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THE EFFECT OF QUALITY DIMENSIONS OF INFORMATION SYSTEMS ON KNOWLEDGE SHARING AND USER SATISFACTION

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ABSTRACT

As society enters the knowledge-based economy, effective knowledge management is essential for organizations to stay competitive. Sharing knowledge using efficient information systems can contribute to the growth and development of an organization. This study explores the effect of three quality dimensions of information systems:system quality, information quality and service quality delineated by DeLone and McLean (2003) on socialization and exchange subprocesses of knowledge sharing and user satisfaction. 300 Questionnaires were distributed among employees from different management levels in various financial institutions in Bangladesh, and 254 of them have been returned. The partial least squares (PLS) approach using Smart PLS has been used to test the measurement and the structural models. The results of this study indicate that not all the quality dimensions can significantly impact the socialization and exchange sub-processes of knowledge sharing. However, it does suggest that for an organization to have informed and knowledgeable employees, it must focus on quality dimensions that can eventually help improve user satisfaction. While system quality impacts both the socialization and exchange of knowledge significantly, service quality impacts only the exchange of knowledge significantly. This study also finds that the exchange of knowledge rather than the socialization of knowledge significantly affects user satisfaction. The findings of this research illustrate that for the banking industry in Bangladesh, quality dimensions (especially system quality and service quality) play an essential role in knowledge sharing among employees and thereby help improve employee satisfaction. This research contributes further to understanding knowledge sharing and its implementation in an organization.

KEYWORDS: Service Quality; Information Quality; System Quality; Socialization; Exchange; Knowledge Sharing.

JEL CLASSIFICATION: D83, O32, O33, O39, Y80.

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INTRODUCTION

There have been many research studies on the information systems success model since 1992, after DeLone and McLean (1992) first came up with their IS success model. As stated by Petter, DeLone, and McLean (2008), early attempts to define information system success were ill-defined due to the complex, interdependent, and multi-dimensional nature of IS success. The findings of DeLone and McLean's (1992) paper showed how system quality and information quality singularly and jointly affect both Use and User Satisfaction. The amount of Use can affect the degree of user satisfaction positively or negatively, and the reverse is true. Use and User satisfaction are the direct antecedents of personal impact, and this impact on individual performance eventually has some organizational impact. DeLone and McLean (1992) revised and modified their initial model based on suggestions proposed by many IS researchers. In the new reformulated model DeLone and McLean (2003) proposed, quality has three dimensions: Information quality, system quality, and service quality. Use and User satisfaction are closely interrelated. (DeLone and McLean, 2003 as cited in Petter, DeLone, and McLean, 2008, p.238) explained

that Use must precede "user satisfaction" in a process sense, but a positive experience with "use" will lead to greater "user satisfaction" in a causal sense. Their study shows that certain net benefits occur due to this "Use" and the "User satisfaction." The construct "Net benefits" is defined as the extent to which IS contributes to the success of individuals, groups, organizations, industries, and nations (DeLone and McLean,2003 as cited in Petter, DeLone and McLean, 2008, p.256).

On the other hand, as a knowledge-centered activity, knowledge sharing is considered the fundamental means through which employees can contribute to knowledge application, innovation, and ultimately the organization's competitive advantages (Wang and Noe, 2010). Kimmerle, Cress, and Hesse (2007 cited in Mirzaee and Ghaffari, 2018, p. 501) defined knowledge sharing as the exchange between a contributor and a seeker, which calls for presenting and acquiring knowledge. Becerra-Fernandez, Gonzalez, and Sabherwal (2004, as mentioned in Zamir 2019, p.46) categorized knowledge management processes as knowledge discovery, knowledge capture, knowledge sharing, and knowledge application. Every single process consists of sub-processes. For example, knowledge is discovered or created through combination and socialization subprocesses, knowledge is captured through internalization and externalization subprocesses, knowledge is shared through socialization and exchange, and knowledge is applied through the subprocesses of direction and routines. In today's fast-paced economy, the organizational knowledge base is quickly becoming its only sustainable competitive advantage. As such, this resource must be protected, cultivated, and shared among organizational members (Dalkir, 2011). Technologies enable valuable knowledge to be remembered via organizational learning and corporate memory and enable valuable knowledge to be published, which is widely disseminated to all stakeholders (Dalkir, 2011).

Organizations in recent times have started investing heavily in terms of time and money into knowledge management initiatives, including the development of knowledge management systems that use state of the art technology to facilitate the collection, storage, and distribution of knowledge due to the realization of the potential benefits of knowledge sharing (Wang and Noe, 2010). This study examines how three dimensions of quality delineated in the updated model of DeLone and McLean (2003), namely: System Quality, information quality, and service quality impact socialization, and exchange sub-processes of knowledge sharing, thereby influence user satisfaction. So, instead of examining knowledge management (KM) processes in general, the focus will be the sub-processes of knowledge sharing and how they can help policymakers or managers synergize the system phenomena and knowledge sharing phenomena to improve user or employee satisfaction. With that in mind, this research attempts to answer the following questions:

1. Impact of an organization's system, information, and service qualities on the socialization and exchange sub-processes of the knowledge sharing process.
2. Impact of the socialization and exchange sub-processes of knowledge sharing on user satisfaction.

The implications of this research can be of significant value to organizations as they prepare to implement information systems initiatives. For example, an organization may gain an advantage over other organizations depending on resources, information system tools, and employees' knowledge-sharing mindset. In addition, this research will help organizations understand the information, system, and service qualities. Implementing the correct information systems based on that understanding may improve inter- and intra-organizational knowledge-sharing processes that will help increase the organization's competitive advantages. This is of paramount importance as organizations make significant investments in time, money, and personnel when they embark on different information systems to help disseminate the knowledge within the organization via socialization and exchanges subprocesses of the knowledge-sharing process.

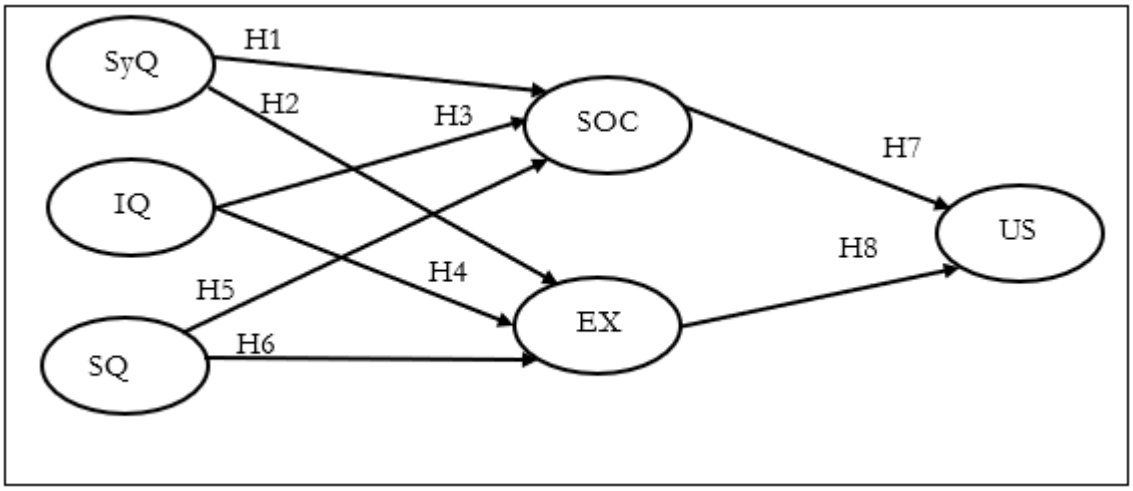
This research paper is organized into various sections, with some sections having multiple subsections. The main sections after this introduction are theoretical model, hypotheses, data analysis, implications, conclusion, limitations, and future research.

1 THEORETICAL MODEL

With the advent of the information or computer age, KM has come to mean the systematic, deliberate leveraging of knowledge assets. Technologies enable valuable knowledge to be remembered via organizational learning and corporate memory and enable valuable knowledge to be published that is widely disseminated to all stakeholders (Dalkir, 2011). A fundamental part of knowledge management is spreading and making knowledge accessible and usable within or between chosen organizations (Paulin and Suneson, 2012). Of those four KM processes espoused by Becerra-Fernandez, Gonzalez, and Sabherwal (2004), this study will examine the two sub-processes of knowledge sharing: socialization and exchange. Knowledge sharing can take place across individuals, groups, departments, or organizations. Tacit knowledge is shared through the socialization subprocess of the knowledge sharing process, and the exchange subprocess of knowledge sharing process shares explicit knowledge. Tacit knowledge forms the background necessary for assigning the structure to develop and interpret explicit knowledge. The inextricable linkage of tacit and explicit knowledge suggests that only individuals with a requisite level of shared knowledge can truly exchange knowledge.

Sharing the knowledge in an organization is not purely technology rather, IT plays only a small part in ensuring that information is available to those who need it. In the widely accepted information systems success model, DeLone and McLean (2003) came up with three dimensions of quality: Information quality, system quality, and service quality, where Use and User satisfaction are closely interrelated. The antecedent variables of interest in this research are from DeLone and McLean's (2003) updated IS success model: System quality, information quality, and service quality.

Figure 1 **Conceptual Model**



Note: SyQ= System Quality, IQ= Information Quality, SQ= Service Quality, SOC = Socialization, EX= Exchange, US= User Satisfaction

(Source: own research)

Knowledge sharing is critical when there is the issue of knowledge continuity, and at the core of knowledge continuity is about communication, that is, employees need to understand just what it is that they know, that others need to know, and why this content needs to be shared with their peers (Field

2003; Beazley, Boenisch, and Harden 2003). The knowledge-sharing variables in the following conceptual model are consistent with Zamir (2019) model. Zamir (2019) studied the impact of the sub-processes of knowledge capture and knowledge sharing on employees' outcomes such as learning, adaptability, job satisfaction, and staying intention using a purposive sample from the financial services firms in Bangladesh. The findings of his study showed how the sub-processes of knowledge capture, such as internalization and externalization and knowledge sharing, such as socialization and exchange, could impact employees' outcomes in terms of employees' learning, adaptability, job satisfaction, and staying intention.

Table 1 **Constructs' definitions and indicators**

Constructs	Items	Reference
Socialization: Degree of tacit knowledge sharing between individuals through social interaction related to the task and task efficiency	SOC1: I share information and knowledge necessary for the tasks. SOC2: I improve task efficiency by sharing information and knowledge. SOC3: I promote sharing of information and knowledge with other teams in my organization. SOC4: I promote and organize brainstorming retreats or camps for knowledge sharing to solve the problem. SOC5: I believe employee rotation across areas for knowledge seeking and sharing should be encouraged. SOC6: I believe employees from various functional units should work together to achieve a common goal.	Zamir (2019)
Exchange: Degree of sharing explicit knowledge among individuals, groups, departments, or organizations	EX1: I use information systems, like intranet and electronic bulletin boards developed by my organization to share information and knowledge with other employees. EX2: I use repositories of information (database), best practices, and lessons learned to share explicit knowledge related to the task. EX3: I prefer to exchange explicit knowledge through computerized communication networks (Social Media). EX4: I am happy with the way my organization uses Memos, manuals, letters, and presentations to share information with employees. EX5: My Company creates/produces materials by gathering management figures and technical information to share with employees. EX6: I feel the need for reconfiguration of existing documents through sorting, adding, combining, and categorizing explicit knowledge.	Zamir (2019)
System Quality: Degree of measuring convenience of the system in terms of access, functionality, usability, reliability, response time, etc.	SQ1: I find it easy to use my organization's web portal. SQ2 I am satisfied with the speed of the web portal. SQ3 I am satisfied with how quickly the web portal loads pages and images. SQ4 The user interface of my organization's web portal measures up to global standards.	New

Constructs	Items	Reference
Information Quality: degree of measuring accuracy, precision, currency, timeliness, sufficiency, understandability, conciseness of information.	IQ1: The information on my Organization's web portal is always timely (Timeliness). IQ2: The information on my Organization's web portal is always accurate (accuracy). IQ3: The information on my Organization's web portal is usually relevant (relevance).	New
Service Quality: degree of providing overall support delivered by the IS department, a new organizational unit, or outsourced to an internet service provider.	SeQ1: The support staff of our organization is technically competent. SeQ 2: The support staff of our organization is fast in attending to complaint. SeQ: The support staff of our organization is very reliable	New
User Satisfaction: degree of measuring employees' opinions about the information system being used in the organization.	US1: I am satisfied with Organization's ability to share knowledge US 2: I am satisfied with the way our organization shares explicit knowledge. US 3: I am satisfied with the way our organization shares tacit knowledge.	Zamir (2019)

(Source: own research)

2 HYPOTHESES

The ease of use, system flexibility, system reliability, and ease of learning as well as intuitiveness, sophistication, flexibility, and response time may help improve the accumulation of tacit knowledge as well as implicit knowledge and may help employees' share tacit knowledge between individuals (socialization) and explicit knowledge among individuals (exchange). According to Becerra-Fernandez, Gonzalez, and Sabherwal (2004), knowledge sharing takes place through socialization and exchange, and it is the process through which explicit and tacit knowledge is communicated to other individuals. In addition, studies conducted by Goodman and Darr (1988) and Davenport, DeLong, and Beers (1998) demonstrated that the facility of storing information and ease of use, speed, and coherence is essential for sharing knowledge in organizations. So, system quality as features of an information system may help in sharing tacit knowledge such as insights, intuitions, and hunches in the form of cognitive and technical elements and explicit knowledge that is expressed into words, numbers, symbols, and diagrams in symbolic form or/and natural language. Thus, this study hypothesizes that:

H1: System quality (SQ) positively affects the socialization of knowledge in an organization.

H2: System quality (SQ) positively affects the exchange of knowledge in an organization.

This study will also look at the information quality in terms of relevance, understandability, accuracy, complexness currency, timeliness, and usability and how it leads to knowledge socialization and exchange. Earlier research (Urbach, Smolnik, and Riempp, 2011; Floropoulos et al., 2010; Kim et al., 2009)

demonstrated the positive effect of information quality on user satisfaction, perceived usefulness of IS, and system use. In their study, Peter and McLean (2009) also found a positive effect of information quality on system use and user satisfaction. Knowledge needs to be shared in a way that is easy to use, and for both the socialization and exchange of knowledge, information quality plays an important role. Cho, Bonn, and Kang (2014) considered information quality as an effective information system that could reduce consumers' perceived risks. With that in mind, in this study, this study would like to hypothesize that:

H3: Information quality (IQ) positively affects the socialization of knowledge in an organization.
H4: Information quality (IQ) positively affects the exchange of knowledge in an organization.

Service quality is of paramount importance for any organization to gain a competitive advantage. Responsiveness, competence, empathy, and reliability of the support staff play an essential role in knowledge sharing. As described by Richey et al. (2014, stated in Mirzaee and Ghaffari, 2018, p.505), service quality denotes a managerial perception of services that a company provides for the customer who participated in the competition and is achieved by meeting all the needs of customers. Research conducted earlier (Floropoulos et al. 2010; Udo, Bagchi, and Kirs 2010; Pitt, Watson, and Kavan 1995) exhibited a positive and significant effect of service quality on user satisfaction and system use. Quality of service provided by the appropriate business unit can help improve the knowledge of an organization's employees, and service quality, as explained by Loureiro and Bettencourt (2014), is a learning instrument that allows for different ways of knowledge production and knowledge sharing. This study will examine the following hypotheses to determine how significant service quality is in knowledge socialization and exchange.

H5: Service quality (SeQ) positively affects the socialization of knowledge in an organization.

H6: Service quality (SeQ) positively affects the exchange of knowledge in an organization.

Knowledge sharing supports the process through which explicit and tacit knowledge is communicated to other individuals through socialization and exchange sub-processes. In knowledge sharing, there is the complete and adequate transfer of knowledge from one entity to another, and there is an assimilation of knowledge in the receiving entity. Knowledge sharing through socialization and exchange enriches the knowledge of an employee and helps an organization meet its business objectives. Knowledge management mechanisms facilitating socialization include employee rotation across departments, conferences, brainstorming retreats, cooperative projects, and knowledge management technologies that could facilitate socialization, including video-conferencing, electronic discussion groups, and e-mail. Exchange sub-process that knowledge management mechanisms can facilitate include memos, manuals, letters, and presentations. The knowledge management technologies through which exchange subprocess can be materialized include team collaboration tools, web-based access to data, databases, repositories of information, best practices databases, lessons learned systems, and decision support systems (Becerra-Fernandez, Gonzalez, and Sabherwal 2004). In addition, people within an organization, by sharing their thoughts, beliefs, knowledge, and experience, mutually establish their common understandings that also contribute to overall organizational effectiveness and bottom-line profit (Yang, 2007). Sharing knowledge can continually expose employees to new ideas, and ideas and developments can improve the overall satisfaction of an organization's employees. This study will also test how the various subprocesses of knowledge sharing help improve an organization's overall employee satisfaction.

H7: Socialization of knowledge positively affects user satisfaction.

H8: Exchange of knowledge positively affects user satisfaction.

3 DATA ANALYSIS

The survey questionnaires were distributed to 300 employees across 23 different branches of eight commercial banks in Bangladesh. Commercial banks included in the survey are Mutual Trust Bank, BASIC Bank, Arab Bangladesh Bank, Dutch Bangla Bank, Shahjalal Islami Bank, United Commercial bank Limited, Premier bank, and Meghna Bank. Of the returned surveys, 254 were fully completed and useable. The response rate was 84.46 percent. Every single branch of those commercial banks understudy had over 100 employees. The questionnaire was developed based on the literature and the existing instrument, and it was primarily composed of the following dimensions: System quality, information quality, service quality, socialization, exchange, and user satisfaction. For the survey, the respondents indicated their agreement or disagreement with the statement concerning each construct. A 5-point Likert scale was used. The respondents' anonymity in the questionnaire survey has been maintained to ensure unbiased responses to get accurate reflections of respondent's attitudes towards those constructs mentioned above. Reliability and validity tests have been conducted for each construct with measures. Cronbach Alpha (α) reliability estimates have been used to measure internal consistency. In addition, exploratory and confirmatory factor analyses have been conducted to ensure that the instrument has reasonable construct validity.

4.1 Demographics

Table 2 **Demographic Characteristics (N = 254)**

Gender		
	Male	190(74.8%)
	Female	64(25.2%)
Age		
	<=30	52(20.5%)
	31-40	169(66.5%)
	41-50	29(11.4%)
	>50	4(1.6%)
Education		
	Graduate	254 (100%)
Job Rank		
	Senior Management	8 (3.2%)
	Middle Management	126 (49.6%)
	Technical Staff	31 (12.2%)
	Support Staff	89 (35.0%)
Years of Service		
	0 - 1 Year	44 (17.3%)
	2 - 3 Years	99 (39.0%)
	4 -6 Years	57 (22.5%)
	>= 7 Years	54 (21.2%)
Business Unit		

	Information System	6 (2.3%)
	Finance	111 (43.7%)
	HRM	7 (2.8%)
	Customer Service	66 (26.0%)
	Administration	17 (6.7%)
	Others	47 (18.5%)

(Source: own research)

As far as the demographic characteristics are concerned, we have included almost 75 percent male and 25 percent female in this survey. Table 2 shows, the participants were between the ages of less than 30 to above 50, and the majority of the respondents (66.5%) were in the age group of 31 to 40 years old. As far as the job ranking is concerned, 49.5% of respondents reported being middle management staff, followed by 35 % support staff (35%), 12.5% technical staff (12.5%), and senior management staff (3%). Table 2 also shows that 44 % of the respondents surveyed work in the finance department, 26 % in customer services, 18 % in the others category, 7% in the administration, 3% in human resources management, and 2% in the management information systems. Among those surveyed, 39 percent have been with their organization for 2 to 3 years, followed by 22.5% for 4 to 6 years, 21% for over seven years, and 17.5% of the respondents have been with their respective organization for one year or less. An excellent feedback value on the survey questions had been possible since more than half the surveyed respondents experienced in the organization for three to seven years. It is worth mentioning here that all the respondents in this study have a Master's Degree.

4.2 Measurement Model

The proposed conceptual model (Figure 1) was tested to examine the applicability of the model. The partial least squares (PLS) approach using Smart PLS has been used to test the proposed model. Furthermore, to see whether the structural model is statistically significant, the bootstrapping algorithm of PLS has been used. The PLS algorithm is a reiterative approach, and it performs a confirmatory factor analysis. According to Barclay, Higgins, and Thompson (1995 mentioned in Park, Cho, and Rao 1986, p. 1125), the PLS approach simultaneously assesses measurement model parameters and structural path coefficients. It focuses on a prediction-oriented and data-analytic method, seeking to maximize the variances that are explained in constructs.

This study tested the adequacy of the measurement model using three standard tests of convergent validity: factor loading, internal consistency of each construct, and AVE (average variance extracted) for each latent construct using Chin's (1998) approach. The PLS algorithm was run four times to drop items that loaded poorly. Three items were dropped after the first run due to poor loadings (EX6, SOC5, and SOC6). After the second run, two items were dropped due to poor loadings (EX1, EX3), and after the third run, one item was found to have loaded poorly (EX3). Thus, in all four iterations, six items were dropped due to poor loadings, and Table 3 shows all the remaining items on their intended constructs to be 0.7 or greater, and there is no presence of cross-loadings.

The second standard test of convergent validity is to test the internal consistency of each construct. The internal consistency was assessed using Cronbach's alpha and the composite reliability, as shown in Table 4. As reliability goes up, the relationship between a construct and the indicators is greater, meaning that construct explains more of the variance in each indicator, and the amount of measurement error decreases (Hair Jr. et al., 2010).

Table 3 **Factor Loadings**

	EX	IQ	SOC	SQ	SeQ	US
EX4	**0.9223**	0.4274	0.3117	0.4809	0.4064	0.4907
EX5	**0.877**	0.3549	0.3612	0.3948	0.3679	0.3695
IQ1	0.4448	**0.8742**	0.2212	0.6282	0.4623	0.6527
IQ2	0.3714	**0.9158**	0.2665	0.6051	0.5074	0.6052
IQ3	0.3451	**0.8836**	0.2237	0.5828	0.4333	0.6192
SOC1	0.3027	0.2257	**0.8053**	0.2061	0.187	0.1378
SOC2	0.2737	0.2518	**0.8597**	0.2709	0.2491	0.2053
SOC3	0.3599	0.2231	**0.8328**	0.2338	0.2308	0.1525
SOC4	0.2713	0.1533	**0.7438**	0.2676	0.1451	0.12
SQ1	0.348	0.5918	0.2255	**0.7901**	0.4297	0.6313
SQ2	0.3867	0.5651	0.2912	**0.8941**	0.3973	0.6439
SQ3	0.4385	0.5833	0.2792	**0.9305**	0.4986	0.6498
SQ4	0.5145	0.6348	0.2554	**0.868**	0.539	0.6671
SeQ1	0.3607	0.4377	0.2234	0.4632	**0.8747**	0.4855
SeQ2	0.4009	0.4591	0.2565	0.4793	**0.9148**	0.5143
SeQ3	0.3629	0.4795	0.1795	0.4654	**0.8174**	0.4538
US1	0.4483	0.6723	0.1958	0.7532	0.4932	**0.9294**
US2	0.4567	0.6739	0.1847	0.6689	0.4555	**0.9362**
US3	0.4464	0.6172	0.1602	0.6522	0.6107	**0.9266**

(Source: own research)

For example, the lower limit of Cronbach's alpha was 0.77, and the upper limit was 0.92. As for the composite reliability, the lower limit was 0.89, and the upper limit was 0.95. Thus, both the Cronbach's alpha and the composite reliability showed the reliability of the measurement model and the existence of internal consistency.

Table 4 **Estimates of Reliability**

	EX	IQ	SOC	SQ	SeQ	US
AVE	0.81	0.79	0.66	0.76	0.76	0.87
Composite Reliability	0.89	0.92	0.89	0.93	0.90	0.95
Cronbach's Alpha	0.77	0.87	0.83	0.89	0.84	0.92

(Source: own research)

The third standard test of convergent validity calculates the average variance extracted (AVE) for each construct. As shown in Table 5, the AVE calculated for each latent construct explains that its respective construct accounted for at least 50% of the variance in indicators, and it exceeded Chin's (1988) guideline of 0.5. Grefen and Straub (2005) stated that the square root of the AVE of each construct should be much larger than the correlation of the specific construct with any of the other constructs in the model. The following table (Table 6) shows the results of the square root of AVE on the PLS algorithm. The square root of AVE in this study has been above 0.80 and larger than the correlation of that construct with other constructs, which shows a necessary aspect of the discriminant validity of the latent constructs.

Table: 5 **Average Variance Extracted (AVE)**

	AVE
EX	0.8099
IQ	0.7945
SOC	0.6586
SQ	0.7607
SeQ	0.7567
US	0.8663

(Source: own research)

Table 6 **Bolded values are the SQRT of AVE for each latent construct**

	EX	IQ	SOC	SQ	SeQ	US
EX	**0.90**	0.00	0.00	0.00	0.00	0.00
IQ	0.44	**0.89**	0.00	0.00	0.00	0.00
SOC	0.37	0.27	**0.81**	0.00	0.00	0.00
SQ	0.49	0.68	0.30	**0.87**	0.00	0.00
SeQ	0.43	0.53	0.25	0.54	**0.87**	0.00
US	0.48	0.70	0.19	0.74	0.56	**0.93**

(Source: own research)

Another indication of the presence of the convergent validity is when a measurement item loads with a significant t-value on its latent construct. Typically, the p-value of the t-value should be significant at least at the 0.05 alpha protection levels (Gefen and Straub, 2005).

The t-value must be greater than 1.96 for each of the loadings of the corresponding constructs at the 95% confidence level or the 0.05 significance level. Table 7 shows the presence of convergent validity in the measurement model since the corresponding t-statistic is substantially greater than 1.96 for every measurement item in this study.

Table 7 **t-values**

Indicators-Construct	T-Statistics (|O/STERR|)
EX4 <- EX	85.1275
EX5 <- EX	32.9974
IQ1 <- IQ	44.3936
IQ2 <- IQ	60.6323
IQ3 <- IQ	43.6901
SOC1 <- SOC	19.7209
SOC2 <- SOC	34.5727
SOC3 <- SOC	25.7842
SOC4 <- SOC	11.5291
SQ1 <- SQ	23.1829
SQ2 <- SQ	47.5244
SQ3 <- SQ	91.3672
SQ4 <- SQ	50.2838
SeQ1 <- SeQ	34.4852
SeQ2 <- SeQ	62.137
SeQ3 <- SeQ	22.9606
US1 <- US	74.7782
US2 <- US	85.1428
US3 <- US	72.0961

(Source: own research)

4.3 Hypothesis Testing

The structural relationship between any two constructs is represented empirically by the structural parameter estimate, also known as the path estimate (Hair Jr. et al., 2010). A structural model represents the theory that expounds on the structural relationship between constructs and is usually depicted with a visual diagram (Hair Jr. et al., 2010). Figure 2 displays the results of the structural model. The PLS model in figure 2 indicates significant ($p<0.05$) and non-significant path coefficients and the variance explained in the predicted constructs. SOC (socialization) and EX (exchange) are the two constructs listed as outcomes in some hypotheses and predictors in others. The t- statistics in Table 8 also point out that out of eight hypotheses, four hypotheses (**H1, H2, H6, and H8**) are statistically significant.

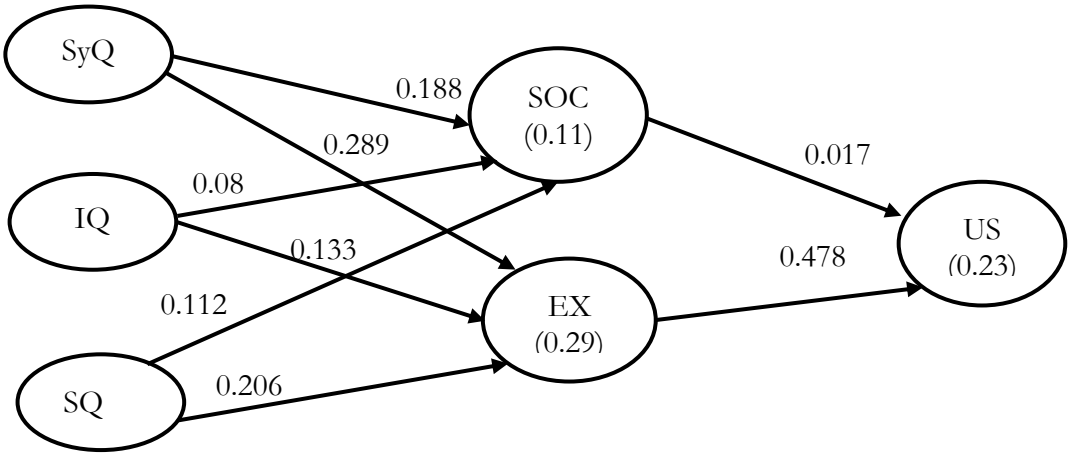
Table 8 **Results of Hypotheses testing**

Hypothesis		Significant	T Statistics
1	SQ -> SOC	Yes	1.9508
2	SQ -> EX	Yes	3.4733
3	IQ -> SOC	No	0.8711
4	IQ -> EX	No	1.4895
5	SeQ -> SOC	No	1.5234
6	SeQ -> EX	Yes	2.8503

7	SOC -> US	No	0.252
8	EX -> US	Yes	6.8895

(Source: own research)

Figure 2 **Path Coefficients (Number within the parentheses represent R^2)**



Note: SQ= *System Quality,* IQ= *Information Quality,* SeQ= *Service Quality*, SOC = *Socialization,* EX= *Exchange*, US= *User Satisfaction*

(Source: own research)

As for hypothesis 1 (system quality leads to the socialization of knowledge), the results indicate that system quality (SQ) positively affects the socialization of knowledge (SOC) in an organization ($\beta = 0.188$, $p<0.05$). Therefore, hypothesis 1 is supported. For hypothesis 2, when it comes to system quality (SQ) and knowledge exchange (EX), the findings of this study show that SQ positively affects knowledge exchange ($\beta = 0.0.289$, $p<0.05$). Thus hypothesis 2 is also supported. As for hypotheses 3 and 4, information quality (IQ) does not turn out to be significantly affecting socialization (SOC) and exchange (EX) of knowledge ($\beta = 0.080, 0.133$ $p<0.05$), hence both hypotheses 3 and 4 are not supported. As for service quality (SeQ) and socialization as well as service quality and exchange of knowledge are concerned, only service quality is significantly affecting the exchange of knowledge (EX) ($\beta =0.206$, $p<0.05$) but not the socialization of knowledge (SOC). Thus hypothesis 6 is supported but not hypothesis 5. This study also finds that socialization of knowledge does not positively affect user satisfaction while the exchange of knowledge turns out to be significantly leading to user satisfaction ($\beta = 0.478$, $p<0.05$). So, hypothesis 7 is not also supported, but hypothesis 8 is supported by the data.

4 DISCUSSION

The theoretical model (figure 1) developed and delineated above was based on knowledge management and information systems literature. Two research questions explained above have been tested using eight hypotheses. Four hypotheses are significant in this study. This study tried to examine the impact of three antecedent variables: system quality, information quality, and service quality on the subprocesses of knowledge sharing, namely: knowledge socialization and knowledge exchange, and their impact on user satisfaction in the banking sector in Bangladesh. As for the system quality and its impact on knowledge socialization (H1) and knowledge exchange (H2), both hypotheses are found to be significant. Knowledge sharing through socialization and exchange occurs when an individual is willing to assist and

learn from others in the development of new competencies (Zamir, 2019). As Bornemann and Sammer (2003 cited in Yang 2007, p. 86), knowledge could increase its value when shared with and transferred to others. Jones, Herschel, and Moesel (2003) explains the process of learning by way of sharing information and knowledge among the employees in an organization may enable individuals and organizations to reflect on the consequences of their behaviors and actions, to obtain insights from an environment where they operate, to understand the environment, and hence to interpret the meaning and react to it in more accurate approaches. As the organization provides opportunities for its members to share their experiences and new learning and perspectives with others, individuals learning should stimulate organizational learning (Yang, 2007). As Matoskova et al. (2013 cited in Madani M. and Rungsrisawat S 2019, p. 260) considered sharing of knowledge as critical for the relationship of the firms because it is considered the social capital which supports the agility of the business and also neglected in the past studies.

System quality is also considered the extent to which one finds the system easy to learn and uses a reliable and easy-to-understand interface (Ho and Kuo, 2013). The finding of this study is in line with some past studies (Alvarez et al., 2010; Hew, 2009), which support the correlation between system quality in a broad term and knowledge sharing in general. The current study examines the implications of system quality on knowledge socialization and knowledge exchange which are the sub-processes of knowledge sharing instead of knowledge sharing in a broad term. It found both of them being affected by the quality dimensions of information systems. Past studies (Devenport, DeLong, and Beers, 1998; Goodman and Darr, 1998) also showed that system quality in terms of ease of use, speed, and coherence can motivate employees in sharing knowledge in an organization. As for Information quality, socialization, and exchange, hypotheses 3 and 4 have been insignificant in our study. Information quality refers to accuracy, precision, currency, timeliness, sufficiency, understandability, conciseness of information. Lin and Lee (2006 cited in Ho and Kuo, 2013, p.1150) study on 20 virtual communities demonstrated a significant effect and predictive solid power on knowledge sharing in a virtual community. However, Lin and Lee (2006 cited in Ho and Kuo, 2013, p.1151) also demonstrated that in a virtual community, the significant effect of information quality and system quality disappeared when two dimensions, namely VCoP system quality and attitude towards incentives, joined together to influence knowledge sharing behavior. In our study, neither socialization of knowledge nor exchange of knowledge is significantly affected by the information quality, specially in the banking industry of Bangladesh. As far as the service quality in terms of the assurance, responsiveness, and empathy of the overall support provided by the IS department or other organizational units and the knowledge socialization and exchange is concerned, hypothesis 5 is not supported. In contrast, hypothesis 6 is supported by this study. Service quality seems to have no significant effect on knowledge socialization or sharing tacit knowledge in terms of ideas, beliefs, insights, intuition, and hunches among employees. In contrast, it has a significant effect on exchanging knowledge or sharing explicit knowledge among employees. Service quality can help an organization achieve competitive advantage by distinguishing itself from other organizations, and often time, as stated by Loureiro and Bettencourt (2014) service quality, is used as a learning instrument for knowledge production and sharing. Previous studies (Al-Busaidi et al., 2010; DeLone and McLean, 2004; Halawi, McCarthy, and Aronson, 2007; Kettinger and Lee 2005; Nattapol, Peter, and Laddawan 2010; Tsai and Chen, 2007 cited in Cham et al., 2016, p.7) also found service Quality as a critical determinant of the success of knowledge management system. The significant relationship between service quality and exchange of knowledge (H6) demonstrates that service quality is an important aspect and the quality of the service helps share explicit knowledge which is expressed in numbers and words and shared formally and systematically in the form of data, specification, manuals (Zamir, 2019). While explicit knowledge is ready to be explored, tacit knowledge is difficult to extract without the knowledge owner's consent. The significant effect of service quality on explicit knowledge sharing or knowledge exchange among employees in the banking industry in Bangladesh shows employees' preference over explicit knowledge sharing. Wah (2005) believes that an individual will only involve in tacit knowledge sharing if certain

conditions such as opportunities, communication modality, the expectation of the benefits, expectation of the cost of not sharing knowledge, personal compatibility, and liking exist.

As for Hypothesis 7, socialization of knowledge has not been found to affect user or employee satisfaction significantly. However, the result of hypothesis 8 validates that the exchange of knowledge significantly impacts user satisfaction in the banking industry in Bangladesh. User satisfaction or employee satisfaction is an essential construct since user satisfaction affects knowledge reuse, which measures how well knowledge sharing and reuse activities are internalized by an organization (Kulkarni et al., 2007). This study finds that explicit knowledge sharing can help improve user satisfaction than tacit knowledge sharing among employees within the banking industry in Bangladesh. Perhaps employees are more comfortable receiving explicit knowledge and more content with explicit knowledge to meet one's needs.

5 IMPLICATIONS

Informed and knowledgeable employees play an important role in any organization to achieve a competitive advantage. As a result, organizations, in many cases, consider their knowledge as intellectual assets and investments (Mirzaee and Ghaffari, 2018). The findings of this research bear out that for the banking industry in Bangladesh, quality dimensions, specially system quality and service quality play an important role in knowledge sharing among employees and thereby help improve employee satisfaction. This research contributes to further understanding how knowledge sharing should be understood and executed in an organization. Current literature in knowledge management lacks empirical research that delineates how the system, information, and service qualities affect the subprocess of different knowledge management processes and thereby improve user satisfaction in an organization. The results of this study indicate that not all the quality dimensions can have a significant impact on knowledge sharing. However, it does suggest that for an organization to have informed and knowledgeable employees, it must focus on quality dimensions that can eventually help improve user satisfaction. As for the managerial implications, for achieving competitive advantage and organizational competence, managers should focus more on improving system quality and service quality in their organizations, specially the banking organizations. Those quality dimensions are the strongest predictors of socialization and exchange subprocesses of knowledge sharing. If improvements can be made in those dimensions, user satisfaction or employee satisfaction can be improved by knowledge sharing, mainly knowledge exchange. However, in order to improve the tacit knowledge sharing or socialization of knowledge as suggested by Wah(2005), management should take the initiative to improve opportunities, communication modality, the expectation of the benefits, expectation of the cost of not sharing knowledge, personal compatibility and liking among the employees of their respective organizations. Leadership can prove their commitment to knowledge sharing in specific and knowledge management in general by taking some visible roles and leading the tasks of constructing a knowledge management strategy for the organization. Leadership must also work to improve or develop training programs to motivate employees for knowledge sharing, both tacit and explicit, and provide support to influence positive usage of the information system. System phenomena can facilitate the knowledge management phenomena that can eventually determine user satisfaction and help improve the organization's performance.

CONCLUSIONS

The purpose of this research paper is to explore the effects of the system, information, and service qualities of information systems on the socialization and exchange subprocesses of knowledge sharing and the effects of socialization and exchange subprocesses of knowledge sharing on user satisfaction. The purpose is also to help practitioners implement and utilize the information system in an organization to help employees share knowledge and improve their overall satisfaction. This study examined how strong predictors of quality dimensions of the information systems are when it comes to predicting

subprocesses of knowledge sharing and how strong predictors those subprocesses of knowledge sharing are when it comes to predicting user satisfaction in an organization, specially commercial banks in Bangladesh. For any organization's efficiency and efficacy, sharing task-related knowledge among the employees of an organization is of paramount importance. Knowledge sharing plays a vital role in user satisfaction in an organization, and for knowledge sharing among employees, quality dimensions of information systems play an important role. Knowing how to do things effectively and efficiently in ways that other organizations cannot duplicate is a significant source of profit and competitive advantage. Using the correct information system, knowledge sharing can also help employees make better decisions. This research delineates the need for management or organizations to adopt knowledge-sharing techniques and practices and nurture knowledge-sharing culture through appropriate mechanisms and technologies to improve employee satisfaction. To remain competitive in a very competitive world, knowledgeable and adaptable employees are important resources. It is also of paramount importance that companies utilize information systems to help improve knowledge sharing via socialization and exchange. This study explored which quality dimensions of information systems play an important role in knowledge sharing through socialization and exchange. It is hoped that employees with the proper knowledge at the right time using the appropriate KM systems can help achieve a competitive advantage.

LIMITATIONS AND FUTURE RESEARCH

This study has some limitations that need to be recognized. First, this study considered only one knowledge management process in the commercial banks in Bangladesh and was not devoted to other knowledge management processes and their sub-processes. Future research needs to explore the impact of the quality dimension on other knowledge management processes and their subprocesses. Second, for this study, some commercial banks located in the capital city Dhaka were chosen, and the intended research population was small. Therefore, there is a generalizability issue, and the results of this study cannot be generalized to other organizations and companies. Future research should include other industries in different countries where knowledge management and employee satisfaction are considered important elements in the business environment. Third, this study primarily focused on employees' perception as opposed to the actual behavior. Even though perception is a strong predictor of actual behavior (Zamir, 2019), no doubt obtaining objective measures of the actual performance of quality dimensions on knowledge sharing subprocesses would have strengthened the study. Future research can be conducted by looking at the objective measures of the actual performance of those quality constructs on knowledge sharing and user satisfaction.

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