



**Sudan university of Science and Technology**

**College of Graduate Studies**



**The Mediating Role of Knowledge Sharing Attitude in the Relationship  
between Collaborative Knowledge Environment and Knowledge Sharing  
Intention**

**A STUDY ON SUDANESE INSURANCE SECTOR**

A Thesis Submitted in Partial Fulfillment of Requirements for the Degree  
of Master of Science (M.Sc.) in Business Administration

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال تعالى :

إِنَّ الَّذِينَ يَكْتُمُونَ مَا أَنْزَلْنَا مِنَ الْبَيِّنَاتِ وَالْهُدَىٰ مِنْ بَعْدِ مَا بَيَّنَّاهُ لِلنَّاسِ فِي الْكِتَابِ لَا أُولَئِكَ يَلْعَنُهُمُ اللَّهُ وَيَلْعَنُهُمُ اللَّاعِنُونَ (159) إِلَّا الَّذِينَ تَابُوا وَأَصْلَحُوا وَبَيَّنَّاهُ فَأُولَئِكَ أَتُوبُ عَلَيْهِمْ وَأَنَا التَّوَّابُ الرَّحِيمُ (160).

صدق الله العظيم

## DEDICATION

This thesis is wholehearted dedicated to:

**My** great teacher and messenger, **Mohammed** (May Allah bless and grant him) who taught us the purpose of life.

**My** parents, who never stop giving of themselves in countless ways, **My** wife and my daughters **Tasneem, Rwan** and **Rwua** source of hope, inspiration and emotional.

**My** beloved uncle **Elbushra Hammad Hamid** whose life was cut short and gone forever from our loving eyes, I will make sure your memory lives on as long as I shall live. May Allah Almighty grant you Jannah Firdaws.

I am dedicating this success to my soul brother and best friend ever Mr. **Abbas Mohammed Ahmed**. Along the way, he was the person that stands by me when things look bleak.

**To all** my family, the symbol of love and giving,

**My friends** who encourage and support me,

**All the people** in my life who touch my heart,

I dedicate this research.

**The author**

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## المستخلص

ناقشت الدراسة الحالية أثر البيئة التعاونية للمعرفة علي نية مشاركة المعرفة، بالإضافة إلى قياس الدور الوسيط لإتجاه مشاركة المعرفة في العلاقة بين البيئة التعاونية للمعرفة ونية مشاركة المعرفة بالإستناد الي نظريتين هما نظرية السبب والنتيجة ونظرية التبادل الإجتماعي.

لتحقيق أهداف البحث تم تبني المنهج الوصفي التحليلي، حيث أستخدمت هذه الدراسة الإستبيان كأداة لجمع البيانات من عينة غير إحصائية بلغ حجمها (395) مفردة أخذت من العاملين بمؤسسات التأمين العاملة بالسودان وتحديدًا بولاية الخرطوم ولغرض تحليل البيانات إستخدمت هذه الدراسة طريقة المعادلات البنائية من خلال برنامج (SPSS) برنامج الحزم الإحصائية للعلوم الإجتماعية والبرنامج الملحق لهذه الحزمة (AMOS) ، كما تم إختبار الفرضيات المقترحة بإستخدام أسلوب تحليل المسار ، حيث أوضحت نتائج الدراسة أن إثنين فقط من أبعاد البيئة التعاونية للمعرفة (دعم مجموعة العمل ، إتجاه او إنطباع العامل ) كان لديها تأثير إيجابي ذا دلالة إحصائية علي نية مشاركة العامل لمعرفته ، في حين أن بقية أبعاد البيئة التعاونية للمعرفة ( ثقافة المنظمة، دعم الإشراف المباشر ) لم يكن لها اثر علي نية مشاركة المعرفة . أشارت النتائج ايضاً إلى أن إتجاه او سلوك العامل حيال مشاركته للمعرفة كان له تأثير إيجابي ذا دلالة إحصائية في العلاقة بين إثنين فقط من أبعاد البيئة التعاونية للمعرفة (دعم مجموعة العمل ، إتجاه او إنطباع العامل) بينما كان له تأثير سلبي في العلاقة بين البعدين المتبقين من البيئة التعاونية للمعرفة ( ثقافة المنظمة، دعم الإشراف المباشر ) .

إذا أخذت هذه النتائج مجتمعة ، يمكن تلخيص ذلك في أن البيئة التعاونية للمعرفة لها تأثير إيجابي علي نية مشاركة المعرفة ، وكذلك فإن إتجاه مشاركة المعرفة له تأثير إيجابي في العلاقة بين البيئة التعاونية للمعرفة و نية مشاركة المعرفة . جميع هذه النتائج تمت مناقشتها في ضوء الدراسات السابقة، كما قدمت هذه النتائج العديد من المساهمات النظرية والتطبيقية ، بالإضافة إلى ذلك واجهت هذه الدراسة عدة محددات قدمت من خلالها توصيات للبحوث المستقبلية.

**الكلمات المفتاحية: البيئة التعاونية للمعرفة ، النية، مشاركة المعرفة، التوجه**

## Abstract

The current study investigated the relationship between collaborative knowledge environment and intention to share knowledge in Sudanese insurance firms. In addition, this study aimed to examine the mediating effect of attitude toward knowledge sharing on the relationship between collaborative knowledge environment and intention to share knowledge based on the theory of reasoned action (TRA) and the theory of social exchange (SET). To achieve the research objectives, this study adopted the descriptive design. A questionnaire was used to collect the data from a convenience sample of (395) employees among Sudanese insurance firms were selected for analysis. This study employed structural equation modeling using SPSS and its endusers' programme AMOS. The path coefficient analysis was used to test the proposed hypotheses. The analysis of the data showed that only two components of collaborative knowledge environment have a significant positive influence on intention to share knowledge (i.e., employee attitude, and work group support,) whereas the other remaining components of CKE, namely organizational culture and immediate supervisor support have a negative influence on KSI. The results also indicated that the attitude toward knowledge sharing (KSA) has a significant positive effect on the relationship between two components of CKE (i.e., work group support, employee attitude) and KSI. Whilst KSA has a negative influence on the relationship between the other two components of CKE (i.e., organizational culture and immediate supervisor support). Jointly, the findings can be summarized in that CKE has a positive influence on KSI. As well as attitude toward knowledge sharing has a positive effect on the relationship between CKE and KSI. These findings were discussed in the light of previous literature. As a conclusion, the study contributes to the knowledge sharing literature by illuminating the interrelations of context, collaborative knowledge environment, attitude, and intention, offering useful implications to theory and practice. Additionally, this study acknowledged several limitations and presented insightful suggestions for future research.

**Keywords:** collaborative knowledge environment, intention, knowledge sharing, attitude,

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**LIST OF ABBRIVIATIONS**

	<b>LIST OF ABBRIVIATIONS</b>
<b>CKE</b>	collaborative knowledge environment
<b>KSI</b>	Knowledge Sharing Intention
<b>KSA</b>	Knowledge sharing attitude
<b>TRA</b>	The Theory of Reason Action
<b>SET</b>	Social exchange theory
<b>AMOA</b>	Analysis of Moments of Structure
<b>SEM</b>	structural equation model
<b>EFA</b>	Exploratory factor analysis
<b>CFA</b>	confirmatory factor analysis
<b>ML</b>	Maximum likelihood
<b>MSA</b>	Measure of sample adequacy
<b>SRMR</b>	Square Root Mean of Residual
<b>IFI</b>	incremental fit index (IFI)
<b>GLM</b>	Extension of the General linear Model



# CHAPTER ONE

## INTRODUCTION

### 1.0 Introduction:

In today's knowledge-based economy, knowledge management plays an important role in organizations. Most managers are eager to establish knowledge management systems in order to gain its valuable results in their organizations. One of the most important aspects of knowledge management is knowledge sharing. Motivating individuals to share their knowledge is of main priorities for organizations involved in knowledge management in the world. Hence, motivation should be created among employees to share their knowledge without fear of losing their position. Lack of knowledge sharing intention has effect on the survival of the organization Lin, (2005). Hidding & shireen (1998) state that knowledge has not any value for organization if not be shared and used. Knowledge that is most powerful tool to create value added, leads to more value when it is shared Liao et al. (2004). Indeed, effective knowledge sharing between employees reduces cost of creating knowledge and ensures sharing the best work processes within the organization. Since knowledge sharing is a personal phenomenon and employees play a key role on its success, most organizations neglect to determine affecting individual factors. There are many employees who don't tend sharing their knowledge which may be due to fear of losing their job and knowledge Chow et al. (2000). According to the Hislop (2003) employee's attitudes is one of the most important factors affecting knowledge sharing behavior. Brooke et al. (1988) state attitudes are very important because they influence the behavior of individuals directly or indirectly. Hislop (2003) also suggest employee's attitude is the most factors to share knowledge. Since knowledge sharing behavior is an individual behavior Bock and Kim, (2002) attitudes of employees may prevent knowledge sharing behavior Yang, (2008). If organizations can better understand the individual factors facilitating knowledge sharing behavior, they can easily promote knowledge sharing. In this regard, organizational commitment, job satisfaction and job involvement are among important attitudes. Indeed employees may have a certain level of satisfaction to their job and commitment to the organizations as well as involvement in the job. This level that arise from effective organizational practices, drive their behavior to do some actions such as knowledge sharing. So organizations can facilitate knowledge sharing within the organization with a better understanding of these attitudes. In the other side, organizational citizenship behavior can be used as an intermediate variable between job attitudes and knowledge sharing behavior. Because it is argued that employees are not willing to share knowledge because they believe knowledge sharing is not among the tasks assigned to them. Therefore, employees who perform more over their duties will also share their knowledge. KS may be

Valuable to employees in identifying efficient work procedures, finding information quickly, and reducing time investments for employees to learn new things Reychav & Weisberg, (2010).

It is very useful to organizations to have a collaboration knowledge environment (CKE) climate that motivates the individuals for sharing knowledge. Many researchers have emphasized on the perceptions of CKE on knowledge sharing intention amongst employees within the organization Bok and Kim, (2002) and amongst all, the impact of collaborative work climate is rarely investigated on knowledge sharing intention.

Attitudes affect people in everything they do and reflect what they are hence; it is a determining factor of the behavior of people. Also, it provides people with a framework within which to interpret the world and integrate new experiences, as noted by Ogunmoye (2008). Thus, by understanding an individual's attitude towards something, one can predict with high precision his or her overall pattern of behavior to the object. As stated by Susantri and Wood (2011), based on the working environment, employees can be pushed in order to increase their involvement in knowledge sharing activity, where these employees' attitude and willingness in KS are highly dependent on their assumption or expectation of profit or loss from their contributions (extrinsic value of motivation). However, according to Riege (2006) in his paper on barriers for knowledge sharing, some people tend to hoard their knowledge and not even giving attention to what they could get from sharing activities. He has pointed some important factors that hinder knowledge sharing. He classified them as individual factors (e.g., lack of trust, fear of loss of power, and lack of social network), organizational factors (e.g., lack of leadership, lack of appropriate reward system, and lack of sharing opportunities), and technological factors (e.g., inappropriate information technology [IT] systems and lack of training).Based on the above discussion the purpose of this study was to develop an understanding of the factors that support or constrain the individual's knowledge sharing intention in the organizations, and how they eventually influence the knowledge sharing intentions. The Theory of Reasoned Action Fishbein and Ajzen, (1975)" and theory of social exchange were adopted as the theoretical basis to explain how these determinants affect the knowledge sharing intentions.

## **1.1Background of the Problem**

A goal of KS is transforming tacit knowledge into explicit knowledge Hoof et al., (2012). Tacit knowledge includes skills, insights, intuition, expertise, routine knowledge, and practical knowledge that employees retain and have not yet converted to explicit or documented knowledge Okyere-Kwakye & Nor, (2011). Further, tacit KS emerges when employees share lived experiences, best practices, and knowledge with other organizational members, which

sometimes results in creative and innovative ideas Franssila, (2013). Employees may be reluctant to share knowledge because of organizational culture norms, lack of trust, poor management support, absence of reciprocity, or fear of losing power, Singh, & Neha, (2012). KS may be valuable to employees in identifying efficient work procedures, finding information quickly, and reducing time investments for employees to learn new things Reychav & isberg, (2010). Knowledge management (KM) concept is still understood as information management and is associated with technological solutions, such as intranets and databases Marr, (2003). Many organizations perceived knowledge management (KM) initiatives at the information technology level. Consequently, these organizations would invest heavily in KM tools and place them on their Intranet server.

## **1.2 Statement of the Problem**

Based on the literature review and background of the Problem stated above, several knowledge gaps have been identified to be addressed in the current study. These gaps are presented as follows:

First, Most studies in this field focused on factors that affecting knowledge sharing such as subjective norm and motivations rewards. Few research studies included quantifiable data about the intention of employees to share knowledge in relation to managerial support or organizational culture for KS Holste & Fields, (2010); Reychav & Weisberg, (2010). For this reason, the current study seeks to examine the relationship between collaborative knowledge environment and knowledge sharing intention by the mediating role of knowledge sharing attitude.

Second, although prior studies have addressed the direct influence of attitudes on knowledge sharing intention, this study overlooked introducing a third variable to measure the indirect effect of CKE on KSI. Improving KS activities and leveraging intellectual organizational assets could promote employee innovation and efficiencies, subsequently yielding organizational sustainability Tsai, Chang, Cheng, & Lien, (2013).

Third, also prior studies have reported a positive relationship between collaborative knowledge environment and firm performance Aliereza Mooghali (2012). This study proposes a mediating variable to explain the lack of consistency among the findings of previous studies. Focusing on individual factors (expected rewards, expected associations, expected contribution and employee attitude toward knowledge sharing), organizational factors (organizational culture, immediate supervisor, work group support and employee attitude).

Lastly, the main studies in knowledge sharing field have been carried out in eastern and South-East Asian countries. Clearly, only few studies have been conducted in Arab organization .also few studies have been conducted in knowledge sharing in service sector. Hence, a study on knowledge sharing dimensions can uncover many implications for both practitioners and managers. For this reason, there is a need to conduct such a study in the underdeveloped countries, more precisely in Sudan to provide a variety of skills and expertise, can help providing appropriate conditions for organizational knowledge sharing.

### **1.3 Research Questions**

Based on the research problem discussed above, this study attempts to answer the following questions:

#### **Main Questions:**

1. What is the influence of collaborative knowledge environment on knowledge sharing intention?
2. What is the mediating effect of knowledge sharing attitude on the relationship between collaborative knowledge environment and knowledge sharing intention?

#### **Sub-questions:**

1. To what extent does organizational culture influence employees' knowledge sharing intention?
2. What is the impact of immediate supervisor on the employees' knowledge sharing intention?
3. What is the relationship between work group support and employees' knowledge sharing intention?
4. What is the influence of employee attitude on employees' knowledge sharing intention?
5. What is the effect of collaborative knowledge environment CKE dimensions on the knowledge sharing attitude?
6. What is the mediating effect of knowledge sharing attitude on the relationship between the collaborative knowledge environment CKE dimensions (i.e., organizational culture, immediate supervisor, and work group support and employee attitude) on KSI?
7. What is the possible effect of the initially proposed control variables on the

relationship between the main study variables?

#### **1.4 Research Objectives**

To find appropriate answers for proposed research questions, this study pursues the following objectives:

1. To examine the relationship between collaborative knowledge environment and knowledge sharing intention.
2. To investigate the influence of knowledge sharing attitude on knowledge sharing intention.
3. To investigate the influence of collaborative knowledge environment on knowledge sharing attitude.
4. To examine the mediating effect of knowledge sharing attitude on the relationship between collaborative knowledge CKE environment and knowledge sharing intention KSI.
5. To examine the influence of the collaborative knowledge environment CKE dimensions (i.e., organizational culture, immediate supervisor, and work group support and employee attitude) on KSI
6. To investigate whether knowledge sharing attitude mediating the relationship between the collaborative knowledge environment CKE dimensions (i.e., organizational culture, immediate supervisor, and work group support and employee attitude) and KSI.

#### **1.5 Scope of the Study**

This study is conducted on Sudanese insurance sector. Insurance plays an important role in the financial sector and economic growth. Among financial intermediaries, insurance companies play an important role in carrying out the function of the financial system. They play an important role through risk management for companies and individuals. Through the issue of insurance policies they collect funds and transfer them to entities to finance real investment. Insurance companies perform this through their two very important roles, the role of intermediation and the role as risk transfer and compensation payment; enable the promotion of economic growth by providing efficient risk management instrument and channeling savings into productive investments. The number of companies operating in the field of insurance were (14) insurance companies and one company in the area of reinsurance.

## **1.6 Significance of the Study**

The significance of the study includes reasons for how the study results may benefit organizational leaders to make decisions for organizational and community improvements. This study is designed to offer significant value to organizational leaders who introduce knowledge management strategies and to fill gaps in the existing literature related to KSI. In a successful KM environment, such as collaborative knowledge environment, leaders encourage the creation, sharing, learning, and organization of knowledge Kale & Karaman, (2012). The study may be of value to business leaders as the results could provide insights to organizational leaders regarding employees' KS intentions; as shared knowledge could enhance processes and employee productivity Bracci & Vagnoni, (2011); Daghfous et al., (2013); Kumaraswamy & Chitale, (2012); Vij & Farooq, (2014).

The study contribution is on the form of:

### **1.6.1 Theoretical Contribution**

Based on the statement of the problem, the importance of this study lies in addressing the KS gaps. The Success of KS depends on employees' abilities, intention and willingness to learn and share knowledge, which may lead to broad implications for how KS may benefit organizational success, sustainability, and competitiveness Lin & Joe, (2012). By increasing awareness of how KS can affect organization performance, leaders may experience a sense of urgency to capitalize on knowledge sharing and plan for retirements and turnover so that replacement employees may become increasingly efficient. By implementing KS strategies, existing and new employees may also become increasingly productive, thereby enhancing social value within the domain of the organizations influence Lin & Joe, (2012).

### **1.6.2 Contribution to Business Practice**

This study tests the impact of the collaborative knowledge environment CKE dimensions (i.e., organizational culture, immediate supervisor, and work group support and employee attitude) on the employees' intention and attitude to sharing knowledge. The study's results may contribute to improved business practice by increasing organizational competitiveness and employee productivity Amayah, (2013); Bracci & Vagnoni, (2011). KS remains a struggle for organizational leaders because of low managerial or employee support, poor organizational fit, and inability to implement KS practices Durst & Gueldenberg, (2013). Organizational leaders may benefit from the study results by gaining information on how manager support and other organizational factors relate to employees' intentions to share knowledge Bracci & Vagnoni, (2011). Leaders should include KS strategies within organizations because knowledge

and productivity losses may occur when employees resign or retire Amayah, (2013); Bracci & Vagnoni, (2011); Lin & Joe, (2012). Leaders may promote KM principles to encourage a more successful, effective, and talented work environment, thereby enhancing economic and social value within the organizations sphere of operations and influence.

### 1.7 Operationalization definitions of the Key Terms

This section presents the operational definitions of the study's variables; these definitions are adopted from previous literature and serve as a basis for the measurements of various variables of the current study. The following table (1.1) reveals the operationalization definition of these key terms.

**Table 1.1**

**Operationalization Definitions of Key Terms**

<b>Terms</b>	<b>Definitions</b>	<b>Sources</b>
collaborative knowledge environment (CKE)	Climate emerges from what individuals perceive to be important and influential in their work so that studying climate is more appropriate to capture the aspects of the Social environment consciously perceived by organizational members	(Shim, 2010)
Organizational Culture	The norms, beliefs, values and practices adhered to by organizational members, in order to sustain and develop the firm’s goals and objectives without adversely affecting the welfare of the organization or its members. Within, sub-cultures can develop.	(Davenport; (1998)
Immediate Supervisor Support	A working team forms the nearest context for individuals. People’s behavior is influenced by supervisors and coworkers in the working team.	Cabrera et al., (2006)
Work Group Support	Teams in large organizations with higher female–male ratios were more likely to engage in knowledge sharing.	Sawng et al. (2006)
Employee attitude	The collection of beliefs one has about that particular behavior. An individual’s behavioral beliefs consist of expected outcomes that one associates with that behavior.	(Ajzen, 1991)
Knowledge sharing intention(KSI)	A set of behaviors that involve the exchange of information or assistance to other	Connelly (2000)
Subjective Norm	The degree to which one believes that people who bear pressure on one's actions expect one to perform the behavior in question multiplied by the degree of one's compliance with each one's referents	Fishbein and Ajzen (1975: 1981)
Trust	willingness to be vulnerable based on positive expectations about the actions of others	Gambetta, (2000)
Self-efficacy	the belief in one’s capabilities to organize and execute the courses of action required to manage prospective situations	(Bandura, 1997)

Social network	Social network is built based on a structure of how people know each other	Churchill and Halverson (2005)
Organizational support	Concept of organizational support explains the relationship between employee's attitude and behavior toward their organizations and jobs.	Igbaria et al. (1996)
Knowledge sharing Attitude(KSA)	The degree of one's positive feelings about sharing one's knowledge	Fishbein & Ajzen, (1975:1980)
Expected Association	The degree to which one believes one can improve mutual relationship through one's knowledge sharing	Sparrowe & Linden, (1997)
Expected Contribution	The degree to which one believes that one can improve the organization's performance through one's knowledge sharing	Stajkovic & Luthans, (1998)
Expected Rewards	The degree to which one believes that one can have extrinsic incentives due to one's knowledge sharing	Gomez, et al., (1990)

## 1.8 Organization of the Study

This study consists of six chapters, the beginning chapter presents the introductory and background of the study. This chapter includes the introduction, statement of the problem, research questions, research objectives, scope of the study, the significance of the study, the operationalization of the key terms, and organization of the study.

Chapter two presents the literature review for various variables and concepts of the study (i.e., CKE, Organizational Culture, Immediate Supervisor Support, Work Group Support, Employee attitude, knowledge sharing intention KSI, and knowledge sharing attitude KSA). Also, this chapter presents the relationship between these variables according to previous literature. Chapter three presents the research underpinning theories, the theoretical framework, and research hypotheses. Chapter four outlines the research methodology including the research paradigm, approach, method, and design. Additionally, this chapter describes the population of study and sampling process. Furthermore, this chapter discusses measurements of the study and ends with identifies the data analysis techniques. Chapter five reveals the data analysis and findings. The last one is chapter six which concentrates on the discussion of the findings and conclusion. Moreover, this chapter discusses the limitations encountered in the study and provides suggestions for future research. The chapter ends with conclusion for the whole research.



# **CHAPTER TWO**

## **LITERATURE REVIEW**

### **2.0 Chapter Overview**

This chapter provides a review and summary of related literature. Subsequently, this chapter provides a conceptual background for the various research variables, collaborative knowledge environment (CKE), knowledge sharing intention (KSI) and knowledge sharing attitude (KSA). Besides, presenting the relationship between these variables based on the prior literature. Relevant literature was reviewed in separate sections as below:

### **2.1 Definition of Knowledge**

Bergeron (2003) defined it as information that is organized, synthesized or summarized to enhance comprehension, awareness, or understanding. Similarly, Karlsen and Gottschalk (2004) defined knowledge as information combined with experience, context, interpretation, reflection, intuition and creativity. Likewise, Davenport and Prusak (1998) sees it as:

“A fluid mix of framed experience, values, contextual information, and expert insight that provides framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knower’s. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms. In short, knowledge by far is more comprehensive and more valuable compared to information and data. It is mainly attached to the individual who owns and uses it, and manifests itself in many different ways. For example, we can see knowledge at work by the way people make decisions, by a certain peculiar way people do their jobs, and through people’s creativity in completing their work. There are several ways in which knowledge is categorized. For example, knowledge can be categorized into declarative and procedural knowledge. Declarative knowledge is basically the ‘knowing that’ type of knowledge which relates to factual information, while procedural knowledge is the ‘knowing how’ type of knowledge which concerns the process underlying actions (Leach, Wall & Jackson, 2003). However, most literatures categorize knowledge into two major forms; tacit and explicit Nonaka & Takeuchi, (1995). Nevertheless, there are others who identified a third form of knowledge known as implicit knowledge Bergeron, (2003). According to Bergeron (2003), explicit knowledge is the type that can be easily explained and codified, and are available in books, manuals and other types of publications. Tacit knowledge, on the other hand, is the type that is difficult to verbalize and codify because it is ingrained at a subconscious level. Implicit knowledge is the type of knowledge

that is somewhere between tacit and explicit. Like tacit knowledge, implicit knowledge exists at the subconscious level, but it can be extracted through the process of knowledge engineering Bergeron, (2003). Despite this distinction, most discussions focus on tacit and explicit knowledge only because most of the time, implicit knowledge is treated as explicit knowledge due to its modifiable nature. Organizations are like seas of knowledge. There is no limit to the amount of knowledge that an organization has.

## **2.2 Collaborative Knowledge Environment**

### **2.2.1 Concept of Collaborative Knowledge Environment**

Many researchers have emphasized on the perceptions of work climate on knowledge sharing intention amongst employees within the organization Bok and Kim, (2002) and amongst all, the impact of collaborative work climate is rarely investigated on knowledge sharing intention. Practitioners claim that underutilized knowledge is the largest hidden cost in organizations. The organization's ability to transfer knowledge from one unit to another has been found to contribute to the organizational performance of firms in both the manufacturing Epple, Argote, & Murphy, (1996) .What is it that makes some knowledge transfer and –creation processes more effective in creating value than others? Clearly, process design, office design, information sharing software, etc help effectiveness and anecdotes about 'best practice' abound in knowledge management circles. But careful design and IT do not help if the willingness to share with each other is not there. The culture is also where the surveyed managers believe the best opportunities will be found in the five years to come. Scholars tend to define culture as the deeper level of basic values, beliefs and assumptions that are shared by an organization's members. In fact, organizational climate is an interpretation of organizational messages by the organization members. Karienzig (2002) was the first to propose the concept of Knowledge Collaboration (KC). He considered it as a strategic organizational approach that dynamically builds upon internal and external systems, business processes, technology and relationships communities, customers, partners and suppliers, to maximize business performance.

### **2.2.2 Definition of Collaborative Knowledge Environment**

Organizational climate refers to shared and agreed perceptions of employees of their work environment. In fact, organizational climate is an interpretation of organizational messages by the organization members. Climate emerges from what individuals perceive to be important and influential in their work so that studying climate is more appropriate to capture the aspects of the Social environment consciously perceived by organizational members (Shim, 2010). How staff perceive the climate determines how they will behave with it

based on a social exchange perspective. According to social exchange theory (Blau, 1964), if the staff perceive the organization as a supportive organization, based on a reciprocity rule, they tend to be more effective in the organization. Collaborative climate refers to shared elements of an organization's culture that inspires staff to share knowledge (Sveiby and Simons, 2002). According to Sveiby and Simons, the success of knowledge management practices depends on the incorporation of trust and collaboration in organizational culture. They confirmed that in the collaborative climate of a business unit, an immediate superior and coworkers in a workgroup play the most important roles in knowledge sharing. Collaboration environment Intra-team KS is important for accomplishing specific project tasks. KS within collaboration environment and within a group may be highly effective and value adding process as members gain new knowledge together through joint discussions, participate in same projects, reflecting on research, bringing in experts to consult with the team and attending activities together.

### 2.2.3 The Components of Collaborative Knowledge environment

**Table 2.1**  
**The Components of Collaborative Knowledge environment**

Constructs	Definitions	Sources
Organizational Culture	The norms, beliefs, values and practices adhered to by organizational members, in order to sustain and develop the firm's goals and objectives without adversely affecting the welfare of the organization or its members. Within, sub-cultures can develop.	Luu (2016) Wu & Lee (2016)
Employee attitude	The collection of beliefs one has about that particular behavior. An individual's behavioral beliefs consist of expected outcomes that one associates with that behavior.	(Ajzen, 1991)
Immediate Supervisor Support	A working team forms the nearest context for individuals. People's behavior is influenced by supervisors and coworkers in the working team.	Cabrera et al., (2006)
Work Group Support	Teams in large organizations with higher female-male ratios were more likely to engage in knowledge sharing.	Sawng et al. (2006)

Based on the above table (2.1) one can summarize that the most widely studied Components of (CKE) are those developed by the researchers namely, organizational culture, employee attitude, Immediate Supervisor Support and Work Group Support. The following subsections present these components as discussed in the previous studies.

### **2.2.3.1 Organizational Culture:**

Knowledge-sharing motivations are also influenced by culture because motivational issues do not universally hold across cultures (Srite & Karahanna, 2006). In the case of multinational corporations, although employees could work in the same organization, they could live in different countries, be educated in different systems, grow up in different environments, and believe in different religions. These factors shape different cultural values, which in turns affect different individual beliefs, values, and self motivated behavior Thatcher et al, (2003). Both KM researchers and practitioners acknowledge the importance of organizational culture for the long-term success of KM initiatives. Most of the studies conducted in this area have focused on identifying the cultural dimensions that affect knowledge management and sharing Collins & Smith, (2006). Although human resource practices such as performance evaluation, training, and rewards may facilitate the building and changing of organizational culture and regulate employees' behaviors Swart & Kinnie, (2003).

Organizational employees make up overarching and narrowed cultures that influence employees' motivation, productivity, perspectives, and problem-solving techniques Rhodes & Dawson, (2013). Organizational culture has been found to link to project management and KS success as cultures that adopted KS characteristics had increased employees' KS intentions Amayah, (2013). Further, if employees did not adapt a KS culture, the expectations of an organizational culture restrained the knowledge-transfer process thus leading to knowledge silos Tsai et al., (2013). Culture also has a direct effect on employees influence to share knowledge and an indirect effect through influencing managers' attitudes toward KS Wang & Noe, (2010). When employees have positive encouraging attitudes toward KS, a culture of coordination and cooperation may result along with employees becoming motivated and satisfied to making efforts toward organizational success Saleem et al., (2011). Suppiah and Manjit (2011) discovered that KS behavior influenced positively or negatively based on different culture types, which included clan culture, adhocracy culture, market culture, hierarchy culture, and organizations without a dominant culture. Mixed cultures with evidence of a dominant clan culture type had a positive KS behavior influence and mixed cultures without indication of a dominant clan type had a negative impact on KS behavior Suppiah & Manjit, (2011). Regardless of the specific type, cultures that supported continuous improvement and learning yielded higher levels of KS among employees Rubin, (2013).

### **2.2.3.2 Employee attitude:**

Employees' attitudes toward KS have been the topic of numerous research studies Aktharsha et al., (2012). Key factors that influenced employees' attitudes toward KS included (a) utilitarian motivation—upholding a reputation and receiving reciprocity; (b) control believe—possessing self-efficacy or confidence; (c) hedonic motivation—enjoying helping others; and (d) contextual force—being part of a sharing culture Liao et al., (2013). Employees who possessed high self-efficacy were also able to overcome impediments to KS Zhang & Ng, (2012). The degree of organizational citizenship, absorptive capacity, and culture also factor in motivating employees to share knowledge, with positive relationships to KS intentions Borges, (2013). Employees' attitudes may be broken down into eagerness and willingness Hoof et al., (2012). Willingness includes whether employees would grant others access to personalized intellectual capital. Eagerness includes whether employees have an internal drive to communicate personalized intellectual capital to others. Positive influences toward attitude (willingness and eagerness) will result in increased KS intentions Borges, (2013). Some employees feel that knowledge provides power and are hesitant to share knowledge because doing so may cause a sense of being replaceable Wu & Lin, (2013). Because employees gain knowledge through work experience, including from success and failures, the knowledge possessed may enable employees to exceed performance expectations and gain higher pay or more opportunities than others Huang & Huang, (2012). The loss of knowledge power would result in negative KS attitudes because even if organizations would benefit from KS, employees may hold onto knowledge to benefit themselves. Besides the fear of knowledge shared being unusable or erroneous, some employees choose not to share because of not trusting the recipient Wang & Noe, (2010). Gupta et al., (2012) found that employees share knowledge when provided the opportunity for organizational growth. To maximize the likelihood for employees to share knowledge, organizational leaders that looked at opportunities to generate employee engagement activities built higher emotional commitments (Gupta et al., 2012). Though some researchers found rewards do not positively relate to KS intentions, the lack of rewards may cause employees to lose motivation or feel punished, thus negatively influencing KS attitudes Vuori & Okkonen, (2012) .

### **2.2.3.3 Immediate Supervisor Support:**

According to Sveiby (2007), a working team forms the nearest context for individuals. People's behavior is influenced by supervisors and coworkers in the working team. This is confirmed by Cabrera et al. (2006), who found that perceived supervisor support and peer support play important roles in encouraging employees to share knowledge in organizations. A previous study also suggests that supportive supervisors not only encourage and value

subordinates' knowledge contribution but also are good role models. For example, employees sometimes feel resentful about supervisors who do not walk the talk, i.e., supervisors talk about the importance of knowledge sharing, but actually they are not willing to share their knowledge Sveiby (2007). Managers should create a happy environment for employees using the current information (Stein, 2008). Successful managers always eliminate problems with happiness and positive thinking. Managers could provide the possibility of creativity and innovation for all employees in the organization by assigning affairs to their colleagues and creating happiness and motivation in them and enhance organizational productivity from this aspect.

. Wang and Noe (2010) identified support from managers as a critical aspect for KS, and organizational leaders should require and reward managers to provide appropriate support for encouraging KS. Dhanabhakya et al. (2012) found employees cared more about leaders' ideas and recognitions about KS as compared to being peer pressured. Managers have been encouraged to promote a KS culture by ensuring guidelines, policies, and procedures related to KS are articulated Carmeli et al., (2011). Leaders who created reward systems to recognize KS found improved opportunities to foster an informal exchange of knowledge and information Vuori & Okkonen, (2012). When managers supported an activity, employees had greater enjoyment and engagement in the activity, thus attesting positive relationships between management support and KS cultures Goh & Hooper, (2009). Similarly, Saleem, Adnan, and Ambreen (2011) determined employees with increased manager support and relationships would possess a higher organizational commitment, which yields a positive predictor to KS. Manager support is encouraged to assist in motivating employees to share knowledge; because the lack of support may cause employees to withhold knowledge, thus employees may feel more powerful and have increased job security by retaining information Boh & Wong, (2013)

#### **2.2.3.4 Work Group Support**

Only a few studies have investigated a small number of team characteristics and processes in relation to knowledge sharing. The results of these studies suggest that team characteristics and processes influence knowledge sharing among team members. For example, the longer a team has been formed and the higher the level of team cohesiveness the more likely team members are to share knowledge Kim, & Han, (2006). Ridder (2006) examined team communication styles, agreeable and extravert styles, and found that they were positively associated with knowledge sharing Willingness and behaviors. Research has investigated how the minority status or diversity of team members relates to knowledge sharing. Based on the similarity-attraction paradigm, Ojha (2005) showed that team members who considered themselves a minority based on gender, marital status, or education were less likely to share knowledge with

team members. Sawng et al. (2006) found that R&D teams in large organizations with higher female–male ratios were more likely to engage in knowledge sharing. A few studies have examined the role of social connections with other group members in knowledge sharing Neale, & Gruenfeld, (2004). These studies suggest that socially isolated members are more likely to disagree with others and contribute their unique knowledge within a heterogeneous team. The acknowledgement of team members' expertise also helps increase participation in knowledge sharing within a functionally diversified team Thomas-Hunt et al., (2003). Similarly, the perception of coworkers not sharing knowledge would greatly weaken individuals' intention to engage in

### **2.3 Concept of Knowledge Sharing Intention (KSI)**

In general, knowledge sharing occurs when people who share a common purpose and experience similar problems come together to exchange ideas and information MacNeil, (2003). The process of knowledge sharing between individuals involve the conversion of the knowledge held by an individual into a form that can be understood, absorbed and used by other individuals Ipe, (2003). It is basically a mechanism by which knowledge is transferred from one individual to another. Even though most studies defined knowledge sharing at the individual level as a single dimension construct, there are also those who proposed a two dimensions perspective. For example, van den Hooff and de Ridder (2004) defined knowledge sharing as the process where individuals mutually exchange their knowledge and jointly create new knowledge. This definition implies that knowledge sharing process consists of 'donating' and 'collecting' aspects of sharing. Similarly, Renzl (2008) defined knowledge sharing as a reciprocal process of knowledge exchange, and thus entails contributing, as well as accumulating knowledge from the mass. "Knowledge transfer" typically has been used to describe the movement of knowledge between different units, divisions, or organizations rather than individuals (e.g., Szulanski, Cappetta, & Jensen, (2004).

#### **2.3.1 Definition of Knowledge Sharing Intention (KSI)**

According to [Ajzen (1991). the Intention is the most important cause of people's behavior. The sophisticated Purpose will be achieving certain Behavior, the advanced chances of the authentic enactment of that exact Behavior. Connelly (2000) defined knowledge sharing as the exchange of knowledge, or the behavior that help others with knowledge. Ipe (2003) thought that the knowledge sharing between individuals was the process that private individual's knowledge turns to be understood, absorbed and used by others. It means that knowledge sharing is at least a conscious behavior, and knowledge sources also don't want to give up ownership of knowledge. Knowledge Sharing is an activity through which knowledge like information, skills, or

expertise is exchanged among people, friends, families, digital communities, or organizations. Chin, et.al. (2015). Technology is not the only factor that affects the sharing of knowledge in organizations; others include organizational culture, trust, and incentives Frost, (2014). Knowledge sharing has been defined in several different but similar ways by different researchers. In general knowledge sharing has been defined as the action of individuals in making knowledge available to others within the organization Ipe, (2003). Lee (2001), on the other hand, gave a broader definition of knowledge sharing indicating it as involving activities of transferring or disseminating knowledge from one person, group or organization to another. In short, all these definitions agree that knowledge sharing is a mechanism to disseminate information and knowledge from one individual, group, or organization to another.

**Table 2.2**  
**Definition of Knowledge Sharing Intention (KSI)**

	<b>Definitions</b>	<b>Sources</b>
1	The Intention is the most important cause of people’s Behavior. The sophisticated Purpose will be achieving certain Behavior, the advanced chances of the authentic enactment of that exact Behavior.	Ajzen (1991)
2	Explicit Knowledge: The degree to which one believes that one will engage in an explicit knowledge - sharing act. Implicit Knowledge The degree to which one believes that one will engage in an implicit knowledge - sharing act.	Dennis (1996)
3	Process that involve exchanging knowledge between individuals and groups.	Davenport & Prusak (1998)
4	Process of disseminating knowledge throughout the organization. The dissemination can happen between individuals, groups or organizations using any type or number of communication channels.	Alavi & Leidner (2001)
5	A set of behaviors that involve the exchange of information or assistance to other	Connelly & Kelloway (2003)
6	The process where individuals mutually exchange their knowledge and jointly create new knowledge.	van den Hooff & de Ridder (2004)
7	A reciprocal process of knowledge exchanges, and thus entails contributing, as well as accumulating knowledge from the mass.	Renzi (2008)
8	a social interaction culture, involving the exchange of employee knowledge, experiences, and skills through the whole department or organization	Lin, (2007)
9	Process of providing and receiving knowledge through multiple members, in which knowledge is distinguished explicit knowledge and tacit knowledge	Yu, Hao, Dong & Khalifa (2013)



### 2.3.2 The Components of Knowledge Sharing Intention

**Table 2.3**  
**Components of Knowledge Sharing Intention**

Constructs	Definitions	Sources
Subjective Norm	The degree to which one believes that people who bear pressure on one's actions expect one to perform the behavior in question multiplied by the degree of one's compliance with each one's referents	Fishbein and Ajzen (1975, 1981)
Trust	willingness to be vulnerable based on positive expectations about the actions of others	Gambetta, (2000)
Self-efficacy	the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations	Bandura, (1997)
Social network	Social network is built based on a structure of how people know each other	Churchill &Halverson (2005)
Organizational support	Concept of organizational support: Explains the relationship between employee's attitude and behavior toward their organizations and jobs.	Igbaria et al. (1996)

Based on the above table (2.3) one can summarize that the most widely studied components of KSI literature namely subjective norm, trust, social network, self- efficacy, Social network, and Organizational support. The following subsections present these components as discussed in the previous literature.

#### 2.3.2.1. Subjective norm:

Subjective norm is defined as a person's perception of whether people important to the person think the behavior should be performed Ajzen and Fishbein, (1980). Subjective norm reflects participant perceptions of whether the behavior is accepted, encouraged, and implemented by the participant's circle of influence. The literature suggests a positive relationship between subjective norm and intended behavior Karahanna and Straub, (1999). According to Evaristo and Karahanna (1998), subjective norms, may through normative and informational influences, decrease uncertainty with respect to whether use of a system is appropriate. It seems that there is a positive relationship between subjective norm and intention to share knowledge.

#### 2.3.2.2. Trust:

The common definition of trust that most researchers are agreeing on is "the willingness to be vulnerable based on positive expectations about the actions of others" Riegelsberger et al., (2003). Ghoshal and Bartlett (1994) observed that trust is an important element in an organization. Trust is important for strategic associations and for effective relationships. Moreover, it is argued that trust can enhance the positive behavioral intention Gambetta, (1988). Trust

can supports the formal and informal network associations Miles and Snow, (1992), decreases damaging conflicts and costs of transaction and increases the development of informal groups Meyerson et al., (1996). In the organizations, the lack of trust to share knowledge might be due to the lack of reliability on the knowledge resources and uncertainty. This develops the sense of unwillingness to share knowledge between the employees in the organization. Hislop (2005) believed that trust can also be one of the contributing factors that reflect the commitment of employees to share knowledge. It has been found that employees normally share knowledge if they trust that knowledge they share bring benefits for them and for the whole organization Riege, (2005). Also, Sharrat and Usoro (2003) state that when organizations keep mutual reciprocity, commitment, reliability, and honesty as trustworthy values, the degree of motivation to participate and intention to share knowledge will increase. Rosen, First, and Blackburn (2007) advocated that the trust among team members plays a significant role in the quantity and quality of knowledge sharing within virtual teams. They further demonstrated that the members in the teams that have a higher level of trust can see commitments from each other, trust each other, and feel delighted as members of the teams.. Prior research states that the way to measure the cohesiveness among team members is to determine the number of social ties that the individuals have Ahuja et al, (2003).A social tie can be created when one answers others" postings in an online environment. Trust has been identified as a key element in fostering the level of participation or knowledge sharing in virtual teams. Chen and Hung (2010) state that when a history of favorable past interactions leads to positive expectations of future interaction, trust will develop. Chow and Chan (2008) mention in their article that social trust in an organization improves interactions between colleagues; people not only want to learn from each other and share their: "when relationships are high with regard to trust, people are more willing to engage in social exchange and cooperative interaction. Inter-personal trust is important in creating an atmosphere for knowledge sharing" Chang & Chuang, (2011).

### **2.3.2.3 Self-efficacy:**

Self-efficacy is defined as "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations" Bandura, (1997). Self-efficacy is defined as people's judgment of their capabilities to organize and execute course of action required to attain designated types of performance Bandura (1986). In other words, self-efficacy is a person's belief in his or her ability to succeed in an articular situation. Bandura (1997) explained these beliefs as determinants of how people think, behave, and feel. Ormrod (2006) defined self-efficacy as a person's belief about his abilities to perform in a certain manner or obtain certain goals. Recently, the concept of self-efficacy has been applied to knowledge management to validate

the effect of personal efficacy belief on knowledge sharing. Hsu and Chiu (2004) believe that the desire to share knowledge is not adequate to perform knowledge sharing behavior, and a knowledge producer must also have the perceived abilities to complete it. Moreover, sharing useful expertise to the organization is an opportunity to enhance sense of self-efficacy. When knowledge self-efficacy increases, people will gain confidence in terms of what they can do Constant et al., (1994). Self efficacy plays an important role in affecting individuals' motivations and behaviors Bandura (1982). Knowledge self-efficacy is typically manifested in people believing that their knowledge is useful to colleagues and helps to solve job-related problems and improves work efficacy Lin (2007).

#### **2.3.2.4 Social network**

Knowledge sharing may also be embedded in broader organizational networks such as communities of practice .The ties among individuals within social networks can facilitate knowledge transfer and enhance the quality of information received (e.g., Cross & Cummings, 2004). In virtual communities both the number of direct ties and personal relationships an individual has with other members have been shown to be positively related to the quantity and the perceived helpfulness of knowledge shared Chiu et al., (2006) .Individuals' expectation of maintaining and strengthening their social ties by frequently participating in a web-based professional community has been found to positively affect their intention to continue participating in the community Chen, (2007). The concept of tie strength suggests that strong ties involve higher emotional closeness whereas weak ties are more likely to be no redundant connections and thus be associated with no redundant information Perry-Smith, (2006). Reagans and McEvily (2003) found tie strength and social cohesion to be positively related to the ease of knowledge transfer as perceived by the knowledge source, suggesting that the connections with knowledge recipients may motivate providers to share Knowledge. People in organizations establish many direct contacts with others. In this situation, the social network provides increased opportunities for interpersonal contact. Generally, when people are members of bigger networks, the number of their contacts with others is larger. This in turn, will affect their attitude about sharing ideas and knowledge.

### **2.3.2.5 Organizational support**

One of the important concepts in management literature is organizational support. Concept of organizational support explains the relationship between employee's attitude and behavior toward their organizations and jobs. According to the study of Igarria et al. (1996), organizational support is positively related to subjective norm. They believed that if organization provides available resources, relevant training, meaningful incentives, and remove barriers in the way of knowledge sharing, the quality of knowledge sharing would be better. Moreover, the power of organizational support may influence employee's perception regarding knowledge sharing Cabrera et al., (2006), and as the result, the quality of knowledge sharing will be improved. Prior studies indicate that employees are motivated to share knowledge by social network Chow and Chan (2008), trust among colleagues Choi et al. (2008), top management support Connelly and Kelloway (2003), supervisor and peer support Sveiby (2007).

## **2.4 The Importance of Knowledge Sharing at the Individual Level**

Essentially, knowledge sharing at the individual level is important because there are many ways in which knowledge sharing can benefit the organization. One of them is that the dialogue involved during sharing often lead to the generation of new ideas, which is considered as having the potential for the creation new knowledge Nonaka, (1994). As a result, it leads to marketing effectiveness Chen, (2006) and improved organizational innovativeness Hong, et al., (2004). Besides, knowledge sharing can also benefit the organizations in less tangible ways. First of all, Hislop (2003) pointed out that the success of any knowledge management initiative is highly dependent on the workers' willingness to share their individual information and knowledge. Knowledge management involves activities that focused on capturing knowledge, and disseminating it accurately, consistently, concisely and in a timely manner to all who need it Bollinger & Smith, (2001). Therefore, it requires the employees to share their experiences and personal interpretation of information in order to be successful. Knowledge sharing also assists in organizational learning, and in its absence, the gap between individual and organizational knowledge widens Ford & Chan, (2003). Central to organizational learning is the conversion of individual knowledge into organizational knowledge, and this can happen if individuals share their knowledge with the rest of the organizational members. In addition, if an organization's employees engage in knowledge sharing, the organization can avoid redundancy in knowledge production, and at the same time ensure the diffusion of best practice throughout the organization (Husted & Michailova, 2002). Besides that, Husted and Michailova (2002) also claimed that the systematic sharing of knowledge among organizational members enables the organization to solve problem by making relevant personal knowledge available to the problem solving process regardless of where the

knowledge is originally obtained and stored in the organization. However, most importantly, the beauty of knowledge sharing is that knowledge grows when it is used and shared with another, and it depreciates in value when it is kept to oneself Syed-Ikhsan & Rowland, (2004). Finally, as a result of knowledge sharing, the intellectual capital locked up in their hearts and minds can be retained within the organization Hong et al., (2004). Therefore, it is important to know some of the factors that encourage knowledge sharing behavior among employees.

## **2.5 Factors which affecting the intention to share knowledge**

Literature suggests that there are many different factors that influence this intention to share. First of all, actively sharing knowledge does not only depend on the individual, but also depends on the organization itself. In addition to the organizational factors, previous research is also focused on individual factors that influence knowledge sharing. These factors can be grouped into three categories which are individual, group and organizational factors:

### **2.5.1 Organizational Level**

De Long & Fahey (2000) discovered the benefits of the new technology infrastructure would be limited when long-standing organization values and practice didn't support knowledge sharing based on a qualitative study of 50 companies. This shows that the organizational factors of knowledge sharing play a significant role.

#### **2.5.1.1 Technical**

A KMS developer in Ernst & Young said: "If people do not want to share, even if giving them the world's best technology is useless". Thus it can be seen, although information technology is not the important document in knowledge management, it can make knowledge sharing more efficient. Because companies can't have long-term human capital, so there are many companies choose to use information technology to facilitate knowledge sharing to retain organizational knowledge and to facilitate knowledge rising from the individual level to the organizational level. Cabrera, Ángel Cabrera & Elizabeth F (2002) pointed out that knowledge management projects largely led by IT departments so the technology was an important part of knowledge management. Researchers have emphasized the importance of information technology infrastructure and applications in organization contact information. The technology also includes many aspects; Alavi & Leidner (2001) showed that IT increased knowledge transfer by extending individual beyond the formal communication channels, such as: computer networks, electronic bulletin boards, etc.

### **2.5.1.2 Creative**

Recently, Chinese researcher did a study of organizational creative culture having a multi-level effect on individual knowledge sharing the study showed that organizations with creative culture would support staff interaction to encourage they share experiences, know-how, ideas and other tacit knowledge. So, in the end of the study the researcher recommend company to pay more attention to the culture of creative and the exchange of ideas that can positively affect the action of knowledge management. In other words, innovation culture is the most important factor to promote knowledge sharing.

### **2.5.1.3. Competition**

The culture that encourage individuals to compete successfully dominates will Have a negative effect on knowledge sharing. It means that the organizational Climate which emphasis on individual competition will become knowledge sharing's Obstacles; on the contrary, sense of organization cooperation will help to build trust, which is a necessary condition for knowledge sharing.

### **2.5.1.4. Fair:**

Fair is important to the sharing of knowledge. Procedural fairness would be an Employee of cognitive knowledge sharing's positive impact. Lin (2007) found that distributive justice and procedural fairness would have a direct positive effect on sharing tacit knowledge by organizational commitment, also distributive Justice would influence knowledge sharing through the trust among colleagues. To sum up, fair is a very important factor that influences the knowledge sharing.

### **2.5.1. 5 Lack of Time:**

Every professional or employee has his own number of activities and tasks to perform within his working hours. More often the professional needs to perform extra activities and tasks within the same time as before due to ongoing changes in the organization or changes in regulations. The aspect of time is therefore an important variable influencing the knowledge sharing behavior. The lack of time can be seen as a gap within the literature on knowledge sharing. Even though researchers mention this aspect, not many researchers actually take this barrier into account when researching knowledge sharing behavior. From the empirical study of Hew and Hara (2007) it becomes clear that knowledge sharing is commonly hindered by the lack of time. The authors say that the lack of time is actually an issue of competing priority. The respondents in their study were not expected to share knowledge and neither were they paid to share knowledge. Sharing knowledge was therefore totally voluntary and mostly an

activity performed in their spare time. Daily responsibilities had more priority, which consequentially makes knowledge sharing a less of a priority in their daily routine. In addition, Hew and Hara (2007) say that knowledge sharing demands the sharers' time and energy. Knowledge sharers should not be made to feel that the time and energy they spend is wasted in whatever way possible Hew & Hara, (2007). When an individual has not enough time within his work hours to be able to spend on knowledge sharing, he or she will share less knowledge than individuals who do have time. Another common KSB includes lack of time for employees to commit to KS activities Piironen & Sommers-Piironen, (2013). Goh and Hooper (2009) recommended that leaders balance employees' workloads to provide adequate time to share knowledge along with encouraging an open and accepting culture so employees freely share knowledge.

## **2.5.2 Team Level**

### **2.5.2.1 Shared Mental**

Shared mental model means team members have similar or compatible knowledge Structure for the related things within the team. It is clear that this knowledge structure helps members to describe, interpret and predict events in the context and guide members to interact with other members in the desired context. Most of the past empirical research found that shared mental model among the members helped each other in the coordination and integration, contributed to the mutual cooperation and coordination among the members; therefore, shared mental model has a positive effect on team effectiveness. Finally it can have a positive effect on knowledge sharing.

### **2.5.2.2. Team Members' Diversity**

From the perspective of independent variables, researchers have different classification Methods for team diversity, such as demographic variables or individual characteristics. The former refers to the long lasting features, such as gender, race, age, etc. the latter is the characteristics of subjective understanding, such as cognition, attention and so on. Besides, many researchers use the former characteristics to replace the latter characteristics, because the latter characteristics are hard to be measured. Knowledge sharing requires a good interaction between team members, more Communication opportunities and willingness. When the difference of team members are too large, may hinder knowledge sharing among members. Ojha (2005) showed that if the team members thought that they were the few People in their team, such as: gender, marital status, level of education of the minority, and then they were less prone to knowledge sharing. Studies had shown that isolated members of society were

less likely to agree with the others, and they would not contribute their knowledge in a heterogeneous team.

### **2.5.3 Individual Level**

#### **2.5.3.1 Personality**

Personal characteristics such as age, education and work experience that is likely to slow the relationship between knowledge promoter and process. Personality will have an impact on knowledge sharing.

#### **2.5.3.2 Openness Personality:**

Research shows that if individual has high openness, he tends to have a high level of curiosity to seek other people's ideas and opinions. On the contrary, the members with high introversion trait make them lonely; live alone, not well at communication and have a tendency to avoid social, this is not good for knowledge sharing.

#### **2.5.3.3 Proactive Personality:**

Proactive personality refers to a stable tendency that the individual is not bound by the existing environment; they can explore new ways to affect the external environment through the active behavior. According to a survey of 199 employees, researcher shows that the proactive personality has the positive effect on the knowledge sharing.

#### **2.5.3.4 Responsibility Personality**

Cabrera & Cabrera (2002) thought that the individual responsibility contributed to the smooth implementation of knowledge management systems, personal responsibility was regarded as an important personality characteristic factors included in the study of knowledge sharing system.

### **2.5.4 Intrinsic Motivation**

Yoon, Cheolho, Rolland & Erik (2012) based on self-determination theory, investigated the effect of three basic psychological needs for knowledge sharing factors, the results showed the ability and sense of belonging had a positive impact on knowledge sharing behavior, and although the sense of autonomy had a positive effect, not significant. Meeting the psychological needs can promote intrinsic motivation, and this will enhance the results also reflect the intrinsic motivation to share knowledge to generate a positive impact. In addition, one of the motive factors is fear; Szulanski noted that knowledge holders generally had a monopoly and exclusive mentality, which was the main reason for their lack of willingness to share. Knowledge holders fear superiority



and some special interests lost by knowledge sharing, worried inequities exist in the “knowledge exchange”, and which leads to the sharing of knowledge being Difficult.

### **2.5.5 The Social Capital**

Knowledge sharing will be embedded in the vast network of organizations, such as: communities of practice. Chiu et al. (2006) study showed that in a virtual community, individuals having the direct contacts and relationships with other Members had a positive impact on sharing knowledge. In social networks, relationships are in an important part. The trust also affects knowledge sharing. Bakker et al. (2006) divided credibility into three dimensions: competence, integrity and kindness. Research showed that when people thought team members were very capable, individuals would be fewer tendencies to share knowledge, while they believed that the team members were honest, fair, honest, and they were more inclined to share knowledge.

## **2.6 Concept of Knowledge Sharing Attitude**

Attitudes affect people in everything they do and reflect what they are hence; it is a determining factor of the behaviour of people. Also, it provides people with a framework within which to interpret the world and integrate new experiences, as noted by Ogunmoye (2008). Thus, by understanding an individual’s attitude towards something, one can predict with high precision his or her overall pattern of behavior to the object. Ogunmoye also noted that according to Aiken (2000), attitude is a learned disposition that determines a positive or negative response to a specific object, situation, institution, or a person. Therefore, attitude reflects what the individual is and, hence, it is a determining factor of the individual’s attitude, and provides people with a framework within which to interpret the world and integrate new experiences Ogunmoye (2008). Often, attitude influences how workers interact. Argote and Ingram (2000) suggested that organizational knowledge resides in the interactions between individuals and, therefore, forms the basis of competitive advantage. It has also been noted that the future, survival or existence of any individual, organization, society or group of people will be determined by their ability to manage and share knowledge wisely, or their effective application of knowledge, which is an essential and precious global resource that is an embodiment of human intellectual capital and technology.

### **2.6.1 Definition of Knowledge Sharing Attitude**

Attitude toward knowledge sharing refers to the amount of favor one has for knowledge sharing Fishbein and Ajzen (1975). According to Ajzen (1991), an individual will have a higher tendency to perform a specific behavior if the individual evaluates the behavior positively.

## 2.6.2 The Components of Knowledge Sharing Attitude

**Table 2.4**  
**The Components of Knowledge Sharing Attitude**

Constructs	Definitions	Sources	No. of items
Expected Rewards	The degree to which one believes that one can have extrinsic incentives due to one's knowledge sharing	Gomez-Mejia, et al., (1990)	4
Expected Association	The degree to which one believes one can improve mutual relationship through one's knowledge sharing	Sparrowe & Linden, (1997)	5
Expected Contribution	The degree to which one believes that one can improve the organization's performance through one's knowledge sharing	Stajkovic & Luthans, (1998)	5
Attitude toward knowledge sharing	The degree of one's positive feelings about sharing one's knowledge	Fishbein & Ajzen, (1975 1980)	6

Based on the above table (2.4) one can summarize that the most widely studied Components of KSA are those developed by researchers, namely expected rewards, expected associations, expected contribution and employee attitude toward knowledge sharing. The following subsections present these components as discussed in the previous literature.

### 2.6.2.1 Expected Rewards

The degree to which one believes that one can have extrinsic incentives due to one's knowledge sharing. Knowledge sharing is a kind of social interaction among people. Two principal theories which explain the social interaction of people are economic exchange theory and social Exchange theory. According to the economic exchange theory, individuals will behave by rational self-interest. Thus, knowledge sharing will occur when its rewards exceed its costs Constant, et al., (1994). That is why many researchers have emphasized incentive systems for successful knowledge management. Hence, expected rewards imply that, if employees believe they will receive extrinsic benefits such as monetary rewards, promotion, or educational opportunity from their knowledge sharing, they would develop a more positive attitude toward knowledge sharing. Concerns intrinsic rewards Blau, (1967). In contrast to economic commodities, the benefits involved in social exchange do not have an exact price in terms of a single quantitative medium of exchange, and the nature of the return cannot be bargained about. This is why only social exchange tends to engender feelings of personal obligation, gratitude, and trust. For example, the initial offer of knowledge to a newcomer in an organization entails a friendly

relationship, and the individual who has received the help feels an obligation to reciprocate. If the newcomers reciprocate properly, they will prove themselves trustworthy and exchange relations will be established Blau, (1967). Currie and Kerrin, (2003). Rewards can be direct and indirect, and serve as a motivational device in reinforcing employees' perceived self-efficacy in task performance Liu and Liu, (2011). Rewards could also increase the level of knowledge diffusion in organizations, particularly when employees relate rewards to the value their organizations place on knowledge sharing. For example, in IBM 25% of the overall performance evaluation of their customer service employees is based on their level of knowledge sharing participation in order to improve customer service Bartol and Srivastava, (2002). A Bahrain study found that rewards significantly improved knowledge sharing practices in organizations, increasing their level of innovation in products and services Al-Alawai et al., (2007).

#### **2.6.2.2 Expected Association**

The degree to which one believes one can improve mutual relationship through one's knowledge sharing. Not only extrinsic benefits but also intrinsic benefits from social association should be considered as a key determinant of knowledge sharing. Expected associations assume that if employees believe they could improve relationships with other employees by offering their knowledge, they would develop a more positive attitude toward knowledge sharing. A person's attitude and behavior are influenced by the self-produced factors as well as by the external agent's stimuli. Among the types of knowledge that employees can derive from self-reflection, none is more central than the employees' judgment of their capabilities to deal effectively with different environmental realities (Stajkovic & uthans, 1998).

#### **2.6.2.3 Expected Contribution**

The degree to which one believes that one can improve the organization's performance through one's knowledge sharing. Based on the self-efficacy percept, we propose that the individual's judgment of his Capabilities to contribute to the organizational performance is going to be a major factor affecting knowledge sharing, as a purely self-motivational source. Expected contribution refers to the idea that if employees believe they could make contributions to the organization's performance, they would develop a more positive attitude toward knowledge sharing. Expected contribution will have a positive effect on the attitude toward knowledge sharing.

#### **2.6.2.4 Employee Attitude toward knowledge sharing**

The degree of one's positive feelings about sharing one's knowledge Ajzen and Fishbein (1980) believe that attitude has an influence on behavioral

intentions. This relationship has received substantial empirical support Kuo and Young, (2008). The findings show that individual's feelings regarding knowledge sharing reflect their readiness to be involved in the process of knowledge sharing. Therefore, it seems that one of the important aspects of knowledge sharing intention is attitude toward knowledge sharing. Attitudes affect people in everything they do and reflect what they are hence; it is a determining factor of the behavior of people. Also, it provides people with a framework within which to interpret the world and integrate new experiences, as noted by Ogunmoye (2008). Thus, by understanding an individual's attitude towards something, one can predict with high precision his or her overall pattern of behavior to the object. Ogunmoye also noted that according to Aiken (2000), attitude is a learned disposition that determines a positive or negative response to a specific object, situation, institution, or a person.. Often, attitude influences how workers interact. Argote and Ingram (2000) suggested that organizational knowledge resides in the interactions between individuals and, therefore, forms the basis of competitive advantage. It has also been noted that the future, survival or existence of any individual, organization, society or group of people will be determined by their ability to manage and share knowledge wisely, or their effective application of knowledge, which is an essential and precious global resource that is an embodiment of human intellectual capital and technology. Knowledge management is a key law firm business driver. The typical law firm knowledge management vision is to achieve market differentiation through leveraging its knowledge.

## **2.7 The Relationships between Variables of the study**

Prior studies has discussed both empirically and conceptually the relationships between the current study variables. The following subsections present these relationships.

### **2.7.1 The Relationship between collaborative knowledge environment and KSI**

There is a considerable amount of literature has examined the relationship between CKE and KSI Bok and Kim, (2002) Davenport and Prusak, (1998) and amongst all, the impact of collaborative work climate is rarely investigated on knowledge sharing intention. Organizational climate refers to shared and agreed perceptions of employees of their work environment. In fact, organizational climate is an interpretation of organizational messages by the organization members. Climate emerges from what individuals perceive to be important and influential in their work so that studying climate is more appropriate to capture the aspects of the social environment consciously perceived by organizational members Shim, (2010). How staff perceive the climate determines how they will behave with it based on a social exchange perspective. According to social

exchange theory Blau, (1964), if the staff perceives the organization as a supportive organization, based on a reciprocity rule, they tend to be more effective in the organization. Collaborative climate refers to shared elements of an organization's culture that inspires staff to share knowledge Sveiby and Simons, (2002). According to Sveiby and Simons, the success of knowledge management practices depends on the incorporation of trust and collaboration in organizational culture. They confirmed that in the collaborative climate of a business unit, an immediate superior and coworkers in a workgroup play the most important roles in knowledge sharing. Mcnamara. Vlasisavljevic et al. (2016) introduce different perspectives and rather than having a single partner for collaboration, they support involvement of diverse partners in knowledge intensive industries since a single partner could hardly provide all the specialized knowledge and valuable resources necessary to operate in such industry.

### **2.7.2 The relationship between Knowledge Sharing Attitudes (KSA) and (KSI)**

Prior literature has discussed both empirically and conceptually the relationship between KSA and KSI Davis, (1989) Fishbein & Ajzen, (1975). Individuals' expectations of the usefulness of their knowledge and that through sharing they can improve relationships with others have been shown to be related to positive knowledge sharing attitudes which in turn were related to knowledge sharing intentions and behaviors Bock & Kim, (2002). Similarly, a study of hospital physicians in Korea found that attitudes partially mediated the relationship between subjective norms and physicians' intention to share knowledge Lin and Lee (2004) investigated senior managers' perceptions of encouraging knowledge sharing among employees rather than those of the individual sharers. They found that managers' intention of encouragement was positively related to employee sharing behaviors. Attitudes toward knowledge sharing have been shown to not only have a direct effect on knowledge sharing but also have an indirect effect on self reported sharing behavior through positively influencing intentions to share (e.g., Bock et al., 2005; Lin, (2007). Relating to attitudes toward knowledge sharing behavior - the degree of one's positive feelings about sharing one's knowledge - Chatzoglou & Vraimaki, (2009) subjective norms - the perceived social pressure to share knowledge with others - Chen et al., (2009)

### **2.7.3. The Mediating Effect of (KSA) in the relationship between Collaborative Knowledge Environment (CKE) and Knowledge Sharing Intention (KSI)**

There have been many previous studies on the KS field reported a positive Influence of KSA between CKE and KSI. Ajzen and Fishbein (1980) believe that attitude has an influence on behavioral intentions. This relationship has received substantial empirical support Pavlou and Fygenson, (2006). The findings show that individual's feelings regarding knowledge sharing reflect their readiness to be involved in the process of knowledge sharing. Therefore, it seems that one of the important aspects of knowledge sharing intention is attitude toward knowledge sharing. Attitudes toward knowledge sharing have been shown to not only have a direct effect on knowledge sharing but also have an indirect effect on self reported sharing behavior through positively influencing intentions. Similarly, a study of hospital physicians in Korea found that attitudes partially mediated the relationship between subjective norms and physicians' intention to share knowledge Ryu, Ho, & Han, (2003). According to a study on formalized knowledge sharing behavior, Barreto (2002) added the factor of collaborative climate in the culture of knowledge sharing. Attitudes affect people in everything they do and reflect what they are hence; it is a determining factor of the behavior of people. Also, it provides people with a framework within which to interpret the world and integrate new experiences, as noted by Ogunmoye (2008). Thus, by understanding an individual's attitude towards something, one can predict with high precision his or her overall pattern of behavior to the object. Particularly, a positive attitude could lead to a positive behavior towards knowledge sharing, as reinforced in a number of studies (e.g., Bock et al., 2005; Lin and Lee, 2005).

## **2.8 Chapter Summary**

This chapter presented a summary of the literature review for various variables of the study, including knowledge concept, collaborative knowledge environment (CKE), knowledge sharing intention (KSI) and Knowledge sharing attitude (KSA). Additionally, this chapter revealed the relationship exists among these variables based on the prior literature. The next chapter presents the research underpinning theories, theoretical framework and hypotheses development.

## **CHAPTER THREE**

### **Theoretical Framework and Research Hypotheses**

#### **3.0 Chapter Overview**

The focus of this chapter is to develop the research model and the hypothesis for examining the relationship between the variables of the study. In addition, the current study adopts theories are discussed prior to the theoretical framework. As well as, this chapter addresses the development of hypotheses based on the previous literature and the proposed theoretical framework.

#### **3.1 Research Underpinning Theories**

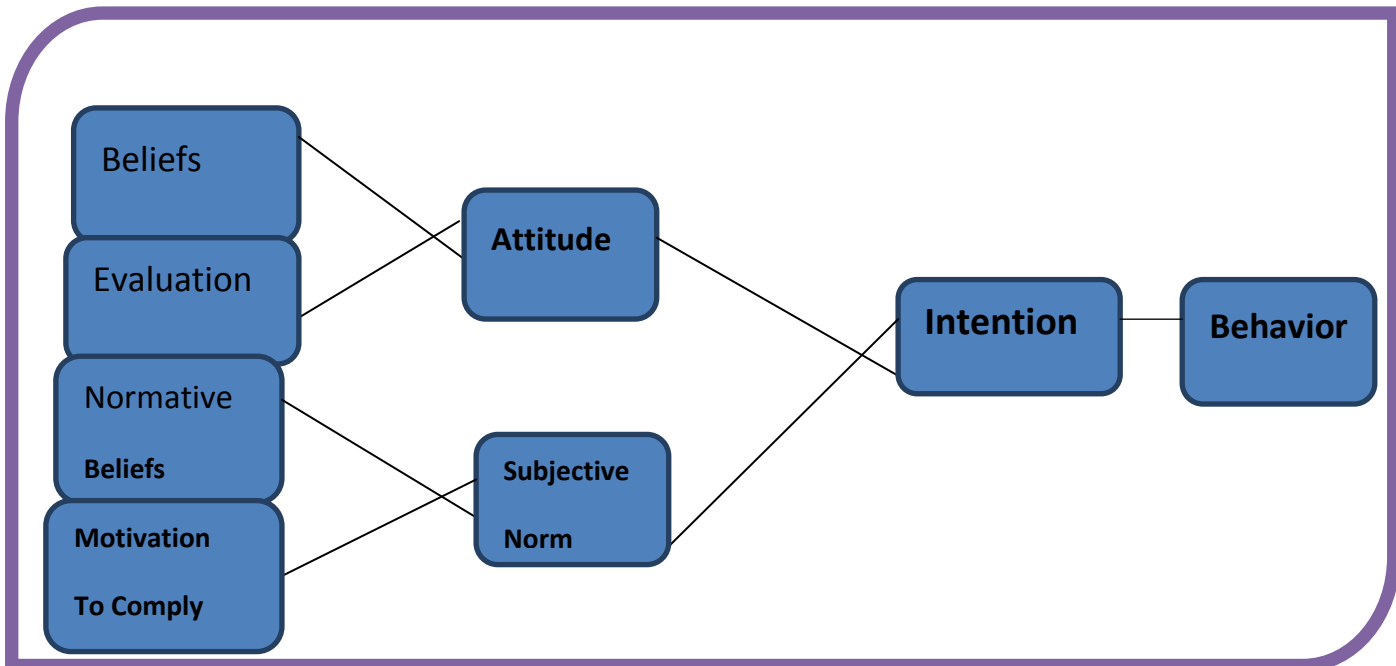
Based on the research objectives, variables, and previous literature, two major theories served as the theoretical point of reference to underpin the study to account for an individual's knowledge sharing intentions (KSI) and actual knowledge sharing attitude (KSA) within an organization the theory of reasoned action (TRA) and the theory of social exchange (SET). In summary, while the TRA highlights the selection of suitable resources, social exchange theory emphasizes the development and renewal of resources. In other words, these theories seem to complement one another Barney & David Terence, (1991). The following subsections present a brief discussion of both the theory of reason action and Social exchange theory as they relate to variables of the study and explain how these determinants affect the knowledge sharing intention.

##### **3.1.1. The Theory of Reason Action (TRA)**

The theory of reasoned action explains how a person's behavior is influenced by one's intention to do something Ajzen and Fishbein, (1980). This Theory combines the three attributes intention, attitude, and subjective norms as the predictors of actual behavior to explain that the intention is determined by attitude toward behavior and subjective norm. Within the framework of sharing knowledge, intention to share knowledge of a person behaves is determined by one's attitude towards knowledge sharing behavior and subjective norms for knowledge sharing Warshaw, 1980; Jogiyanto, (2007). Based on this theory, in the context of knowledge sharing intention, it is expected that individuals with respect knowledge may demonstrate more knowledge sharing behavior if they hold positive attitude toward knowledge sharing. Therefore, it is meaningful to identify the factors that are influential to individuals' attitude toward knowledge sharing intention. Based on this, TRA can be a useful model for explaining the knowledge sharing intention in organizations. The TRA is predominant in social-psychological models with origins from expectancy theory, which describes how individual behavior relates to intentions and environmental factors, and how dissimilarities exist between employees Tsai et al., (2012). Lin & Huang (2013) used TRA to understand KS including different motivations to

explain KS intentions. Lin and Huang (2013) found that knowledge self efficacy and enjoyment in helping other employees positively relate to KS attitudes and intentions. Bock et al. established that extrinsic motivators such as organizational climates could influence KS intentions.

**Figure 3.1**  
**Theory of Reasoned Action**



Source: Ajzen & Fishbein, 1969, 1980

### 3.1.2. Social exchange theory (SET)

Social exchange theory was developed in the 1960 by Homans (1961). Homans posits that human interactive behaviors are formed by the perceptions of benefits and costs. He introduced these psychological concepts and proposed that social rewards (e.g., approval, status, and respect) are important for explaining and predicting social behavior. After Homans founded the theory, Blau (1964) introduced an economic and utilitarian perspective within social exchange theory. His utilitarian perspective posited that people engage in social interactions based on anticipated rewards (e.g., increased pay, bonuses, job security, or career advancement). Therefore, from Homans and Blau's ideas, economic and social rewards should be accounted for to explain the behaviors of social exchange. During social exchange, people tend to maximize their benefits and minimize their costs Molm, (1997). Thus people can be motivated to exchange by benefit maximization. The benefits that make people to engage in a social exchange are direct rewards, expected gains in reputation, anticipated reciprocity, the perception of efficacy, and altruism Thibaut & Kelly, (1959). As knowledgesharingis



a form of social exchange Bock et al, (2005), several prior studies have used these motivational factors to explain and predict knowledge-sharing intentions Casimir et al, (2012). For example, people could be motivated to share knowledge by economic rewards, such as increased pay or bonuses (Beer & Nohria, 2000; Hall, 2001). After sharing knowledge, people could receive reciprocal benefits from others who share knowledge in the future Wasko & Faraj, (2005).

### **3.2 The Research Underpinning theories and Research Variables**

The following subsections present the relationship between the researches' Underpinning theories (i.e., TRA and SET) and the research independent variable (i.e., CKE and mediating variable KSA) in relation to the research dependent variable (i.e., Knowledge Sharing Intention KSI).

#### **3.2.1. The (SET) Theory and Collaborative Knowledge Environment (CKE)**

The impact of collaborative Knowledge Environment is rarely investigated on knowledge sharing intention. In fact, organizational climate is an interpretation of organizational messages by the organization members. Climate emerges from what individuals perceive to be important and influential in their work so that studying climate is more appropriate to capture the aspects of the social environment consciously perceived by organizational members Shim, (2010). How staff perceives the climate determines how they will behave with it based on a social exchange perspective. According to social exchange theory Blau, (1964), if the staff perceives the organization as a supportive organization, based on a reciprocity rule, they tend to be more effective in the organization. Collaborative climate refers to shared elements of an organization's culture that inspires staff to share knowledge Sveiby and Simons, (2002). According to Sveiby and Simons, the success of knowledge management practices depends on the incorporation of trust and collaboration in organizational culture. They confirmed that in the collaborative climate of a business unit, an immediate superior and coworkers in a workgroup play the most important roles in knowledge sharing.

#### **3.2.2. The (TRA) Theory and Collaborative Knowledge Environment (CKE)**

This theory explains that the intention is determined by attitude toward behavior and subjective norm. Within the framework of sharing knowledge, intention to share knowledge of a person behaves is determined by one's attitude towards knowledge sharing behavior and subjective norms for knowledge sharing Jogiyanto, (2007). According to the Theory of Reasoned Action Fishbein and Ajzen, (1975), Korzaan, (2003), an individual's intention to perform a behavior and their actual behavior can be determined by their attitude toward

this behavior. The TRA is predominant in social-psychological models with origins from expectancy theory, which describes how individual behavior relates to intentions and environmental factors, and how dissimilarities exist between employees Tsai et al., (2012). Lin and Huang (2013), used TRA to understand KS including different motivations to explain KS intentions. Lin and Huang (2013) found that knowledge self efficacy and enjoyment in helping other employees positively relate to KS attitudes and intentions. Bock et al. established that extrinsic motivators such as organizational climates could influence KS intentions.

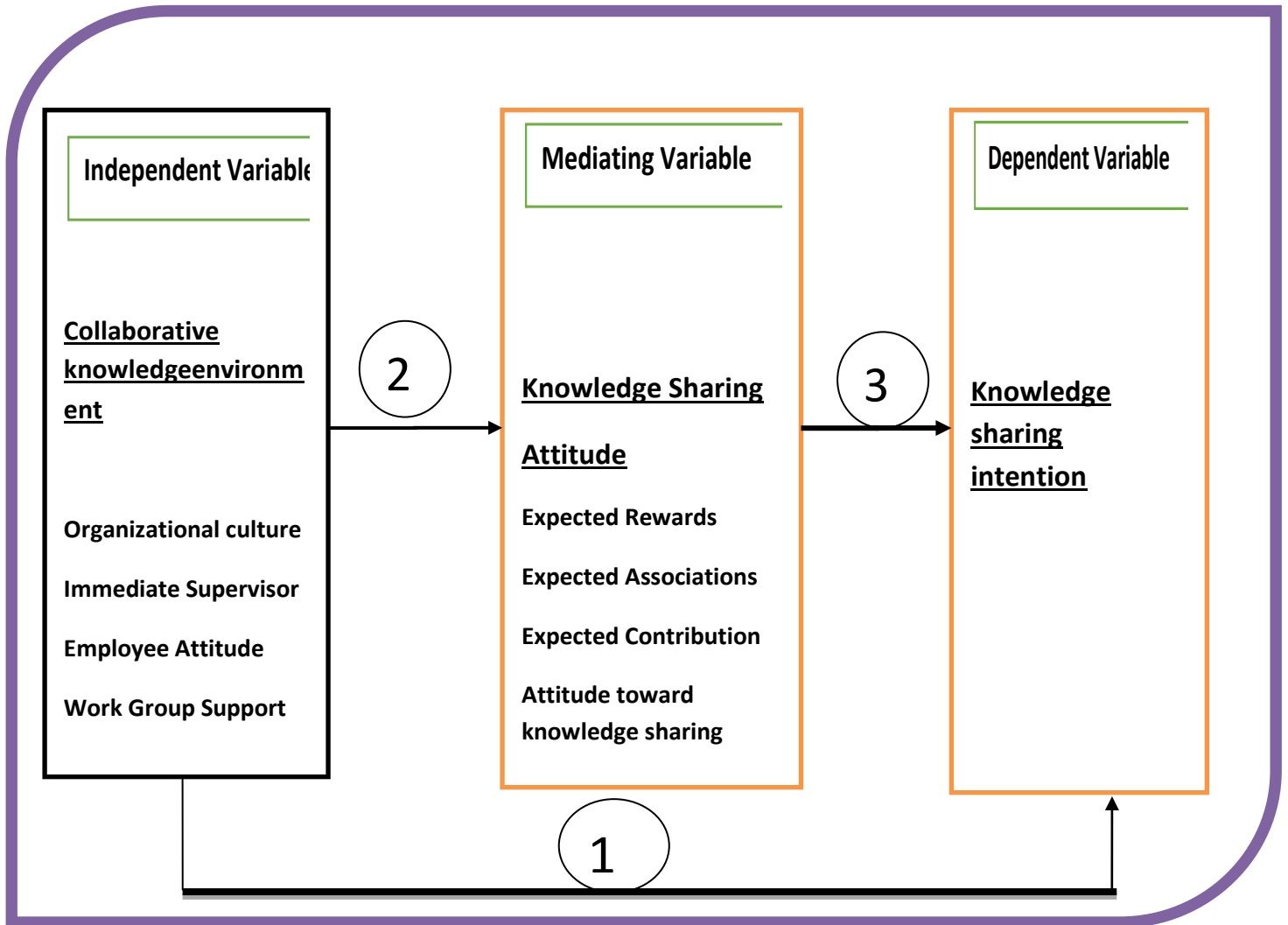
### **3.2.3. The (TRA) Theory and Knowledge Sharing Intention (KSI) & Knowledge Sharing Attitude (KSA)**

The theory of reasoned action explains how a person's behavior is influenced by one's intention to do something Ajzen and Fishbein, (1980). This theory explains that the intention is determined by attitude toward behavior and subjective norm. Within the framework of sharing knowledge, intention to share knowledge of a person behaves is determined by one's attitude towards knowledge sharing behavior and subjective norms for knowledge sharing Jogiyanto, (2007). Lin and Huang (2013) used TRA to understand KS including different motivations to explain KS intentions.

### **3.2.4 The (SET) Theory and Knowledge Sharing Intention (KSI) & Knowledge Sharing Attitude (KSA)**

Social exchange theory was developed in the 1960s by Homans (1961). Homans posits that human interactive behaviors are formed by the perceptions of benefits and costs. His utilitarian perspective posited that people engage in social interactions based on anticipated rewards (e.g., increased pay, bonuses, job security, or career advancement). Therefore, from Homans and Blau's ideas, economic and social rewards should be accounted for to explain the behaviors of social exchange. During social exchange, people tend to maximize their benefits and minimize their costs Molm, (1997). several prior studies have used these motivational factors to explain and predict knowledge-sharing intentions Casimir et al, (2012).For example, people could be motivated to share knowledge by economic rewards, such as increased pay or bonuses Beer & Nohria, (2000).

**Figure 3.2**  
**Research Theoretical Framework**



Source: student's work 2019

### **3.3. Research Hypotheses**

Based on the theoretical framework illustrated above, and based on the previous Studies, this study formulates four main hypotheses along with several sub hypotheses. These research hypotheses are developed and presented as follows:

#### **3.3.1 H1. Collaborative Knowledge Environment CKE has a positive influence on Knowledge Sharing Intention KSI**

There are many studies which reported a positive relationship between Collaborative Knowledge Environments CKE and Knowledge Sharing Intention. Organizational climate is the shared values, norms, meanings, beliefs,

myths and underlying assumptions within an organization. Organizational climate guides the employee's behavior by conveying to them what behavior is appropriate and desirable. Subjective norms are formed when employees internalize and evaluate organizational values and norms. The effects of organizational climate on knowledge sharing has been widely studied Bock et al., (2005); Connelly and Kelloway, (2003). The general consensus among these researchers is that organizational climate is a critical driver of knowledge sharing and that some climates are more conducive to knowledge sharing than others. Bock, Zmud, Kim and Lee (2005) categorized cultural dimensions to be fairness, innovativeness, and affiliation. This finding also confirm Ajzen and Fishbein (1980) findings that external factors such as organizational climate can influence the subjective norm of individuals by cueing to them the desirable behavior that is expected of them. Thereupon, the following sub-hypotheses were formulated:

- 3.3.1.1 H1.1 Organizational culture has a positive influence on KSI
- 3.3.1.2 H1.2 Immediate Supervisor has a positive influence on KSI
- 3.3.1.3 H1.3 Employee Attitude has a positive influence on KSI
- 3.3.1.4 H1.4 Work Group Support has a positive influence on KSI

### **3.3.2 H2. Collaborative Knowledge Environment CKE has a positive influence on Knowledge Sharing Attitude KSA**

There are many studies which reported a positive relationship between Collaborative Knowledge Environments CKE and Knowledge Sharing Attitude

As found, collaborative climate is the strongest predictor of knowledge sharing attitude. Al-Adaileh and Al-Atawi's (2011) study in a telecommunications organization in Saudi Arabia where they found that teamwork and collaboration did not necessarily promote knowledge sharing. Similar to several other studies (e.g., Lin and Lee, 2004; Lin, 2007), they found that perception of management support is critical to knowledge sharing as a practice, not merely an initiative. Thereupon, the following sub-hypotheses were formulated:

- 3.3.2.1 H2.1 Organizational culture has a positive influence on KSA
- 3.3.2.2 H2.2 Immediate Supervisor has a positive influence on KSA
- 3.3.2.3 H2.3 Employee Attitude has a positive influence on KSA
- 3.3.2.4 H2.4 Work Group Support has a positive influence on KSA

### **3.3.3 H3. Knowledge Sharing Attitude KSA has a positive influence on Knowledge Sharing Intention KSI**

Attitude towards knowledge sharing is formed from behavioral beliefs and refers to the degree of positive/negative feelings an individual has towards the intention to share knowledge with other members of the organization. Higher

attitudinal disposition towards knowledge sharing should increase knowledge sharing intention. Bock and Kim (2002) who found that attitudes towards knowledge sharing had a significant influence on behaviour intention. This also corroborates the finding of Ellahi and Mushtaq (2011) that confirmed that the attitudes of bloggers, towards knowledge sharing, significantly affected their intention to share knowledge in blogs. Gottschalk et al. (2005), in their study of the Incentives for Knowledge Sharing through Information Technology, noted that lawyers' attitudes towards their own contribution were the factors that mostly predicted their knowledge sharing behavior. Thereupon, the following sub-hypotheses were formulated:

- 3.3.3.1 H3.1 Expected Rewards has a positive influence on KSI
- 3.3.3.2 H3.2 Expected Associations has a positive influence on KSI
- 3.3.3.3 H3.3 Expected Contribution has a positive influence on KSI
- 3.3.3.4 H3.4 Employee Attitude toward knowledge sharing has a positive influence on KSI

#### **3.3.4 H4. Knowledge Sharing Attitude KSA Mediating the Relationship between CKE and KSI**

The intention to engage in a behavior is actually determined by an individual's attitude towards that behavior Ajzen and Fishbein, (1980). At this point, the attitude towards knowledge sharing is defined as the degree of one's positive feelings about sharing one's knowledge Bock et al., (2005). Employees tend to believe that they could improve their relationship with co-workers by offering their knowledge and skills. They believe that by doing so, they would develop a more positive attitude towards knowledge sharing. Therefore, the following sub-hypotheses were formulated:

##### **3.3.4.1 H4.1 Expected Rewards Mediating the Relationship between CKE and KSI**

Therefore, the following sub-hypotheses were formulated:

- 3.3.4.1 H4.1.1 Expected Rewards Mediating the Relationship between Organizational culture and KSI
- 3.3.4.1 H4.1.2 Expected Rewards Mediating the Relationship between Immediate Supervisor and KSI
- 3.3.4.3.1 H4.1.3 Expected Rewards Mediating the Relationship between Employee Attitude and KSI
- 3.3.4.1 H4.1.4 Expected Rewards Mediating the Relationship between Work Group Support and KSI

### **3.3.4.2 H4.2 Expected Associations Mediating the Relationship between CKE and KSI**

Therefore, the following sub-hypotheses were formulated:

- 3.3.4.2.1 H4.2.1 Expected Associations Mediating the Relationship between Organizational culture and KSI
- 3.3.4.2.2 H4.2.2 Expected Associations Mediating the Relationship between Immediate Supervisor and KSI
- 3.3.4.2.3 H4.2.3 Expected Associations Mediating the Relationship between Employee Attitude and KSI
- 3.3.4.2.4 H4.2.4 Expected Associations Mediating the Relationship between Work Group Support and KSI

### **3.3.4.3 H4.3 Expected Contribution Mediating the Relationship between CKE and KSI**

Therefore, the following sub-hypotheses were formulated:

- 3.3.4.3.1 H4.3.1 Expected Contribution Mediating the Relationship between Organizational culture and KSI
- 3.3.4.3.2 H4.3.2 Expected Contribution Mediating the Relationship between Immediate Supervisor and KSI
- 3.3.4.3.3 H4.3.3 Expected Contribution Mediating the Relationship between Employee Attitude and KSI
- 3.3.4.3.4 H4.3.4 Expected Contribution Mediating the Relationship between Work Group Support and KSI

### **3.3.4.3 H4.4 Employee Attitude toward knowledge sharing Mediating the Relationship between CKE and KSI**

Therefore, the following sub-hypotheses were formulated:

- 3.3.4.4.1 H4.4.1 Employee Attitude toward knowledge sharing mediating the Relationship between Organizational culture and KSI
- 3.3.4.4.2 H4.4.2 Employee Attitude toward knowledge sharing mediating the Relationship between Immediate Supervisor and KSI
- 3.3.4.4.3 H4.4.3 Employee Attitude toward knowledge sharing mediating the Relationship between Employee Attitude and KSI
- 3.3.4.4.4 H4.4.4 Employee Attitude toward knowledge sharing mediating the Relationship between Work Group Support and KSI

Table 3.1 below shows a summary of the proposed hypotheses as follows:

**Table 3.1**  
**Summary of Research Hypotheses**

<b>H1</b>	<b>Collaborative Knowledge Environment CKE has a positive influence on Knowledge Sharing Intention KSI</b>	
	H1.1	Organizational culture has a positive influence on KSI
	H1.2	Organizational culture has a positive influence on KSI
	H1.3	Employee Attitude has a positive influence on KSI
	H1.4	Work Group Support has a positive influence on KSI
<b>H2</b>	<b>Collaborative Knowledge Environment CKE has a positive influence on Knowledge Sharing Attitude KSA</b>	
	H2.1	Organizational culture has a positive influence on KSA
	H2.2	Immediate Supervisor has a positive influence on KSA
	H2.3	Employee Attitude has a positive influence on KSA
	H2.4	Work Group Support has a positive influence on KSA
<b>H3</b>	<b>Knowledge Sharing Attitude KSA has a positive influence on Knowledge Sharing Intention KSI</b>	
	H3.1	Expected Rewards has a positive influence on KSI
	H3.2	Expected Associations has a positive influence on KSI
	H3.3	Expected Contribution has a positive influence on KSI
	H3.4	Employee Attitude toward knowledge sharing has a positive influence on KSI
<b>H4</b>	<b>Knowledge Sharing Attitude KSA Mediating the Relationship between CKE and KSI</b>	
<b>H4.1</b>	<b>Expected Rewards Mediating the Relationship between CKE and KSI</b>	
	<b>H4.1.1</b>	Expected Rewards Mediating the Relationship between Immediate Supervisor and KSI
	<b>H4.1.2</b>	Expected Rewards Mediating the Relationship between Immediate Supervisor and KSI
	<b>H4.1.3</b>	Expected Rewards Mediating the Relationship between Employee Attitude and KSI
	<b>H4.1.4</b>	Expected Rewards Mediating the Relationship between Work Group Support and KSI
<b>H4.2</b>	<b>Expected Associations Mediating the Relationship between CKE and KSI</b>	
	<b>H4.2.1</b>	Expected Associations Mediating the Relationship between Organizational culture and KSI
	<b>H4.2.2</b>	Expected Associations Mediating the Relationship between Immediate Supervisor and KSI
	<b>H4.2.3</b>	Expected Associations Mediating the Relationship between Employee Attitude and KSI
	<b>H4.2.4</b>	Expected Associations Mediating the Relationship between Work Group Support and KSI
<b>H4.3</b>	<b>Expected Contribution Mediating the Relationship between CKE and KSI</b>	
	<b>H4.3.1</b>	Expected Contribution Mediating the Relationship between Organizational culture and KSI
	<b>H4.3.2</b>	Expected Contribution Mediating the Relationship between Immediate Supervisor and KSI
	<b>H4.3.3</b>	Expected Contribution Mediating the Relationship between Employee Attitude and KSI

	<b>H4.3.4</b>	Expected Contribution Mediating the Relationship between Work Group Support and KSI
<b>H4.4</b>	<b>Employee Attitude toward knowledge sharing Mediating the Relationship between CKE and KSI</b>	
	H4.4.1	Employee Attitude toward knowledge sharing Mediating the Relationship between Organizational culture and KSI
	H4.4.2	Employee Attitude toward knowledge sharing Mediating the Relationship between Immediate Supervisor and KSI
	H4.4.3	Employee Attitude toward knowledge sharing Mediating the Relationship between Employee Attitude and KSI
	H4.4.4	Employee Attitude toward knowledge sharing Mediating the Relationship between Work Group Support and KSI

### **3.4 Chapter Summary:**

The chapter presented the research underpinning theories namely, (i.e., TRA and SET); then both theories were linked to variables of the research which was derived from the literature review. Besides, the theoretical framework was illustrated, along with the development of research hypotheses based on the previous literature. The next chapter discusses the research methodology which covered the research design, sampling procedure, development and design of the research instrument and administration of the field work. Also, the chapter presented the statistical techniques used in testing the hypothesis.



## **CHAPTER FOUR**

### **RESEARCH METHODOLOGY**

#### **4.0 Chapter Overview**

This chapter is designed to discuss in details the research paradigm, research approach, research methodology, and research design. Also, this chapter presents the research population, sampling, instrument of data collection, and validation of the questionnaire, administration of the instrument, as well as the data analysis techniques and procedure.

#### **4.1 Research Paradigm**

A paradigm is best described as a holistic system of thinking or a philosophical framework Collis & Hussey, (2009). Additionally, a paradigm represents a set of beliefs by which actions are guided. Therefore, paradigms play a vital role in the research Guba, (1990). Accordingly, based on the research purpose, this study adopts the positivist philosophy; because the positivism attempts to understand and predict as well as positivism associated with the objectivity Livesey, (2011).

#### **4.2 Research Approach**

A research approach is a plan of action that gives direction to conduct research systematically and efficiently. There are three main research approaches as (Creswell 2009): i) quantitative (structured) approach, ii) qualitative (unstructured) approach, and iii) mixed methods research. Researchers typically select the quantitative approach to respond to research questions requiring numerical data, the qualitative approach for research questions need textural data, and the mixed methods approach for research questions want both numerical and textural data (Williams 2007). The quantitative method supports the positivist paradigm, whereas the qualitative method also very closely supports to the naturalistic paradigm. Furthermore, studies show that Quantitative and qualitative approaches are appropriate to grow the fortes and the reducing of weaknesses of the research methods Johnson, et al., (2004) Thus; in this method we can say that the findings and outcomes are more valid. Also, Quantitative study shows the actuality of the cause and effectiveness of relationships among variables. On the other hand, qualitative study approaches to discover the implications and outlines, consider to particularly the activities and records carefully.

Accordingly, based on the overall research objective, this study falls in the third category which adopts the deductive approach which aims at testing the theory and hypotheses at hand. Moreover, the deductive approach is typically linked to quantitative research.

### **4.3 Research Methodology**

Determining the appropriate research method and design is essential for scholars, as each method provides different approaches to addressing proposed problems (Leedy & Ormrod, 2013). Commonly used research methods include qualitative, quantitative and mixed-methods with different design options applying to each method (Arghode, 2012; Leedy & Ormrod, 2013).

Therefore, based on the research objective, philosophy, and approach, this study employs the quantitative methodology to examine the relationship between employees' intentions to share knowledge and collaborative knowledge environment, with the mediating affect of personals' attitudes to share knowledge. Because I used existing theories and a standardized instrument to examine relationships between variables and did not generate new hypothesis, theories, or research tools so this method was appropriate. Consequently, this study uses the questionnaire to collect the data based on closed-ended questions, and then the collected data is converted into numerical data which is analyzed to reach findings and draw a conclusion Creswell, (2012).

### **4.4 Research Design**

A research design is a functional plan of the research. Therefore, the research design guides the researcher in formulating a theoretical framework, selecting appropriate data collection method, and serve as a basis for interpretation Bless & Kagee, (2006). Therefore, based on the research objective and methodology, this study adopts an analytical descriptive design. Consequently, based on the research design, this study utilizes the questionnaire as a tool for data collection from a sample which is considered to be representative to all the population Nworgu, (1991).

### **4.5 Population of the Study**

The population of the study refers to all elements such as individuals, corporations, or events which fulfill the criteria of the sample included in the study Burns & Grove, (1993). Accordingly, the population of this study embodies Sudanese insurance sector including a sample of companies operating in Khartoum state.

### **4.6 Sample of the Study**

Sampling provides a valid alternative to using entire population when; it is impracticable to survey the entire population, when there is a time constraints surveying the entire population and when the results needed quickly after collecting the data. Saunders et al., (2009). Accordingly, the target population for this study is employees of insurance companies who are operating in insurance services sector in Sudan specifically in Khartoum state. Employees working at all levels of management hierarchy were treated as the population of the study. Consequently, a convenient sample of (324) elements was selected

from the population. This sample size is identified according to the amount of variability in the population, cost and time constraints and the unit of analysis. Furthermore, according to Roscoe (1975) proposes that a sample size larger than 30 and less than 500 is appropriate for most research Uma Sekaran, (2010). When selecting the sample for the questionnaire, I used my subjective Judgment based on participants' expertise, responsibilities, availability and accessibility within the main purpose of answering our research questions and addressing our objectives.

## **4.7 Data Collection**

These steps are discussed in detail the source of data, the instrument of data Collection, scaling, measurements, validation of the questionnaires, pilot test and administration of the final questionnaires.

### **4.7.1 Sources of Data Collection**

Based on the research objectives, this study utilizes both primary and secondary data.

#### **4.7.1.1 Primary data**

Primary data has been collected through the questionnaires

#### **4.7.1.2 Secondary data**

Secondary data has been gathered from the existing knowledge pertaining to previous research, peer reviewed articles published in leading journals and relevant scholarly books and electronic sources were used as secondary data to complement the primary data in the process of data collection.

### **4.7.2 Instrument of Data Collection**

According to the research design, the questionnaire was chosen as a data collection instrument. A questionnaire is a form designed to gather from the sample Burns & Grove (1993).

#### **4.7.2.1 Questionnaire Design**

According to Kumar, Aker and Day (2001), there are five steps in developing a questionnaire. These steps includes: planning what to measure, developing the questionnaire, question wording, questionnaire layout, pretesting, correcting problems and its implementations. Asker & Day (2001), consequently, the questionnaire design entails writing a covering letter to accompany and respondents, this covering letter explains the purpose of the research, and it contains essential information for the completion of the questionnaire. In addition, the questionnaire consists of two main parts, along with instruction guidelines to guide the respondents to tick the chosen response in each part. The first Part covers the respondents' profile, namely the gender, age, education level, job title and years of experience, the second part consists of

three sections ,these sections contains the aimed at specifying the opinion of the respondents about the data of study which include CKE, KSI and Knowledge sharing attitude KSA . The information in the tow sections helps the researcher interpreting the findings.

Most of items were adopted from the study of Lin (2007).

#### **4.7.2.2 Measurements of Variables**

Regarding the measurements, all items were sourced from previous studies,and the research constructs in this study had been converted into the relevant questions and clearly stated, and since Sudan common language is Arabic, therefore, the questionnaire had been written in Arabic language to achieve its objectives. The 43 questionnaire items measured the relationship between variables; these statements were calculated according to a 5- point Likert scale ranging from 1(‘strongly disagree’) to 5 (‘strongly agree’). A total of 390 copies of questionnaire were sent to the target respondents.

In the following sub sections, the measurements of the variables used in this study are discussed in details including the independent variable (i.e., collaborative knowledge environment CKE), the dependent variable (i.e., knowledge sharing intention KSI), and the mediating variable (i.e., knowledge sharing attitude KSA).

##### **4.7.2.2.1 Collaborative Knowledge Environment CKE**

Collaborative climate refers to shared elements of an organization’s culture that inspires staff to share knowledgeSveiby and Simons, (2002). According to Sveiby and Simons, the success of knowledge management practices depends on the incorporation of trust and collaboration in organizational culture.

Accordingly, this study adopts the work of Sveiby and Simons, (2002) as a guide in developing the measurements, they Proposes that CKE is a multidimensional variable involves four dimensions (i.e., organizational culture, immediate supervisor support, employees attitude and work group support).

##### **4.7.2.2.1.1 Organizational Culture**

According to Park H et al (2004),Organizational culture can be defined as the shared, basic assumptions that an organization learnt while coping with the environment and solving problems of external adaptation and internal integration that are taught to new members as the correct way to solve those problems. Further, if employees did not adapt a KS culture, the expectations of an organizational culture restrained the knowledge-transfer process thus leading to knowledge silos (Tsai et al., 2013).Organizational culture is measured by five items which were sourced from the work of Sveiby and Simons (2002). These items are shown in the following table (3.3)

**Table4.1**  
**Measurements of Organizational culture**

Organizational culture		Source
<b>In Our organization.....</b>		<b>Sveiby &amp; Simons (2002)</b>
<b>1</b>	The people I report to keep me informed.	
<b>2</b>	Sharing of knowledge is encouraged by the Department in action and not only in words.	
<b>3</b>	We are continuously encouraged to bring new knowledge into the Department.	
<b>4</b>	We are encouraged to say what we think even if it means disagreeing with people we report to.	
<b>5</b>	Open communication is characteristic of the Department as a whole.	

#### **4.7.2.2.1.2 Immediate supervisor support**

The collection of beliefs one has about that particular behavior. An individual's behavioral beliefs consist of expected outcomes that one associates with that behavior. According to Sveiby (2007), a working team forms the nearest context for individuals. People's behavior is influenced by supervisors and coworkers in the working team. This is confirmed by Cabrera et al. (2006), who found that perceived supervisor support and peer support play important roles in encouraging employees to share knowledge in organizations. Immediate supervisor support is measured by five items which were sourced from the work of Sveiby and Simons (2002). These items are shown in the following table (3.4)

**Table4.2**  
**Measurements of Immediate supervisor support**

immediate supervisor support		Source
<b>Our manager.....</b>		<b>Sveiby &amp; Simons (2002)</b>
<b>1</b>	Encourages me to come up with innovative solutions to work-related problems.	
<b>2</b>	Organizes regular meetings to share information.	
<b>3</b>	Keeps me informed.	
<b>4</b>	Encourages open communication in my working group	
<b>5</b>	Encourages – by action and not only words - sharing of knowledge.	

#### **4.7.2.2.1.3 Employees attitude**

The collection of beliefs one has about that particular behavior. An individual's behavioral beliefs consist of expected outcomes that one associates with that behavior. Ajzen, (1991).Employee's attitude is measured by five items which were sourced from the work of Sveiby and Simons (2002). These items are shown in the following table (3.5)

**Table4.3**  
**Measurements of Employee attitude**

<b>Employee attitude</b>		<b>Source</b>
<b>1</b>	I learn a lot from other staff in this Department.	<b>Sveiby &amp; Simons (2002)</b>
<b>2</b>	In the Department, information sharing has increased my knowledge.	
<b>3</b>	Most of my expertise has developed as a result of working together with colleagues in this Department.	
<b>4</b>	Sharing information translates to deeper knowledge in this Department.	
<b>5</b>	Combining the knowledge amongst staff has resulted in many new ideas and solutions for the Department.	

**4.7.2.2.1.4 Work group support**

Hooff and de Ridder (2006) examined team communication styles, agreeable and extravert styles, and found that they were positively associated with knowledge sharing Willingness and behaviors. Srivastava, Bartol, and Locke (2006) studied management teams in hotel properties; they found that empowering leadership fostered knowledge sharing among team members. Work group support is measured by five items which were sourced from the work of Sveiby and Simons (2002). These items are shown in the following table (3.6)

**Table4.4**  
**Measurements of work group support**

<b>work group support</b>		<b>Source</b>
<b>1</b>	There is much I could learn from my colleagues.	<b>Sveiby &amp; Simons (2002)</b>
<b>2</b>	There are people here who prefer to work on their own. (Reversed for inclusion in scales).	
<b>3</b>	We often share work experiences informally in our unit/section.	
<b>4</b>	We help each other to learn the skills we need.	
<b>5</b>	We keep all team members up to date with current events (e.g., news) and work trends.	

**4.7.2.2.2 Knowledge sharing intention (KSI)**

According to Ajzen, (1991), the Intention is the most important cause of people’s behavior. The sophisticated purpose will be achieving certain behavior, the advanced chances of the authentic enactment of that exact behavior. Five items which were sourced from the work of Wing S. Chow & Lai Sheung Chan (2008). These items are shown in the following table (3.7).

**Table4.5**  
**Measurements of Knowledge sharing intention (KSI)**

Knowledge sharing intention (KSI)		Source
1	I will share my work reports and official documents with my organizational members more frequently in the future.	<b>Wing S. Chow &amp; Lai Sheung Chan (2008)</b>
2	I will always share my manuals, methodologies and models and with my organizational members in the future.	
3	I will always share my know – whom at the request of and my organizational members	
4	I will always provide my knowledge at the request of other organizational members.	
5	I will always try to share my expertise obtained from education and training with my organizational members in a more effective way.	

#### **4.7.2.2.3 Knowledge sharing Attitude (KSA)**

The degree of one’s positive feelings about sharing one’s knowledge they Proposes that KSA is a multidimensional variable involves four dimensions (i.e., Expected Rewards, Expected Associations Expected Contribution and Employee Attitude toward Knowledge Sharing).

##### **4.7.2.2.3.1 Expected Rewards**

The degree to which one believes that one can have extrinsic incentives due to one’s knowledge sharing Jauch, (1970). Four items which were sourced from the work of Wole M. Olatokun et al, (2013). These items are shown in the following Table (3.8).

**Table 4. 6**  
**Measurements of Expected Rewards**

Expected Rewards		Source
1	I expect to receive monetary rewards in return for my knowledge sharing.	<b>Malhotra &amp; Galletta 1999</b>
2	I expect to receive additional points for promotion in return for my knowledge sharing.	
3	I expect to receive an honor such as educational opportunity in return for my knowledge sharing.	
4	It is important to get more job security when I share my knowledge.	

##### **4.7.2.2.3.2 Expected Associations**

The degree to which one believes one can improve mutual relationship through one’s knowledge sharing Sparrowe & Linden, (1997). Five items which were sourced from the work of Wole M. Olatokun et all, (2013). These items are shown in the following table (3.8).

**Table 4.7**  
**Measurements of Expected Associations**

Expected Associations		Source
1	My knowledge sharing would strengthen the tie between me and existing members in the organization.	<b>Major, et al., (1995)</b>
2	My knowledge sharing would get me well acquainted with new members in the organization.	
3	My knowledge sharing would expand the scope of my associations with other members in the organization.	
4	My knowledge sharing would draw smooth cooperation from able members in the future.	
5	My knowledge sharing would make strong relationships with members who have common interests in the organization.	

#### **4.7.2.2.3.3 Expected Contribution**

The degree to which one believes that one can improve the organization's performance through one's knowledge sharing Gardner & Pierce, (1998) .Five items which were sourced from the work of Wole M. Olatokun et al, (2013), these items are shown in the following table (3.8).

**Table4.8**  
**Measurements of Expected Contribution**

Expected Contribution		Source
1	My knowledge sharing would help other members in the organization to solve problems.	<b>Stajkovic &amp; Luthans, (1998)</b>
2	My knowledge sharing would create new business opportunities for the organization.	
3	My knowledge sharing would improve work processes in the organization.	
4	My knowledge sharing would increase the productivity in the organization.	
5	My knowledge sharing would help the organization to achieve its performance objectives.	

#### **4.7.2.2.3.4 Employee Attitude toward Knowledge Sharing**

The degree of one's positive feelings about sharing one's knowledge Fishbein & Ajzen, (1975; 1980). Five items which were sourced from the work of Wole M. Olatokun et al, (2013). These items are shown in the following table (3.11)



**Table 4.9**  
**Measurements of Employee Attitude toward Knowledge Sharing**

Employee Attitude toward Knowledge Sharing		Source
1	My knowledge sharing with other organizational members is good.	<b>Fishbein &amp; Ajzen, (1975 )</b>
2	My knowledge sharing with other organizational members is valuable and productive.	
3	My knowledge sharing with other organizational members is pleasant	
4	My knowledge sharing with other organizational members is valuable and beneficial to me	
5	My knowledge sharing with other organizational members is wise	

#### 4.7.2.3 Questionnaire Validation

This step involves the conversion of the research objectives into information required to obtain the necessary output of the questionnaire. All the research's constructs in this study had been converted into the relevant questions and clearly stated. Thus it is necessary to use simple terminologies to avoid unclear or elusiveness in the meaning. It is important to avoid double-barreled or misleading and confusing questions. Beside the phrasing and length of questions, it is also designed to solicit ideas and answers from target respondents. In the process, the instrument was revised by some academicians at the college of business Studies- Sudan University for science and technology and the Nelein University. The final version of the instrument was simplified by erasing or replacing some questions to reduce the time required in answering the questionnaire.

#### 4.7.2.4 Pre-testing of the Questionnaire

The objective of the pilot test is to eliminate confusing statements and checking the reliability of the variables and to ensure that the questions meet the researcher's expectations with no ambiguities, appropriateness in the length of the questions, and clearing the double-barreled questions. A total of 55 questionnaires were distributed to respondents, representing various service companies only 40 questionnaires were collected. The result of the pilot test indicating that the values of Cronbach's alpha on all the items were good and acceptable range between (0.86 to 0.97). The result showed high reliabilities index of the items included in the questionnaire. The following table 3.11 presents Cronbach alpha coefficients for the study's variables.

**Table 4.10**  
**Pretest of the questionnaire: Reliability Result**

Reliability Statistics		
Scale	No. of items	Cronbach's Alpha
<b>CKE</b> - Organizational Culture	4	0.84
<b>CKE</b> - Immediate supervisor support	5	0.83
<b>CKE</b> - Employees attitude	5	0.90
<b>CKE</b> -Work group support	5	0.47
<b>Knowledge sharing intention (KSI )</b>	5	0.84
<b>KSA</b> - Expected Rewards	4	0.81
<b>KSA</b> - Expected Associations	5	0.91
<b>KSA</b> - Expected Contribution	5	0.84
<b>KSA</b> - Employee Attitude	5	0.93

#### **4.7.2.5 Administration of Final Questionnaire**

The final draft of the questionnaires was administered directly to the target sample of the study (395) copies of the questionnaire have been distributed to respondents and later (324) questionnaires were retrieved with a response rate of (82%).

#### **4.8 Data Analysis Techniques**

The data analysis process involves presenting, interpreting research data and testing hypotheses Leedy & Ormrod,( 2013) .For analyzing collected data and test the hypotheses a number different statistical system and techniques were used. in addition to other techniques like data cleaning which used for detecting and removing errors and inconsistencies to improve the quality of data followed by the reliability to insure the goodness of measures for the study variables. Then, to identify the characteristics of all variables under study beside, responding firms and respondents descriptive statistical techniques were used. Furthermore, Person’s correlations were also implemented to identify the interrelationships among all the variables. Finally, path analysis in AMOS was used to test the direct and indirect effects for testing the hypotheses.

#### **4.9 Summary**

The chapter presented the research framework which was derived from the literature review. It also presented the research methodology which covered the research design, sampling procedure, development and design of the research instrument and administration of the field work. Furthermore, the chapter presented the statistical techniques used in testing the hypothesis. The succeeding chapter presents the result of the analysis and hypotheses testing.

## **CHAPTER FIVE**

### **DATA ANALYSIS AND FINDINGS**

#### **5.0 Introduction**

This chapter shows the process through which the data that was collected from firms represents various industries in Sudan was analyzed to presents the findings. The chapter was organized into four sections. The first section concerns with data cleaning, response rate, and the characteristics of both firms and respondents, followed by the goodness of measures which discusses the reliability of the measurement. The third section shows the descriptive analysis of the study variables. The last section focuses on the results of path analysis and hypotheses testing.

#### **5.1. Data cleaning**

Data cleaning deals with detecting and removing errors and inconsistencies from data in order to improve the quality of data. The need for data cleaning is centered on improving the quality of data to make them “fit for use” by users through reducing errors in the data and improving their documentation and presentation Chapman, (2005). Data quality problems are present in single data collections due to misspellings during data entry, missing information or other invalid data. When multiple data sources need to be integrated, or analysis programs need to be used, the need for data cleaning increases significantly. Thus in this study data cleaning is used to manipulates missing data, unengaged responses, and outliers.

##### **5.1.1. Missing Data**

Missing data is common and always expected in the process of collecting and entering data due to lack of concentration and/or the misunderstanding among respondents, and missing information or other invalid data during the entry of data. Missing data can cause several problems. The most apparent problem is that there simply won't be enough data points to run the analysis and particularly in structural equation model (SEM). Both exploratory and confirmatory factor analysis and path models require a certain number of data points in order to compute estimates. Additionally, missing data might represent bias issues. Some people may not have answered particular questions in survey because of some common issue. If missing data is more than 10% of the responses on a particular variable, or from a particular respondent, that variable or respondent may be problematic. In this study remove 11 questionnaires because their responses lower than 10%.

### 5.1.2. Unengaged responses

Unengaged responses means some responses giving same answer for all the questionnaire it seems to be random answers , in this case we use standard deviation to find out any unengaged response this means that any standard deviation of responses less than 0.5 when Likert's five point scale is used just deleted. Therefore in this study no questionnaires were found to have standard deviation less than 0.5.

### 5.1.3 Outliers

It's very important to check outliers in the dataset. Outliers can influence the results of analysis. If there is a really high sample size, the need for removing the outliers is wanted. If the analysis running with a smaller dataset, you may want to be less liberal about deleting records However, outliers will influence smaller datasets more than largest ones. However, after checked outliers the results of dataset show that no any outliers, everything in dataset is logic and acceptable.

## 5.2. Response Rate

The population of this study was the employees of insurance sector located in the Khartoum state. The researcher employed convenient sample where self-administrated survey was used to distribute 395 questionnaires to the insurance firms in Khartoum stare, given that employees were asked to fill the questionnaire. A total of 335 out of 395 questionnaires received from respondents, the overall response rate were 85% this was considered as high rate due to questionnaires given one by one to respondents and in researches used a self-administrated survey Sekaran, (2003). Those who didn't responded to fill the questionnaire some were mentioned that they were not authorized to fill the questionnaires while others were not transparent in their justifications, table (5.1) below shows the summary of questionnaire response rate.

**Table 5.1**

### **Response rate of questionnaire**

	<b>Response</b>
Total distributed questionnaires of respondents	<b>395</b>
Valid Total questionnaires received from respondents	<b>335</b>
Questionnaires not received from respondents	<b>60</b>
Questionnaires not valid for missing data	<b>11</b>
Questionnaires not valid for Unengaged responses	<b>0</b>
Questionnaires not valid for Outliers	<b>0</b>
Questionnaires valid to analysis	<b>324</b>
Overall response rate	<b>85%</b>

*Source: prepared by researcher from data (2018)*

### 5.3. Respondents characteristics

Based on the descriptive statistics using the frequency analysis this part investigates the profiles of persons that participated in the survey on the light of six characteristics, these are the gender, age, marital status, qualifications, job degree and experience. Table 5.2 show respondent's characteristics, in the gender, rate (61.7%) respondents were male and (38.3%) respondents were female that represent the lower ratios.

Furthermore, the respondent's age, From 20 to 30 are representing a rate (24.4%), From 31 to 40 representing a rate (34.0%), From 41 to 50 representing a rate (27.5%), From 51 to 60 (12.7%), the last in this group More than 60 years are few number 5 frequencies and represented in (1.5%). The respondents marital status, that fill up the questionnaires, majority of them the Married are representing a rate (70.1 %) followed by single are representing a rate (25.0%), and other representing a rate (4.9%) as lower ratios. Concerning the respondents qualifications majority of them were graduate which represent (65.1%), followed by High graduate were representing a rate (29%), followed by Under graduate were representing a rate (5.8%), other were representing a rate (.6%) represent the lower ratios. Regarding the Job degree, the majority of the respondents' employee (58.6%) followed by a Head department was rate (22.5%), followed by Manager were rate (11.7%), and other were rate (7.1%) represent the lower ratios. Regarding the experience, the high respond rate is more than 15 (29.6%) followed by From 11 to 15 were rate (26.9%), followed by From 5 to 10 were rate (24.7%), and Less than 5 years were rate (18.8%) represent the lower ratios.

**Table 5.2**  
**Respondent's characteristics**

<b>Variable</b>	<b>Categories</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Gender</b>	Male	200	61.7
	Female	124	38.3
<b>Total</b>		<b>324</b>	<b>100%</b>
<b>Age</b>	From 20 to 30	79	24.4
	From 31 to 40	110	34.0
	From 41 to 50	89	27.5
	From 51 to 60	41	12.7
	More than 60	5	1.5
<b>Total</b>		<b>324</b>	<b>100%</b>
<b>Marital status</b>	Single	81	25.0
	Married	227	70.1
	Other	16	4.9
<b>Total</b>		<b>324</b>	<b>100%</b>
<b>Qualifications</b>	Under graduate	17	5.2
	Graduate	211	65.1
	High graduate	94	29.0
	Other	2	.6
<b>Total</b>		<b>324</b>	<b>100%</b>
<b>Job degree</b>	Employee	190	58.6
	Head department	73	22.5
	Manager	38	11.7
	Other	23	7.1
<b>Total</b>		<b>324</b>	<b>100%</b>
<b>Experience</b>	Less than 5 years	61	18.8
	From 5 to 10	80	24.7
	From 11 to 15	87	26.9
	More than 15	96	29.6
<b>Total</b>		<b>324</b>	<b>100%</b>

Source: prepared by researcher, (2019).

#### **5.4. Goodness of measures**

This section, reports the results of validity and reliability tests as a means to assess the goodness of measure in this study constructs (Sekaran, 2003). The study used exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The following are the detailed information of each.

##### **5.4.1. Exploratory factor analysis (EFA)**

Exploratory factor analysis (EFA) is a statistical approach for determining the correlation among the variables in a dataset (Gaskin, 2016). This type of analysis provides a factor structure (a grouping of variables based on strong correlations). In general, an (EFA) prepares the variables to be used for cleaner

structural equation modeling. An EFA should always be conducted for new datasets. The beauty of an (EFA) over a (CFA) confirmatory is that no a priori theory about which items belong to which constructs is applied. This means the (EFA) will be able to spot problematic variables much more easily than the (CFA). Therefore this study used exploratory factor analysis for testing the validity and uni-dimensionality of measures to all variables under study, followed the assumptions recommended by (Lowry & Gaskin, 2014) as follow:

- There must be a clean pattern matrix.
- Adequacy.
- Convergent validity.
- Discriminant validity.
  
- Reliability.

#### **5.4.1.1. Exploratory factor analysis for collaborative knowledge environment**

Nineteen items was used to measure the independent variable (**Collaborative Knowledge Environment**) were subjected to exploratory factor analysis using maximum likelihood (ML), the summary of results was showed in Table 5.3 below. All the remaining items has more than recommended value of at least 0.40 in measure of sample adequacy (MSA) with (KMO) value of 0.916 above the recommended minimum level of 0.60, and Bartlett's test of sphericity is significant ( $p < .01$ ). Thus, the items are appropriate for factor analysis.

**Table 5.3****Exploratory factor analysis for strategic orientation**

Code of items	Components		
	1	2	3
Culture1	.813		
Culture2	.851		
Culture3	.774		
Culture4	.741		
Supervisor1	.765		
Supervisor2	.807		
Supervisor3	.799		
Supervisor4	.710		
Supervisor5	.665		
Attitude1		.837	
Attitude2		.831	
Attitude3		.885	
Attitude4		.771	
Attitude5		.761	
Support1			.555
Support2			.888
Support3			.747
<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</b>	<b>0.916</b>		
<b>Bartlett's Test of Sphericity</b>	<b>3044.479</b>		
<b>Total Variance Explained</b>	<b>63.766</b>		

*Source: prepared by researcher from data analysis (2019)*

**5.4.1.2. Exploratory factor analysis for knowledge sharing intention**

five items was used to measure the dependent variable (knowledge sharing intention) were subjected to exploratory factor analysis using maximum likelihood (ML) the summary of results was showed in Table 5.4 below. All the remaining items has more than recommended value of at least 0.40 in measure of sample adequacy (MSA) with (KMO) value of 0.824 above the recommended minimum level of 0.60, and Bartlett's test of sphericity is significant ( $p < .01$ ). Thus, the items are appropriate for factor analysis.



**Table 5.4**

**Exploratory factor analysis for operational performance**

Code of items	Component
	1
Sharing_Intention1	.680
Sharin_Intentions2	.846
Sharing_Intentions3	.864
Sharing_Intentions4	.815
Sharing_Intentions5	.806
<b>Meyer-Olkin Measure of Sampling Adequacy</b>	<b>0.824</b>
<b>Chi-Square Test of Sphericity</b>	<b>764.429</b>
<b>Variance Explained</b>	<b>64.782</b>

*Source: prepared by researcher from data analysis (2019)*

**5.4.1.3. Exploratory factor analysis for knowledge sharing attitude**

nineteen items was used to measure the dependent variable (Knowledge Sharing Attitude) were subjected to exploratory factor analysis using maximum likelihood (ML) the summary of results was showed in Table 5.5 below. All the remaining items has more than recommended value of at least 0.40 in measure of sample adequacy (MSA) with (KMO) value of 0.875 above the recommended minimum level of 0.60, and Bartlett's test of sphericity is significant ( $p < .01$ ). Thus, the items are appropriate for factor analysis.

**Table 5.5**

Exploratory factor analysis for operational performance

Code of items	Component			
	1	2	3	4
Rewards1				.886
Rewards2				.922
Rewards3				.847
Rewards4				.546
Associations1		.744		
Associations2		.861		
Associations3		.850		
Associations4		.821		
Associations5		.721		
Contribution1			.760	
Contribution2			.822	
Contribution3			.839	
Contribution4			.826	
Contribution5			.702	
Attitude_Toward1	.816			
Attitude_Toward2	.839			
Attitude_Toward3	.860			
Attitude_Toward4	.832			
Attitude_Toward5	.749			
<b>Kr-Meyer-Olkin Measure of Sampling Adequacy</b>				<b>0.875</b>
<b>Bartlett's Test of Sphericity</b>				<b>3428.169</b>
<b>Variance Explained</b>				<b>68.513</b>

Source: prepared by researcher from data analysis (2019)

#### 5.4.2. Confirmatory factor analysis

Confirmatory Factor Analysis (CFA) is the next step after exploratory factor analysis to determine the factor structure of dataset. In the (EFA) we explore the factor structure (how the variables relate and group based on inter-variable correlations); in the (CFA) we confirm the factor structure we extracted in the (EFA).

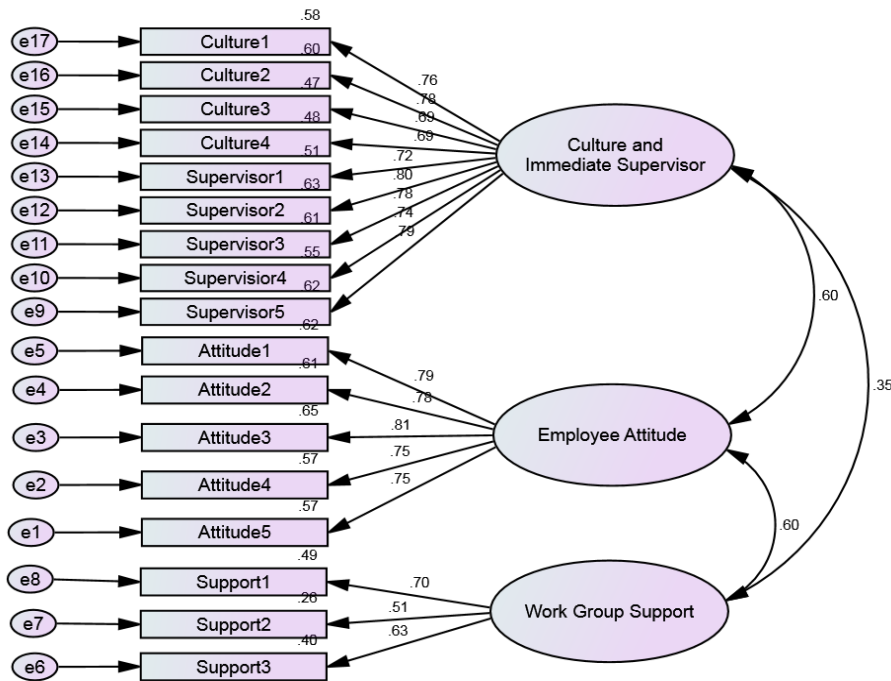
##### 5.4.2.1. Confirmatory factor analysis for collaborative knowledge environment

The statistical analysis software package was used AMOA (Analysis of Moments of Structure) to perform the process of confirmatory factor analysis for the model, as this package is uses to test the hypotheses relating to the existence or non- existence of a relationship between the variables and underlying

factors. The confirmatory factor analysis is also used to assess the ability of the factor model to change from the actual dataset and also to compare several models of factors in this area. Figure (5.1) below shows the Confirmatory Factor Analysis for independent variables (collaborative knowledge environment)

**Figure 5.1**

**Confirmatory Factor Analysis for collaborative knowledge environment**



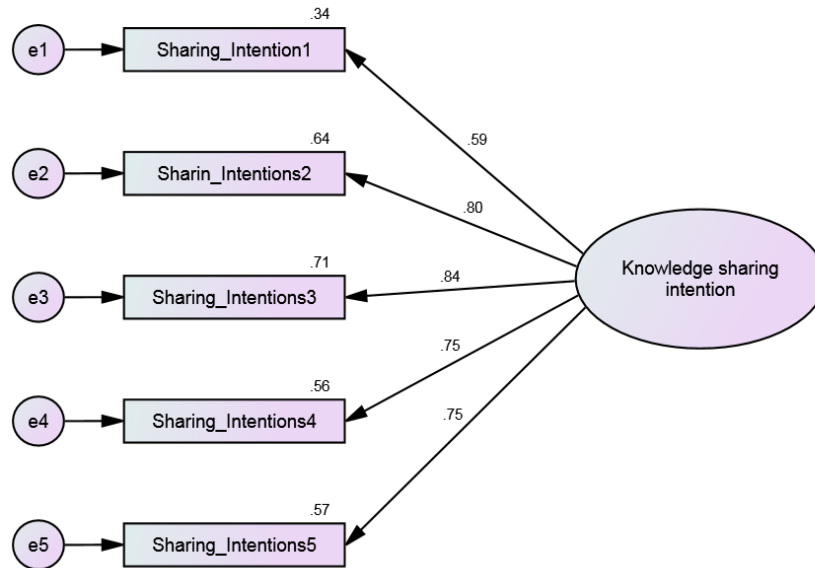
Source: prepared by the researcher from data (2019).

The (CFA) fit for independent variables indices show that the measurements model fits the data well: Chi-square/degree of freedom (cmin/df) = 3.335; incremental fit index (IFI) = .909; comparative fit index (CFI) = .909; goodness of fit index (GFI) = .867; adjusted goodness of fit index (AGFI) = .825; square root mean of residual (SRMR) = .049; root mean square error of approximation (RMSEA) = .085; and P Close = .000.

**5.4.2.2. Confirmatory factor analysis for Knowledge sharing Intention**

The statistical analysis software package was used (AMOA) to perform the process of confirmatory factor analysis for the model, as this package is used to test the hypotheses relating to the existence or non-existence of a relationship between the variables and underlying factors. The confirmatory factor analysis is also used to assess the ability of the factor model to change from the actual dataset and also to compare several models of factors in this area. Figure (5.2) below shows the confirmatory factor analysis for dependent variables (Knowledge Sharing intention).

**Figure 5.2**  
**Confirmatory Factor Analysis for Knowledge Sharing**



*Source: prepared by the researcher from data (2019).*

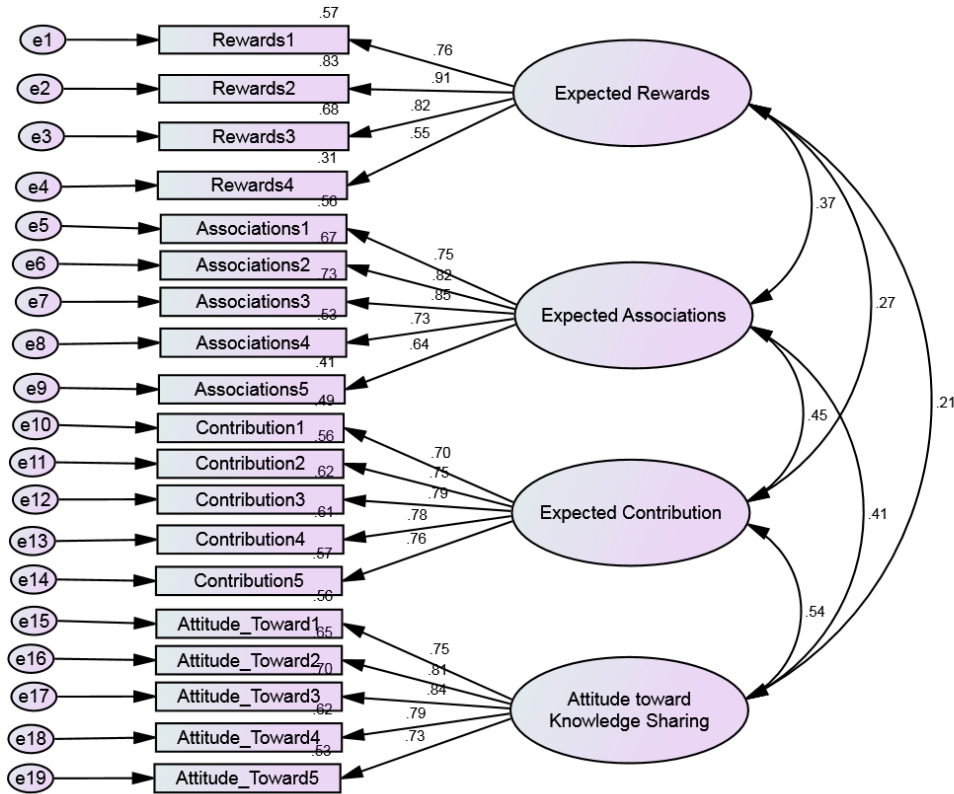
The (CFA) fit for independent variables indices show that the measurements model fits the data well: Chi-square/degree of freedom (cmin/df) = 9.758; incremental fit index (IFI) = .943; comparative fit index (CFI) = .942; goodness of fit index (GFI) = .943; adjusted goodness of fit index (AGFI) = .828; square root mean of residual (SRMR) = .026; root mean square error of approximation (RMSEA) = .165; and P Close = .000.

#### **5.4.2.3. Confirmatory factor analysis for knowledge sharing attitude**

The statistical analysis software package was used (AMOA) to perform the process of confirmatory factor analysis for the model, as this package is used to test the hypotheses relating to the existence or non-existence of a relationship between the variables and underlying factors. The confirmatory factor analysis is also used to assess the ability of the factor model to change from the actual dataset and also to compare several models of factors in this area. Figure (5.3) below shows the confirmatory factor analysis for mediating variables (knowledge sharing attitude)

**Figure 5.3**

**Confirmatory Factor Analysis for Knowledge sharing attitude**



Source: prepared by the researcher from data (2019).

The (CFA) fit for independent variables indices show that the measurements model fits the data well: Chi-square/degree of freedom (cmin/df) = 3.875; incremental fit index (IFI) = .919; comparative fit index (CFI) = .918; goodness of fit index (GFI) = .876; adjusted goodness of fit index (AGFI) = .838; square root mean of residual (RMR) = .045; root mean square error of approximation (RMSEA) = .076; and P Close = .000.

**5.4.2.4. goodness of model fit**

There are specific measures that can be calculated to determine goodness of fit. The thresholds listed in the table (5.6) below are simply a guideline.

**Table 5.6**

**Measures to determine goodness of model fit**

<b>Measure</b>	<b>Threshold</b>
Chi-square/degree of freedom(cmin/df)	< 3 good; < 5 sometimes permissible
P-value for model	>.05
CFI	>.95 great; >.90 traditional; >.80 sometimes permissible
GFI	>.95
AGFI	>.80
SRMR	<.09
RMSEA	<.5 good; .05-.10 moderate;> 10 bad
P Close	>.05

*Source: Adopted from (Gaskin, 2017)*

Based on the thresholds listed in Table (5.6) above the confirmatory factor analysis (CFA) was run to check the validation of the measurements.

**5.4.3. Reliability analysis**

This study used Cronbach's alpha as diagnostic tool to assess the degree of internal consistency between multiple measurements of variables. (Hair *et al*, 2010) stated that the lower limit for Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research. While Nunnally (1978) considered Cronbach's alpha values greater than 0.60 are taken as reliable. Given that Cronbach's alpha has being the most widely used measure (Sharma, 2000). Table 5.7 presents the summary of the results for reliability analysis. Confirmed that all the scales display the satisfactory level of reliability (Cronbach's alpha exceed the minimum value of 0.60). Therefore it can be concluded that the measures have acceptable level of reliability.

**Table 5.7****Reliability for study variables after EFA**

<b>Construct</b>	<b>Variables</b>	<b>Number of items</b>	<b>Cronbach's alpha</b>
Collaborative Knowledge Environment	Culture and immediate supervisor	9	<b>.920</b>
	Employee Attitude	5	<b>.882</b>
	Work Group Support	3	<b>.766</b>
Knowledge Sharing Intention	Knowledge Sharing Intention	5	<b>.858</b>
Knowledge Sharing Attitude	Expected Rewards	4	<b>.842</b>
	Expected Associations	5	<b>.868</b>
	Expected Contribution	5	<b>.867</b>
	Attitude toward Knowledge Sharing	5	<b>.885</b>

*Source: prepared by researcher from data analysis (2019)*

**5.5. Descriptive analysis**

Descriptive statistics such as mean and standard deviation was used to describe the characteristics of the firms and all the variables (collaborative knowledge environment, knowledge sharing intention and knowledge sharing attitude) under the study. Given that the study includes some of firm characteristics such as gender, age, marital status, qualifications, job degree and experience.

**5.5.1. Descriptive analysis of the model**

Table (5.8) shows the means and standard deviations of the study variables components culture and immediate supervisor, employee Attitude, work group support, knowledge sharing intention, expected rewards, expected associations, expected contribution and attitude toward knowledge sharing. The table reveals that the insurance firms operating in Sudan are emphasized the attitude toward knowledge sharing was in the top ranking score (mean=1.7809, standard deviation=.58696), followed by knowledge sharing intention (mean=1.7846, standard deviation=.59649), followed by expected associations (mean=1.7858, standard deviation=.59172), followed by expected contribution (mean=1.8938, standard deviation=.57810), followed by employee attitude (mean=1.9988, standard deviation=.71723), followed by work group support (mean=2.0938, standard deviation=.69485), followed by organizational culture and immediate supervisor (mean=2.3433, standard deviation=.80917) and expected rewards

(mean=2.4823, standard deviation=.90763). Given that the scale used a 5-point scale (1=strongly agree, 5=strongly disagree), this finding indicates that the attitude toward knowledge sharing tends to inhabit high position in insurances firms operating in Sudan.

**Table 5-8**

**Descriptive Analysis of the model**

<b>Variables name</b>	<b>Mean</b>	<b>Standard Deviation</b>
organizational Culture and immediate supervisor	2.3433	.80917
Employee Attitude	1.9988	.71723
Work Group Support	2.0938	.69485
Knowledge Sharing Intention	1.7846	.59649
Expected Rewards	2.4823	.90763
Expected Associations	1.7858	.59172
Expected Contribution	1.8938	.57810
Attitude toward Knowledge Sharing	1.7809	.58696

*Note: All variables used a 5-point likert scale (1= strongly agree, 5= strongly disagree)*

**5.6. Correlation analysis**

The correlation analysis was used between the study variables with aim of identifying the correlative relationship between the independent, dependent, mediating and moderating variables, so whenever the closer the degree of correlation to the integer one, the stronger the correlation between the two variables, whenever the less the degree of correlation than the integer one, the weaker the relationship between the two variables, and the relationship may be direct or inverse. In general, the relationship is weak if the value of the correlation coefficient is less than (0.30), and it can be considered medium if the correlation coefficient value ranges between (0.30-0.70), yet if the value of the correlation is more than (0.70) the relationship is considered strong between variables, and the correlation is considered positive if its value is negative. Table (5-9) shows the values of link between variables.



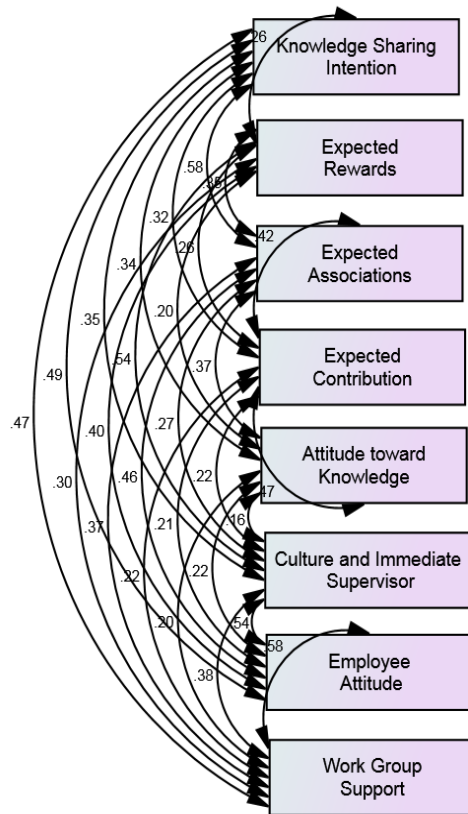
**Table 5 -9****Person correlation coefficient for all variables**

<i>Variables</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
1. Culture and Immediate Supervisor	1							
2. Employee Attitude	.540**	1						
3. Work Group Support	.383**	.585**	1					
4. Knowledge Sharing Intention	.354**	.487**	.471**	1				
5. Expected Rewards	.542**	.396**	.299**	.256**	1			
6. Expected Associations	.274**	.462**	.366**	.575**	.354**	1		
7. Expected Contribution	.219**	.207**	.224**	.317**	.257**	.422**	1	
8. Attitude toward Knowledge	.163**	.224**	.199**	.337**	.198**	.372**	.470**	1

*Source: prepared by the researcher from data (2019).*

Figure (5.4) below show the correlation analysis between study variables, as it was explained that there were moderate links between study variables, and that there were strong and weak links, and correlation analysis showed that there was a reverse correlation between same variables. In the following are hypotheses testing the last part of data analysis and findings.

**Figure 5.4**  
**Correlation analysis between study variables.**



*Source: prepared by the researcher from data (2019).*

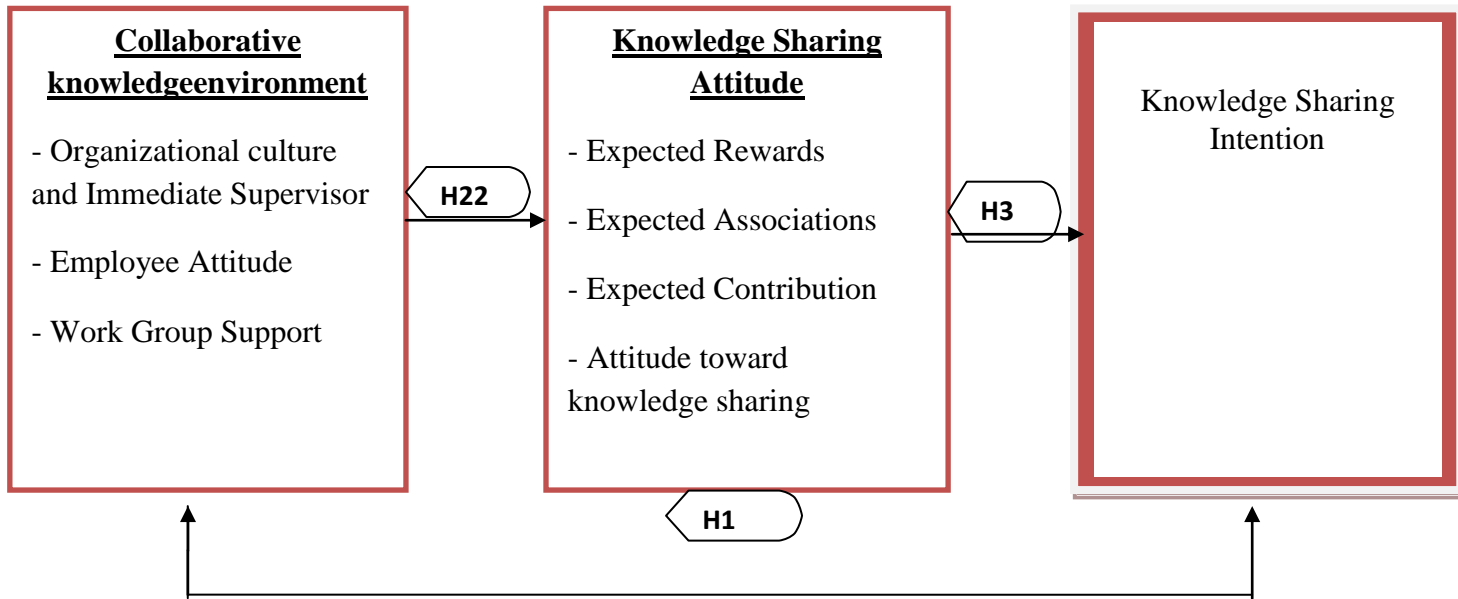
### 5.7. Modification of conceptual framework and hypotheses

As a result of factor analysis the initial Framework of this study had been changed, the variables, of knowledge sharing intention and knowledge sharing Attitude remained without change. However the variables related to collaborative knowledge environment has been changed to three variables, organizational culture and immediate supervisor, employee attitude, and work group support.

Sequentially, the initial hypotheses presented with the proposed model will be restated. Figure (5.5) presents the modified conceptual framework, and the restated hypotheses are shown in table (5.10).

**Figure 5.5**

**The Modified conceptual framework.**



**Table 5.10**

The restated hypotheses

<b>H1.</b>	<b>There is a positive relationship between collaborative knowledge environment and knowledge sharing intention.</b>
<b>H1.1</b>	There is a positive relationship between organizational culture and immediate supervisor and knowledge sharing intention.
<b>H1.2</b>	There is a positive relationship between employee attitude and knowledge sharing intention.
<b>H1.3</b>	There is a positive relationship between work group support and knowledge sharing intention.
<b>H2.</b>	<b>There is a positive relationship between collaborative knowledge environment and Knowledge Sharing Attitude</b>
<b>H2.1</b>	There is a positive relationship between organizational culture and immediate supervisor and expected rewards.
<b>H2.2</b>	There is a positive relationship between organizational culture and immediate supervisor and expected associations.
<b>H2.3</b>	There is a positive relationship between organizational culture and immediate supervisor and expected contribution.
<b>H2.4</b>	There is a positive relationship between organizational culture and immediate supervisor and Attitude toward knowledge sharing.
<b>H2.5</b>	There is a positive relationship between employee attitude and expected rewards.
<b>H2.6</b>	There is a positive relationship between employee attitude and expected associations.
<b>H2.7</b>	There is a positive relationship between employee attitude and expected contribution.
<b>H2.8</b>	There is a positive relationship between employee attitude and attitude toward knowledge sharing.
<b>H2.9</b>	There is a positive relationship between work group support and expected rewards.
<b>H2.10</b>	There is a positive relationship between work group support and expected associations.

<b>H2.11</b>	There is a positive relationship between work group support and expected contribution.
<b>H2.12</b>	There is a positive relationship between work group support and attitude toward knowledge sharing.
<b>H3.</b>	<b>There is a positive relationship between knowledge sharing attitude and knowledge sharing intention.</b>
<b>H3.1</b>	There is a positive relationship between expected rewards and knowledge sharing intention.
<b>H3.2</b>	There is a positive relationship between expected associations and knowledge sharing intention.
<b>H3.3</b>	There is a positive relationship between expected contribution and knowledge sharing intention.
<b>H3.4</b>	There is a positive relationship between attitude toward knowledge sharing and knowledge sharing intention.
<b>H4.</b>	<b>Knowledge sharing attitude mediate the relationship between collaborative knowledge environment and knowledge sharing intention.</b>
<b>H4.1</b>	Expected rewards mediate the relationship between organizational culture and immediate supervisor and knowledge sharing intention.
<b>H4.2</b>	Expected rewards mediate the relationship between employee attitude and knowledge sharing intention.
<b>H4.3</b>	Expected rewards mediate the relationship between work group support and knowledge sharing intention.
<b>H4.4</b>	Expected associations mediate the relationship between organizational culture and immediate supervisor and knowledge sharing intention.
<b>H4.5</b>	Expected associations mediate the relationship between employee attitude and knowledge sharing intention.
<b>H4.6</b>	Expected associations mediate the relationship between work group support and knowledge sharing intention.
<b>H4.7</b>	Expected contribution mediates the relationship between organizational culture and immediate supervisor and knowledge sharing intention.
<b>H4.8</b>	Expected contribution mediates the relationship between employee attitude and knowledge sharing intention.
<b>H4.9</b>	Expected contribution mediates the relationship between work group support and knowledge sharing intention.
<b>H4.10</b>	Attitude toward knowledge sharing mediate the relationship between organizational culture and immediate supervisor and knowledge sharing intention.
<b>H4.11</b>	Attitude toward knowledge sharing mediate the relationship between employee attitude and knowledge sharing intention.
<b>H4.12</b>	Attitude toward knowledge sharing mediate the relationship between work group support and knowledge sharing intention.

## **5.8. Hypotheses testing**

This section discusses the results of hypotheses of the study. The hypotheses were tested with the path analysis that discloses the effect of independent variables on dependent variables and the effect of mediator in relationships between variables through the structural equation modeling (SEM) that grows out of and serves purposes similar to multiple regression, but in more powerful way which takes in account the modeling of interactions between variables, nonlinearities, correlated independents, measurement error, correlated error terms, multiple latent independents each measured by multiple indicators, and one or more latent dependents also each with multiple indicators (Gaskin, 2016). SEM may be used as a more powerful alternative to multiple regression, path analysis, factor analysis, time series analysis, and analysis of covariance. That is, these procedures may be seen as special cases of SEM, or, to put it another way, SEM is an extension of the general linear model (GLM) of which multiple regression is a part. Given that the variables appeared in confirmatory factor analysis encompasses 31 hypotheses in this study. The main effects as well as the mediating effect were examined using path analysis.

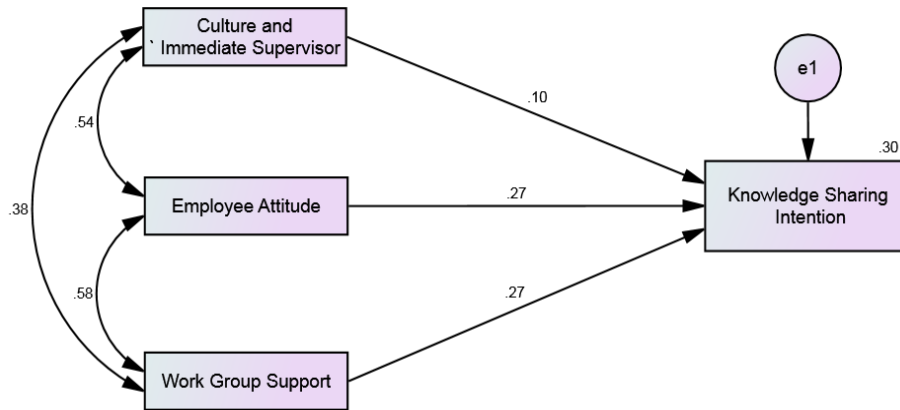
In order to perform path analysis, it is generally agreed that there are at least the assumptions of model fit should be met. It's given that the model fit was done in (CFA), however the need to do it again in structural model is important in order to demonstrate sufficient exploration of alternative models (Gaskin, 2016).

### **5.8.1. The relationship between collaborative knowledge environment and knowledge sharing intention.**

This section aims to investigate the first hypotheses in this study which assumes that the collaborative knowledge environment dimensions have positive relationship with the knowledge sharing intention as shown in figure (5.6) below. Based on the below figures three hypotheses were developed to be tested. Therefore, to test these hypotheses, a similar process of path analysis using AMOS was conducted to predict the impacts of collaborative knowledge environment dimensions on knowledge sharing intention.

**Figure 5.6**

**The Relationship between CKI and knowledge sharing intention.**



*Source: prepared by the researcher from data (2019).*

Table (5.11) summarizes the results of regression analysis. First, the analysis of the results showed that the three components of collaborative knowledge environment have partial significant relationship with knowledge sharing intention, the results indicate not positive relationship between organizational culture and immediate supervisor with knowledge sharing intention values of (estimate =.075,  $p > 0.05$ ) and positive relationship between two dimensions (employee attitude and work group support) with value (estimate =.227,  $p < 0.001$ ; estimate =.233,  $p < 0.001$ ) respectively on knowledge sharing intention . These results give not supported to hypotheses H1.1 (The organizational culture and immediate supervisor and knowledge sharing intention), supported H1.2 (The employee attitude and knowledge sharing intention) and supported H1.3 (The work group support and knowledge sharing intention).

Table 5.11  
Regression weights for relationship between CKI and KSI.

Relationship			Estimate	S.E.	C.R.	P
knowledge sharing intention	<---	organizational culture and immediate supervisor	.075	.041	1.836	.066
knowledge sharing intention	<---	employee attitude	.227	.053	4.305	***
knowledge sharing intention	<---	work group support	.233	.050	4.708	***

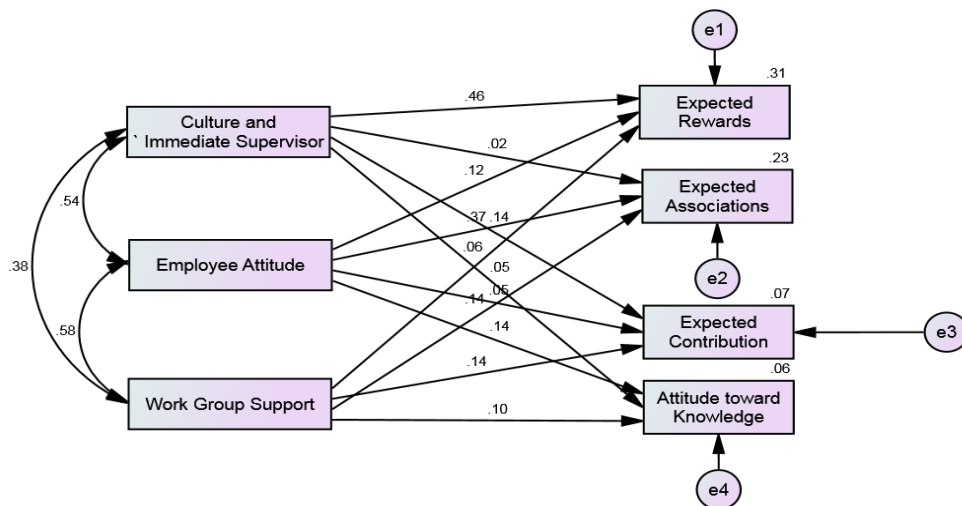
Source: prepared by the researcher from data (2019).

### 5.8.2. The relationship between collaborative knowledge environment and knowledge sharing attitude.

This section aims to investigate the second hypotheses in this study which assumes that the collaborative knowledge environment dimensions have positive relationship with the knowledge sharing attitude dimensions as shown in figure (5.7) below. Based on the below figures twelve hypotheses were developed to be tested. Therefore, to test these hypotheses, a similar process of path analysis using AMOS was conducted to predict the impacts of collaborative knowledge environment dimensions on knowledge sharing attitude dimensions.

Figure 5.7

### The Relationship between CKE and knowledge sharing attitude.



Source: prepared by the researcher from data (2019).

Table (5.12) summarizes the results of regression analysis. First, the analysis of the results showed that the three components of collaborative knowledge environment have partial significant relationship with expected rewards, the results indicate positive relationship between organizational culture and immediate supervisor and expected rewards (estimate =.514,  $p < 0.01$ ) and not positive relationship between the two variables with values of (estimate =.146,  $p > 0.05$ ; estimate =.073,  $p > 0.05$ ) respectively to (employee attitude, and work group support) on expected rewards . These results give supported to hypotheses H2.1 (The organizational culture and immediate supervisor and expected rewards) not supported H2.2 (The employee attitude and expected rewards) and not supported H2.3 (The work group support and expected rewards).

Second, analysis of the results in table 5.12 also showed that not positive relationship between organizational culture and immediate supervisor and expected associations (estimate =.015,  $p > 0.05$ ) and positive relationship between the two variables with values of (estimate =.302,  $p < 0.01$ ; estimate =.122,  $p < 0.05$ ) respectively to (employee attitude, and work group support) on expected associations. These results give not supported to hypothesis H2.4 (organizational culture and immediate supervisor and expected associations) and supported to hypotheses H2.5 (employee attitude and expected associations) and H2.6 (work group support and expected associations).

Third, further analysis of the results in table 5.12 showed that a positive relationship between organizational culture and immediate supervisor and expected contributions (estimate =.098,  $p < 0.05$ ) not positive relationship between employee attitude and expected contributions (estimate =.040,  $p > 0.05$ ) and positive relationship between work group support and expected contributions (estimate =.118,  $p > 0.05$ ), These results give supported to hypothesis H2.7 (the organizational culture and immediate supervisor and expected contributions) not supported H2.8 (employee attitude and expected contributions) and supported H2.9 (work group support and expected contributions).

Fourth, analysis of the results in table 5.12 also showed that not positive relationship between organizational culture and immediate supervisor and attitude toward knowledge (estimate =.036,  $p > 0.05$ ) positive relationship between employee attitude and Attitude toward knowledge (estimate =.114,  $p = 0.05$ ) and not positive relationship between work group support and Attitude toward knowledge (estimate =.083,  $p > 0.05$ ), These results give not supported to hypothesis H2.10 (the organizational culture and immediate supervisor and Attitude toward knowledge) supported H2.11 (employee attitude and Attitude toward knowledge) and not supported H2.12 (work group support and Attitude toward knowledge). Thus hypothesis H2 which states that there is partially positive relationship between collaborative knowledge environment and knowledge sharing attitude was partially supported.



Table 5.12  
Regression weights for Relationship between CKE and KSA.

Relationships			Estimate	S.E.	C.R.	P
Expected rewards	<---	organizational culture and immediate supervisor	.514	.062	8.306	***
Expected associations	<---	organizational culture and immediate supervisor	.015	.043	.359	.720
Expected contribution	<---	organizational culture and immediate supervisor	.098	.046	2.150	.032
Attitude toward knowledge	<---	organizational culture and immediate supervisor	.036	.047	.776	.438
Expected rewards	<---	employee attitude	.146	.079	1.841	.066
Expected associations	<---	employee attitude	.302	.055	5.513	***
Expected contribution	<---	employee attitude	.040	.059	.682	.496
Attitude toward knowledge	<---	employee attitude	.114	.060	1.889	.059
Expected rewards	<---	work group support	.073	.075	.983	.326
Expected associations		work group support	.122	.052	2.369	.018
Expected contribution		work group support	.118	.055	2.144	.032
Attitude toward knowledge		work group support	.083	.056	1.478	.139

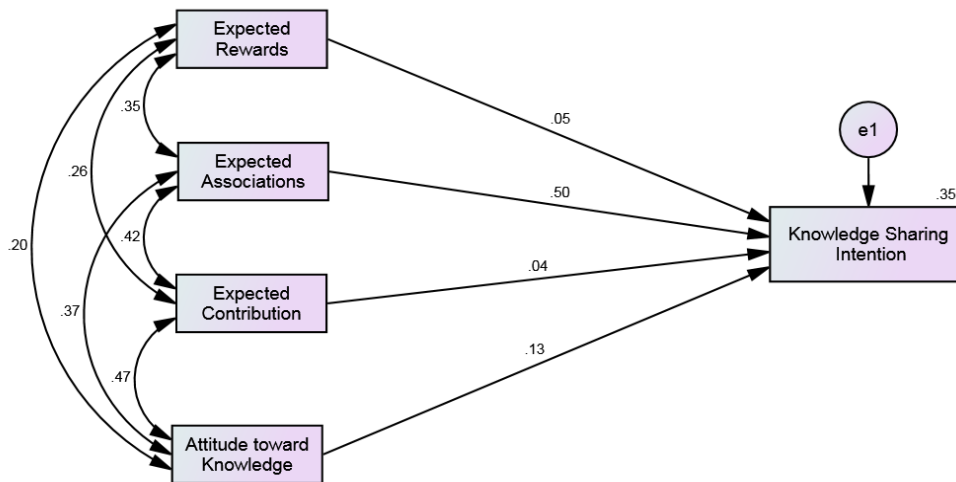
*Source: prepared by the researcher from data (2019).*

### **5.8.3. The relationship between knowledge sharing attitude and knowledge sharing intention.**

This section concerns with testing of third hypotheses in this study which assumes that the knowledge sharing attitude dimensions have positive relationship with knowledge sharing intention as shown in figure (5.8) below.

**Figure 5.8**

**The Relationship between KSA and knowledge sharing intention.**



Source: prepared by the researcher from data (2019).

Table (5.13) summarizes the results of regression analysis. the analysis of the results showed that the four components of knowledge sharing attitude have partial significant relationship to knowledge sharing intention, the results indicate not positive relationship between (expected rewards and expected contribution) with knowledge sharing intention values of (estimate =.030,  $p > 0.05$ ; estimate =.037,  $p > 0.05$ ) respectively, and positive relationship between two dimensions of knowledge sharing attitude (expected associations and attitude toward) with value (estimate =.501,  $p < 0.001$ ; estimate =.128,  $p < 0.05$ ) respectively on knowledge sharing intention . These results give not supported to hypotheses H1.1 (The expected rewards and knowledge sharing intention), not supported H1.2 (The expected contribution and knowledge sharing intention) supported H1.3 (The expected associations and knowledge sharing intention) and supported H1.4 (The attitude toward and knowledge sharing intention).

**Table 5.13**

**Regression weights for relationship between KSA and KSI.**

Relationship		Estimate	S.E.	C.R.	P	
knowledge sharing intention	<---	Expected rewards	.030	.032	.957	.339
knowledge sharing intention	<---	Expected associations	.501	.053	9.463	***
knowledge sharing intention	<---	Expected contribution	.037	.055	.667	.504
knowledge sharing intention	<---	Attitude toward	.128	.053	2.421	.015

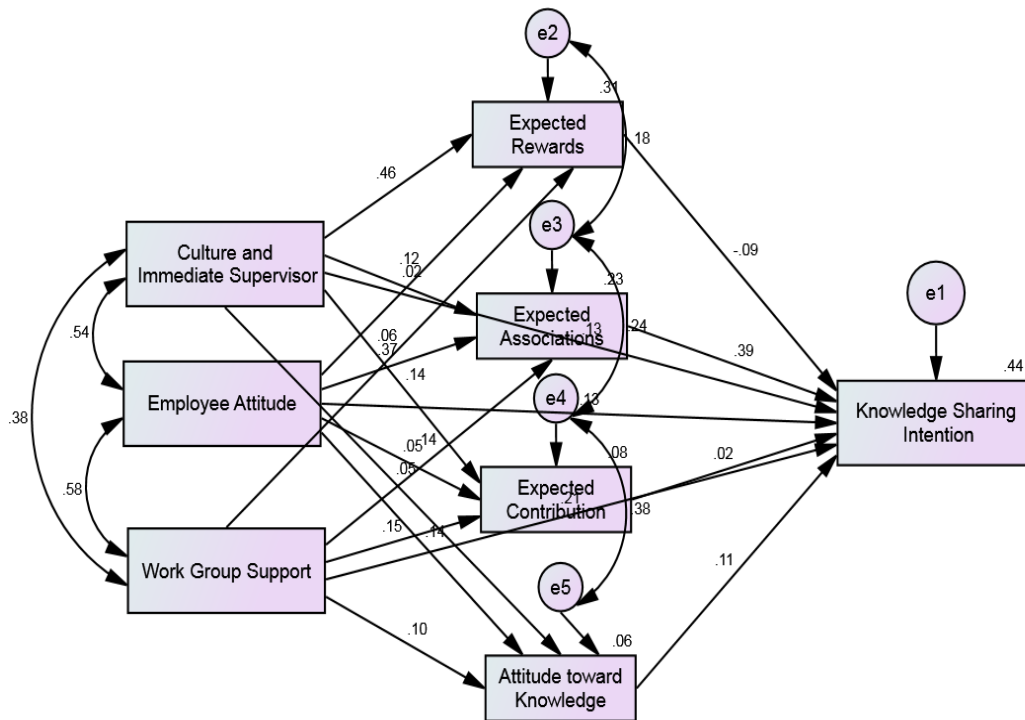
*Source: prepared by the researcher from data (2019).*

**5.8.4. Knowledge sharing attitude mediate the relationship between collaborative knowledge environment and knowledge sharing intention.**

The fourth part of hypotheses testing in this study deals with the mediating role of Knowledge sharing attitude which included in H4. The support from the first three hypotheses provides the initial steps required to test the fourth hypothesis in the study which predicts whether Knowledge sharing attitude (expected rewards, expected associations, expected contribution and radical) may be a mediating variable between the collaborative knowledge environment dimensions and knowledge sharing intention. As shown in figure (5.9) below.

**Figure 5.9**

**The mediating role of knowledge sharing attitude.**



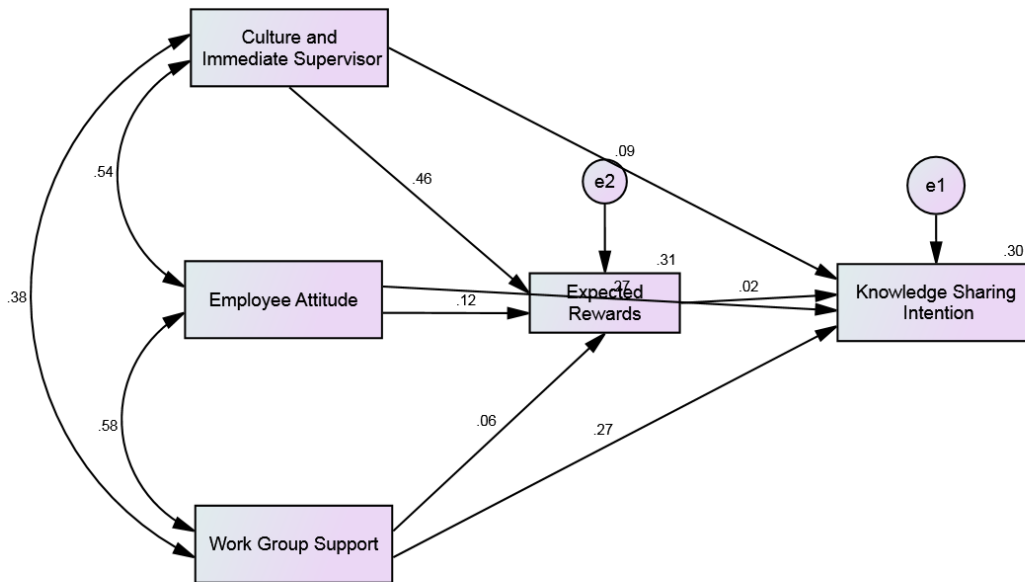
Source: prepared by the researcher from data (2019).

**5.8.4.1. The mediating role of expected rewards in the relationship between collaborative knowledge environment and knowledge sharing intention.**

In this subsection the expected rewards was hypothesized to mediate the relationship between collaborative knowledge environment dimensions and knowledge sharing intention as shown in figure (5.10) below. However, to test this hypothesis an examination of whether expected rewards mediates the relationship between organizational culture and immediate supervisor and knowledge sharing intention must be estimated firstly. Secondly, the examination of whether expected rewards mediates the relationship between employee attitude and knowledge sharing intention. Thirdly, the examination of whether expected rewards mediate the relationship between work group support and knowledge sharing intention.

**Figure 5.10**

**The mediating Effect of expected Rewards between CKE and KSI.**



*Source: prepared by the researcher from data (2019).*

The result of regression weights presented in table (5.14) below which represents the direct effects shows organizational culture and immediate supervisor not significantly influence knowledge sharing intention ( $p > 0.05$ ), organizational culture and immediate supervisor significantly influence expected rewards ( $p < 0.01$ ), and expected rewards not significantly influence knowledge sharing intention ( $p > 0.05$ ).

**Table 5.14****Regression weights for direct effect between CKE, KSI and expected rewards**

Relationship			Estimate	S.E.	C.R.	P
Expected rewards	<---	organizational culture and immediate supervisor	.514	.062	8.306	***
Expected rewards	<---	employee attitude	.146	.079	1.841	.066
Expected rewards	<---	work group support	.073	.075	.983	.326
knowledge sharing intention	<---	Expected rewards	.011	.037	.291	.771
knowledge sharing intention	<---	organizational culture and immediate supervisor	.070	.045	1.545	.122
knowledge sharing intention	<---	employee attitude	.226	.053	4.254	***
knowledge sharing intention	<---	work group support	.233	.050	4.686	***

*Source: prepared by the researcher from data (2019).*

On the other hand, table (5.15) illustrates the indirect effect shows no significant relationship between organizational culture and immediate supervisor and knowledge sharing intention through expected rewards. This, result confirmed that no mediation role of expected rewards in the relationship between organizational culture and immediate supervisor and knowledge sharing intention. Thus, the indirect effect indicated no mediation of expected rewards with the above mentioned relationship.

**Table 5.15****User-defined estimands for indirect effect between organizational culture and KSI**

Parameter	Estimate	Lower	Upper	P
A x B	.070	-.012	.153	.167

*Source: prepared by the researcher from data (2019).*

With regards to the examination of whether expected rewards mediates the relationship between employee attitude and knowledge sharing intention as depicted in table (5.14) above shows employee attitude significantly influence knowledge sharing intention ( $p < 0.01$ ), employee attitude not significantly influence expected rewards ( $p > 0.05$ ), and expected rewards not significantly influence knowledge sharing intention ( $p > 0.05$ ). On the other hand, table (5.16) below presented the indirect effect shows significant relationship between employee attitude and knowledge sharing intention through expected rewards ( $p < 0.05$ ). This, result confirms the mediating role of expected rewards in the relationship between employee attitude and knowledge sharing intention. Thus, the indirect effect indicated mediation of expected rewards with the above mentioned relationship.

**Table 5.16**

**User-defined estimands for indirect effect between employee attitude and KSI**

<b>Parameter</b>	<b>Estimate</b>	<b>Lower</b>	<b>Upper</b>	<b>P</b>
A x B	.226	.119	.345	.001

*Source: prepared by the researcher from data (2019).*

With regards to the examination of whether expected rewards mediates the relationship between work group support and knowledge sharing intention as depicted table (5.14) above show that work group support significantly influence knowledge sharing intention ( $p < 0.01$ ), work group support not significantly influence expected rewards ( $p > 0.05$ ), and expected rewards not significantly influence knowledge sharing intention ( $p > 0.05$ ). Whereas, table (5.17) presented the indirect effect shows a significant relationship between work group support and knowledge sharing intention through expected rewards ( $p < 0.05$ ). This, result confirms the mediating role of expected rewards in the relationship between work group support and knowledge sharing intention. Thus, the indirect effect indicated mediation of expected rewards with the above mentioned relationship.

**Table 5.17**

**User-defined estimands for indirect effect between work group support and KSI**

<b>Parameter</b>	<b>Estimate</b>	<b>Lower</b>	<b>Upper</b>	<b>P</b>
A x B	.233	.106	.364	.003

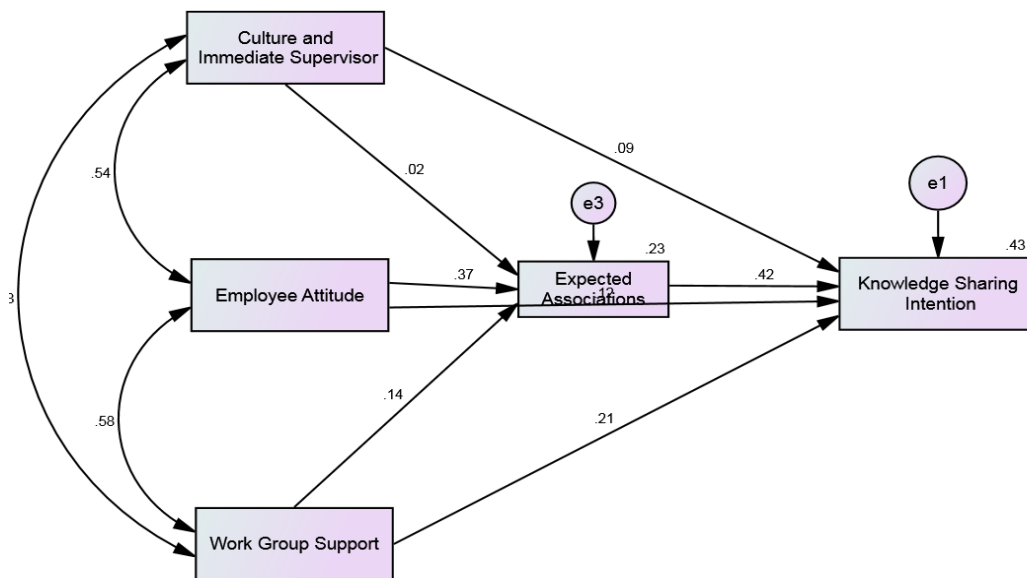
*Source: prepared by the researcher from data (2019).*

**5.8.4.2. The mediating role of expected associations in the relationship between collaborative knowledge environment and knowledge sharing intention.**

In this subsection the expected associations was hypothesized to mediate the relationship between collaborative knowledge environment dimensions and knowledge sharing intention as shown in figure (5.11) below. However, to test this hypothesis an examination of whether expected associations mediates the relationship between organizational culture and immediate supervisor and knowledge sharing intention must be estimated firstly. Secondly, the examination of expected associations’ rewards mediates the relationship between employee attitude and knowledge sharing intention. Thirdly, the examination of whether Expected associations mediate the relationship between work group support and knowledge sharing intention.

**Figure 5.11**

**the mediating effect of expected associations between CKE and KSI.**



*Source: prepared by the researcher from data (2019).*

The result of regression weights presented in table (5.18) below which' represents the direct effects shows organizational culture and immediate supervisor not significantly influence knowledge sharing intention ( $p > 0.05$ ), organizational culture and immediate supervisor not significantly influence expected associations ( $p > 0.05$ ), and expected associations significantly influence knowledge sharing intention ( $p < 0.01$ ).



**Table5.18****Regression weights for direct effect between CKE, KSI and expected associations**

Relationship			Estimate	S.E.	C.R.	P
expected associations	<---	organizational culture and immediate supervisor	.015	.043	.359	.720
expected associations	<---	employee attitude	.302	.055	5.513	***
expected associations	<---	work group support	.122	.052	2.369	.018
knowledge sharing intention	<---	organizational culture and immediate supervisor	.069	.037	1.867	.062
knowledge sharing intention	<---	employee attitude	.100	.050	2.017	.044
knowledge sharing intention	<---	work group support	.182	.045	4.049	***
knowledge sharing intention	<---	expected associations	.420	.048	8.727	***

*Source: prepared by the researcher from data (2019).*

On the other hand, table (5.19) explained that the indirect effect shows a significant relationship between organizational culture and immediate supervisor and knowledge sharing intention through expected associations ( $p=0.05$ ). This result confirmed that mediation role of expected associations in the relationship between organizational culture and immediate supervisor and knowledge sharing intention. Thus, the indirect effect indicated mediation of expected associations with the above mentioned relationship.

**Table 5.19****User-defined estimands for indirect effect between organizational culture and KSI**

Parameter	Estimate	Lower	Upper	P
A x B	.069	.009	.134	.051

*Source: prepared by the researcher from data (2019).*

With regards to the examination of whether expected associations mediates the relationship between employee attitude and knowledge sharing intention as depicted in table (5.18) above shows employee attitude significantly influence knowledge sharing intention ( $p < 0.05$ ), employee attitude significantly influence expected associations ( $p < 0.01$ ), and expected associations significantly influence knowledge sharing intention ( $p < 0.01$ ). On the other hand, table (5.20) below presented the indirect effect shows not significant relationship between employee attitude and knowledge sharing intention through expected associations ( $p > 0.05$ ). This, result confirms the no mediating role of expected associations in the relationship between employee attitude and knowledge sharing intention. Thus, the indirect effect indicated no mediation of expected associations with the above mentioned relationship.

**Table 5.20**

**User-defined estimands for indirect effect between employee attitude and KSI**

<b>Parameter</b>	<b>Estimate</b>	<b>Lower</b>	<b>Upper</b>	<b>P</b>
A x B	.100	.007	.198	.079

*Source: prepared by the researcher from data (2019).*

With regards to the examination of whether expected associations mediates the relationship between work group support and knowledge sharing intention as depicted in table (5.18) above show that work group support significantly influence knowledge sharing intention ( $p < 0.01$ ), work group support significantly influence expected associations ( $p < 0.05$ ), and expected associations significantly influence knowledge sharing intention ( $p < 0.01$ ). Whereas, table (5.21) presented the indirect effect shows significant relationship between work group support and knowledge sharing intention through expected associations ( $p < 0.05$ ). This, result confirms the mediating role of expected associations in the relationship between work group support and knowledge sharing intention. Thus, the indirect effect indicated mediation of expected associations with the above mentioned relationship.

**Table 5.21**

**User-defined estimands for indirect effect between work group support and KSI**

<b>Parameter</b>	<b>Estimate</b>	<b>Lower</b>	<b>Upper</b>	<b>P</b>
A x B	.182	.081	.298	.003

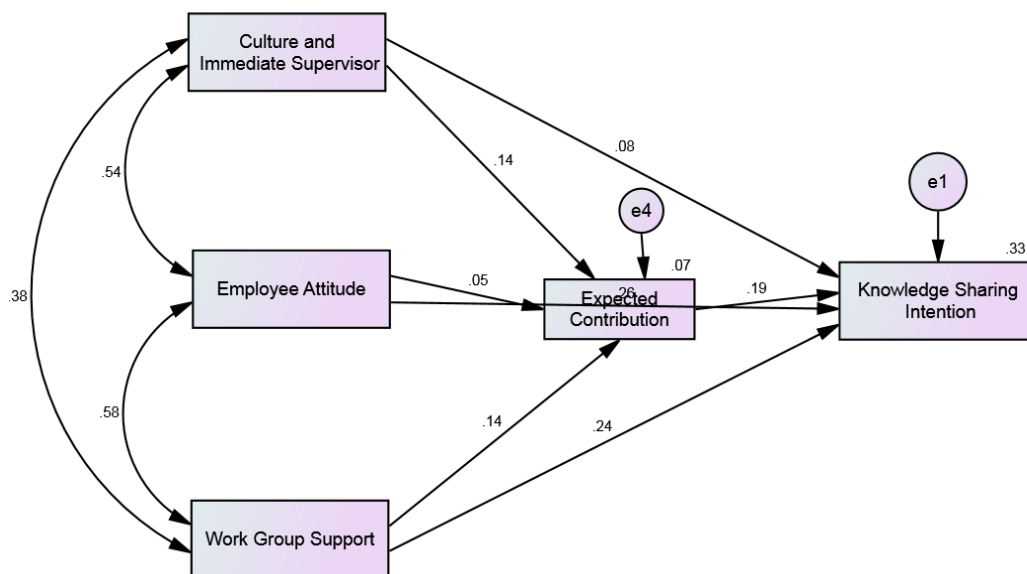
*Source: prepared by the researcher from data (2019).*

**5.8.4.3. The mediating role of expected contribution in the relationship between collaborative knowledge environment and knowledge sharing intention.**

In this subsection the expected contribution was hypothesized to mediate the relationship between collaborative knowledge environment dimensions and knowledge sharing intention as shown in figure (5.12) below. However, to test this hypothesis an examination of whether expected contribution mediates the relationship between organizational culture and immediate supervisor and knowledge sharing intention must be estimated firstly. Secondly, the examination of whether expected contribution mediates the relationship between employee attitude and knowledge sharing intention. Thirdly, the examination of whether expected contribution mediates the relationship between work group support and knowledge sharing intention.

**Figure 5.12**

**The mediating effect of expected contribution between CKE and KSI.**



*Source: prepared by the researcher from data (2019).*

The result of regression weights presented in table (5.22) below which represents the direct effects shows organizational culture and immediate supervisor not significantly influence knowledge sharing intention ( $p > 0.05$ ), organizational culture and immediate supervisor not significantly influence expected contribution ( $p > 0.05$ ), and expected contribution significantly influence knowledge sharing intention ( $p < 0.01$ ).

**Table5.22****Regression weights for direct effect between CKE, KSI and expected contribution**

<b>Relationship</b>			<b>Estimate</b>	<b>S.E.</b>	<b>C.R.</b>	<b>P</b>
Expected contribution	<---	organizational culture and immediate supervisor	.040	.059	.682	.496
Expected contribution	<---	employee attitude	.098	.046	2.150	.032
Expected contribution	<---	work group support	.118	.055	2.144	.032
knowledge sharing intention	<---	Expected contribution	.197	.049	4.032	***
knowledge sharing intention	<---	organizational culture and immediate supervisor	.056	.040	1.390	.165
knowledge sharing intention	<---	employee attitude	.219	.052	4.257	***
knowledge sharing intention	<---	work group support	.210	.049	4.314	***

*Source: prepared by the researcher from data (2019).*

On the other hand, table (5.23) illustrates the indirect effect shows no significant relationship between organizational culture and immediate supervisor and knowledge sharing intention through expected contribution ( $p > 0.05$ ). This result confirmed that no mediation role of expected contribution in the relationship between organizational culture and immediate supervisor and knowledge sharing intention. Thus, the indirect effect indicated no mediation of expected contribution with the above mentioned relationship.

**Table5.23****User-defined estimands for indirect effect between organizational culture and KSI**

<b>Parameter</b>	<b>Estimate</b>	<b>Lower</b>	<b>Upper</b>	<b>P</b>
A x B	.056	-.012	.129	.169

*Source: prepared by the researcher from data (2019).*

With regards to the examination of whether expected contribution mediates the relationship between employee attitude and knowledge sharing intention as depicted in table (5.22) above shows employee attitude significantly influence knowledge sharing intention ( $p < 0.01$ ), employee attitude significantly influence expected contribution ( $p < 0.05$ ), and expected contribution significantly influence knowledge sharing intention ( $p < 0.01$ ). On the other hand, table (5.24) below presented the indirect effect shows a significant relationship between employee attitude and knowledge sharing intention through expected contribution ( $p < 0.05$ ). This, result confirms the mediating role of expected contribution in the relationship between employee attitude and knowledge sharing intention. Thus, the indirect effect indicated that mediation of expected contribution with the above mentioned relationship.

**Table 5.24**

**User-defined estimands for indirect effect between employee attitude and KSI**

<b>Parameter</b>	<b>Estimate</b>	<b>Lower</b>	<b>Upper</b>	<b>P</b>
A x B	.219	.119	.336	.001

*Source: prepared by the researcher from data (2019).*

With regards to the examination of whether expected contribution mediates the relationship between work group support and knowledge sharing intention as depicted table (5.22) above show that work group support significantly influence knowledge sharing intention ( $p < 0.01$ ), work group support significantly influence expected contribution ( $p < 0.05$ ), and expected contribution significantly influence knowledge sharing intention ( $p < 0.01$ ). Whereas, table (5.25) presented the indirect effect shows significant relationship work group support and knowledge sharing intention through expected contribution ( $p < 0.05$ ). This, result confirms the mediating role of expected contribution in the relationship between work group support and knowledge sharing intention. Thus, the indirect effect indicated mediation of expected contribution with the above mentioned relationship.

**Table 5.25**

**User-defined estimands for indirect effect between work group support and KSI**

<b>Parameter</b>	<b>Estimate</b>	<b>Lower</b>	<b>Upper</b>	<b>P</b>
A x B	.210	.086	.347	.003

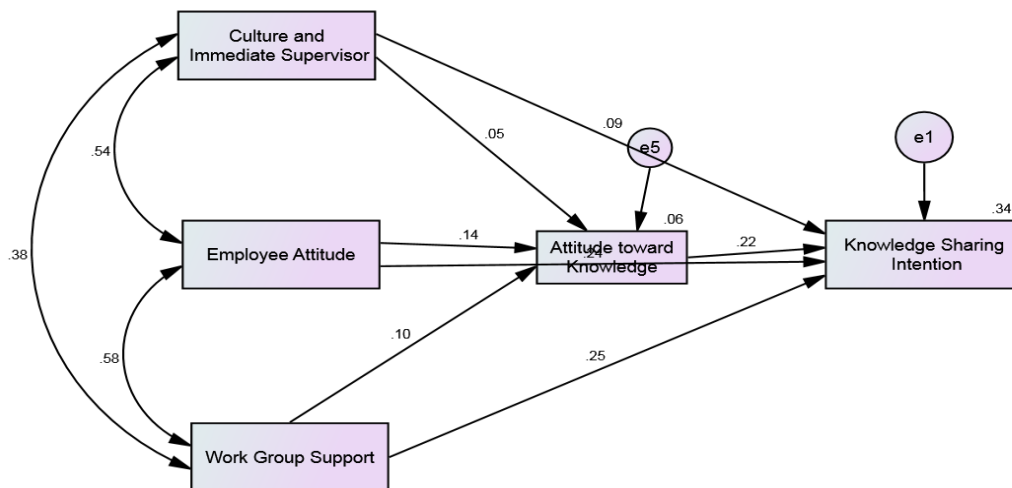
*Source: prepared by the researcher from data (2019).*

**5.8.4.4. The mediating role of attitude toward knowledge sharing in the relationship between collaborative knowledge environment and knowledge sharing intention.**

In this subsection the attitude toward knowledge sharing was hypothesized to mediate the relationship between collaborative knowledge environment dimensions and knowledge sharing intention as shown in figure (5.13) below. However, to test this hypothesis an examination of whether attitude toward knowledge mediates the relationship between organizational culture and immediate supervisor and knowledge sharing intention must be estimated firstly. Secondly, the examination of whether attitude toward knowledge mediates the relationship between employee attitude and knowledge sharing intention. Thirdly, the examination of whether attitude toward knowledge mediates the relationship between work group support and knowledge sharing intention.

**Figure 5.13**

**The mediating Effect of Attitude Toward knowledge Between CKE and KSI.**



*Source: prepared by the researcher from data (2019).*

The result of regression weights presented in table (5.26) below which represents the direct effects shows organizational culture and immediate supervisor not significantly influence knowledge sharing intention ( $p > 0.05$ ), organizational culture and immediate supervisor not significantly influence attitude toward knowledge ( $p > 0.05$ ), and attitude toward knowledge significantly influence knowledge sharing intention ( $p < 0.01$ ).

**Table 5.26****Regression weights for direct effect between CKE, KSI and attitude toward knowledge**

Relationship			Estimate	S.E.	C.R.	P
attitude toward knowledge	<---	work group support	.083	.056	1.478	.139
attitude toward knowledge	<---	organizational culture and immediate supervisor	.036	.047	.776	.438
attitude toward knowledge	<---	employee attitude	.114	.060	1.889	.059
knowledge sharing intention	<---	attitude toward knowledge	.221	.047	4.685	***
knowledge sharing intention	<---	organizational culture and immediate supervisor	.067	.040	1.694	.090
knowledge sharing intention	<---	employee attitude	.202	.051	3.935	***
knowledge sharing intention	<---	work group support	.215	.048	4.465	***

*Source: prepared by the researcher from data (2019).*

On the other hand, table (5.27) illustrates the indirect effect shows no significant relationship between organizational culture and immediate supervisor and knowledge sharing intention through attitude toward knowledge ( $p > 0.05$ ). This, result confirmed that no mediation role of attitude toward knowledge sharing in the relationship between organizational culture and immediate supervisor and knowledge sharing intention. Thus, the indirect effect indicated no mediation of attitude toward knowledge sharing with the above mentioned relationship.

**Table 5.27****Indirect effect between organizational culture and KSI**

Parameter	Estimate	Lower	Upper	P
A x B	.067	-.006	.141	.132

*Source: prepared by the researcher from data (2019).*

With regards to the examination of whether attitude toward knowledge mediates the relationship between employee attitude and knowledge sharing intention as depicted in table (5.26) above shows employee attitude significantly influence knowledge sharing intention ( $p < 0.01$ ), employee attitude significantly influence attitude toward knowledge ( $p = 0.05$ ), and attitude toward knowledge significantly influence knowledge sharing intention ( $p < 0.01$ ). On the other hand, table (5.28) below presented the indirect effect shows a significant relationship between employee attitude and knowledge sharing intention through attitude toward knowledge ( $p < 0.05$ ). This, result confirms the mediating role of attitude toward knowledge in the relationship between employee attitude and knowledge sharing intention. Thus, the indirect effect indicated that mediation of attitude toward knowledge with the above mentioned relationship.

**Table 5.28**

**Indirect effect between employee attitude and KSI**

<b>Parameter</b>	<b>Estimate</b>	<b>Lower</b>	<b>Upper</b>	<b>P</b>
A x B	.202	.103	.317	.001

*Source: prepared by the researcher from data (2019).*

With regards to the examination of whether attitude toward knowledge mediates the relationship between work group support and knowledge sharing intention as depicted table (5.26) above show that work group support significantly influence knowledge sharing intention ( $p < 0.01$ ), work group support not significantly influence attitude toward knowledge ( $p > 0.05$ ), and attitude toward knowledge significantly influence knowledge sharing intention ( $p < 0.01$ ). Whereas, table (5.29) presented the indirect effect shows significant relationship work group support and knowledge sharing intention through attitude toward knowledge ( $p < 0.05$ ). This, result confirms the mediating role of attitude toward knowledge in the relationship between work group support and knowledge sharing intention. Thus, the indirect effect indicated mediation of attitude toward knowledge with the above mentioned relationship.

**Table 5.29**

**Indirect effect between work group support and KSI**

<b>Parameter</b>	<b>Estimate</b>	<b>Lower</b>	<b>Upper</b>	<b>P</b>
A x B	.215	.097	.350	.003

*Source: prepared by the researcher from data (2019).*



Given all the above mentioned the hypotheses of knowledge sharing attitude on mediates the relationship between the collaborative knowledge environment and knowledge sharing intention is partially supported in this study.

**Table 5.30**

**Summary of the study results**

<b>Hypotheses One: The relationship between collaborative knowledge environment and knowledge sharing intention.</b>	<b>partially supported</b>
<b>H1.1.</b> the relationship between organizational culture and immediate supervisor and knowledge sharing intention.	not supported
<b>H1.2.</b> the relationship between employee attitude and knowledge sharing intention	supported
<b>H1.3.</b> the relationship between work group support and knowledge sharing intention	supported
<b>Hypotheses Two: The relationship between collaborative knowledge environment and knowledge sharing attitude.</b>	<b>partially supported</b>
<b>H2.1.</b> the relationship between organizational culture and immediate supervisor and expected rewards	Supported
<b>H2.2.</b> the relationship between employee attitude and expected rewards	not supported
<b>H2.3.</b> the relationship between work group support and immediate supervisor and expected rewards	not supported
<b>H2.4.</b> the relationship between organizational culture and immediate supervisor and expected associations	not supported
<b>H2.5.</b> the relationship between employee attitude and expected associations	supported
<b>H2.6.</b> the relationship between work group support and expected associations	supported
<b>H2.7.</b> the relationship between organizational culture and immediate supervisor and expected contributions	supported
<b>H2.8.</b> the relationship between employee attitude and expected contributions	not supported
<b>H2.9.</b> the relationship between work group support and expected contributions	supported
<b>H2.10.</b> the relationship between organizational culture and immediate supervisor and Attitude toward knowledge	not supported
<b>H2.11.</b> the relationship between employee attitude and Attitude toward knowledge	supported
<b>H2.12.</b> the relationship between work group support and Attitude toward knowledge	not supported
<b>Hypotheses Three: The relationship between knowledge sharing attitude and knowledge sharing intention.</b>	<b>partially supported</b>

<b>H3.1.</b> the relationship between expected rewards and knowledge sharing intention	not supported
<b>H3.2.</b> the relationship between expected association and knowledge sharing intention	Supported
<b>H3.3.</b> the relationship between expected contributions and knowledge sharing intention	not supported
<b>H3.4.</b> the relationship between attitude toward knowledge and knowledge sharing intention	Supported
<b>Hypotheses Four: Knowledge sharing attitude mediate the relationship between collaborative knowledge environment and knowledge sharing intention.</b>	<b>Partially supported</b>
<b>H4.1.</b> expected rewards mediates between organizational culture and immediate supervisor and knowledge sharing intention.	No mediation
<b>H4.2.</b> expected rewards mediates between employee attitude and knowledge sharing intention.	Partial mediation
<b>H4.3.</b> expected rewards mediates between work group support and knowledge sharing intention	Partial mediation
<b>H4.4.</b> expected associations mediates between organizational culture and immediate supervisor and knowledge sharing intention.	Full mediation
<b>H4.5.</b> expected associations mediates between employee attitude and knowledge sharing intention.	No mediation
<b>H4.6.</b> expected associations mediates between work group support and knowledge sharing intention.	Partial mediation
<b>H4.7.</b> expected contribution mediates between organizational culture and immediate supervisor and knowledge sharing intention.	No mediation
<b>H4.8.</b> expected contribution mediates between employee attitude and knowledge sharing intention.	Partial mediation
<b>H4.9.</b> expected contribution mediates between work group support and knowledge sharing intention.	Partial mediation
<b>H4.10.</b> attitude toward knowledge mediates between organizational culture and immediate supervisor and knowledge sharing intention.	No mediation
<b>H4.11.</b> attitude toward knowledge mediates between employee attitude and knowledge sharing intention.	Partial mediation
<b>H4.12.</b> attitude toward knowledge mediates between work group support and knowledge sharing intention.	Partial mediation

*Source: prepared by researcher from data (2019)*

## **5.9. Summary of the chapter**

This chapter concerns with data analysis that was generated from insurance firms operated in Sudan to show the findings for testing the hypotheses of the study. For analyzing data different statistical systems and techniques were used. In addition to other techniques like data cleaning which used for detecting and removing errors and inconsistencies to improve the quality of data followed by the reliability to insure the goodness of measures for the study variables. Then, to identify the characteristics of all variables under study beside, responding firms and respondents descriptive statistical techniques were used. Furthermore, Person's correlations were also implemented to identify the interrelationships among all the variables. Finally, path analysis in AMOS was used to test the direct and indirect effects for testing the hypotheses. The coming chapter presents discussion and conclusion which includes results, implications and limitations of the study.

## **CHAPTER SIX**

### **DISCUSSION AND CONCLUSION**

#### **6.0 Chapter Overview**

This chapter is for discussion and conclusion. That came with consistency data analysis and findings, so it contains seven sections. The first three sections reveal the recapitulation of the study and present the discussion of findings in light of previous literature, as well as summarize the major findings of the study, consecutively. The other four sections address the practical and theoretical implications of the findings, report the study limitations, and provide directions for future research and finally, an overall conclusion of the research.

#### **6.1 Recapitulation of the Study Findings**

The current study investigated the influence of collaborative knowledge environment on intention to share knowledge. In addition, this study set out to investigate the mediating effect of knowledge sharing attitude on the relationship between the collaborative knowledge environment and intention to share knowledge.

The target population of this study was chosen to be the Sudanese insurance sector. Insurance companies play an important role in the financial sector among financial intermediaries; insurance companies play an important role in carrying out the functions of the financial system. They play an important role through risk management for companies and individuals. To achieve the research objectives, four questions were formulated as follows:

1. What is the influence of collaborative knowledge environment on intention to share knowledge?
2. What is the mediating effect of knowledge sharing attitude on the relationship between the collaborative knowledge environment and intention to share knowledge?
3. What is the influence of CKE dimensions (i.e., organizational culture, immediate supervisor, employee attitude, and work group support) on KSI?
4. What is the mediating effect of knowledge sharing attitude on the relationship between CKE dimensions (i.e., organizational culture, immediate supervisor, employee attitude, and work group support) and KSI?

The literature review served as a foundation to identify the variables of the study. As for CKE, four components were identified (i.e., organizational culture, immediate supervisor, employee attitude, and work group support, whereas KSI developed as a unidimensional variable. Likewise, KSA was measured with items from prior studies.

As regards the methodology, this study adopted a quantitative method and employed a descriptive design. Consequently, to collect the data, this study used a cross-sectional design and (395) questionnaires were distributed to a convenience sample represented by firms' employees. The response rate was (85%) which counted as a high rate for the purpose of this study.

Prior to the analysis phase, the data preparations were undertaken. Starting with the coding of the questionnaires dataset. Afterward, the data examination was conducted. As a result, the missing data was inconsiderable and was therefore substituted with its mean value. data cleaning which used for detecting and removing errors and inconsistencies to improve the quality of data followed by the reliability to insure the goodness of measures for the study variables. The data also was free from the common method bias. Moreover, very few outliers were identified and removed.

The descriptive analysis provided an overview of the responding employees the profiles of persons that participated in the survey on the light of six characteristics; these are the gender, age, marital status, qualifications, job degree and experience. In the gender, rate (61.7%) respondents were male and (38.3%) respondents were female that represent the lower ratios.

Furthermore, the respondent's age, From 20 to 30 are representing a rate (24.4%), From 31 to 40 representing a rate (34.0%), From 41 to 50 representing a rate (27.5%), From 51 to 60 (12.7%), the last in this group More than 60 years are few number 5 frequencies and represented in (1.5%). The respondents marital status, that fill up the questionnaires, majority of them the Married are representing a rate (70.1 %) followed by single are representing a rate (25.0%), and other representing a rate (4.9%) as lower ratios. Concerning the respondents qualifications majority of them were graduate which represent (65.1%), followed by High graduate were representing a rate (29%), followed by Under graduate were representing a rate (5.8%), other were representing a rate (.6%) represent the lower ratios. Regarding the Job degree, the majority of the respondents' employee (58.6%) followed by a Head department was rate (22.5%), followed by Manager were rate (11.7%), and other were rate (7.1%) represent the lower ratios. Regarding the experience, the high respond rate is more than 15 (29.6%) followed

by From 11 to 15 were rate (26.9%), followed by From 5 to 10 were rate (24.7%), and Less than 5 years were rate (18.8%) represent the lower ratios.

The first phase of the analysis in this study was Exploratory factor analysis (EFA) is a statistical approach for determining the correlation among the variables in a dataset. This type of analysis provides a factor structure (a grouping of variables based on strong correlations). Therefore this study used exploratory factor analysis for testing the validity and uni-dimensionality of measures to all variables under study. Also the analysis in this study was to assess the measurement model by evaluating reliability (the internal consistency, indicator reliability) and validity (convergent validity and discriminant validity). The internal consistency was measured through composite reliability (CR) and Cronbach's alpha (CA), where all the constructs demonstrated a satisfactory level of internal consistency. The indicator reliability is evaluated by assessing the items outer loadings; most items had satisfactory indicator reliability. Both analysis tools confirmed that the measurement validity had been established. After validating the measurement model, the descriptive analysis for all variables of the study was conducted. The mean and standard deviation revealed that among the dimension of KSA, Sudanese insurance firms concentrate more on knowledge sharing attitude which was in the top ranking, followed by knowledge sharing intention, followed by expected associations, followed by expected contribution, followed by employee attitude, followed by work group support, followed by organizational culture and immediate supervisor and expected rewards. This finding indicates that the attitude toward knowledge sharing tends to inhabit high position in insurances firms operating in Sudan.

The correlation analysis revealed a positive relationship between the proposed hypotheses. More precisely, the components of CKE namely, organizational culture, immediate supervisor, employee attitude, and work group support were partially correlated with KSI. Also, knowledge sharing attitude were partially correlated with KSI. Concerning the hypotheses testing, the result of path coefficient analysis indicated that collaborative knowledge environment influences knowledge sharing intention. More precisely, two components of CKE had a significant positive influence on KSI. Employee attitude, and work group support on KSI, on the other hand, organizational culture and immediate supervisor had no positive influence on KSI. The second hypotheses in this study which assumes that the collaborative knowledge environment dimensions have positive relationship with the knowledge sharing attitude dimension, the analysis of the results showed that the three components of collaborative knowledge environment have partial significant relationship with expected rewards; the results indicate positive

relationship between organizational culture and immediate supervisor and expected rewards. The third hypothesis assumes that the attitude toward knowledge sharing was hypothesized to mediate the relationship between collaborative knowledge environment dimensions and knowledge sharing intention. The analysis of the results showed that the hypotheses of knowledge sharing attitude on mediates the relationship between the collaborative knowledge environment and knowledge sharing intention is partially supported in this study.

## **6.2 Discussion of Findings**

This section will focus on the discussion of the findings of this study in lights of related empirical evidence and theoretical background of prior literature. It should be noted that in some parts, it is difficult to compare the findings of this study with the previous findings, either because of the lack of previous studies or because of the different components of the construct used in the previous studies. The following subsections come as a result of pursuing the research objectives and responding to research questions which were stated in the first chapter of this study. Therefore, the discussion addresses the influence of collaborative knowledge environment on knowledge sharing intention. As well as, covers the mediating effect of knowledge sharing attitude on the relationship between CKE and KSI.

### **6.2.1 The Influence of collaborative knowledge environment on knowledge sharing intention**

In response to the first research question, the findings reveal that two components of CKE, namely employee attitude, and work group support have a significant positive influence on knowledge sharing intention, whereas, organizational culture and immediate supervisor had no positive influence on KSI. This result comes as no surprise because it was not expected to find all CKE components are always positively associated with KSI. This finding is consistent with the results of Aliereza Mooghali. (2012) who indicate the relationship between the perceptions of a collaborative knowledge climate has a significant and positive relationship with intention to share knowledge in the organization of Sveiby and Simons (2002). The result shows that when the employees perceive the organization more collaborative, they will tend to share knowledge more and more. Accordingly, it can be concluded that higher level of employees attitude, and work group support can lead to higher level of KSI in the Sudanese insurance sector, all managerial actions should be organized toward creation of a collaborative knowledge environment. The following subsections present the influence of the individual dimensions of CKE on KSI. The findings offer interesting insight; while some findings agree with prior literature, inconsistency was also found. Therefore, these subsections provide a more detailed discussion of the main result.

### **6.2.1.1 The Influence of organizational culture and immediate supervisor support on knowledge sharing intention**

The findings indicate that organizational culture and immediate supervisor support has not a significant positive influence on knowledge sharing intention these results give not supported to hypotheses. In line with this finding, many prior studies have found that organizational culture and immediate supervisor support have positively influences KSI (e.g., Allahdadi 2011; Aliereza Mooghali. 2012.). they were showed that the dimensions of collaborative work climate have different effects on knowledge sharing intention. The immediate supervisor had a low impact on knowledge sharing intention. The explanation of these findings could be, on the one hand and this is due to the fact that in the organization under the study, the nature of work was very centralized and bureaucratic. In fact, the organizational procedures, rules and obligations were very strict. As a general conclusion, as it is pointed by Allahdadi (2011), it can be concluded that a type of psychological empowerment can occur as a result of collaborative work climate and this will lead to better knowledge sharing capability amongst employees in the organizations. The Management Support factor was also found to be the second strongest predictor of knowledge sharing attitude. Extending the work of Lin and Lee (2004), and Lin (2007), this study emphasizes the need to involve the senior management of organizations more actively. Because of the hierarchical setup of most organizations where decision making is largely centralized, employees feel a sense of disconnect between themselves and the higher authority. However, organizations that show a fundamental level of management support have managed to increase their employees' motivation to engage in more active knowledge sharing in Saudi Arabia.

### **6.2.1.2 The Influence of employee attitude on knowledge sharing intention**

The findings indicate that employee attitude has a significant positive influence on knowledge sharing intention. This finding agrees with Bock and Kim (2002) who found that attitudes towards knowledge sharing had a significant influence on behaviour intention. This also corroborates the finding of Ellahi and Mushtaq (2011) that confirmed that the attitudes of bloggers, towards knowledge sharing, significantly affected their intention to share knowledge in blogs. Similarly, there has been an extensive amount of literature supporting the positive correlation between employee attitude and KSI, (e.g., Aliereza Mooghali. 2012; Kuo and Young, 2008; Kolekofski and Heminger, 2003; Bock et al., 2005; Pavlou and Fygenson, 2006). These results indicate that a positive attitude about knowledge sharing by individuals lead to their intention to share their knowledge.

The rational explanation of the inconsistency in findings is that result could be justified from the perspective of People who have a positive attitude toward knowledge sharing are more likely to share it. Meaning that, whether a person



actually shares knowledge with others primarily depends on his or her personal, favorable or unfavorable of the attitude in question Ajzen, (1991). Hence indicating that employee attitude exerted a moderate to high influence on intention to share knowledge.

### **6.2.1.3 The Influence of work group support on knowledge sharing intention**

The results revealed that work group support has significant positive influence on knowledge sharing intention. Although this finding is similar to results of Allahdadi (2011; Aliereza Mooghali. 2012.) who reported that work group support has a positive influence on knowledge sharing intention. However, these results demonstrated that work group support positively and significantly influence the intention to knowledge sharing in the organization. Therefore, for having a good rate of knowledge sharing in the organization, all managerial actions should be organized toward creation of a collaborative knowledge environment. Managerial activities like open communication space, innovative friendly organization, reward system optimization, using transformational leadership styles, management by objective, and decentralization are advised.

### **6.2.2 The Influence of knowledge sharing attitude on knowledge sharing intention**

The results indicate that four components of knowledge sharing attitude have partial significant relationship to knowledge sharing intention, the results indicate not positive relationship between (expected rewards and expected contribution) with knowledge sharing intention and positive relationship between two dimensions of knowledge sharing attitude (expected associations and attitude toward knowledge). The following subsections present the influence of the individual dimensions of KSA on KSI. The findings offer interesting insight; while some findings agree with prior literature, inconsistency was also found. Therefore, these subsections provide a more detailed discussion of the main result.

#### **6.2.2.1 The relationship between expected rewards and knowledge sharing intention**

One of the most interesting findings of this study is about the expected rewards variable. The results indicate not positive relationship between expected rewards with knowledge sharing intention. This finding is similar to results of Wole M. Olatokun et al (2013) they discovered that expected reward was not one of the factors that motivated lawyers in Ibadan to share their knowledge within their law firms. This result contradicts some prior Gottschalk et al. (2005) established that rewards had a significant impact on knowledge sharing. The framework of Sanghani (2009) also emphasised providing incentives and rewards for knowledge sharing, whilst Ipe (2003) acknowledged the effect of rewards and incentives as a contributing factor that may influence employees' attitudes to share knowledge within an organization. He also noted that a way to motivate people to

capture knowledge is to reward them for doing so, by providing the knowledge sharers with some compensation for sharing their knowledge. Bock and Kim (2002) noted that the employees' beliefs about expected rewards were negatively related to their attitudes to knowledge sharing. Bock and Kim tried to find a reasonable explanation for this by insisting that rewards have a punitive effect that break off relations and may undermine intrinsic motivation.

### **6.2.2 .2 the relationship between expected contribution and knowledge sharing intention**

The findings show that expected contribution has a negative influence on knowledge sharing intention. This result contradicts some prior Gottschalk et al. (2005), in their study of the Incentives for Knowledge Sharing through Information Technology, noted that lawyers' attitudes towards their own contribution were the factors that mostly predicted their knowledge sharing behavior. They also noted that, on average, a lawyer's willingness to share their knowledge with others in a law firm was influenced by their perception of their ability to contribute to the organization by sharing that knowledge. Hendriks (2005) noted that the ability to share knowledge, between organizational units and departments, contributes immensely to the performance of the organization. Turner & Minonne (2010).observed that Knowledge sharing between individuals, thus, results in individual learning, which in turn may contribute to organizational learning.

### **6.2.2.3 the relationship between expected associations and knowledge sharing intention**

The findings show that expected associations has positive influence on knowledge sharing intention. In line with this finding, many prior studies have also found that expected associations influence on knowledge sharing intention. Ipe (2003) noted that one of the external factors that influenced the motivation to share knowledge was the relationship between the sender and the recipient. Hendriks (2005) observed that Knowledge as power is demonstrated in the increasing value attributed to individuals who possess the right kind of knowledge. If individuals perceive that power comes from the knowledge they possess, it is likely to lead to knowledge hoarding instead of knowledge sharing. Gottschalk et al. (2005) observed that lawyers' attitudes towards associations were of less importance to their knowledge sharing behavior in the law firm.

### **6.2.2.4 The Mediating effect of knowledge sharing attitude on the relationship between Collaborative knowledge environment and knowledge sharing intention**

As a response to the second research question, the findings indicate that knowledge sharing attitude mediates the relationship between only two components of CKE (i.e., work group support, employee attitude,) and knowledge sharing intention. The following subsections discuss the detailed findings of the effect of knowledge sharing attitude on the relationship between collaborative knowledge environment components (i.e., organizational culture, immediate supervisor support, employee attitude, and work group support) and knowledge sharing intention.

#### **6.2.2.4.1 The mediating role of expected rewards in the relationship between collaborative knowledge environment and knowledge sharing intention.**

The results confirm that the expected rewards mediating the relationship between two components of CKE ( employee attitude , work group support ) with knowledge sharing intention, and no mediation role of expected rewards in the relationship between(organizational culture and immediate supervisor support) with knowledge sharing intention. This result is in line with Sveiby and Simons (2002). They show that when the employees perceive the organization more collaborative, they will tend to share knowledge more and more. These findings contradict the results of Bock & Kim (2005, who found that attitude toward knowledge sharing is negatively related to the expected rewards. That is, expected rewards discourage the formation of a positive attitude toward knowledge sharing. We may find a reasonable explanation for this negative relationship in the pay-performance research. Even though the assumption that people will do a better job if they are promised some sort of rewards is still pervasive, a number of studies on pay-performance have shown that there is no relationship, or even a negative relationship between rewards and performance Kohn, (1993).

One possible explanation for this result is that rewards could be a facilitating condition for knowledge sharing just like accessibility. From the theoretical point of view, researchers argue that rewards succeed at securing only one thing: temporary compliance. Once the rewards run out, people revert to their old behavior (Kohn, 1993)

#### **6.2.2.4.2 The mediating role of expected associations in the relationship between collaborative knowledge environment and knowledge sharing intention.**

The findings show that expected associations mediate the relationship between two components of CKE (organizational culture and immediate supervisor support, and work group support) with knowledge sharing intention. Similar to several other studies (e.g., Avolio and Bass, 1995; Lin and Lee, 2004; Lin, 2007), they found that perception of management support is critical to knowledge sharing intention as a practice, not merely an initiative. This study extends current understanding of management support by revealing a cultural perspective of organizational culture and immediate supervisor support in Sudanese insurance firms where decisions from management are a corporate voice that should be followed rather than challenged. Indirect rewards such as opportunities to assume leadership roles, exposure to different areas of work and a longer-term recognition in terms performance are better able to sustain the right attitude towards knowledge sharing (c.f., Liu and Liu, 2011). Through our qualitative data, we also

discovered that positive knowledge sharing attitude can produce learning effects at the individual and group level if triggered by appropriate stimuli such as an attractive incentive scheme (c.f., Bartol and Srivastava, (2002). Also the findings show that no mediation role of expected associations in the relationship between employee attitude and knowledge sharing intention. This result is in line with Gottschalk et al. (2005) observed that lawyers' attitudes towards associations were of less importance to their knowledge sharing behaviour in the law firm. Knowledge as power is demonstrated in the increasing value attributed to individuals who possess the right kind of knowledge. If individuals perceive that power comes from the knowledge they possess, it is likely to lead to knowledge hoarding instead of knowledge sharing Hendriks (2005). The next explanation is related to the organizational citizenship behavior (OCB) literature. OCB can be defined as "willingness of persons to contribute efforts to the cooperative system" by Barnard (1938)

#### **6.2.2.4.4 The mediating role of expected contribution in the relationship between collaborative knowledge environment and knowledge sharing intention.**

The findings discover that expected contribution mediate the relationship between two components of CKE (e.g., employee attitude, and work group support) with knowledge sharing intention, and no mediation role of expected contribution in the relationship between organizational culture and immediate supervisor support and knowledge sharing intention.

Similar to several other studies Gottschalk et al. (2005), in their study of the Incentives for Knowledge Sharing through Information Technology, noted that lawyers' attitudes towards their own contribution were the factors that mostly predicted their knowledge sharing behaviour. They also noted that, on average, a lawyer's willingness to share their knowledge with others in a law firm was influenced by their perception of their ability to contribute to the organization by sharing that knowledge. Al-Adaileh and Al-Atawi's (2011) study in a telecommunications organization in Saudi Arabia where they found that teamwork and collaboration did not necessarily promote knowledge sharing. However, this finding contradicts several other studies (e.g., Avolio and Bass, 1995; Lin and Lee, 2004; Lin, 2007), they found that perception of management support is critical to knowledge sharing as a practice, not merely an initiative.

#### **6.2.2.4.1 The mediating role of attitude toward knowledge in the relationship between collaborative knowledge environment and knowledge sharing intention.**

The findings show that attitude toward knowledge mediate the relationship between two components of CKE (e.g., employee attitude, and work group support) with knowledge sharing intention, and no mediation role of attitude toward knowledge in the relationship between organizational culture and immediate supervisor and knowledge sharing intention. This finding concurred with several studies (e.g., Lin and Lee, 2004; Lam, 2005; Swart et al., 2014). However, this finding offers a different perspective of knowledge sharing attitude as a mediator where it only mediates between two components of collaborative knowledge environment and knowledge sharing intention relative to the other factors such as organizational culture and immediate supervisor. As mentioned, team diversity and tenure create new dynamics for collaboration resulting in individuals involving in greater reflection, dialogue and feedback in the sharing and use of knowledge (Lave and Wenger, 1991; Mohammad and Dumville, 2001).

### **6.3 Summary of the Key Findings**

Drawing on the discussion mentioned above, the major findings of this study can be restated as follows:

1. Sudanese insurance firms adopt a low level of collaborative knowledge environment. Since, CKE components namely, organizational culture and immediate supervisor were adopted at a low level, whilst employee attitude, and work group support was adopted at a high level. A possible explanation includes but not limited to lack of managerial, the organizational procedures, rules and obligations were very strict also the absence of organizational culture which facilitate and promote knowledge sharing activities.
2. Sudanese insurance firms pay no attention to attitudes toward knowledge sharing; this result could be due to the organizational culture and behavior of this firms that cannot motivate people to capture and share knowledge, it seems that more attention must be paid to creating suitable work environments and structures that promote, enable and support effective knowledge transfer.
3. Sudanese insurance firms have a low level of knowledge sharing intention. According to the findings and results of this study. Low level of knowledge sharing intention comes as a product of the low level of collaborative knowledge environment and total absence of the engagement in KSI strategies.
4. Two components of collaborative knowledge environment namely, employee attitude, and work group support have a positive influence on knowledge sharing intention.
5. Two components of collaborative knowledge environment including organizational culture and immediate supervisor have a negative influence on knowledge sharing intention.

6. Attitude toward knowledge strengthens the relationship between two components of collaborative knowledge environment CKE (i.e. work group support, employee attitude) and knowledge sharing intention.

7 Attitude toward knowledge dampen the relationship between two components of CKE (i.e., organizational culture and immediate supervisor support and knowledge sharing intention).

## **6.4 Implications of the Study**

This section discusses the impacts which the findings might have on theory and practice. Consequently, the first subsection presents the theoretical implications while the second subsection demonstrates the practical implications.

### **6.4.1 Implications for Theory**

From a theoretical perspective, this study contributes to the literature in several ways including the following:

**First**, the current findings add to a growing body of literature on collaborative knowledge environment CKE; by providing an empirical examination of the framework linking the relationship between CKE and KSI; in the existence of knowledge sharing attitude as a mediator.

**Second**, this study makes a unique contribution to the literature by examining the mediating impact of knowledge sharing attitude on the relationship between CKE and KSI; providing response to prior studies' identifying factors that can predict knowledge sharing intention, the study also advances theory by uncovering other factors such as perceived organizational incentives that do not seem to affect knowledge sharing intention by developing an intention based theoretical model using the lens of theory of reasoned action (TRA) and augmenting it with constructs from social exchange theory.

**Third**, the results of the study suggest that attitude towards knowledge sharing affects intention and further the actual behavior of knowledge workers. Organizations should promote knowledge sharing intention by managing factors that influence knowledge workers attitude towards knowledge sharing.

**Fourth**, the findings reveal that not all CKE dimensions are equally valuable to firm's knowledge sharing intention; because two of CKE dimensions (i.e., employee attitude, and work group support) appeared to have a significant impact on KSI. In contrast, the remaining two components (i.e., organizational culture and immediate supervisor) were found to have no influence on KSI.

**Fifth**, the result shows that when the employees perceive the organization more collaborative, they will tend to share knowledge more and more. Therefore, for having a good rate of knowledge sharing intention in the organization, all

managerial actions should be organized toward creation of a collaborative knowledge environment. Managerial activities like open communication space, innovative friendly organization, reward system optimization, using transformational leadership styles, management by objective, and decentralization are advised.

**Finally**, the results of this study provide comprehensive insight and directions to future studies which in turn contribute to tackling the limitations of the current study and offer a clear interpretation for the relationship between existing variables through the mechanism of mediation variables.

#### **6.4.2 Implications for Practice**

From a pragmatic perspective, the results of the study have many implications for organizations initiating or striving to promote knowledge sharing intention of their knowledge workers.

**First**, the significant effect of collaborative knowledge environment on employees' knowledge sharing intention as well as an indirect effect through influencing employees' attitudes toward knowledge sharing. From a practical perspective, the results of this study help practitioners better. Practitioners and team leaders should try to create an environment that encourage Social ties between colleagues and a good relationship and increase the interpersonal trust so that enhance knowledge-sharing behavior more members are willing to share their knowledge ,which will help the moving of knowledge from individual levels, to group or team levels, to organizational Levels, and to inter-organizational levels.

**Second**, the results indicate that among the CKE dimensions, organizational culture and immediate supervisor support has the highest impact on the knowledge sharing intention. Therefore, management should demonstrate its support for knowledge sharing. Supportive organizational climate and intensified management commitment towards knowledge sharing promotes knowledge sharing intention.

**Third**, the study findings indicate that knowledge workers attitude are likely to be influenced by the expectations of management and peer group in deciding to engage in knowledge sharing. So it may even be appropriate to exert some pressure on knowledge workers to share knowledge through the social influence of top management and peer group. Organizations should address the knowledge workers fears about losing power in the organization. Knowledge workers perceptions of the loss of knowledge power should be mitigated by reassuring their position,

**Fourth**, the outcome of this study pointed out that expected rewards to share knowledge had no impact on employee's intention to share knowledge and their attitudes towards sharing knowledge so managers should consider this factor when establishing a well. Developed reward system .although the factor of immediate



supervisor did not show positive significant relationship with attitudes towards knowledge sharing but this is not mean to neglect this factor as it may shows different result in other sector.

**Finally**, organizational leaders should use the findings from the study to explore and develop strategies to increase employees' KS intentions, focusing on attitude and collaborative knowledge environment, thus contributing to positive social change.

### **6.5 Limitations of the Study**

Even though this research has drawn intellectually and practically meaningful implications, there are a few limitations, these limitations include the following:

**Firstly**, this study did not determine the type of knowledge that shared; thus, this is an area for future research to consider. For instance, how knowledge type intervene the effects on knowledge sharing.

**Secondly**, the major limitation of this study appears to be the sample size. Although the sample size has met the statistical criteria with regards to validity and reliability, however, the small sample size in this study might be a threat to the generalizability of the results.

**Thirdly**, the study focused on some of the factors that influence knowledge sharing intentions and attitudes of employees in insurance companies. There may be other factors which are not part of this study but may have significant influence on knowledge sharing intention However, according to Fishbein and Ajzen, behavioral intention is determined by social factors as well as by the attitude.

**Fourthly**, the research design uses cross-sectional data, rather than longitudinal data. Cross-sectional data limits the extent to which causality can be inferred from the results. Fortunately, though, the posited causal relationships in the current study are grounded in well developed theory and practice and as such have the theoretical support for the direction of the relationship.

**Fifthly**, this study applies a five-point Likert scale ranging from 1 to 5 to measure the variables involves the possibility of the common method bias for some of the results obtained.

**Lastly**, data of this study was collected from the private insurance firms in Khartoum state which is one of Sudan's states. The results might not be generalizable due to the organizational characteristics unique to the public organizations of Sudan. In order to generalize the results from this study, we need to collect data from various industries, states and countries.

### **6.6 Recommendations for Further Research**

The purpose of this study was to examine the mediating role of knowledge sharing attitude in the relationship between collaborative knowledge environment and knowledge share intention. Based on the results and limitations mentioned above, this study offers several suggestions for future research as follows:

**First**, based on the first limitation stated the current study did not determine the type of knowledge to be shared, future researchers need to determine the type of knowledge that should be shared; thus, to consider. For instance, how knowledge type intervenes the effects on knowledge sharing intention.

**Second**, according to Denscombe (2000), in order to generalize the findings of a survey, the sample should be carefully selected to be representative to the population; it also needs to be in a reasonable size. Accordingly, future researches with large sample size is likely to provide a higher degree of statistical significance.

**Third**, a longitudinal study is needed to further clarify the findings and provide an accurate understanding of the causal relationship between CKE and KSI, as well as to examine whether the effect of different CKE dimensions change over time as the corporation characteristics change. Furthermore, measuring the sustainability of knowledge sharing intention also requires using old data.

**Fourth**, the results of the coefficient of determination reported that the dimensions of CKE (i.e., employee attitude, and work group support, organizational culture and immediate supervisor support) explain only below half of the variation in KSI. Thus, the current study failed to explain a large portion of the variance in KSI. For that reason, Future research should add other constructs such as self-efficacy, personality traits, leadership styles, trust, organizational commitment, perceived ownership of knowledge, task inter dependence etc to the research model to determine their influence on knowledge sharing intention.

**Fifth**, the use of self-report scales to measure the study variables involves the possibility of the common method bias for some of the results obtained. In order to pursue further investigation of the conceptual model, it would be appropriate for future researches to develop more direct and objective measures for knowledge sharing behaviors and intentions.

**Lastly**, due to the number of limited insurance companies that are participating in this study, i.e. as it is only conducted in Khartoum states, In order to generalize the results from this study, future researches need to collect data from various industries and countries

## **6.7 Research Conclusion**

This study attempted to achieve two main objectives. The first aim of the present study was to investigate the influence of collaborative knowledge environment on knowledge sharing intention. The second aim of this study was to

examine the mediating effect of knowledge sharing attitude on the relationship between collaborative knowledge environment and knowledge sharing intention. This study was conducted on a valid a sample of (395) employees of Sudanese insurance firms.

The variables of the study were developed based on theoretical and empirical evidence from previous literature. All variables of the study demonstrated a satisfactory level of validity and reliability.

Returning to the questions posed at the beginning of this study, it is now possible to state that according to the empirical findings, Sudanese insurance firms can obtain a high level of knowledge sharing intention through adopting collaborative knowledge environment more precisely, two components of CKE (i.e., employee attitude, and work group support). On the contrary, the remaining two components of CKE (i.e., organizational culture and immediate supervisor support) seem to provide no value to Sudanese insurance firms. In addition, the empirical findings revealed that when Sudanese insurance firms engage in expected associations and attitude toward knowledge, the influence of work group support, employee attitude on KSI will be positive. In contrast, the influence of organizational culture and immediate supervisor support will be negative.

As a general conclusion, as it is pointed by Allahdadi (2011), it can be concluded that a type of psychological empowerment can occur as a result of collaborative work climate and this will lead to better knowledge sharing capability amongst employees in the organizations .

Taking these findings collectively, one can conclude that Sudanese insurance firms need to implement collaborative knowledge environment and engage in organizational culture and immediate supervisor support to obtain a high level of knowledge sharing intention and secure their predominant role played in the knowledge sharing .

Due to the fact that the power distribution needs accuracy and making mistakes can lead to irreparable losses and damages, in the current organization, we were faced with strict obligation, reducing the authorities of middle managers and their roles were low in the knowledge sharing intention. Therefore, the current study can be done in different organizations to gain a better understanding of the role of middle managers and immediate supervisors in knowledge sharing intention. Additionally, as a remedy for current limitations, future research may benefit from suggestions provided as well as might replicate the study to validate the current findings.

## REFERENCES

1. 10. Grant, R.M.: The Resource-Based Theory of Competitive Advantage; Implications for Strategy Formulation. *California Management Review* 33, 114–135 (1991)
2. 26. Nonaka, I., Peltokorpi, V.: Objectivity and Subjectivity in Knowledge Management: A Review of 20 Top Articles. *Knowledge and Process Management* 13(2), 73–82 (2006)
3. Advantage. *Academy of Management Review* 23(2), 242–266 (1998)
4. Agbonlahor, R.O., 2005, 'Utilisation and Attitude of Higher Institution lecturers in Nigerian Universities towards Information Technology, Doctoral degree, Dept. of Information Science, Africa Regional Centre for Information Science, University of Ibadan, Nigeria.
5. Aiken, L.R. (2000). *Psychological Testing and Assessment*, 10th edn., Allyn and Bacon, Boston, MA.
6. Ajzen, I. & Fishbein, M., 1980, *Understanding attitudes and predicting social behaviour*, Prentice-Hall, Englewood Cliffs, NJ.
7. Ajzen, I., Fishbein, M.: *Understanding Attitudes and Predicting Social Behavior*. PrenticeHall, Englewood Cliffs (1980)
8. Ajzen, I.: The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes* 50(2), 179–211 (1991)
9. Al-Alawi, A.I., Al-Marzooqi, N.Y. and Mohammad, Y.F. (2007), "Organizational Culture and Knowledge Sharing: critical success factors", *Journal of Knowledge Management*, Vol. 11, No. 2, pp. 22-42.

10. Alavi, M., Leidner, D.E.: Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues. *MIS Quarterly* 25(1), 107–136(2001)30 B. Joseph and M. Jacob
11. Allahdadi F (2011). Women's Empowerment for Rural Development. *J. Amer. Sci.*, 7(1): 40-42.
12. Amabile, T.: Motivating Creativity in Organizations: on Doing What You Love and loving what you Do *California Management Review* 40(1), 39–57 (1997)
13. Argote, L. & Ingram, P. 2000, 'Knowledge transfer: A basis for competitive advantage in firms', *Organizational Behaviour and Human Decision Processes* 82(1), 150–169.
14. Berman E.M. & West J.P. (1998): Effectiveness enhancement efforts in public and nonprofits organizations. *Public Effectiveness & Management Review*; San Francisco. Volume: 22, Issue: 2, pp.207-219
15. Bircham, H., 2003, 'The impact of question structure when sharing knowledge', *Electronic Journal of Knowledge Management* 1(2), 17–24.
16. Blackler F (1995). Knowledge, knowledge work and organizations: An overview and interpretation. *Organ. Stud.*, 16(6): 16-36.
17. Blau PM (1963). *Exchange and power in social life*, New York: Wiley. Bock GW, Kim Y (2002). Breaking the myths of rewards: An exploratory study of attitudes about knowledge sharing. *Inf. Resour. Manag. J.*, 15(2): 14-21.
18. Blau, P.M.: *The Dynamics of Bureaucracy*, 2nd rev. ed. University of Chicago Press, Chicago (1963)
19. Bock, G.W. & Kim, Y.G., 2002, 'Breaking the Myths of Rewards: An Exploratory Study of Attitudes about Knowledge Sharing', *Information Resource Management Journal* 15(2), 14–21.
20. Cabrera, Á. and Cabrera, E.F. (2002) Knowledge-Sharing Dilemmas. *Organization Studies*, 23, 687-710.
21. Cabrera, Á. Collins, W.C. and Salgado, J.F. (2006) Determinants of Individual Engagement in Knowledge Sharing. *International Journal of Human Resource Management* , 17, 245-264.
22. Cabrera, A., Collins, W., Salgado, J.: Determinants of Individual Engagement in Knowledge Sharing. *International Journal of Human Resource Management* 17(2), 245–264 (2006)
23. Chang, H. H., & Chuang, S.-S. (2011). Social capital and individual motivations on knowledge sharing: Participant involvement as a moderator. *Information & Management*(48), 9-18.
24. Chen, C.-J., & Hung, S.-W. (2010). To give or to receive? Factors influencing members' knowledge sharing and community promotion in professional virtual communities. *Information & Management*(47), 226–236.

25. Chen, I. Y., Chen, N.-S., & Kinshuk. (2009). Examining the Factors Influencing Participants' Knowledge Sharing Behavior in Virtual Learning Communities. *Educational Technology & Society*(12), 134–148.
26. Cheng J. L .C (1993): The management of multinational R&D: A neglected topic in international business research; *Journal of International Business Studies*, Washington; First Quarter 1993; Vol. 24, Iss. 1; pp. -18.
27. Cheung, C., & Chan, C. (2000). Social-cognitive factors of donating money to charity, with special attention to an international relief organization. *Evaluation and Program Planning*, 23, 241-253.
28. Chiu, C., Hsu, M. and Wang, E.T.G. (2006) Understanding Knowledge Sharing in Virtual Communities: An Integration of Social Capital and Social Cognitive Theories. *Decision Support Systems*, 42, 1872-1888.
29. Chiu, C.-M., Hsu, M.-H., & Wang, E. (2006). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision Support Systems*(42), 1872-1888.
30. Chow, I. (2012). The Role of Social Network and Collaborative Culture in Knowledge Sharing and Performance Relations. *Society for Advanced Management Journal*(77), 24-37.
31. Chow, W. S., & Chan, L. S. (2008). Social network, social trust and shared goals in organizational knowledge sharing. *Information & Management*(45), 458-465.
32. Chua, A. 2003, 'Knowledge Management System Architecture: A Bridge between Knowledge Management Consultants and Technologists', *International Journal of Information Management* (24)1, 87–98.
33. Chuang, S.-S., Chen, K.-S., & Tsai, M.-T. (2015). Exploring the antecedents that influence middle management employees' knowledge-sharing intentions in the
34. Chuck, C.H. and Eric, W.T. (2008), "An Empirical study of the effects of knowledge sharing and learning behaviors on firm performance", *Expert System with Applications*, Vol. 34 No. 4, pp. 2342-2349.
35. Churchill, E.F. and Halverson, C.A. (2005), "Social networks and social networking", *IEEE Computer Society*, Vol. 5 No. 2, pp. 14-19.
36. Coleman, J.S. (1988), "Social capital in the creation of human capital", *American Journal of Sociology*, Vol. 94 No. 1, pp. 95-120.
37. communities. *Online Information Review*, 37, 891-909. Doi: 10.1108/OIR-11-
38. Connelly, C. E., Zweig, D., Webster, J., & Trougakos, J. P. (2012). Knowledge hiding in organizations. *Journal of Organizational Behavior*, 33, 64-88.

39. Connelly, C., & Kelloway, E. (2003). Predictors of employees perceptions of knowledge sharing cultures. *Leadership and Organization Development Journal*, 24, 294-301.
40. Constant, D., Keisler, S. and Sproull, L. (1994), "What's mine is ours, or is it? A study of attitudes about information sharing", *Information Systems Research*, Vol. 5 No. 4, pp. 400-421.
41. context of total quality management implementations. *Total Quality Management & Business Excellence*, 26, 108-122.  
doi:10.1080/14783363.2013.809941
42. 'Critical Introduction', *Management Learning* 36(4), 535–553, viewed 12 December 2011,
43. Dalkir K (2005). *Knowledge Management in Theory and Practice*,
44. Dalkir K (2005). *Knowledge Management in Theory and Practice*, Jordan Hill, Oxford: Elsevier Inc: 132-133.
45. Darr, E., Argote, L., & Epple, D. (1995). The acquisition, transfer and depreciation of knowledge Drucker P.F. (1999): *Management Challenges for the 21st Century*. Harper Business, NY.
46. Davenport TH, Prusak L (1998). *Working Knowledge: How Organizations Manage What They Know*. Harvard Business School Press, Boston.
47. Davenport, T.H. & Prusak, L., 1998, *Working Knowledge: How Organizations Manage What They Know*, Harvard Business School Press, Boston, MA.
48. Davenport, T.H. and Prusak, L. (1998), *Successful Knowledge Management Projects*, Harvard Business School Press, Boston, MA. 426
49. Davenport, T.H., Prusak, L.: *Working Knowledge: How Organizations Manage What They Know*. Harvard Business School Press, Boston (1998)
50. Davis, F.D., Bagozzi, R.P. & Warshaw, P.R., 1992, Extrinsic and Intrinsic Motivation to Use Computers in the Workplace, *Journal of Applied Social Psychology* 22, 1111– 1132.
51. Earl, M.: *Knowledge Management Strategies: Toward a Taxonomy*. *Journal of Management Information Systems* 18, 215–233 (2001)
52. Eiseman, J., 2007, 'Creating Intranet Applications for Knowledge Sharing within Law Firms', *Law and Technology Resources for Legal Professionals*, viewed 16 February 2011, from
53. Elkjaer B. (1998): *Managing Knowledge: Perspectives on Cooperation and Competition Management Learning*; Thousand Oaks. Volume: 29, Issue: 3, pp. 391-393
54. Ellahi, A.A. & Mushtaq, R., 2011, 'Probing Factors Affecting Knowledge Sharing Behaviour of Pakistani Bloggers', *The Electronic Journal on Information Systems in Developing Countries* 45(6), 1–14.

55. Epple, D., Argote, L., & Murphy, K. (1996): An empirical investigation of the micro structure of knowledge acquisition and transfer through learning by doing. *Operations Research*, 44, 77–86.
56. Exchange and power in social life, New York: Wiley. Bock GW, Kim Y (2002). Breaking the myths of rewards: An exploratory study of attitudes about knowledge sharing. *Inf. Resour. Manag. J.*, 15 (2): 14-21.
57. Future Research. *Human Resource Management Review*, 20, 115-131.
58. Gammelgaard, J., Ritter, T.: *The Knowledge Retrieval Matrix: Codification and Personification as Separate Strategies*, working paper No. 10, Department of Management Politics and Philosophy. Copenhagen (2004)
59. Global Law Firm Knowledge Management Survey Report, 2002, viewed 17 February 2011, from
60. Gottschalk, P., Brekke, K. & Pedersen, H.C., 2005, 'Incentives for Knowledge Sharing through Information Technology in Law Firms' in *Virtual Law Journal*, viewed 17 February 2011, from
61. Gouldner, A.W.: *The Norm of Reciprocity: A Preliminary Statement*. *American Sociological Review* 25(2), 161–178 (1960)
62. Grant, R.B., 1996, 'Towards a knowledge-based theory of the firm', *Strategic Management Journal*, vol. 17 (Winter Special Issue), 109–122.
63. Grant, R.M.: *Toward a Knowledge-Based Theory of the Firm*. *Strategic Management Journal* 17(special issue), 109–122 (1996)
64. Gupta, A.K., & Govindarajan, V., 2000, 'Knowledge flows within multinational corporations' *Strategic Management Journal* 21, 473–496.
65. Gupta, A.K., Govindarajan, V.: *Knowledge Flows within Multinational Corporations*.
66. Hackett (2000): *Beyond Knowledge Management: New Ways to Work and Learn*. Conference Board report. New York.
67. Hambrick, D.C. (2007) *Upper Echelons Theory: An Update*. *Academy of Management Review*, 32, 334-343.
- Heisig, P.: *Harmonisation of Knowledge Management – Comparing 160 KM Frameworks around the Globe*. *Journal of Knowledge Management* 13(4), 4–31 (2009)
69. Heisig, P.: *Harmonisation of Knowledge Management – Comparing 160 KM Frameworks around the Globe*. *Journal of Knowledge Management* 13(4), 4–31 (2009)
70. Hendriks, P. (1999) *Why Share Knowledge? The Influence of ICT on the Motivation for Knowledge Sharing*. *Knowledge & Process Management*, 6, 91-00.



71. Hendriks, P., 1999, 'Why share knowledge? The influence of ICT on the motivation for knowledge sharing', *Knowledge and Process Management*, 6(2), 91–100
72. Hendriks, P.H.J., 2005, 'Book Review: Knowledge Management in Organizations: A
73. Hinds, P., Pfeffer, J.: Why organizations don't Know What They Know: Cognitive and Motivational Factors Affecting the Transfer of Expertise. In: Ackerman, M., Pipek, V., Wulf, V. (eds.) *Beyond Knowledge Management: Sharing Expertise*. MIT Press, Cambridge (2003)
74. Hoof, B. V. D., Schouten, A. P., & Simonovski, S. (2012). What one feels and what one knows: The influence of emotions on attitudes and intentions towards knowledge sharing. *Journal of Knowledge Management*, 16, 148-158.
75. Huber, G.P.: *Transfer of Knowledge in Knowledge Management Systems: Unexplored Issues and Suggested Studies*. *European Journal of Information Systems* (2001)
76. Ipe, M. (2003) Knowledge Sharing in Organizations: A Conceptual Framework. *Human Resource Development Review*, 2, 337- 9.
77. Ipe, M., 2003, 'Knowledge Sharing in Organizations: A Conceptual Framework', *Human Resource Development Review* 2(4), 337–359, viewed 12 July 2011 from,
78. Joseph, M., Firestone, J.M. & McElroy, M.W., 2005, 'Doing Knowledge Management', *The Learning Organization Journal* 12(2), viewed 24 September 2010,
79. Kim, S. and Lee, H. (2006) the Impact of Organizational Context and Information Technology on Employee Knowledge-Sharing Capabilities. *Public Administration Review*, 66, 370-385.
80. King, O.A. & Iyoha, G.E., 2008, 'Improving knowledge sharing capabilities of organizations: a case study of ReStral Nigeria Limited', Masters thesis, Blekinge Institute of Technology, Sweden.
81. Knowledge Sharing and Employee's Innovation Behavior. *Management Review*, 28, 123-133.
82. Knowledge Sharing Intentions among IT Professionals in India 31
83. Knowledge-sharing behavior. *Journal of Knowledge Management*, 15, 462-477.
84. Li, Y., Liu, Z. and Lin, Y. (2016) Where Is the Driving Force of Employee's Knowledge Sharing? The Multilevel Effect of Innovative Culture. *Economic Management* , No. 5, 75- 86.
85. Liao, C., To, P.-L., & Hsu, F.-C. (2013). Exploring knowledge sharing in virtual

- 86.Liebeskind, J.P.: Knowledge, Strategy, and the Theory of the Firm. *Strategic Management Journal* 17(special issue), 93–108 (1996)
- 87.Lin, C.-P., & Joe, S.-W. (2012). To share or not to share: Assessing knowledge sharing, interemployee helping, and their antecedents among online knowledge
- 88.Lin, H.-F. (2007) Knowledge Sharing and Firm Innovation Capability: An Empirical
- 89.Liu, N. and Jia, J. (2012) an Empirical Study on Team Diversity, Knowledge Sharing and Innovation Performance in R&D Teams. *Nankai Business Review*, No. 6, 85-92.
- 90.McDermott, R.: Why Information Technology Inspired but Cannot Deliver Knowledge Management. *California Management Review* 41(4), 103–117 (1999)
- 91.McGill, M.E., Slocum Jr., J.W.: Management Practices in Learning Organizations.
- 92.Nahapiet, J., Ghoshal, S.: Social Capital, Intellectual Capital, and the Organizational
- 93.Nonaka, I., Konno, N.: The Concept of “Ba”: Building a Foundation for KnowledgeCreation. *California Management Review* 40(3), 40–55 (1998)
- 94.Nonaka, I., Takeuchi, and H.: *The Knowledge-Creating Company-How Japanese Companies Create the Dynamic of Innovation?* Oxford University Press, New York (1995)
- 95.Nonaka, I.: A Dynamic Theory of Organizational Knowledge Creation. *OrganizationalScience* 5(1), 14–37 (1994)
- 96.Nonaka, I.: The Knowledge-Creating Company. *Harvard Business Review* 69(6), 96–104 (1991)
- 97.Ogunmoye, E.M., 2008, ‘A Survey of the Attitude of Students towards Online Education in South-Western Nigerian Universities’, Masters project, Africa Regional Centre for Information Science, University of Ibadan, Nigeria.
- 98.Ohlinger J, Brown MC, Laudert S, Sue S, Fofah O (2003). Development of potentially better practices for the Neonatal intensive care unit as a culture of collaboration: communication, accountability respect, and empowerment. *Pediatrics*, 111(4): 471-482.
- 99.Ojha, A.K. (2005) Impact of Team Demography on Knowledge Sharing in Software
100. Ojo, R.R. & Grand, B., 2011, ‘An Analysis of the Extent of IT Acceptance and Use for Knowledge Management in Botswana Law Organizations’, *Infotrends: An International Journal of Information and Knowledge Management* 1(1), 27–37.

101. Organizational Dynamics 21(1), 5–17 (1992)
102. Park, H., Ribièrè, V., Schulte, W.: Critical Attributes of Organizational Culture that Promote Knowledge Management Technology Implementation Success. *Journal of Knowledge Management* 8(3), 106–117 (2004)
103. Peng, W. (2010) Research on the Influence of Contextual Performance Based on the Employee's Social Network Feature and Knowledge Sharing. Sun Yat-sen University, Guangzhou. De Long, D.W. and Fahey, L. (2000) Diagnosing Cultural Barriers to Knowledge Management. *Academy of Management Executive* , 14, 13-127
104. Polanyi, M., Walshe, F.: *The Tacit Dimension*. Doubleday, Garden City (1966)
105. Polanyi, M.: *Personal Knowledge: Towards a Post-Critical Philosophy*. University Chicago Press, Chicago (1958)
106. Project Teams. *South Asian Journal of Management* , 12, 67-78.
107. Qian, C. (2010) The Structural Analysis of Knowledge Sharing in Team and Influencing Factors. *Nankai Business Review*, 13, 36-44.
108. Renzl, B. (2008) Trust in Management and Knowledge Sharing: The Mediating Effects of Fear and Knowledge Documentation. *Omega*, 36, 206-220.
109. Rowley, J.: *Knowledge Management-The New Librarianship? From Custodians of History to Gatekeepers to the Future*. *Library Management*
110. Ryu, S., Hee-Ho, S. & Han, I., 2003, 'Knowledge sharing behavior of physicians in hospitals', *Expert Systems with Applications* 25, 113–122.
111. Sanghani, P., 2009, 'Knowledge Management Implementation: Holistic Framework Based on Indian Study', *Association for Information Systems (AIS) Electronic Library (AISeL)*, viewed 18 August 2011
112. Saunders, M., Lewis, P., and Thornhill, A. (2007). *Research Methods for Business*
113. Schulz, M. & Klugmann, M. (2005), 'Creating a culture of knowledge sharing in law firms', *Professional Knowledge Management*, vol. 3782, pp. 386–391, *Lecture Notes Artificial Intelligence (LNAI) Series*, Springer Verlag, Berlin.
114. Senge, P., 2007, 'On sharing knowledge', *The Gurteen Knowledge*, viewed 14 November 2010, G. & Minonne, C., 2010, 'Measuring the Effects of Knowledge Management Practices', *Electronic Journal of Knowledge Management* 8(1), 161–170, viewed 12 December 2010, from [www.ejkm.com](http://www.ejkm.com)

115. Sharma, B. P., Singh, M. D., & Neha. (2012). Knowledge sharing barriers: An approach of interpretive structural modeling. *IUP Journal of Knowledge Management*, 10, 35-52. Retrieved from
116. Shim J (2010). The relationship between workplace incivility and intention to share knowledge: the moderating effects of collaborative climate and personality traits. Doctoral Dissertation, University of Minnesota, U.S.
117. *Strategic Management Journal* 21, 473–496 (2000)
118. Students. Harlow: Prentice Hall/Pearson Education Limited.
119. Study. *International Journal of Manpower*, 28, 315-332.
120. Suppiah, V., & Manjit, S. S. (2011). Organizational culture's influence on tacit
121. Sveiby KE, Simons R (2002). Collaborative climate and effectiveness of knowledge work – an empirical study. *J. Knowl. Manag.*, 6(5): 420- 433.
122. Venkatesh, V., Morris, M.G., Davis, G.B. & Davis, E.D., 2003, 'User acceptance of information technology: Towards a unified view', *MIS Quarterly* 27(3), 425–478.
123. Wang, S. and Noe, R.A. (2010) Knowledge Sharing: A Review and Directions for
124. workers. *Journal of Business Ethics*, 109, 439-449. doi:10.1007/s10551-011-
125. Yang, C. and Chen, L. (2007) Can Organizational Knowledge Capabilities Affect Knowledge Sharing Behavior? *Journal of Information Science*, 33, 95-109.
126. Yi, W., Qing, X., Lijun, M., et al. (2008) Influential Factors to Knowledge Sharing between Intra-Organizational Members. A Literature Review. *Journal of Xidian University* , 4, 46-52.
127. Yoon, C. and Rolland, E. (2012) Knowledge-Sharing in Virtual Communities: Familiarity, Anonymity and Self-Determination Theory. *Behaviour & Information Technology*, 31, 1133-1143.
128. Zhang, Z., Yu, C. and Li, Y. (2016) the Relationship among Proactive Personality,
129. Zhou, Z., Zhang, J. and Xiong, Y. (2014) How Do Introversion-Extraversion Personality Traits Influence Knowledge Sharing Behavior in Online Brand Communities: The Mediation of Network Centrality and Reciprocity Norm. *Nankai Business Review*, 17, 19-29.

# **APPENDICES**

## **APPENDICES**

### **APPENDIX A.1: SUMMARY OF LITERATURE REVIEW**

### **APPENDIX B: QUESTIONNAIRE**

Appendix : Questionnaire (Arabic)

**Appendix : Output of SPSS and AMOS**

PENDIX A: SUMMARY OF LITERATURE REVIEW

Literature Review

S.N	Study Name	The Independent variable	The dependent variable	Other variables(Moderate)
1	<b>Factors affecting Knowledge sharing intention among academic staff</b>	Attitude , Subjective norm , and Trust	Intention to share Knowledge	-
2	<b>Antecedents of Knowledge sharing Attitude and Intention</b>	Extrinsic factors (expected organizational rewards , Reciprocal benefits) , Intrinsic factors (Knowledge self – Efficacy , Enjoyment in helping others)	Attitude toward Knowledge sharing / Knowledge sharing intention	-
3	<b>The impact of Collaborative work climate on Knowledge sharing intention</b>	Collaborative work climate , work group support , support of immediate supervisor , employee attitude , and business unit culture	Knowledge sharing Intention	-
4	<b>Explaining Knowledge sharing Intention in construction Teams in Hong Kong</b>	Attitude toward knowledge sharing , Subjective norm of knowledge sharing , and Perceived behavioral control over knowledge sharing	Intention to share Knowledge	-
5	<b>Knowledge sharing Intention in the United States and China : across – cultural study</b>	Rewards , Reputation , Reciprocity and Knowledge self - Efficacy	Knowledge sharing Intention	<b>(Moderate V.)</b> Individualism collectivism and Uncertainty avoidance

6	<b>Knowledge sharing intention among IT Professionals in India</b>	Organizational climates , social – psychological factors , subjective norm , anticipated extrinsic rewards	Knowledge sharing behavior	-
7	<b>Attitude toward Knowledge sharing Behavior</b>	Social Trust , Shared Goals , Eagerness and Willingness	Knowledge sharing behavior	
8	<b>Analyzing Lawyer’s attitude toward Knowledge sharing</b>	Attitude toward Knowledge sharing(Expected rewards , expected associations , expected contribution)	Knowledge sharing behavior	(Mediating V.) Intention to share Knowledge& <b>(Moderate V)</b> Knowledge sharing behavior
9	<b>Knowledge sharing in a Collaborative Networked Environment</b>	-	-	-
10	<b>Knowledge sharing Attitude and behavior in Saudi Arabian organizations : Why trust matters</b>	Openness , Trust , Management , Rewards, Collaborative climate , Knowledge sharing Attitude	Knowledge sharing behavior and Knowledge sharing Attitude	



## APPENDIX B: QUESTIONNAIRE

بسم الله الرحمن الرحيم

جامعة السودان للعلوم والتكنولوجيا

كلية الدراسات العليا

ماجستير العلوم في إدارة الاعمال



الأخ الكريم/ الأخت الكريمة

السلام عليكم ورحمة الله تعالى وبركاته

يسعدني أن أرفق لكم طي هذه الرسالة الإستبانة الخاصة بتجميع المادة العلمية لنيل درجة ماجستير العلوم في إدارة الأعمال التي اقوم بإعدادها تحت عنوان :  
(الدور الوسيط لإتجاه مشاركة المعرفة في العلاقة بين البيئة التعاونية للمعرفة واثرها علي نية مشاركة المعرفة )  
ونظراً لأهمية رأيكم في هذا الموضوع , نرجو منكم التكرم تعبئة جميع فقرات الاستبانة بكل دقة و شفافية بما لديكم من سعة العلم والمعرفة والخبرة و إعادتها في اقرب وقت ، ولا شك ان تعاونكم وجهدكم المقدر سيكون له بالغ الاثر في إنجاح هذه الدراسة مع تعهدنا أن تكون إجاباتكم محل سرية ولن تستخدم إلا لأغراض هذا البحث.

نشكر لكم جهدكم المقدر و حسن تعاونكم,,,,,

الدارس/ عبدالله حامد حماد



الجزء الثاني: البيانات المتعلقة بالدراسة

المحور الاول

المستجيب الكريم : العبارات في الجدول أدناه تتعلق بقياس البيئة التعاونية للمعرفة التي تتكون من الابعاد التالية : ( ثقافة المنظمة , الإشراف المباشر , إتجاه وإنطباع العامل حيال مشاركة المعرفة , دعم مجموعة العمل )  
الرجاء وضع إشارة(√) أمام الإجابة التي تراها مناسبة و متوافقة مع وجهة نظرك:

م	أبعاد وعبارات المتغير المستقل	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
<b>البيئة التعاونية للمعرفة Collaborative Knowledge Environment تشير الي العناصر المختلفة لثقافة المنظمة التي تلهم العاملين لمشاركة المعرفة</b>						
<b>ثقافة المنظمة Organizational Culture:</b>						
1	يتم تشجيعنا علي مشاركة المعرفة من قبل الإدارة عملياً وليس فقط بالكلمات					
2	تشجع الإدارة باستمرار علي جلب معارف جديدة في القسم او الإدارة					
3	تشجعنا الإدارة علي قول ما نفكر فيه حتي لو تعارض ذلك مع رؤسنا					
4	تهتم إدارة الشركة بتسهيل عملية الإتصالات المباشرة بين العاملين					
<b>الإشراف المباشر Immediate Supervisor:</b>						
1	يشجعني مديري علي التوصل الي حلول مبتكرة للمشاكل المتعلقة بالعمل.					
2	يقوم مديري بتنظيم إجتماعات منتظمة ودورية لتبادل المعلومات والمعرفة					
3	يبقيني مديري علي إطلاع بكل ما يدور					
4	يدعم مديري عملية التواصل المفتوح في مجموعة العمل الخاصة بي					
5	يشجع مديري علي مشاركة المعرفة عملياً وليس بالكلمات فقط					
<b>إتجاه او إنطباع العامل Employee Attitude:</b>						
1	أتعلم الكثير من الموظفين الآخرين في هذا القسم					
2	مشاركة المعلومات في هذا القسم زادت من معرفتي					
3	معظم خبراتي تم تطويرها كنتيجة للعمل مع زملائي في هذه الإدارة					
4	مشاركة المعلومات تترجم الي معرفة أعمق في هذا القسم					
5	نشر و جمع المعرفة بين الموظفين أدي الي العديد من الأفكار و الحلول لهذه الإدارة					
<b>دعم مجموعة العمل Work Group Support:</b>						
1	هناك الكثير الذي يمكن ان اتعلمه من زملائي					
2	هناك اناس يفضلون العمل بفردهم في هذا القسم او الإدارة					
3	نحن غالباً ما نقوم بمشاركة خبرات العمل بشكل غير رسمي في الوحدة او القسم					
4	كثيراً ما نقوم بمساعدة بعضنا البعض في تعلم المهارات التي نحتاجها					
5	نحن نبقي جميع اعضاء الفريق علي علم بالأحداث الجارية					

## المحور الثاني

م	ابعاد وعبارات المتغير التابع	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
مشاركة المعرفة Knowledge Sharing : مقصود بها العملية التي يتم فيها تبادل المعرفة بأ نواعها الصريحة والضمنية بين الافراد والمجموعات وخلق معارف جديدة .						
نية مشاركة المعرفة Knowledge Sharing Intention:						
1	أشارك زملائي في تقارير العمل والمستندات الرسمية علي نحو اكثر تفاعلاً					
2	لا مانع لدي من مشاركة زملائي بما لدي من منهجيات ونماذج في العمل					
3	دوما اعمل علي مشاركة زملائي تجربتي وخبراتي عن العمل					
4	سوف أشارك بما لدي من خبرات بناءً علي طلب من العاملين بالقسم او الإدارة					
5	دوما اعكس خبراتي التعليمية والتدريبية لزملائي في العمل بطريقة فعالة					

المستجيب الكريم : العبارات في الجدول أدناه تتعلق بقياس نية مشاركة المعرفة Knowledge Sharing Intention

## المحور الثالث

المستجيب الكريم : العبارات في الجدول أدناه تتعلق بقياس الإتجاه او الإنطباع حيال مشاركة المعرفة knowledge Sharing

### Attitude

م	ابعاد وعبارات المتغير الوسيط	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
إتجاه و إنطباع مشاركة المعرفة Knowledge Sharing Attitude تم تصور الإتجاه او الإنطباع في هذه الدراسة علي انه الشعور الإيجابي للشخص تجاه مشاركة المعرفة .						
المكافآت المتوقعة : Expected Rewards						
1	اتوقع إستلام مكافآت مالية نظير مشاركتي لمعرفتي					
2	اتوقع ان اتلقي المزيد من النقاط الإضافية للترقية في مقابل مشاركتي للمعرفة					
3	اتوقع ان نتاح لي فرصة المشاركة في برنامج تدريبي نظير مشاركتي لمعرفتي					
4	من المهم ان اتلقي المزيد من الأمان الوظيفي نظير مشاركتي لمعرفتي					
الترابط المتوقع : Expected Associations:						
1	مشاركتي لمعرفتي ستقوي الروابط بيني وزملائي الحاليين في الشركة					
2	مشاركتي لمعرفتي ستجعلني ملماً جيداً بالأعضاء الجدد في الشركة					
3	مشاركتي لمعرفتي ستوسع مجال الترابط بيني وبين الاعضاء الآخرين في الشركة					
4	من شأن تبادل المعرفة رسم نوع من التعاون السلس بين افراد الشركة في المستقبل					
5	مشاركتي للمعرفة تقوي علاقتي مع الذين لديهم مصلحة و رغبة مشتركة في الشركة					

لا أوافق بشدة	لا أوافق	محايد	أوافق	أوافق بشدة	
					<b>المساهمة المتوقعة: Expected Contribution</b>
					1 مشاركتي لمعرفتي ستساعد افراد الشركة في حل مشكلاتهم
					2 مشاركتي لمعرفتي ستساعد في خلق فرص اعمال جديدة للشركة
					3 مشاركتي لمعرفتي ستحسن في عملية العمل بالشركة
					4 مشاركتي لمعرفتي ستساهم في زيادة انتاجية الشركة
					5 مشاركتي لمعرفتي ستساهم في تحقيق الاهداف الموضوعه للشركة
<b>الإتجاه او الإنطباع حيال مشاركة المعرفة : Attitude toward Knowledge Sharing</b>					
					1 مشاركتي بما اعرف من معلومات مع زملائي اجدها دوماً جيدة
					2 مشاركتي بما اعرف من معلومات اجدها دوماً مفيدة ومثمرة
					3 مشاركتي بما اعرف من معلومات اجدها دوماً تجربة ممتعة
					4 مشاركتي بما اعرف من معلومات اجدها دوماً قيمة ومفيدة لي
					5 مشاركتي بما اعرف من معلومات اجدها دوماً خطوة حكيمة

الجزء الاول: المعلومات الشخصية:

الرجاء وضع علامة (√) أمام العبارة المناسبة لاختيارك:

1/ النوع:

أنثى	ذكر

2/ العمر:

أكثر من 60 سنة	51-60 سنة	41-50 سنة	31-40 سنة	20-30 سنة

3/ الحالة الإجتماعية:

أعزب	متزوج	أخري

4/ المؤهل العلمي:

دون الجامعي	جامعي	فوق الجامعي	أخري انكرها

5/ الدرجة الوظيفية:

موظف	مدير قسم	مدير ادارة	أخري انكرها

6/ سنوات الخبرة:

أقل من 5 سنة	من 5 إلى أقل من 10 سنة	من 10 إلى أقل من 15 سنة	15 سنة فأكثر

Appendix C: Output of SPSS 24.0 and Smart PLS 3.0

البيانات الشخصية  
Frequencies

Notes

Output Created

25-MAR-2019 23:31:16

Comments			
Input	Data Active Dataset Filter Weight Split File N of Rows in Working Data File	G:\الاستبيان بيانات\التحليل عبدالله ملف\ (1).sav DataSet1 <none> <none> <none>	324
Missing Value Handling	Definition of Missing  Cases Used	User-defined missing values are treated as missing. Statistics are based on all cases with valid data.	
Syntax		FREQUENCIES VARIABLES=العمر النوع الخبرة الوظيفية المؤهل الحالة /ORDER=ANALYSIS.	
Resources	Processor Time Elapsed Time		00:00:00.03 00:00:00.03

#### Statistics

		النوع	العمر	الحالة	المؤهل	الوظيفية	الخبرة
N	Valid	324	324	324	324	324	324
	Missing	0	0	0	0	0	0

#### Frequency Table

##### النوع

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ذكر	200	61.7	61.7	61.7
	انثي	124	38.3	38.3	100.0
	Total	324	100.0	100.0	

##### العمر

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 وحتى 30	79	24.4	24.4	24.4
	31 وحتى 40	110	34.0	34.0	58.3
	41 وحتى 50	89	27.5	27.5	85.8
	51 وحتى 60	41	12.7	12.7	98.5
	60 من اكثر	5	1.5	1.5	100.0
	Total	324	100.0	100.0	

##### الحالة

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	اعزب	81	25.0	25.0	25.0
	متزوج	227	70.1	70.1	95.1
	اخرى	16	4.9	4.9	100.0

Total	324	100.0	100.0
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المؤهل

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid الجامعي دون	17	5.2	5.2	5.2
جامعي	211	65.1	65.1	70.4
الجامعي فوق	94	29.0	29.0	99.4
اخرى	2	.6	.6	100.0
Total	324	100.0	100.0	

الوظيفية

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid موظف	190	58.6	58.6	58.6
قسم مدير	73	22.5	22.5	81.2
ادارة مدير	38	11.7	11.7	92.9
اخرى	23	7.1	7.1	100.0
Total	324	100.0	100.0	

الخبرة

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 5من اقل	61	18.8	18.8	18.8
10من و اقل 5من	80	24.7	24.7	43.5
15من و اقل 10	87	26.9	26.9	70.4
فاكثر 15	96	29.6	29.6	100.0
Total	324	100.0	100.0	

Factor Analysis for IV

Notes

Output Created		26-MAR-2019 06:18:55
Comments		
Input	Data	G:\الاستبيان بيانات التحليل عبدالله ملف\
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	324
Missing Value Handling	Definition of Missing	MISSING=EXCLUDE: User-defined missing values are treated as missing.

Syntax	Cases Used	<p>LISTWISE: Statistics are based on cases with no missing values for any variable used.</p> <p>FACTOR</p> <p>/VARIABLES Culture1 Culture2 Culture3 Culture4 Supervisor1 Supervisor2 Supervisor3 Supervisor4 Supervisor5 Attitude1 Attitude2 Attitude3 Attitude4 Attitude5 Support1 Support2 Support3</p> <p>/MISSING LISTWISE</p> <p>/ANALYSIS Culture1 Culture2 Culture3 Culture4 Supervisor1 Supervisor2 Supervisor3 Supervisor4 Supervisor5 Attitude1 Attitude2 Attitude3 Attitude4 Attitude5 Support1 Support2 Support3</p> <p>/PRINT INITIAL SIG KMO REPR</p> <p>EXTRACTION ROTATION</p> <p>/FORMAT BLANK(.40)</p> <p>/CRITERIA MINEIGEN(1) ITERATE(25)</p> <p>/EXTRACTION PC</p> <p>/CRITERIA ITERATE(25)</p> <p>/ROTATION PROMAX(4)</p> <p>/METHOD=CORRELATION.</p>
Resources	<p>Processor Time</p> <p>Elapsed Time</p> <p>Maximum Memory Required</p>	<p>00:00:00.05</p> <p>00:00:00.06</p> <p>35976 (35.133K) bytes</p>

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.916
Bartlett's Test of Sphericity	Approx. Chi-Square	3044.479
	df	136
	Sig.	.000

Correlation Matrix

	Culture1	Culture2	Culture3	Culture4	Supervisor1	Supervisor2	Supervisor3	Supervisor4	Supervisor5	Attitude1	Attitude2	Attitude3	Attitude4	Attitude5	Support1	Support2	Support3
Culture1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.008	.210	.011
Culture2	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.005	.006	.001
Culture3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.008	.005
Culture4	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.018	.009
Supervisor1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.002	.009	.001
Supervisor2	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.009	.000
Supervisor3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.002	.015	.000
Supervisor4	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.068	.000
Supervisor5	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.014	.000
Attitude1	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.025	.000
Attitude2	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.007	.000
Attitude3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Attitude4	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000
Attitude5	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.006	.000
Support1	.008	.005	.000	.000	.002	.000	.002	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000
Support2	.210	.006	.008	.018	.009	.009	.015	.068	.014	.025	.007	.000	.001	.006	.000	.000	.000
Support3	.011	.001	.005	.009	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Communalities

	Initial	Extraction
Culture1	1.000	.657
Culture2	1.000	.676
Culture3	1.000	.557
Culture4	1.000	.546
Supervisor1	1.000	.571
Supervisor2	1.000	.671
Supervisor3	1.000	.647
Supervisor4	1.000	.582
Supervisor5	1.000	.657
Attitude1	1.000	.698
Attitude2	1.000	.677
Attitude3	1.000	.726
Attitude4	1.000	.642
Attitude5	1.000	.653
Support1	1.000	.549
Support2	1.000	.712
Support3	1.000	.620

Extraction Method: Principal Component Analysis.

**Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	7.329	43.112	43.112	7.329	43.112	43.112	6.545
2	2.218	13.045	56.157	2.218	13.045	56.157	5.413
3	1.293	7.609	63.766	1.293	7.609	63.766	2.463
4	.860	5.058	68.824				
5	.655	3.853	72.677				
6	.616	3.622	76.299				
7	.570	3.352	79.651				
8	.529	3.113	82.764				
9	.475	2.793	85.557				
10	.434	2.553	88.109				
11	.369	2.169	90.278				
12	.351	2.064	92.342				
13	.322	1.896	94.238				
14	.282	1.659	95.897				
15	.254	1.496	97.393				
16	.230	1.352	98.744				
17	.213	1.256	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Pattern Matrix<sup>a</sup>

	Component		
	1	2	3
Culture1	.813		
Culture2	.851		
Culture3	.774		
Culture4	.741		
Supervisor1	.765		
Supervisor2	.807		
Supervisor3	.799		
Supervisor4	.710		
Supervisor5	.665		
Attitude1		.837	
Attitude2		.831	
Attitude3		.885	
Attitude4		.771	
Attitude5		.761	
Support1			.555
Support2			.888
Support3			.747

Extraction Method: Principal Component Analysis.  
 Rotation Method: Promax with Kaiser Normalization.  
 a. Rotation converged in 5 iterations.

Structure Matrix

	Component		
	1	2	3
Culture1	.804	.405	
Culture2	.820		
Culture3	.742		
Culture4	.739		
Supervisor1	.754		
Supervisor2	.818	.436	
Supervisor3	.804	.421	
Supervisor4	.758	.460	
Supervisor5	.786	.577	
Attitude1	.469	.827	
Attitude2	.440	.821	
Attitude3		.849	
Attitude4	.411	.798	
Attitude5	.467	.805	
Support1		.526	.671
Support2			.826
Support3			.782

Extraction Method: Principal Component Analysis.  
 Rotation Method: Promax with Kaiser Normalization.

Component Correlation Matrix

Component	1	2	3
1	1.000	.516	.208
2	.516	1.000	.364
3	.208	.364	1.000

Extraction Method: Principal Component Analysis.  
 Rotation Method: Promax with Kaiser Normalization.

Factor for DV

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.824
Bartlett's Test of Sphericity	Approx. Chi-Square
	df
	Sig.
	764.429
	10
	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.239	64.782	64.782	3.239	64.782	64.782
2	.715	14.310	79.092			
3	.413	8.263	87.355			
4	.378	7.550	94.905			
5	.255	5.095	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix<sup>a</sup>

	Component
	1
Sharing_Intention1	.680
Sharin_Intentions2	.846
Sharing_Intentions3	.864
Sharing_Intentions4	.815
Sharing_Intentions5	.806

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Factor for mediating V

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.875
Bartlett's Test of Sphericity	Approx. Chi-Square
	df
	Sig.
	3428.169
	171
	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.679	35.154	35.154	6.679	35.154	35.154	4.728
2	2.658	13.990	49.144	2.658	13.990	49.144	4.710
3	1.892	9.958	59.102	1.892	9.958	59.102	4.656
4	1.788	9.411	68.513	1.788	9.411	68.513	3.426
5	.722	3.800	72.313				
6	.606	3.189	75.502				
7	.598	3.148	78.649				
8	.518	2.725	81.374				
9	.482	2.537	83.911				
10	.420	2.210	86.121				
11	.407	2.142	88.263				
12	.394	2.073	90.336				
13	.345	1.817	92.153				
14	.325	1.709	93.862				
15	.277	1.459	95.321				
16	.262	1.377	96.699				
17	.237	1.245	97.943				
18	.206	1.086	99.029				
19	.184	.971	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Pattern Matrix<sup>a</sup>

	Component			
	1	2	3	4
Rewards1				.886
Rewards2				.922
Rewards3				.847
Rewards4				.546
Associations1		.744		
Associations2		.861		
Associations3		.850		
Associations4		.821		
Associations5		.721		
Contribution1			.760	
Contribution2			.822	
Contribution3			.839	
Contribution4			.826	
Contribution5			.702	
Attitude_Toward1	.816			
Attitude_Toward2	.839			
Attitude_Toward3	.860			
Attitude_Toward4	.832			
Attitude_Toward5	.749			

Extraction Method: Principal Component Analysis.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

CFA for IV

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	37	386.892	116	.000	3.335
Saturated model	153	.000	0		
Independence model	17	3107.003	136	.000	22.846

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.049	.867	.825	.658
Saturated model	.000	1.000		
Independence model	.379	.268	.176	.238

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.875	.854	.909	.893	.909
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.085	.076	.094	.000
Independence model	.260	.252	.268	.000

CFA for DV

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	10	48.790	5	.000	9.758
Saturated model	15	.000	0		
Independence model	5	770.392	10	.000	77.039

RMR, GFI

Model	RMR	GFI	AGFI	PGFI

Model	RMR	GFI	AGFI	PGFI
Default model	.026	.943	.828	.314
Saturated model	.000	1.000		
Independence model	.251	.439	.159	.293

#### Baseline Comparisons

Model	NFI	RFI	IFI	TLI	CFI
	Delta1	rho1	Delta2	rho2	
Default model	.937	.873	.943	.885	.942
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

#### RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.165	.124	.208	.000
Independence model	.485	.456	.515	.000

F A for mediating

#### CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	44	419.682	146	.000	2.875
Saturated model	190	.000	0		
Independence model	19	3505.958	171	.000	20.503

#### RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.045	.876	.838	.673
Saturated model	.000	1.000		
Independence model	.216	.310	.234	.279

#### Baseline Comparisons

Model	NFI	RFI	IFI	TLI	CFI
	Delta1	rho1	Delta2	rho2	
Default model	.880	.860	.919	.904	.918

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.076	.068	.085	.000
Independence model	.246	.239	.253	.000



CORRELATIONS

/VARIABLES=MEANAB meanc meand meang meanj meank meanl meanm

/PRINT=TWOTAIL NOSIG

/STATISTICS DESCRIPTIVES

/MISSING=PAIRWISE.

Reliability Statistics

Cronbach's Alpha	N of Items
.920	9

Reliability Statistics

Cronbach's Alpha	N of Items
.882	5

Reliability Statistics

Cronbach's Alpha	N of Items
.766	5

Reliability Statistics

Cronbach's Alpha	N of Items
.858	5

Reliability Statistics

Cronbach's Alpha	N of Items
.842	4

Reliability Statistics

Cronbach's Alpha	N of Items
.868	5

Reliability Statistics

Cronbach's Alpha	N of Items
.867	5

Reliability Statistics

Cranach's Alpha	N of Items
.885	5

Descriptive Statistics

	Mean	Std. Deviation	N
Culture and Immediate Supervisor	2.3433	.80917	324
Employee Attitude	1.9988	.71723	324
Work Group Support	2.0938	.69485	324
Knowledge Sharing Intention	1.7846	.59649	324
Expected Rewards	2.4823	.90763	324
Expected Associations	1.7858	.59172	324
Expected Contribution	1.8938	.57810	324
Attitude toward Knowledge	1.7809	.58696	324

**Correlations**

		Culture and Immediate Supervisor	Employee Attitude	Work Group Support	Knowledge Sharing Intention	Expected Rewards	Expected Associations	Expected Contribution	Attitude toward Knowledge
Culture and Immediate Supervisor	Pearson Correlation Sig. (2-tailed) N	1  324	.540** .000 324	.383** .000 324	.354** .000 324	.542** .000 324	.274** .000 324	.219** .000 324	.163** .003 324
Employee Attitude	Pearson Correlation Sig. (2-tailed) N	.540** .000 324	1 .000 324	.585** .000 324	.487** .000 324	.396** .000 324	.462** .000 324	.207** .000 324	.224** .000 324
Work Group Support	Pearson Correlation Sig. (2-tailed) N	.383** .000 324	.585** .000 324	1 .000 324	.471** .000 324	.299** .000 324	.366** .000 324	.224** .000 324	.199** .000 324
Knowledge Sharing Intention	Pearson Correlation Sig. (2-tailed) N	.354** .000 324	.487** .000 324	.471** .000 324	1 .000 324	.256** .000 324	.575** .000 324	.317** .000 324	.337** .000 324
Expected Rewards	Pearson Correlation Sig. (2-tailed) N	.542** .000 324	.396** .000 324	.299** .000 324	.256** .000 324	1 .000 324	.354** .000 324	.257** .000 324	.198** .000 324
Expected Associations	Pearson Correlation Sig. (2-tailed) N	.274** .000 324	.462** .000 324	.366** .000 324	.575** .000 324	.354** .000 324	1 .000 324	.422** .000 324	.372** .000 324
Expected Contribution	Pearson Correlation Sig. (2-tailed) N	.219** .000 324	.207** .000 324	.224** .000 324	.317** .000 324	.257** .000 324	.422** .000 324	1 324	.470** .000 324
Attitude toward Knowledge	Pearson Correlation Sig. (2-tailed) N	.163** .003 324	.224** .000 324	.199** .000 324	.337** .000 324	.198** .000 324	.372** .000 324	.470** .000 324	1 324

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
meang <--- MEANAB	.075	.041	1.836	.066	par_1
meang <--- meanc	.227	.053	4.305	***	par_2
meang <--- meand	.233	.050	4.708	***	par_3

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
meanj <--- MEANAB	.514	.062	8.306	***	par_1
meank <--- MEANAB	.015	.043	.359	.720	par_2
meanl <--- MEANAB	.098	.046	2.150	.032	par_3
meanm <--- MEANAB	.036	.047	.776	.438	par_4
meanj <--- meanc	.146	.079	1.841	.066	par_5
meank <--- meanc	.302	.055	5.513	***	par_6
meanl <--- meanc	.040	.059	.682	.496	par_7
meanm <--- meanc	.114	.060	1.889	.059	par_8
meanj <--- meand	.073	.075	.983	.326	par_9
meank <--- meand	.122	.052	2.369	.018	par_10
meanl <--- meand	.118	.055	2.144	.032	par_11
meanm <--- meand	.083	.056	1.478	.139	par_12

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
meang <--- meanj	.030	.032	.957	.339	par_1
meang <--- meank	.501	.053	9.463	***	par_2
meang <--- meanl	.037	.055	.667	.504	par_3
meang <--- meanm	.128	.053	2.421	.015	par_4

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
meanj <--- MEANAB	.514	.062	8.306	***	par_1
meank <--- MEANAB	.015	.042	.361	.718	par_2
meanl <--- meanc	.040	.057	.700	.484	par_3
meanm <--- meand	.083	.056	1.478	.139	par_4
meanl <--- MEANAB	.098	.045	2.207	.027	par_5
meanm <--- MEANAB	.036	.047	.776	.438	par_6
meanj <--- meanc	.146	.079	1.841	.066	par_7
meank <--- meanc	.302	.055	5.545	***	par_8
meanm <--- meanc	.114	.060	1.889	.059	par_9
meanl <--- meand	.118	.054	2.201	.028	par_10
meank <--- meand	.122	.051	2.383	.017	par_11
meanj <--- meand	.073	.075	.983	.326	par_12
meang <--- meanj	-.058	.034	-1.731	.083	par_13
meang <--- meank	.391	.052	7.461	***	par_14
meang <--- meanl	.026	.051	.498	.618	par_15
meang <--- meanm	.111	.049	2.264	.024	par_16
meang <--- MEANAB	.093	.040	2.301	.021	par_23

	Estimate	S.E.	C.R.	P	Label
meang <--- meanc	.104	.049	2.111	.035	par_24
meang <--- meand	.178	.044	3.995	***	par_25

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
meanj <--- MEANAB	.514	.062	8.306	***	par_1
meanj <--- meanc	.146	.079	1.841	.066	par_2
meanj <--- meand	.073	.075	.983	.326	par_3
meang <--- meanj	.011	.037	.291	.771	par_7
meang <--- MEANAB	.070	.045	1.545	.122	par_8
meang <--- meanc	.226	.053	4.254	***	par_9
meang <--- meand	.233	.050	4.686	***	par_10

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
meank <--- MEANAB	.015	.043	.359	.720	par_7
meank <--- meanc	.302	.055	5.513	***	par_8
meank <--- meand	.122	.052	2.369	.018	par_9
meang <--- MEANAB	.069	.037	1.867	.062	par_4
meang <--- meanc	.100	.050	2.017	.044	par_5
meang <--- meand	.182	.045	4.049	***	par_6
meang <--- meank	.420	.048	8.727	***	par_10

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
meanl <--- meanc	.040	.059	.682	.496	par_1
meanl <--- MEANAB	.098	.046	2.150	.032	par_2
meanl <--- meand	.118	.055	2.144	.032	par_3
meang <--- meanl	.197	.049	4.032	***	par_4
meang <--- MEANAB	.056	.040	1.390	.165	par_8
meang <--- meanc	.219	.052	4.257	***	par_9
meang <--- meand	.210	.049	4.314	***	par_10

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
meanm <--- meand	.083	.056	1.478	.139	par_1
meanm <--- MEANAB	.036	.047	.776	.438	par_2
meanm <--- meanc	.114	.060	1.889	.059	par_3
meang <--- meanm	.221	.047	4.685	***	par_7
meang <--- MEANAB	.067	.040	1.694	.090	par_8
meang <--- meanc	.202	.051	3.935	***	par_9
meang <--- meand	.215	.048	4.465	***	par_10

Regression Weights: (Group number 1 - Default model)

Parameter	Estimate	Lower	Upper	P
meanj <--- MEANAB	.514	.397	.630	.001
meanj <--- meanc	.146	-.013	.307	.138
meanj <--- meand	.073	-.085	.228	.521
meang <--- meanj	.011	-.057	.083	.786
meang <--- MEANAB	.070	-.012	.153	.167
meang <--- meanc	.226	.119	.345	.001

Parameter	Estimate	Lower	Upper	P
meang <--- meand	.233	.106	.364	.003

One

Regression Weights: (Group number 1 - Default model)

Parameter	Estimate	Lower	Upper	P
meanj <--- MEANAB	.514	.397	.630	.001
meanj <--- meanc	.146	-.013	.307	.138
meanj <--- meand	.073	-.085	.228	.521
meang <--- meanj	.011	-.057	.083	.786
meang <--- MEANAB	.070	-.012	.153	.167
meang <--- meanc	.226	.119	.345	.001
meang <--- meand	.233	.106	.364	.003

Two

Regression Weights: (Group number 1 - Default model)

Parameter	Estimate	Lower	Upper	P
meank <--- MEANAB	.015	-.055	.095	.687
meank <--- meanc	.302	.195	.415	.001
meank <--- meand	.122	-.009	.241	.130
meang <--- MEANAB	.069	.009	.134	.051
meang <--- meanc	.100	.007	.198	.079
meang <--- meand	.182	.081	.298	.003
meang <--- meank	.420	.304	.534	.001

Three

Regression Weights: (Group number 1 - Default model)

Parameter	Estimate	Lower	Upper	P
meanl <--- meanc	.040	-.105	.154	.720
meanl <--- MEANAB	.098	.020	.189	.036
meanl <--- meand	.118	.003	.262	.092
meang <--- meanl	.197	.117	.287	.001
meang <--- MEANAB	.056	-.012	.129	.169
meang <--- meanc	.219	.119	.336	.001
meang <--- meand	.210	.086	.347	.003

Four

Regression Weights: (Group number 1 - Default model)

Parameter	Estimate	Lower	Upper	P
meanm <--- meand	.083	-.032	.213	.247
meanm <--- MEANAB	.036	-.039	.110	.426
meanm <--- meanc	.114	-.013	.217	.146
meang <--- meanm	.221	.128	.311	.001
meang <--- MEANAB	.067	-.006	.141	.132
meang <--- meanc	.202	.103	.317	.001
meang <--- meand	.215	.097	.350	.003