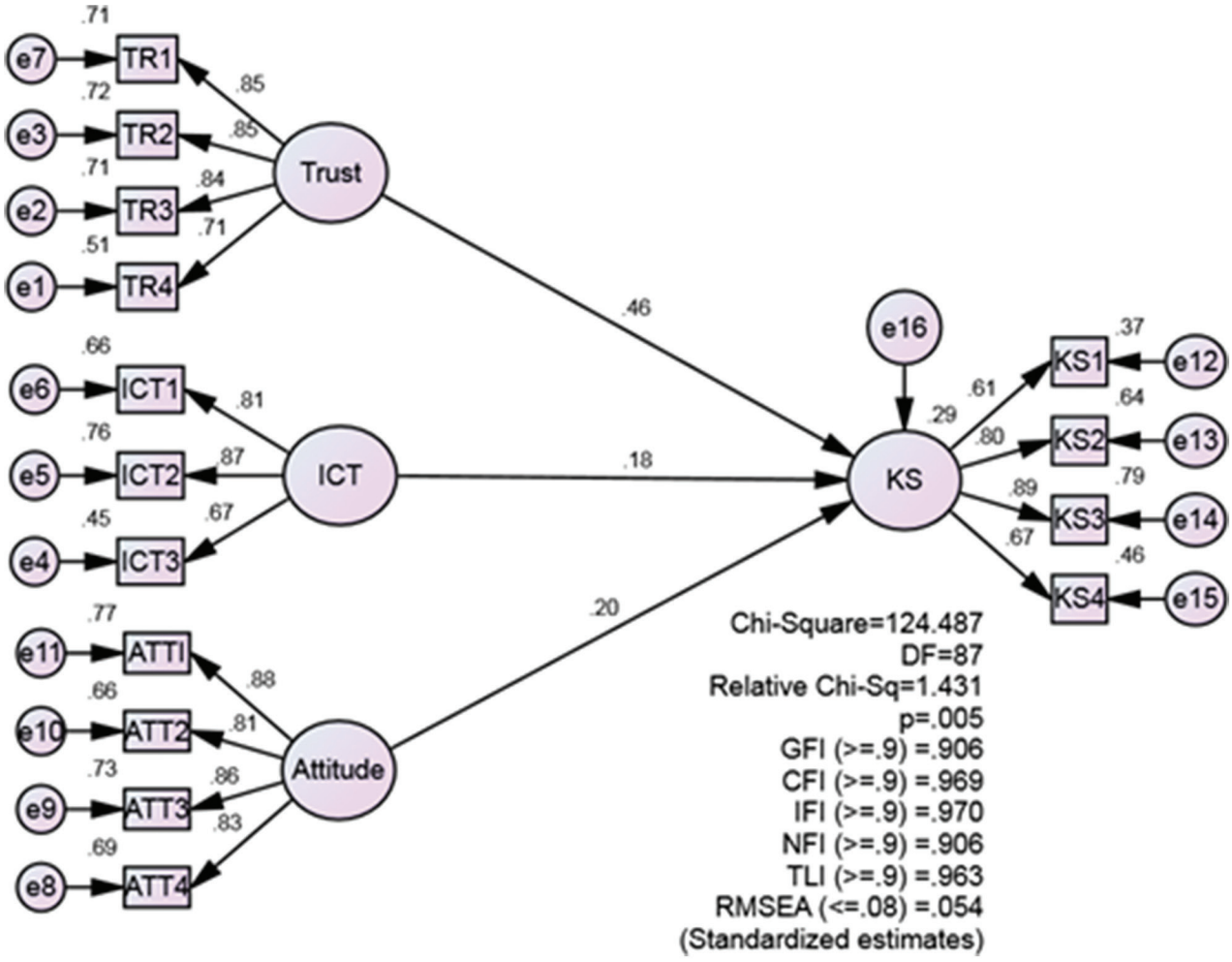

Fig. 1. Structural model

VI. Conclusion and Implications

The research suggests that university administration should encourage programs that help students build positive behavior, high self-esteem, and inspiration, together with positive perception as well as a culture of knowledge sharing. Research findings revealed that students intend to share knowledge when trust among their peers is strong. This research shows that trust, attitude, and ICT have a substantial impact on KS between students within the Iraqi setting. The findings also show that students are ready to share information in an environment of trust because trust will reduce the fear of knowledge sharing. According to the results of the current study, we can recognize this new insight into the attitudes toward KS among students that have not yet conducted in Iraq. Iraq's universities need to play a key role in developing a knowledge-based society by attracting professional and qualified staff and encouraging them to promote KS actions in their respective institutions of education.

VII. Limitations and Future Research

Like any other study facing some limitations, our research has some limitation like the study conducted only at one faculty in the university which cannot generalize the findings to all Iraqi universities. Furthermore, the study conducted in private university may have different environment if compared to public universities. Future research could find the impact on KS among students in more than 1 university and in both private and public with examining different independent variables with the mediator variable.

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