Knowledge-sharing behaviour intentions of academics and their determinants

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Abstract

Nowadays, the dynamic, global economic environment is presenting the sector for higher education within developing countries with numerous challenges. Increasing demand and rapid technological changes mean that knowledge and knowledge sharing (KS) are now recognised as key resources for organisations to gain competitive advantage. The management of knowledge and promotion of KS amongst organisational members have been shown to be key elements of the process of learning since they assist in the conversion of tacit knowledge of individuals by way of interaction into knowledge that is explicit. Previous literature noted that KS is a key factor for knowledge management and it also enhances organisational knowledge sharing behaviour (KSB). Within developing countries, especially Iraq, however, institutions for higher education tend to lack KSB. This study has aimed at assessing the attitudes, perceptions and behaviours of academics and the identification of factors that support or hinder KSB of academics within developing countries, with a particular focus upon Baghdad University as a prime example for the Middle East and Northern Africa (MENA) region.

An approach with mono-methods was used, i.e. a survey; a total of 326 responses were gathered that were valid so that testing could be done of the relationship between the dependent variable KSB and the independent variables; attitude towards knowledge sharing (ATT), subjective norm (SN), and perceived behavioural control (PBC). Through the use of AMOS Version 23 software and the structural equation modelling (SEM) software of IBM (Version 23), the research project discovered that the aforementioned predictors played a key role for KSB relationships in the Iraqi setting. Cultural differences and similarities were shown by the multi-group SEM in relation to the effects upon the university, and the results make a significant contribution to KSB theory in relation to, and in support of, the ATT, SN and PBC predictors. A deeper understanding is also provided of those relationships for educational environments in developing countries, particularly Iraq – a setting that previous research has overlooked. A more lucid picture is provided, then, of the position for Baghdad University and, with regard to the practical implications of the study, the survey results have shown that educational institutions seeking to embed knowledge sharing strategies would find it beneficial to spend time and energy upon communication, training and the exchange of knowledge skills and upon the development of relationships amongst their employees.

Acknowledgments

Declaration of the author

I hereby make the declaration that no portions of the work, that have been referred to within this thesis, have been part of a submission to support application for any other qualification at this university or any other university or, indeed at any other institution for learning.

Signed:

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Abbreviations	Full term
KM	Knowledge management
KS	Knowledge sharing
KSB	Knowledge sharing behaviour
HEIs	Higher education and initiations
HE	Higher education
MOHESR	Ministry of higher education and scientific research
SPSS	Statistics predictive analytics software
EFC	Exploratory factor analysis
CFA	Confirmatory factor analysis
SEM	Structural equation modelling
AMOS	Analysis of moment structures
ML	Maximum likelihood
χ^2	Chi-square
RMSEA	The root mean square error
CFI	Comparative fit index
NFI	Normed fit index
TLI	Tucker-Lewis index
GFI	Goodness of fit index
AGFI	Adjusted goodness-of-fit index
RMR	Root mean square residual
AVE	Average variance extracted
CR	Composite reliability
α	Cronbach alpha

Chapter 1: Introduction

1.1 The study background

An overall outline of the study is given briefly in this chapter. This study is concerned with identifying the determinants impacting upon the knowledge sharing behaviour (KSB) of academics, with a particular focus on academics at the University of Baghdad. Nowadays, within an increasingly globally networked environment of dynamic communications and technology, all types of organisations may be faced with continual challenges. For example, there may be challenges in terms of development, reorientation of work processes, competition and a general sense of instability. With such an economic context, higher education institutions (HEIs) are forced to re-evaluate their structure, operations and processes, policies and strategies, and their organisational culture (Mathew, 2010). There is a need for academic institutions to respond to the external demands placed on them, as business organisations, and to seek to expand their staff's capabilities (Goetsch and Davis, 2014). The experience of academics can be considered the key knowledge and the primary competitive resource for HEIs (Maponya, 2005). Universities, technical institutions and colleges all function as suppliers of personnel, expertise and training to industry (Fullwood et al., 2013). Indeed, academic institutions play a key role in sustaining and promoting economic booms by way of their creation of a skilled graduate workforce, and through their research and sharing of knowledge (Maponya, 2005). There is a belief that the contribution of entrepreneurial graduates from HEIs is a significant driver of economic growth by way of their work on knowledge economy projects (Jones, 2000; Goetsch and Davis, 2014).

Work can be undertaken so that he impacts that HEIs have upon the community and wider society can be maximised (Goetsch and Davis, 2014). By working with other organisations on problem solving, HEIs can make an essential contribution in their appropriate knowledge transfer (Fullwood et al., 2013). It has been argued that HEIs can change the world through informing public policy, their research to find answers to difficult life challenges and through their training (Galang, 2010). Knowledge sharing (KS) is a daily activity within the knowledge-intensive environment that is an academic institution, and the individuals within the organisation are the basis for the research and learning that comes forth (Fullwood et al., 2013). Societies have been transformed through the education of leaders, academics and decision makers (Lozano et al., 2013;

Wright and Horst, 2013). A number of authors have recognised the impact that knowledge has for competitive advantage (Nonaka, 2005; Nonaka et al., 2006; von Krogh et al., 2012). It has been argued that centres of research and universities make up communities of social academy that are very significant for the creation and transmission of science-based knowledge, which many consider to be the most significant source and driver of development and social progress (Hau et al., 2013). Indeed, Drucker (1993) had previously stated that knowledge was the primary resource of production-ahead of labour, land and capital. Good quality education within a HEI can also be considered to have great potential for the development of a country in cultural terms (Kumar et al., 2015). Knowledge can increase organisational effectiveness, reduce costs and risks and enhance creativity (Rasula et al., 2012). There is a need for organisations to manage knowledge so that performance can be enhanced as well as the prospects for survival (Ahmed and Shepherd, 2010).

Knowledge management (KM) and its associated techniques can be helpful in the accomplishment of the tasks of an organisation, and result in better capabilities with regard to decision making and a reduction in the time cycle of product development (Stark, 2015; Von Krogh, 2012). The term KM includes technology, processes and the people involved in the creation, sharing and use of knowledge (Disterheft, 2012; Andreeva and Kianto, 2011). The development of a KS culture is important for the application of initiatives related to KM (Uriarte, 2008; Zhou and Li., 2012). KS includes those activities by which insights, skills and information are exchanged between members of an organisation (Kim et al., 2013). The value of the knowledge of an individual is increased when shared within an organisation (Hislop, 2013).

Thus, there is a need for practitioners and researcher to fully understand the predictors of the readiness of employees in order for the management of an organisation to comprehend the beliefs, attitudes and behaviours that an individual may have with regard to change in that organisation. KS promotion amongst organisational members is vital for the process of learning as it aids in the conversion, by way of interaction, of the tacit knowledge of individuals into knowledge that is explicit (Nonaka et al., 2006; Tchiijo and Nonaka, 2007; von Krogh et al., 2012). KS is considered as a key area to focus upon within KM (Halawi et al., 2008). KM has been explained as having a fundamental aim of making KS an organisational norm (Titi Amayah, 2013). Indeed, KS is thought

of as a helpful indicator for measurement of organisational effectiveness (Tan et al., 2009). Within the HE environment, KS is thought to be a key foundation to performance efficiency (Mathew, 2010). KS is considered to be the basis for research and learning within universities and vital for the establishment of good KM (Hislop, 2013). Employment of effective techniques of KM can result in improvements to administrative and academic services and a reduction in the cycle time for product development (Kumar et al., 2011).

1.2 The study scope

The KSB within HEIs usually has an effect upon the beliefs, behaviours and attitudes of academics due to the introduction of a knowledge-sharing culture can have a negative effect on academics for this reason. Such a transferral can lead to the development of anxiety amongst academics and strain and uncertainty. So, that academics can become engaged in programmes for KSB and actively accept them, researchers and domain experts are concerned with how academics in HEIs ought to be treated. Within the literature of this piece of research, it can be seen that academics' readiness factors have a strong influence upon the beliefs, attitudes and behaviours of individuals and their response to KSB (Armenakis et al., 1993; Bernerth, 2004; Fullwood et al., 2013). Those factors could also have a relationship to the financial and psychological predictors of an individual (Alvi and Ahmed, 1987; Ma and Chan, 2014). The relationships that develop between academics do, in fact, result from mutual exchanges and a suitable work environment that help galvanise individuals to use their skills, experiences, abilities and efforts. A suitable work environment can help support academics in the development of a commitment to the organisation, enabling them to envisage the accomplishment of their future needs, expectations and desires. If needs and desires are perceived likely to be achieved, then employees may be more willing to identify with and accept the values and goals of the organisation. In addition, specific employees may develop positive behaviours and attitudes if they understand there is a need for a particular action.

As such, there is an interest amongst experts and researchers are interested in exploring the supportive factors that develop the appropriate behaviours and attitudes with regard to KS (Fullwood et al., 2013; Tong et al., 2015; Al-Emran et al., 2016; Henttonen et al., 2016). The

primary focus of this research, then, is upon the commitment of academics at the University of Baghdad to KSB and the workplace factors related to social and career relationships that may impact upon their behaviours and attitudes (Fullwood et al., 2013; Tong et al., 2015; Al-Emran et al., 2016; Henttonen et al., 2016). Academics may develop positive thoughts and feelings due, in part, to their commitment to their career. Positive feelings and thoughts towards KS may seem more apparent in academics that are satisfied with their career path.

1.3 Higher education in Iraq

Great efforts have been made in the HE sectors within developing countries such as Iraq to develop human resources by means of education. An education policy aim may be the reorganisation of the system of education with links to the development plans of the nation through, for example, and emphasis on studies that are technical, scientific or professional (Sikhi, 2008). Within Iraq, efforts have been particularly prevalent since 1988 when a number of private colleges were established to sit alongside the public universities for the provision of more HE opportunities within the country. The level of HE within Iraq had been advanced in the past, such that Iraqi education was concerned the best of all the regions of the Arabian Gulf and Middle East. Indeed, the UNESCO prize for the country with the lowest level of illiteracy was awarded to Iraq in 1982, in the main because of a law that endorsed free education (UNESCO, 2004). As well as the funding of private individuals, the HE sector in Iraq also enjoyed government funding (Sikhi, 2008). Funding was put towards teaching development, the inception of projects and research, educational service development, laboratories, curricula, training and scholarships, all with the aim of the spreading knowledge throughout society. According to a report from UNESCO in 2011, the education budget for Iraq in 1989 reached US$2.5 billion which amounted to 6% of the country's GDP. However, due to the wars and the imposition of an economic embargo between 1991 and 2003, the country became estranged from the world economy government and the support, for a cadre of teachers in a number of training areas and other associated services, became weak. The information technology and infrastructure within HEIs deteriorated and the education budget spent on each student fell to an average of US$47 in 2002 from the previous level of US$620 in 1989 (UNSECO, 2011). After 2003, because of the lack of adequate security, many scientists and

academics in all specialisations and fields were forced to leave the country; this 'brain drain' from universities had a serious impact on the country both economically and culturally. A UNESCO report of 2003 noted that the low level of contact of an international nature amongst professors in Iraq had an adverse impact upon the standard of education at universities in the country; the university sector in Iraq was no longer comparable to that in other international universities. The UNESCO report stressed there was an urgent need for the past glories of Iraqi education to be regained. However, with the increasingly global nature of the education market, the Iraqi education system needs to have the ability to reach that global market through change to its curricula, its systems, its methods and its style of leadership. HEIs in Iraq need to have a unique leadership rather than one based on tradition, so that they can compete in the modern-day global environment for education.

In 2012, the Ministry of Higher Education and Scientific Research (MOHESR) in Iraq launched a strategy for HEI reform between 2012 and 2020 (MOHESR, 2012). The ministry adopted several goals and approaches for upgrading the HE sector, with an emphasis on the need for HE quality to be strengthened and the achievement of sustainable human development. The high-quality criteria that have been adopted internationally have now been matched by the criteria for the higher education system in Iraq. With a basis upon these criteria, there is an effective plan of work, for implementation between 2012 and 2020, with a timetable that outlines the activities and actions along with the party responsible for executing each particular activity. The plan also includes the expected results, the indicators to be used and the deadlines for completion. The strategy is comprised of several main axes, such as programmes of study and curricula development (technologies, methods and content) and encouragement for creativity, as well as the development of distinction, at all levels, in the development of academia and scientific research. The plan also involves upgrading teaching staff capabilities in the use of technology for learning and education. It is clear that the strategy will only succeed with active participation from academic staff and leaders from across various Iraqi HEIs.

1.3.1 Historical background of the University of Baghdad

Discussing the history of the University of Baghdad is to discuss the very beginning of scientific research and HE in Iraq; the university is the first and largest scientific institution in the country. More cadres of highly trained technicians, administrators and teachers have hailed from the university than from any other, more recently founded, Iraqi university.

The growing need for HE in the country and the high level of demand articulated by the population led to the government investigating the possibilities with regard to the establishment of a university in Iraq; the first committee to look into this was created in 1943 and, in September 1956, a law was set in place for the establishment of a university for Iraq to bear the name of 'The University of Baghdad'. Its first Founding Council was put in place in 1957 along with its first vice-chancellor (president). The council was tasked with undertaking reviews of the state of play within the existing institutes and colleges and, if considered necessary, introducing reforms and undertaking the steps required to link those organisations with the university once it could be ensured that scientific standards were at a sufficiently high level. Another law with regard to the University of Baghdad was enacted in 1958; it acknowledged the university's establishment with administrative and scientific affairs run by a council. At that point in time, the university was made up of the College of Engineering, the College of Education, the College of Law, the College of Pharmacy, the College of Medicine, the College of Arts, the College of Veterinary Medicine, the College of Agriculture and the College of Commerce. Following this, several other HEIs joined the university, i.e. the Institute of Languages, the Institute of Surveying, the Institute of Physical Education, the Institute of Industrial Engineering and the Institute of Administrative Sciences.

Given the necessity of development in the country, the university had to expand the levels of student enrolment, and the cadre for science and technology, as well as seek to extend its science-related activities to other Iraqi cities. Therefore, it founded within the city of Mosul, colleges for Medicine, Humanities, Sciences, Engineering, Pharmacy, Agriculture and Forestry and an Institute for Computing. Furthermore, within Basra, colleges were established by the university for Law,

Engineering and Education. At the start of April 1967, the aforementioned colleges formed part of the University of Mosul and the University of Basra, respectively.

Since the University of Baghdad was established, it has responded quickly to requirements as set out in the plans for national development. It has achieved this by an increase in the student numbers across all the departmental specialties and through the founding of new colleges. Nowadays, there are a total of 24 colleges and four higher study institutes that focus on the study of genetic engineering, laser and plasma, accountancy and finance, and urban and regional planning. The university also made a response to developmental needs through an increase in the number of specialities that were offered for study at a postgraduate level. As such, the number of students accepted increased considerably, and 20 new centres for research related to science were founded. Recent government statistics show that the university has a total of 6,642 teaching staff, and there are 2,030 students enrolled at the postgraduate level and 62,561 students enrolled at the undergraduate level (MOHESR, 2012).

1.3.2 The College of Administration and Economics

The College of Administration and Economics had its beginnings with the establishment of an Institute of Financial Sciences as part of the College of Law. Study in the institute had a duration of two years however, the institute was closed down in 1940 due to World War Two (WW2). It is generally considered that, after the war in 1946/1947, the College of Administration and Economics was established, albeit by its initial name of the College of Commerce and Economics. Students were welcomed at that time; however, the first tranche of graduate-level students began to arrive around 1949/1950. Originally, only general studies were offered, without any specialisms however by 1955/1956, the college had the following departmental divisions:

The Department of Commercial Sciences:

- The Department of Accountancy
- The Department of Banking and Insurance

The Department of Economic Sciences:

- The Department of General Economy
- The Department of Agricultural and Industrial Economy (which was actually abolished during the same year)

By 1956/1957, there was specialisation of what was on offer at the college, with a narrowing down to only two departments, namely:

- The Department of Commercial Sciences
- The Department of Economics

In 1963, with independence, there was a further splitting of the college into two colleges:

- *The College of Commerce*. The High Institute of Accountancy, which was founded in 1959, and was part of the Al-Ma'rif Ministry for Education, was integrated into this college; the courses were general in nature and had a duration of four years. Three departments made up the college, namely: The Department of Commercial Law, the Department of Accountancy and The Department of Business Administration. Graduates of these departments were awarded a Bachelor's Degree in Commerce.
- *The College of Economics and Political Sciences.* This college was composed of the Department of Political Sciences (which had previously been a part of the College of Arts and the Department of Applied Statistics), and the Department of Economics (which had been a department within the former College of Commerce and Economics).

There were drastic changes in 1968 with the merger of the College of Economics and Political Sciences and the College of Commerce into the College of Administration and Economics. Courses at this college last for four years, and currently, the college has a total of six departments, i.e. statistics, accounting, general administration, business administration, industrial management and economics. Statistics for 2011 show that the college had 295 teaching staff, 133 postgraduate students and 5,464 undergraduate students (MOHESR, 2012).

1.3.3 The College of Law

People from Iraq who had been studying in Istanbul at the Ottoman School of Law (which was founded in 1886) were to play a major role in the establishment of the College of Law in Baghdad, and were to, subsequently hold key positions in Iraq once they had graduated from the law school in Turkey. Some of them returned to hold key administrative and judicial positions, as well as working within the law field. Understanding that it was a burden for students to travel to, and be accommodated in, Istanbul, these former students made calls for a School of Law to be established in Baghdad. In fact, the College of Law was founded before the modern state of Iraq, with the college beginning in 1908, and the state being founded in 1921. The college had the aim of creating specialisms in law so that specialists could begin working in various public service fields and undertake various activities around legal implementation. There was also the aim of creating specialists who are highly skilled in various areas of law in order to encourage scientific research within various legalistic fields. Overall, the aim was to see the development and invigoration of the movement for legislation within Iraq. There is a total of four departments within the college, relating to criminal law, general law, private law and international law and, according to the latest statistics, there are 30 postgraduate students, 1,062 undergraduate students and 46 teaching staff (MOHESR, 2012).

1.3.4 The College of Arts

The College of Arts was established in 1949, after World War Two and it specialises in: Arabic language, English language, philosophy, psychology, geography, history, sociology and archaeology. The college has the aim of deepening, developing, transmitting and disseminating knowledge to people. It aims to train and educate the community and to strongly link college activities and requirements with those of the development plans at the national level. Moreover, the college has the aim of boosting scientific research to a high level and embracing the competencies associated with science. Statistics show that the college has 285 faculty members, 448 postgraduate students and 3,636 undergraduate students (MOHESR, 2012).

1.4   The study problem

As with business organisations, systems for education are strongly affected by the ever-increasing rates of change in terms of technology, society and administration (Rosenblatt and Inbal, 1999). Following WW2, the development of HEIs was challenged by very complex societal, political, environmental and economic shifts. In order to face up to these various challenges, HEIs themselves have become more organisationally complex so that the services, research and teaching can function, for the faculty and all the students and staff. There was a need for HEIs to change so that they could cope with the shifting nature of the world. In order for the desired results to be achieved and needs to be fulfilled, institutions needed academics to be enthusiastic, loyal, creative and knowledgeable. A wide range of knowledge and skills are required of academics, in terms of research and teaching in their particular field, their social skills and the skills needed to carry out the relevant administration. Academics can potentially, through development of these various skills, help in enriching the progress of students and make a contribution to economic, social and other developmental factors.

KS has been shown to be very important for organisations and researchers have shown that it can be enabled by appropriate KSB (Peng, et al., 2015; Balau, and Utz, 2016). The causal links between KSB and KS have not, however, been fully developed for the context of developing country-based HEIs and numerous researchers have stressed the need for further study of KS (Xu et al., 2010; Jahani et al., 2011; Ramakrishnan and Yasin, 2012; Nawaz and Gomes, 2014).

 Additionally, Tohidinia and Mosakhani (2010) and Tangaraja et al. (2015) focused on the need for research into KSB. Since KS has such importance for organisations, especially those that have a learning environment, such as higher education institutions, it is important to enhance the experience in relation to taught courses, and improve the institution' abilities to solve problems. HEIs can be considered as under immense pressure to share knowledge, given their specific environments in cultural and organisational terms. At this point, however, the affect that KSB has upon KS at the University of Baghdad is unclear. Therefore, examination of these issues at the university can be helpful for the university decision makers as they face the pressure to knowledge share. This research can enable the university to overcome obstacles preventing KS development

amongst the academic staff, and make a contribution towards development of management strategies that are appropriate for the organisation. Zwain and Teong (2012) consider that KM practice within Iraqi HEIs is still a new topic, though with the potential for a high level of acceptance. This research study has, firstly, identified that there is a dearth of empirical studies that look at the relationships between KSB and KS. None of the studies that do exist have undertaken examination of those relationship within the context of HE in Iraq nor clearly, more particularly, within the University of Baghdad. In order to fill this gap in the literature, this research study has drawn up a number of aims and objectives, and has the potential to add to the existing literature through the provision of evidence for this specific cultural context.

1.5   Justification for the study and its significance

The researcher of this study has the intention of addressing the important issue of KSB amongst academics within developing countries and, more particularly, within the HEIs of Iraq. However, there is the belief that this research is novel in that it focuses particularly upon the University of Baghdad. In finding that no such research of this nature had previously been undertaken at the university, the researcher wished to illuminate the inner workings at this biggest of the Iraqi universities. Furthermore, given his past experience of studying at the university, and the good relationships that had been established with academic staff there, the researcher felt that it would be easier to gain access for distribution of the questionnaire survey and collection of the data.

The population for the study included academics with full-time teaching roles, which included all types of academic faculty members, such as assistant lecturers, lecturers, assistant professors, professors and associate professors. The study's principal aim is to determine the effective ways of motivating academics of the University of Baghdad to perform knowledge-sharing behaviour (KSB). The research also hopes to make a contribution to the addressing of a significant literature gap on the topic of KM practice within HEIs in Iraq, where different political and cultural factors have a bearing, and where there are distinct procedures for management and infrastructure.

The measurement of the intention of academics at the University of Baghdad to conduct KSB is done by testing planned behaviour theory with three determinant factors for KSB: subjective norms, perceived behavioural control (PBC) and attitude towards KS (Ajzen, 1991). A questionnaire survey was distributed amongst academics at the university, and analysis of the data collected was undertaken using the IBM software SPSS 23. A sequential explanatory research design strategy was initially chosen within a mixed method approach for this research. Cresswell and Clark (2011) consider that such an approach provides stronger evidence by way of finding corroboration and convergence for the drawing of robust conclusions. In this way, the researcher thought it would help in the achieving the research objectives that could not be achieved using only a qualitative or a quantitative approach. As the research was underway however, a decision was taken to move away from a method that was qualitative to the adoption of the route of hypothesis and structural equation modelling (SEM). Testing of the hypotheses was carried out through moment structure analysis (AMOS) in SEM because of, in recent years at least, the delicate nature of the situation within the country.

The findings of the research provide novel insights and make a contribution towards filling the gap in the literature by bringing attention to the intention to conduct KSB amongst academics at the University of Baghdad. As an outcome of this study, guidance may be given to policymakers in the international organisations concerned, in addition to HEIs in Iraq by showing the extent to which academics at the university are prepared to conduct KSB. This research, then, can help in the making of decisions about KS practice in an informed way.

1.6   The study aim and objectives

The University of Baghdad and other HEIs in Iraq, as with other comparable MENA region institutions, have been strongly impacted by the economic and social trends initiated by neoliberal policy, with the implication that more traditional industries are being left behind somewhat in the move towards knowledge economies. It is considered that KM is enabled, to a large degree, by effective KS (Ipe, 2003). Whilst there is an increasing amount of study of KM and knowledge sharing within developing countries, there is still a lack of research with a specific focus upon

HEIs in Iraq, and so KS determinants and scope amongst academics there is very much an under-explored phenomenon. In essence, this research has the principal aim of investigating academics' knowledge sharing behaviour intentions and its determinants whilst working in HEIs in developing countries. Testing will be conducted on the planned behaviour theory factors of subjective norms, perceived behavioural control and knowledge sharing in a sample of academics with specific focus on the University of Baghdad in order for the research aim to be realised (Ajzen, 1991).

In order to achieve the aim of this study, the following research objectives have been set:

a) To apply and validate attitude toward knowledge sharing as a measurement of knowledge sharing behaviour within academics at the University of Baghdad

b) To apply and validate subjective norm as a measurement of knowledge sharing behaviour within academics at the University of Baghdad

c) To apply and validate perceived behavioural control as a measurement of knowledge sharing behaviour within academics at the University of Baghdad

d) To develop and test a conceptual framework that portrays the critical factors that affect the KSB of academics in the University of Baghdad.

e) To propose practical recommendations to nurture KSB amongst academics in the University of Baghdad.

1.7 Study contribution

The potential study contribution is in developing a comprehensive framework of theory and examination of factors that have a bearing on KSB amongst academics at the University of Baghdad. As far as the author understands, such a theoretical framework has not been tested, theoretically and empirically, before. Previous research that has been undertaken in relation to academics in Iraq has focused upon innovation, KS and leadership, and not had a KSB emphasis. As such, this research aims to establish an integrative framework of theory that is a combination of factors bearing upon the intention of academics, and their behaviours and attitudes towards KS. Firstly, the model of planned behaviour theory (TPB) of Ajzen (1991) is considered appropriate for explanation and prediction of the behaviour of people in particular contexts. For this research,

a model was developed that combined factors with regard to KSB, i.e. subjective norm, attitude and perceived behavioural control (PBC). Studies previously have been undertaken within Middle Eastern HEIs with a focus on the KS context however, none of them have focused on other potentially impactful factors, such as the KSB within the HEIs of Iraq and, more specifically, within the University of Baghdad.

This study makes a contribution to the limited level of current KSB development in higher education institutions (HEIs) within developing countries in general, particularly Iraq. It aims to investigate the study problem using a mono-method survey questionnaire via a large number of academics from the University of Baghdad. This method allows the collection of a considerable amount of data, which will be processed in an efficient manner. Saunders et al. (2009) stated that this type of survey is commonly used by researchers, and it increases the generalisability of the findings for the whole research population.

The conceptual framework employed in the research was created with a basis in the beliefs, behaviours and attitudes of academics that may be developed further for the promotion of more positive attitudes towards knowledge sharing. This research is also strong in that new evidence is brought forward from a cultural context that is relatively new, so that there can be fresh perspectives to add to existing theories. Most similar previous studies have been undertaken in other developed countries, and so comparison testing of the finding validity is permitted – which offers a significant advantage showing. However, taking the University of Baghdad as an example case for the HEI in a developing country such as Iraq, the key findings indicated positive results for the generalisability of this study to other similar universities in developing countries; as showing bellow:

- Professional environment have a positive effect on academics' knowledge-sharing intention.
- Self-confidence have a positive effect on academics' knowledge-sharing intention.
- Expected mutual relationships have a positive effect on academics' knowledge-sharing intention.
- Apparent mutual benefits have a positive effect on academics' knowledge-sharing intention.

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- Methods & techniques have a positive effect on academics' knowledge-sharing intention.
- Self-acknowledgment did not have a positive effect on academics' knowledge-sharing intention.
- Expected rewards have a positive effect on academics' knowledge-sharing intention.

Finally, and simply, the research results demonstrate that the personal behavioural attitudes of academics at the University of Baghdad as a model institution in the region of Middle Eastern countries affect their intention to knowledge sharing.

1.8 Thesis outline

This section lays out the thesis contents in outline form, with the seven thesis chapters summarised as follows:

Chapter 1: An introduction to the study background; HE in Iraq; the historical background of the University of Baghdad; the problem under study; the justification for the study and its significance; the study aim and objectives; a presentation of the entire thesis structure; a summary of the thesis contents.

Chapter 2: A comprehensive review of existing literature on KM, KS and KSB; the academic role in HEIs within developing countries and, more particularly, in Iraq; a review of KM theory developments with a description of various approaches to KSB and KS; discussion of relationships between KS and KM; general background to HEIs, with a focus on theories of KSB.

Chapter 3: Development of a model to show the relationships between the factors of KSB that this study develops; discussion of the research model components; provision of the hypotheses of the study.

Chapter 4: The study methodology and description of the research design employed, i.e. the quantitative, exploratory mono method; discussion of the questionnaire survey, the scales of

measurement and the data collection methods employed; description of the procedures employed in questionnaire validation.

Chapter 5: Presentation of the main survey findings and analysis through the use of the IBM software, version 23 of SPSS; the data management and screening, the demographic characteristics, the validity and reliability testing, the factor loading, the exploratory factor analysis, model fit assessment and the confirmatory factor analysis; presentation of the hypotheses testing outcomes.

Chapter 6: Population and sample issues; presentation of the scale purification results; review of all of the hypotheses testing findings; discussion of the knowledge sharing behaviour intention results for academics at the University of Baghdad.

Chapter 7: Presentation of the study conclusion and implication; presentation of a summary of the study findings and the implications for both practice and theory; recommendations for policymakers; limitations of the research and suggested directions for research in the future.

1.9 Summary

The study background has been outlined within this chapter and the foundations laid for the study to develop. The chapter started with a description of how the study idea emerged, with attention focused upon the significance of KS, KM and KSB within an academic environment.

As there was a lack of suitable models for KSB and KS for academic environments within the context of developing economies, the important contribution and study purpose became apparent and appropriate aims and objectives followed on. Having presented a description of the entire thesis structure, Chapter 2 presents the critical literature review with regard to KSB, KS and KM.

Chapter 2: Literature review

2.1 Introduction

The world of today is being continually reshaped by new thinking and innovative approaches (Aizpurua et al., 2011). For development, knowledge itself is being seen as an essential element of an emerging knowledge society (Priento and Easterby-Smith, 2006). Since the 1960s economists such as Machlup 2014, have been assessing the impacts that knowledge has upon the economy. Furthermore, the role of knowledge for organisations and management has been considered by management theorists such as Drucker. Indeed, for Drucker (1992), the classic production factors of land, labour and capital have been relegated to secondary importance within a new economy behind the primary resource that is knowledge. Nowadays, knowledge is widely considered to add more value to organisations than physical things (Akhavan et al., 2006). As such, knowledge has taken a central place within the fields of organisational and institutional planning and management.

In order to keep pace with the rapidly changing knowledge economy, the management of knowledge assets has ever more importance as universities aim to ensure that the quality of their research and education is of a high standard (Maccoby, 2009). As such, this chapter provides an examination of how there is a need for the knowledge and intellectual assets of universities, as centres of research, learning and education, to be managed effectively. For instance, there is a need for insight into how personal skill sets and knowledge can be translated effectively and passed on to others (Chew et al., 2013). In addressing the issue, this chapter is composed of three sections. Firstly, the chapter discusses the concept, taxonomies and types of knowledge. Secondly, the basics of knowledge management (KM) are introduced, along with discussion of the importance that KM has for organisations, with particular reference to its impact on higher education institutions (HEIs). Thirdly, the chapter looks at the theory behind knowledge sharing (KS), and then focuses upon knowledge sharing behaviour at the University of Baghdad.

2.2 The concept of knowledge

The elusive concept that is knowledge has been defined in a variety of ways (Davenport and Prusak, 1998). Traditionally, researchers within the field of strategy have employed a

conceptualisation of knowledge that has been based upon a Western epistemology. However, the development and valuing of explicit knowledge is, in the main, a characteristic of the culture in the West. Eastern culture, on the other hand, can be characterised by its development and use of tacit knowledge (Nonaka, 1994; Nonaka and Takeuchi, 1995). For Nonaka (1994), knowledge can be seen as a true belief that has been justified; the explicit nature of knowledge is the theoretical focus. Knowledge, then, is modelled in a way in which it is seen as a construct that is reducible, easily transferred and unambiguous, and the act of knowing has an association with the processing of information. Numerous theories have arisen from this approach to knowledge, with the suggestion that organisations function like machines. For instance, theories from scientific management take the view that organising work ought to take place through the codification of knowledge, and that only select individuals within a firm hold the relevant knowledge. Likewise, from the perspective of information processing, organisations can be seen as machines that employ routines and rules in order to address the particular information processing requirements that result from environmental uncertainty and work of an interdependent nature (Orlikowski et al., 2016).

It is helpful, however, to appreciate that there are various perspectives on knowledge, and this can facilitate an understanding of the knowledge-based theory lying behind the knowledge-management processes of a firm. Unlike the traditional resources of land, labour and capital, once knowledge is shared and distributed, it becomes, to a certain degree, a public good. As noted by Davenport and Prusak (1998), a definition of knowledge can provide a basis for consideration of the combination of experience, values, contextual information, knowledge and expert insight. It can provide a framework with which to include new experiences or information and undertake an evaluation of where they hail from and how they are applied in the minds of their users. The mixture of knowledge, when employed within organisations, becomes embedded within documents, and routines and processes of everyday operations.

It is clear from such a definition that conceptualisations of knowledge are not simple or neat; instead, knowledge is composed of various elements. It is both formally structured and fluid and, given that it has an intuitive nature, it is difficult to fully comprehend in logical terms and capture in words. Knowledge lies within people and is an inherent aspect of their unpredictability and

complexity. As opposed to clearly defined and concrete assets, knowledge is harder to nail down; rather like atomic particles being seen by scientists as either particle or wave form, knowledge can be viewed in terms of it being stock or process. As Holsapple (2013) noted, knowledge is the ability someone has to do a thing or to implement a form of expertise. Rather than information or data, though, knowledge, as a concept, has a fuzzy and intangible nature that is hard to fully understand. An informative report may have information and a computer may have facts and figures stored in the form of a database; however, only a human can have, and be able to exercise, knowledge. Knowledge can also be thought of in terms of being a human asset that is intangible and that two or more people can exchange when they interact (Holsapple, 2013).

Nowadays, knowledge is, seen as of prime importance, with many organisational managers recognising the value that it has at the core of their business. Knowledge of products, services and processes can all form part of the core business knowledge of employees, and managers have started to identify and nurture knowledge sources within their organisations (Novak, 2010). Knowledge, however, can be viewed, as mentioned above, as existing in the two forms of being either explicit or tacit, with only the former seen as a thing that could be managed by organisations in terms of formatting, storage, organisation and sharing (Polanyi, 1966 cited in Nonaka, 1994). There is a challenge, then, to create channels for tacit knowledge where it can be shared more, rather than hoarding this embedded nature of personal knowledge skills (as shown in section 2.9).

2.2.1 Taxonomies of knowledge

It is possible to also define knowledge with regard to taxonomy or classification. It is important to understand knowledge conceptualisation and classification, as the developments in theory within the field of knowledge management are strongly influenced by the distinctions that exist between various forms of knowledge (Alavi and Leidner, 2001). Study of the literature related to knowledge taxonomies shows that there are, indeed, numerous different classifications of knowledge. Table 2.1 shows several examples; however, there will only be a brief introduction to the most commonly used ones within this chapter.

Table 2.1 Different types of knowledge

Author	Knowledge classification	Definition
DeLong and Fahey (2000); Alavi and Leidner (2001)	Individual	Created by, and inherent in, the individual
	Social	Created by, and inherent in, collective actions of a group
Nonaka and Takeuchi (1995); Alavi and Leidner (2001); McKenzie and Van WinKelen (2004); Hislop (2005)	Tacit	Knowledge is rooted in actions, experience and involvement in a specific context
	Cognitive tacit	Mental models
	Technical tacit	Explicit
	Explicit	Articulated, generalised knowledge
Hansen et al, (1999)	Codified	Available in written documents, manuals, and procedures
	Non-codified	Acquired through experience
Zack (1999); Alavi and Leidner (2001); McKenzie and Van Winkelen (2004)	Declarative	Know-about
	Procedural	Know-how
	Causal	Know-why
	Conditional	Know-when
	Relational	Know-with
Blackler (1995); McKenzie and Van Winkelen (2004)	Endbrain	Conceptual skills and abilities
	Embodied	Acquired by doing
	Encultured	Acquired through socialisation
	Embedded	Organisational routine
	Encoded	Sign and symbols

Source: Adapted from Alavi and Leidner (2001: 107)

Based on the work of Zack (1999), there can be considered to be five different classifications of knowledge; these are: (i) knowledge as a declarative (knowledge through acquaintance or to know about); (ii)procedural perspective of knowledge (to know how); (iii) causal perspective of knowledge (to know why); (iv) conditional perspective on knowledge (to know when); and (v) relational perspective on knowledge (to know with). According to Blackler (1995), a framework of knowledge can, cleverly, avoid complexity through adaption of new conventional assumptions with regard to knowledge location, i.e. the residing of knowledge within brains, bodies, routines, symbols and dialogues. Five different knowledge classifications were suggested by Blackler,

namely: (i) embrained classification of knowledge (related to conceptual skills and abilities); (ii) embodied classification of knowledge (in reference to acquiring it by doing); (iii) encultured classification of knowledge (in reference to its acquisition by socialisation); (iv) embedded classification of knowledge (in reference to the routines of organisation); and (v) encoded classification of knowledge (related to symbols and signs). Later on, within this literature review, there will be further discussion of two knowledge classifications, i.e. codified classifications of knowledge (those available in written manuals and documents), and non-codified classifications of knowledge (those that are acquired by experience) (Hensen et al., 1999).

2.2.2 Types of knowledge

Various kinds of knowledge have been described within previous literature. For example, Conklin (1997) made a distinction between informal and formal types of knowledge. Informal knowledge can be thought of as that gleaned from social interactions which can then be used in the creation of more formal kinds of knowledge. Formal knowledge can be thought of as more easily shared and is often obtained from books. Meanwhile, Christensen et al., (2007) described four kinds of knowledge, i.e. object-based knowledge, know-how knowledge, professional knowledge, and coordinating knowledge. Ullman (2015) made a distinction between procedural knowledge, which referred to skills and the ability to perform a task, and declarative knowledge, which referred to the beliefs that existed with regard to the relationships between variables. Often, researchers make a distinction between relational (know-with), causal (know-why) and conditional (know-when) forms of knowledge (Nolan Norton Institute, 1991).

Further, knowledge has been divided into social and individual forms; the former is knowledge made, and inherent to, collective group actions, and the latter is a form made by individuals (also known as collective knowledge) (Nonaka, 1994). Badilescu-Buga, (2013) considers that knowledge can be classified as either social, factual or situational. As such, social knowledge can be seen as having a focus on relationships, and social networks and issues; factual knowledge can be seen as knowledge-based on awareness of facts; and situational knowledge can be seen as knowledge that has been gleaned within a specific context. In the work of Lopez-Saez et al. (2010),

knowledge is considered either internal or external. As such, internal knowledge can be seen as being derived from sources that are internal, such as the research and development and production departments and other members of the organisation. Meanwhile, external knowledge can be seen as knowledge that has been derived from suppliers and customers and other institutions and organisations.

Within the literature, however, the kinds of knowledge that are most often referred to are explicit and tacit forms of knowledge and, as such, this distinction will be a focus within this study. Polanyi (1967) first used these distinctions between types of knowledge; however, they have since been employed in a study of organisational contexts by Nonaka (1994). The term tacit knowledge refers to knowledge matters that are subjective, personal and intangible (Nonaka, 1994; Nonaka, 1995; Hislop, 2013). It is accumulated and embedded in the minds of people through their learning, studying and life experiences and can be developed by conversation, social interaction, job training and workshops (Polanyi, 1967; Nonaka and Takeuchi, 1995, Nonaka and Toyama, 2005; von Krogh et al., 2012). For Nonaka, et al. (2006), tacit knowledge can be explained as consisting of two main elements, i.e. technical elements and cognitive elements. Technical elements of tacit knowledge are those where personal, informal skills are applied within a particular context, such as craft skills and know-how. Cognitive elements of tacit knowledge are those where paradigms, beliefs, values or the mental model of a person have a bearing. As Hislop (2005) noted, it is difficult to articulate, communicate or transmit tacit knowledge. It could be argued that this form of knowledge is unconventional and less familiar, and Goetsch and Davis, (2014) discovered that staff in HEIs obtained it either through their experience as a professional or via teaching courses. Such knowledge includes the ability to solve problems and the capability to undertake research. For any organisation, competitive advantage can be gained through the presence of tacit knowledge (Hau et al., 2013; Arnett and Whittman, 2014). As Seidler-de Alwis and Hartmann (2008) demonstrated, tacit knowledge is essential for undertaking the tasks of an organisation and getting things done well, such as the generation of new products, the improvement of procedures that leads to innovation and the creation of new knowledge (Grant, 2013).

On the other hand, explicit knowledge refers to knowledge that is captured, externalised, objective and articulated and is, in general, in a form that is more tangible (Meihami and Meihami, 2014). Knowledge of the explicit kind can be found in databases, models, books and rules, saved within documents and embedded in policies, rules, regulations and procedures; as such, it can be more easily shared between organisations and individuals, and can be more commonly found within the working environment (Nonaka, 2005; Uriarte, 2008; Birasnav et al., 2011; von Krogh et al., 2012). It was argued by Nonaka et al. (2006) that rule-based and object-based knowledge can both be considered as forms of explicit knowledge. Rule-based knowledge refers to knowledge that has been translated into organisational routines, rules and procedures. Object-based knowledge, on the other hand, refers to knowledge that can be either tangible, such as documents and equipment, or intangible, such as numbers, formulas and words. Object-based knowledge, therefore, has been referred to as the 'know-what' of an organisation. As Kumar and Ganesh. (2011) explained, object-based knowledge is advantageous in that it can be easily shared and reused for solving problems that are similar. Of course, these two kinds of knowledge complement each other, as it would be difficult to have an understanding of explicit knowledge without a certain amount of tacit knowledge (Uriarte, 2008; Hislop, 2013).

It was argued by Nonaka et al. (2006) that knowledge that is personal may become knowledge of the organisation by a process of interaction between explicit and tacit knowledge through four ways, i.e. socialisation, externalisation, combination and internalisation (SECI). A model of these four ways of knowledge transfer can be seen in figure 2.1.
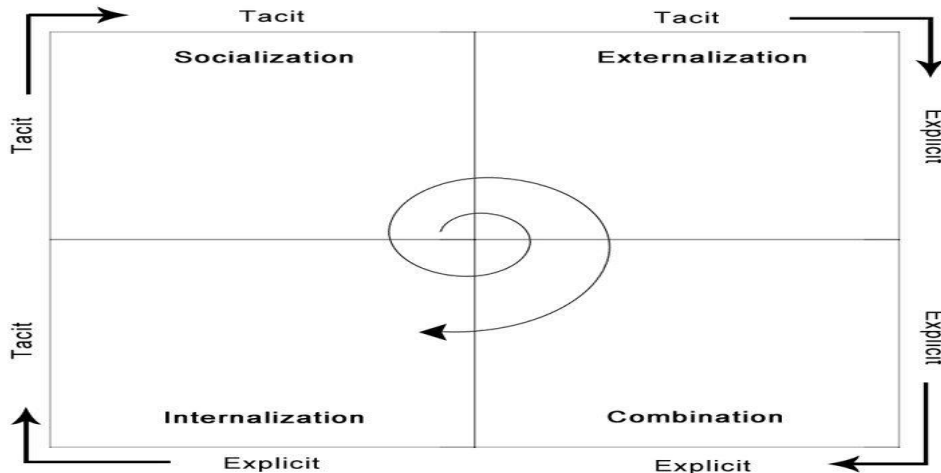
Figure 2.1 model of socialisation, externalisation, combination, and internalisation (SECI)
Source: Nonaka (1994: 19)

Taking each in turn, socialisation can be seen as involving a transfer of knowledge that is tacit to tacit; examples being the sharing of experiences between organisational members by either indirect or direct communication, or interactions, such as through informal meetings, discussions, brainstorming sessions, seminars and training sessions. For socialisation, there is an exchange of personal knowledge, though it remains a tacit form of knowledge. Next, externalisation can be seen as involving the transfer of knowledge from tacit to explicit forms by use of concepts, analogies, hypotheses and metaphors, such that technological and written channels are employed in the creation of knowledge to be shared with others. Externalisation is thought of as essential for the conversion of knowledge as it enables the start of knowledge exploitation. Thirdly, combination involves the transfer that occurs between explicit to explicit forms of knowledge through use of social processes for the combining of knowledge, such as through meetings, telephone conversations and documents. For combination, knowledge is processed and categorised so that new knowledge can be created, and it is in a form that can be easily documented and shared with the knowledge being both evident and explicit (von Krogh et al., 2012). Finally, internalisation can be seen as transfer from explicit to tacit forms of knowledge that is achieved by using learning and documents in generating new ideas. It was noted by Nonaka and Toyama (2005) that internalisation is a process that enables understanding to be created and a learning culture to

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be developed; they argued that if individuals use tacit knowledge, a learning spiral can be broadened for the creation of knowledge.

2.3 Knowledge management

In recent years, the concept of knowledge management (KM) has become popular within management literature, with it appearing first in literature related to artificial intelligence towards the end of the 80s (Seviby, 1997). Early research related to the concept was founded on the use of information technology for the support of an individual's learning. Following this, the concepts of the knowledge worker and the knowledge society were presented by Drucker (1993), with it being argued that the primacy of traditional aspects of production, such as land, labour and capital, had been supplanted by knowledge. Apparently, the first conference that included a discussion with regard to knowledge was held in 1993 (Davenport and Prusak, 1998). KM has considered to be comprised of three generations. Firstly, there is a generation related to the processing and transferring of information (Geisler and Wickramasinghe, 2015). Secondly, there is a generation of KM that has its focus upon the creation and sharing of knowledge (Nonaka, 1994). Thirdly, there is a generation of KM that is concentrated on life-cycle evaluation and the use of knowledge assets in the creation of value (Geisler and Wickramasinghe, 2015).

KM development has been discussed by Rosemann and vom Brocke (2015) in terms of both goals and processes, with the claim that it has a focus on information sharing for organisational benefit. The aim of KM has also been described as being the enhancement of the performance of organisations and innovation by Chang and Lee (2008). Likewise, Davenport and Prusak (1999) made the suggestion that KM application within an organisation enables costs to be reduced and also facilitates organisational knowledge to be shared, which aids in the solving of problems. It has been argued that the use of KM has the benefit of aiding in decision making, helping an organisation to reduce mistakes within its work, helping in the development of innovation, and helping to enhance both service and satisfaction to the customer (Chen and Huang, 2009; Ahmed and Shepherd, 2010). Organisational competencies can be levered by KM so that organisations can be helped in the achievement of competitive advantage through the promotion of innovation

and creation of knowledge (Wei et al., 2009; Xu et al., 2010; Humayun and Gang, 2013). KM gives access to know-how and expertise and can facilitate and/or encourage a cultural climate of continual learning and collaboration (Du Plessis, 2007).

As both Darroch (2005) and Hislop (2009) note, as a mechanism of coordination, KM can be employed in the conversion of resources into capabilities which, in turn, can help in organisational performance enhancement. In addition, KM can be seen as having a concern for the development and exploitation of knowledge assets in a way that is essential for adopting new technology (Lin and Lee, 2006). Zaied et al. (2012) undertook a pilot study of a range of organisations within Egypt and discovered that the acquisition, conversion and storage processes of KM may enhance the performance of organisations. Indeed, it has been found that organisations that have effective KM are better able to translate their intellectual capital into innovative services and products (Chen and Huang, 2009; Huang and Li, 2009; Chen et al., 2010a). Thus, KM has risen to being a key paradigm that is considered of vital importance for the success of an organisation.

KM has been described by Liao and Wu (2010) as a knowledge organising process that is made available to those who make decisions; it has also been seen as involving technology, people, culture and process (Massa and Testa, 2009). In addition, KM has been described by Yang (2011) as a process whereby organisational knowledge is created, disseminated and applied in order for new opportunities to be exploited and for organisational performance to be enhanced. From the viewpoint of Ipe (2003), KM is seen as a set of managerial and technical tools, infrastructures and procedures that can facilitate the creation and sharing of knowledge and its application within the organisation in question. Likewise, KM has been defined by Bollinger and Smith (2001) as those activities that are employed in the generation, communication and exploitation of usable ideas amongst the members of an organisation for organisational and personal benefit.

It is clear from the above that no universal definition of the concept of KM exists because of the various kinds of knowledge and the various methods employed for their management. Most of the definitions noted, however, employ a similar vocabulary though with different emphases, as can be seen in Table 2.2. Consider, for example, the notion of conversion (Gold et al., 2001; Liao and

Wu, 2010; Allameh et al., 2012); the notion of sharing (see Allee, 1997; Bock et al., 2005; Cui et al., 2005; Huang and Li, 2009; Massa and Testa, 2009; Ling and Nasurdin, 2010; Andreeva and Kianto, 2011; Awang et al., 2011; Ferraresi et al., 2012); the notion of exchange (Nguyen and Mohamed, 2011); the notion of dissemination (Bhatt, 2001; Gowen et al., 2009; Mehrabani and Shajari, 2012); and the notion of transfer (Yahya and Goh, 2002; Kim and Ju, 2008; Uriarte, 2008). All these works point to the central role that KM is now considered to play within organisational life.

Table 2.2 Knowledge management processes

Authors	KM Processes
Allee (1997)	Knowledge creation (generation and acquisition), knowledge retention (arrangement, storing, collection, presentation, analysis and classification), knowledge sharing (socialisation and distribution), knowledge innovation (changing, improvement, extension and deepening)
Bhatt (2001)	Knowledge creation, dissemination of knowledge and utilisation of knowledge
Gold et al. (2001)	Acquisition, conversion, application and protection of knowledge
Yahya and Goh (2002)	Acquisition, documentation, transfer and application of knowledge
Bock et al. (2005); Massa and Testa (2009)	Capture, sharing, storage and use of knowledge
Ling and Nasurdin (2010); Huang and Li, 2009	Acquisition, sharing and application of knowledge
Uriarte (2008)	Creation, generation, transfer and application of knowledge
Kim and Ju (2008)	Generation, capture, storage, transfer and use of knowledge
Gowen et al. (2009)	Acquisition, dissemination and responsiveness of knowledge
Liao and Wu (2010)	Creation, conversion and application of knowledge
Nguyen and Mohamed (2011)	Exchange, socialisation and internalisation of knowledge
Andreeva and Kianto (2011); Awang et al. (2011)	Creation, documentation and storage, sharing and application of knowledge
Allameh et al. (2012)	Knowledge conversion processes (socialisation, externalisation, combination and internalisation)
Ferraresi et al. (2012)	Capture, sharing and use of knowledge
Mehrabani and Shajari (2012)	Identification, creation, collection, organisation, storage, dissemination and application of knowledge
Schenk et al. (2015)	Acquisition, adaptation (internal tailoring), creation, storage and application of knowledge

2.4 Knowledge workers

People engaged in KM-type activities can be considered as 'knowledge workers', defined by Debowsky (2006: 18) as those who "*spend most of their time generating, applying or conveying*

knowledge". The term knowledge worker can also apply to a broader range of people such as public relations staff, database administrators, librarians and those who are specifically involved in a variety of KM-type activities. As the continuity of knowledge is founded upon the communication between people within an organisation (Beazley et al., 2002; Levy, 2011), it is imperative that knowledge worker have an understanding of what they and others know or need to know, and what information has to be shared within their organisation (Amin et al., 2011; Jeon et al., 2011; Li, et al., 2012). More details in the next section about this type of knowledge worker and its effectiveness on the organisations.

2.5 The effectiveness of knowledge management within organisations

Business glossaries have included the term knowledge management for several years and, given that it is a key resource strategically speaking, KM is thought to be of vital importance to an organisation (Lee and Yang, 2000; Groff and Jones, 2003). As noted by Lin (2007), KM relates to those processes and strategies of protecting and acquiring knowledge, as well as its conversion and application, in order to produce, improve and sustain an organisation's competitive advantage. KM practice is a process whereby an organisation's management of all the relevant knowledge is facilitated so that needs, both existing and emerging, can be met. In addition, KM is a process for identifying and exploiting both existing and acquired knowledge assets and, thereby, developing new opportunities for an organisation (Jarrar, 2002). KM has been discussed in a number of ways; however, in general, it can be considered as involving assets related to knowledge in terms of knowing how to create them (the process of learning), how to disseminate them (the sharing of knowledge) and how to measure them (intellectual capital) (Liao and Wu, 2010; Al-Hakim and Hassan, 2011).

Ultimately, the goal of KM is to achieve the effective transferral of the relevant knowledge and experience of the individuals of an organisation into the resources and assets of that organisation so that overall performance can be improved. The effectiveness of KM can be viewed as having two dimensions: the individual level, focused upon individual perceptions of those involved in KM activities; and the organisational level, which has an emphasis on improvement to

organisational performance and innovation (Lin, 2007). Chawla and Joshi (2010: 723) conclude that "*the ability of human resources to manage the KM attributes will differentiate good and great organisations and in turn its long-term success and sustainability*". Within the new knowledge economy, it is essential that an organisation develops and sustains capabilities in relation to its culture, leadership and strategies, and the technology, so that competitive advantage can be attained.

2.6 Higher education and knowledge management

As with any other type of organisation operating within a dynamic environment, higher education institutions (HEIs) need to respond quickly to change to ensure their survival. Within the literature, note has been made of various external drivers of change that can have a bearing upon higher education. These drivers include demographic change, market pressures, lifelong learning, globalisation and the internationalisation of higher education, new technology, shifts from teaching to learning and from an industrial to knowledge-based economy, and demands from government for cost efficiency and the availability of usable knowledge (Levine, 2000; Middlehurst and Woodfield, 2006). The drivers of change bring new challenges for HEIs which can be faced, in part, by the adoption of practices used within private and corporate forms of management, especially with regard to governance. The most appropriate way forward for HEIs appears to be the adoption of effective forms of KM (Meyer et al., 2005; Witt et al., 2007).

Increasingly, it seems that HEIs need to create change as well as respond to it. In today's knowledge age, universities are faced with many competitive forces, where educated people see their ideas and knowledge as strategic commodities that are key for personal growth, well-being and prosperity. As Kermally (2007, cited in Tseng, 2010) noted, it is helpful for KM if an environment is created within which there can be trust between staff and management; this way there is greater willingness to share knowledge as a contribution to the overall, successful organisational performance.

With the dawning of the twenty-first century, unprecedented challenges for tertiary education have arisen due to converging impacts from globalisation, and the quintessential relevance that knowledge has for achieving growth within a communications and information-based economy. Indeed, the tertiary education sector has become central to processes of creating intellectual capacity and promotion of lifelong learning to update skills for the production and utilisation of knowledge. As Salmi (2002) made clear, there is a central role for the tertiary education sector in enabling society to face up to these new times. Knowledge is both the input and output of HEIs. As such, there is a requirement nowadays for staff needs to be met, both in terms of their involvement in the development, use and bearing of high-level knowledge and in terms of them generating and learning new knowledge in their role as academics.

The majority of HEIs have the mission and ethos of, primarily, undertaking education and research which, of course, involves knowledge sharing. That being the case, there ought to be many examples of how HEIs have embraced KM in a proactive manner to enhance competitive advantage. However, only a few examples of KM in action in HEIs exist, and Kidwell et al. (2000) considered that, with KM being a new field of study, study of the HE sector was only just beginning. There is a suggestion that only a few HEIs actually have institutionalised processes aimed at improving support and instructional services, maximising operational effectiveness and efficiency or leveraging knowledge in order to spur innovation. Furthermore, Luan and Serban (2002) suggested that few HEIs use KM to benefit them in working towards increasing their competitive advantage. Only since about the late 1980s has the issue of KM in universities started to attract the attention of researchers (Leitner and Warden, 2004). Indeed, as noted by Cheng et al. (2009), knowledge hoarding was more common in HEIs than knowledge sharing. The aforementioned theories in relation to the main studies of KM within higher education are illustrated within Table 2.3.

Table 2.3 Main findings of studies conducted on knowledge management (KM) in higher education institutions (HEIs)

Year	Author	Main findings
2010	Zheng et al.	KM involves the efforts of managers in activities facilitating the acquisition, creation, storage, sharing, diffusion, development and deployment of knowledge by both groups and individuals.
2010	Brewer and Brewer	Organisations (both business and educational) have to focus on the creation and development of knowledge workers in order to be successful and excel in a global, competitive environment.
2010	Tseng	The successful implementation of KM has significance for productive ideas and contributions with cultural characteristics of organisations, such as common culture, board work and trust.
2011	Suradi and Subramaniam	Catalyst centres related to information and knowledge can encourage a culture of KS amongst academic staff.
2012	Ramakrishnan et al.	A system for KM within HEIs can boost effectiveness and efficiency and improvement in quality amongst graduates by helping them improve their future employability to satisfy employers' requirements.
2012	Hughes and Kitson	Academics and university departments are different with regard to how able they are at interaction with partners that are external to the organisation.
2013	Nehardani et al.	Organisational learning and KM success are related. KM success can be indicated by seven distinct variables: culture of organisation; strategy of organisation; intellectual capital; management and leadership; communities of learning and teamwork; knowledge sharing; and creation of knowledge.
2013	Lahr et al.	Evidence shows that absorptive capacity has a role in variables for capturing prior knowledge that is unobservable, such as professional experience, the age of the academic, or the median age within a department.
2014	Nawaz and Gomes	HEIs need to focus on the creation and development of knowledge workers in order to succeed within a global, competitive environment. The dimensions of knowledge required need to be identified by HEIs. Academics with a commitment to lifelong learning are needed by HEIs so that knowledge capital can be sustained and improved. In order to further their KM processes, HEIs need to concentrate upon strategic knowledge, procedures for, and enhancement of, metacognitive knowledge, and processes for the creation, understanding, evaluation and application of ideas.

2.7 The sharing of knowledge

Knowledge sharing (KS) is a major element of KM and is vital for success to be realised. Systematic KS promotion amongst members of an organisation is an important part of initiatives related to KM (Eisenhardt and Martin, 2000). Indeed, KS is considered a major challenge for KM (Bechina and Bommen, 2006; Chow and Chan, 2008). Consideration of management values and supportive attitudes towards innovation strategies were the precursors to KS (Hsu, 2008). For KS to be effective, the knowledge type is a key aspect. For instance, despite its importance, tacit

knowledge can be more difficult to share than types of explicit knowledge that can be more easily shared through different forms of formal development and training (Abdullah et al., 2009).

2.8 Theoretical background for knowledge sharing

KS is considered to be about the communication of transfer and knowledge, in both tacit and explicit forms, between groups of people or individuals. The KS process may involve formality amongst workplace colleagues or an informal knowledge transmission between firms, groups or individuals (Garvin, 1993). It entails the creation of new ideas or knowledge through the exchanges of individuals' ideas and knowledge by way of discussion or other types of social interaction (Abdullah et al., 2009). A culture of sharing is essential for stimulating and enhancing the creation and sharing of knowledge; however, within universities, there can often be a pressurised culture of research that leads to individualistic patterns of working.

Another area of KM study is knowledge transfer (KT), which refers to knowledge movement across boundaries that have been created by specialised domains of knowledge (Carlile and Rebentisch, 2003). It involves knowledge conveyance from one person, ownership or place to another and, when carried out successfully, KT results in new knowledge being accumulated or assimilated by the receiving unit. Within literature on KM, the term knowledge transfer has been used often to describe KS (Yahya and Goh, 2002; Uriarte, 2008; Massa and Testa, 2009). A number of researchers, such as Boyd et al. (2007) and Berggren et al. (2011), have made a distinction between knowledge sharing and knowledge transfer by referring to the latter as the application of existing knowledge within another context; as such, there is an assumption that there is one direction of knowledge transfer: from the owner, as main knowledge source, to the recipient. Meanwhile, KS, on the other hand, is considered a wider concept including the creation and absorption of new knowledge and interaction involving it; as such, the concept of KS relates to occurrences between at least two participants and in two directions. The process of sharing involves the collection, organisation and conversion of knowledge from one person or organisation to another, such that, when shared, the knowledge value expands (Van den Hooff and De Leeuw van Weenen, 2004). If properly managed, then, KS can improve the quality of work done

significantly, as well as improving skills in decision making, competency and efficiency in solving problems (Widen-Wulff and Suomi, 2007; Yang, 2010). This study has the aim, then, of analysing literature related to KS and undertaking an investigation of the determinants that have a bearing on the workings of HEIs in developing countries and the knowledge-sharing behaviour intentions of academics.

Table 2.4 Definitions of knowledge sharing

Author/year	Definition of knowledge sharing (KS)
Kim et al. (2013)	KS is seen as an activity by which insights, skills, and information are exchanged amongst the members of an organisation.
Hitam and Mahamad (2012)	KS involves the exchanging of skills, experiences and knowledge amongst members of various departments of an organisation.
Jahani et al. (2011)	KS relates to activities of knowledge transfer from one organisation, group or individual to another.
Masrek et al. (2011)	KS is considered as a process for the mutual exchange of both explicit and tacit knowledge amongst individuals, and the joint generation of new knowledge.
Lee et al. (2010)	KS refers to interactions related to both explicit and tacit knowledge with relevance to the task in question.
Islam et al. (2010)	KS refers to social exchange processes that occur between organisations, between individuals and organisations, and between individuals.
Sohail and Daud (2009)	KS involves the sharing and exchange of experiences, events and thoughts by people.
Xiong and Deng (2008)	KS refers to information and knowledge communication and exchange between organisational members.
Lin (2007)	KS refers to a social interactional culture with exchanges of skills, experiences and knowledge between employees.
Bock et al. (2005)	KS refers to the behaviour of individuals within an organisation in their sharing of knowledge between themselves.
Hooff and Ridder (2004)	KS refers to the knowledge processes of both exchange and creation.
Ipe (2003)	KS refers to the process by which knowledge is converted from the possession of individuals to individuals that accept and absorb that knowledge.
Argote et al. (2003: 3)	KS "Is the process by which one unit is affected by the experience of another".
Bartol and Srivastava (2002)	KS refers to activities that help members of an organisation in their sharing of experiences, ideas, suggestions, information and data.
Darr and Kurtzbery (2000)	KS refers to processes by which people are helped in their acquisition of knowledge through learning from the experiences of others.
Dyer and Nobeoka (2000)	KS refers to activities that work for knowledge exchange between people and that enable them in the achievement of their particular aims.

Table 2.4 shows the various ideas and definitions that have been put forward by philosophers and researchers and that have led to a broad range of conceptualisations of KS. For example, a number of the definitions have the assumption that KS is an activity (Dyer and Nobeoka, 2000; Bartol and

Srivastava, 2002; Lee et al., 2010; Jahani et al., 2011; Hitam and Mahamad, 2012; Kim et al., 2013). Other definitions see KS as a process between one firm, group or individual and another (Darr and Kurtzbery, 2000; Argote et al., 2003; Ipe, 2003; Hooff and Ridder, 2004; Masrek et al., 2011). Other definitions see KS as a form of behaviour or culture that can occur either informally between friends and social networks or more formally between colleagues in a place of work (Bock et al., 2005; Lin, 2007; Xiong and Deng, 2008; Sohail and Daud, 2009).

2.9 Channels of communication for the sharing of knowledge

For KS processes to be effective, there is a need for appropriate mechanisms to be in place. Personal interactions that are face to face are a typical medium for KS, where a person uses a spoken language along with gestures and expressive sounds, such as smiling, laughing, pointing, nodding of the head and so on (Marshall and Novick, 1995). As feedback, can be given right away, and understanding and clarification of the knowledge in question can be checked immediately, face to face interaction is the richest for passing on knowledge (Koskinen et al., 2003). As the shared knowledge is conveyed using facial expression, tone of voice and body language, as well as the spoken message, there is a tendency for the misinterpretations that can arise when using other forms of social interaction to be avoided when interaction is face to face (Meherabian, 1971). Indeed, many consider that gestures or actions convey messages more strongly that words alone (Morgan, 2008; Jain and Choudhary, 2011).

KS processes have been investigated empirically within various workplaces, and there has been an emphasis upon practices that use the voice directly (Bryson et al., 2006). In the main, interaction that is face-to-face between employees involves the sharing of knowledge that is tacit (Corwin, 2015). Nonaka and Takeuchi (1995) made the point that exchange of tacit-to-tacit knowledge is enhanced through personal contact. Tacit knowledge can be either practical in nature (related to describing a process) or specific to a context (it is obtained in situations within which it is employed) (Nonaka, 1991; Sternberg, 1994). Face-to-face interactions, such as networking and coaching, then, are the most effective ways in which tacit knowledge is shared (Monzon et al., 2016). For example, study of British workplaces, it has been suggested that face-to-face

communication or personal interaction is a way of effectively intensifying KS, which leads to increasing employees' work productivity (Salis and Williams, 2010). It has been argued, however, that the conclusion that face-to-face communication is the richest medium would be inappropriate, given that delivery of what is required may differ depending on the circumstance and the competencies available (Dennis and Valacich, 1999). As Van der Kleij et al. (2009) argued, every medium has its own strengths.

Computer-mediated communication (CMC) has emerged in recent decades and can function as an alternative to face-to-face interactions. CMC is not characterised by the physical contact of employees; however, it can be used for enhancement of explicit knowledge sharing (Salis and Williams, 2010). It can be asynchronous or synchronous. The former could be by email discussion and other information systems that are structural, such as bulletin and discussion boards, Weblog and computer Wikis, and other discussion forums, for example, where there are, primarily, typewritten messages. Synchronous forms of CMC could include video conferencing, Skype video and voice calls, and messenger (Adrianson, 2001). As defined by Walther (1992: 52), communication that has been facilitated through the use of computer technologies can be seen as "*synchronous or asynchronous electronic mail and computer conferencing, by which senders encode in text messages that are relayed from senders' computers to receivers*". Consistent overcoming of the barriers of time and space is often cited as an advantage of CMC (Dimmick et al., 2000).

As Lengel and Daft (1988) note, however, there are only limited opportunities for forms of social communication that are rich in social cues when using CMC. Although enacted through the use of technology, CMC requires inherent human desire for it to be undertaken (Walther, 1992). A qualitative study by Vonderwell (2003), which explored the experiences of students in undertaking a course online, made the argument that CMC tools could contribute to a knowledge base for effectiveness in the planning and implementation of methods of successful learning. Chiu and Wang (2008), however, criticised the effectiveness of designed mechanisms or tools for learning online, arguing that, to ensure their effectiveness, web-based systems for learning ought not to have delayed responses.

Knowledge can also be shared using written documents that can be made available either in paper form or electronically, with bulletins, brochures and letters all being examples of written communication (Werr and Stjernberg, 2003; Raciti and Dagger, 2010). Winter (1987) noted that the sharing of documents that are written is, in the main, an appropriate way of communicating explicit knowledge. Haas and Hansen (2007: 1136) labelled written document sharing as "*electronic document usage*". Messages or written communication are able to facilitate interactions that are both two-way and one-way and so can lead to an improvement in relationships (Duncan and Moriarty 1998). Furthermore, written forms of communication can also cultivate a duality in relationships. As noted by Raciti and Dagger (2010), following their empirical survey of a total of 422 distance-education customers, the key elements in written forms of communication are clarity of the message, its accuracy, matters of aesthetics and its general physical features; these components of a written communication can all have a significant bearing on relationships with service organisations. Put another way, without proper decoding, a written message may less effective when compared to alternative communication types.

2.10 The role of academic staff in supporting the sharing of knowledge

There is broad agreement that interpersonal collaboration and academic staff groups that function well have a positive association with better student achievement and, in general, a more productive higher education (Kuznetsov and Kuznetsova, 2011; Kelly and Moogan, 2012). There is an assumption that more relevant plans for improvement will be developed by more effective groups of academic staff. Also, academics can implement such plans, both in their classrooms and school-wide, when they have loyal support as well as individual power (Wheelan and Tilin, 1999). On this basis, teamwork amongst academic staff has become recognised as of paramount importance for many HEIs (Wheelan and Kesselring, 2005). As Block and Khvatova (2013) note, when individual members feel able to be involved in discussions and decision-making, there is the perception that a group of academic staff will function well. Hence, the involvement of academic staff is also related to the involvement of individuals in processes that are task oriented, such as

collaboration and communication, and to the degree to which members perceive that they are involved in processes in their work place (Chiang, 2011).

The following sub-sections will highlight a brief description of factors that influence or become a barrier toward the process of knowledge sharing in the workplace.

2.10.1 The characteristics and processes of teams

Few studies have undertaken investigation into the characteristics of teams and their processes with regard to knowledge sharing; however, these studies have suggested that the characteristics of a team and its processes do have an influence on the KS amongst the team's members. It is, for example, for likely that knowledge sharing will take place if there is cohesiveness in a team, and this likelihood increases with the length of time the team has been together (Bakker et al., 2006; Sawng et al., 2006). Agreeable and extravert styles of team communication were described by De Vries et al. (2006), who found that the styles had a positive association with the willingness to adopt the actual adoption of KS behaviours. Srivastava et al. (2006) found that a leadership that was empowering could foster KS amongst members of a team.

2.10.2 Diversity

Investigations have been undertaken that have looked into the relationship between KS and minority status or team member diversity. Ojha (2005), for example, in research based on the paradigm of similarity-attraction, was able to demonstrate that members of a team who saw themselves as in a minority, because of their education, marital status or gender, were less likely to share knowledge with other members of the team. The work of Sawng et al. (2006) has shown that diversity within teams in large organisations with higher ratios of female to males was more likely to lead to engagement in KS. Other studies have undertaken examination of the role that social connections with other members of the group has upon KS, with the suggestion being that members that are socially isolated are more likely to have disagreements with others (Phillips et. al., 2004). It has also been found that teams that are functionally diversified are more likely to have increased participation in KS if the expertise of team members is acknowledged (Thomas-Hunt et al., 2003).

2.10.3 Social networks

Wider organisational networks, such as practice communities, may also have KS embedded within them. The ties that exist between individuals within social networks can help in the facilitation of the transfer of knowledge and lead to an enhancement in the received information quality (Cummings, 2004). In the work of Chiu et al. (2006), it was shown that the number of personal relationships and direct ties that an individual has with other members of virtual communities had a positive relationship with the amount and perceived usefulness of shared knowledge. The expectation that individuals had of the maintenance and strengthening of their social ties through frequent participation in a professional community (that was web-based) was affected positively by the intention they had of continued participation within that community (Chen, 2007).

It has been suggested that strong ties involve a higher level of closeness on an emotional level, whilst weak ties are more likely to be connections that are non-redundant and so associated with information that is non-redundant (Perry-Smith, 2006). There was found to be a positive relationship between social cohesion and strength of tie and the ease with which knowledge is transferred, as the source of knowledge perceived it; thereby, there is the suggestion that the connections that providers have with the recipients of knowledge may act as motivation to them in the sharing (Reagans et al., 2003). It was found by Levin and Cross (2004) that, controlling for trustworthiness, when recipients of knowledge had weak ties they reported there to be more benefits when compared with people who had strong ties.

The aforementioned studies have focused more on relationships than on the individual. The suggestion from the findings is that, where there is the existence of connections within a network and its associated social capital, KS can be facilitated within a practice community (Kankanhalli et al., 2005).

2.11 Processes of knowledge sharing

Various types of KS processes have been reported within previous literature on the topic. The work of Hendriks (1999), for example, made a distinction between the recipients of knowledge and the

owners of knowledge, also referred to as externalisation. Ardichvili et al. (2003) put forward the idea that KS involved a new knowledge supply, along with the demand for new knowledge, and Lin (2007) conducted a discussion around the idea that KS involved a knowledge requester and a knowledge carrier. Likewise, from the viewpoint of Kankanhalli et al. (2005), KS processes are comprised of knowledge contributors and knowledge seekers. Additionally, Weiss (1999) showed that there were two processes involved in KS, namely: the collection of knowledge, including accumulating, storing and recording it; and the connection of knowledge, made up of the knowledge seeker having access to a knowledge source and the identification of the knowledge required.

Wei et al. (2009) also divided the KS processes into the contributing of knowledge and the seeking of it. Likewise, Chen and Hung (2010) showed that KS was made up of the contribution, collection and utilisation of knowledge. Ipe (2003) also discovered that KS processes involved the transmitting and absorbing of knowledge. Knowledge transmission was also noted by Kuo and Young (2008), including the sending of knowledge to recipients, with the effective use of knowledge being a reflection of the knowledge absorption. Davenport and Prusak (2000) and Hussain et al. (2004) have differentiated between knowledge acquisition and the possession of knowledge. Furthermore, Gupta and Govindarajan (2000) gave an explanation of KS that included the knowledge sourcing, knowledge transmission, knowledge receipt and knowledge absorption. Other research, such as the work undertaken by Tong and Song (2011), has made the distinction between knowledge that is solicited and knowledge that is voluntary. For the former, individuals are asked to share their knowledge with another (in receipt), be it an individual or organisation; for the latter, the knowledge sharing is initiated by individuals (the act of giving). Meanwhile, the term KS has also been conceptualised as involving a seller of knowledge and the buyer of it (Reid, 2003). However, the current study is in agreement with the work of Hooff and Weenen (2004), who divided KS process types into the donation of knowledge and the collection of it; in fact, the two types of process have been focused upon by a number of researchers and empirically tested within a variety of environments (De Vries et al., 2006; Lin, 2007; Lin et al., 2009; Chen and Hung, 2010; Kamasak and Bulutlar, 2010; Alhady et al., 2011; Sandhu et al., 2011; Kim et al., 2013; Tong et al., 2013). Knowledge donation refers to the process of exchange and

communication of one person's intellectual capital to another (Hooff and Ridder, 2004; De Vries et al., 2006). It involves the willingness and eagerness of individuals within organisations to give and receive knowledge (Kim et al., 2013).

In reference to an individual's capacity to share what they know and to use learning, it has been argued that if there is no willingness to share knowledge then it is impossible for its donation and transfer to others (Lin, 2007; Islam et al., 2010). Donating knowledge involves a knowledge owner and talking and listening and the provision of information to others in order to aid in the development of self-knowledge and to help in the speedier solving of problems (Reid, 2003; Cummings, 2004; Lin, 2007). For Darroch and McNaughton (2002), this kind of KS process has the aim of converting personal knowledge into organisational and group knowledge. Thus, if an organisation generates an atmosphere within which knowledge exchange by members of the organisation is encouraged within a group, new ideas are more likely to be developed and the organisation's performance more likely to be enhanced (Hooff and Weenen, 2004; Nonaka et al., 2006; von Krogh et al., 2012; Hislop, 2013). On the other hand, collection of knowledge refers to a recipient of knowledge who has to consult his or her colleagues by means of listening, observation or practice in order for them to be encouraged in the sharing of their intellectual capital (Hooff and Weenen, 2004; De Vries et al., 2006). It is a reflection of the willingness of the person in question to request intellectual capital and know-how, and to accept and adopt it (Kim et al., 2013). For Lin (2007), this knowledge-sharing process characterises information and knowledge acquisition from both external and internal sources. However, whilst knowledge collection is fundamental to the success of an organisation, it is rare for organisations to be highly proficient in it (Lin, 2007). Knowledge collection happens if there is a willingness for members of an organisation to learn, absorb and apply knowledge (Senge, 1998; De Vries et al., 2006).

Mutual respect and trust are promoted within KS in addition to the facilitation of a flow of people's knowledge assets for capitalisation into the development of performance (Kamasak and Bulutlar, 2010). Seba et al. (2012a) put forward the view that the donation and collection of knowledge are related to the learning in an organisation, as learning aids in the generation of ideas and enhancement of the organisation's performance. Whilst the knowledge processes of donation and

collection of knowledge have been the focus of a number of researchers, it seems clear that not all contexts have been investigated and there is room for further study on the topic. As such, a relevant KS definition for this study is that of Hooff and Weenen (2004: 13) which sees KS as "*two-dimensional with organisational members sharing and exchanging both tacit and explicit knowledge. Daily interaction creates new knowledge through the processes of knowledge exchange donation and collection*".

As numerous complex factors have a bearing on KS, there is the need for a study of them to help in encouraging the culture of KS within various organisations. As noted by Tse and Mitchell (2010), numerous KS antecedents have been identified by many empirical studies. As such, it was discovered that important factors that are supportive of KS within an organisation are social networks, culture, trust, systems for reward, leadership style and support from the top and a leadership that is transformational. Table 2.5 below shows recent KS studies, the methods and means of their research and their main findings. By way of conclusion, KS can be considered as a process that describes the behaviour of individuals and which is affected by several factors. A broad range of theories have been employed to describe KS: i) as a process; ii) theories of behaviour, and iii) consideration of the influences and challenges of behaviour related to knowledge sharing.

Table 2.5 Main findings and methods/means of research conducted on knowledge sharing

Year	Authors	Main findings	Method/Means
2014	Connelly et al.	There is less likely to be knowledge sharing by people who perceive there to be a significant level of time pressure.	By survey
2014	Wang et al.	There is a positive relationship between KS and evaluation and evaluation with an additional reward.	By survey
2013	Ramayah et al.	The attitude of academics towards KS is affected by the key determinants of self-confidence, subjective norm, extrinsic motivation and reciprocal relationships.	By survey
2012	Casimir et al.	The relationship of KS and affective commitment, and the relationship between KS and the cost of KS, are moderated by the affective trust between colleagues.	By survey
2012	Gross and Kluge	A total of 31% of KSB variance is explained by the assumed predictors, especially social ties, organisational communication and subjective norms.	By survey
2012	Wickramasinghe and Widyaratne	Significant positive effects on KS hail from rewards and interpersonal trust.	By survey
2012	Yam et al.	There is a strong association between KS and product performance. There is a positive association between KS and commitment. There is not a significant relationship between 'product performance' and 'opportunism'. There is no significant relationship between opportunism and commitment.	By survey
2011	Aizpurua et al.	There is a positive association between organisational learning and KS, performance and innovation.	By survey
2011	Ozbebek and Toplu	There is a statistically significant correlation between KSB and empowerment. There is a positive association between KSB and empowerment.	By survey
2010	Yu et al.	There is a conjoint influence of social capital upon the sharing of the knowledge of individuals at various levels. Social capital also plays a distinct role in impacting upon the sharing behaviour of individuals within the context of a work team.	By survey

2.12 Theories of knowledge-sharing behaviour

The theory of reasoned action (TRA) and the theory of planned behaviour (TPB) are two key theories that have tried to explain individual knowledge-sharing behaviour (KSB) and actual KSB within an organisational context (Fishbein and Ajzen, 1975; Ajzen, 1991). Investigation of KSB has been extensively researched using several other theories, such as game theory, expectancy theory, social exchange theory, social cognitive theory, social network theory and social capital theory. The decision of an individual over whether or not to engage in a particular behaviour is

determined by their intention of performing the behaviour, which results from both subjective norms and their attitude towards that behaviour (Fishbein and Ajzen, 1975; Yu et all., 2010).

Aizen and Fishbein (1980) developed the TRA idea for the evaluation and prediction of the behaviour of individuals within a social context, based upon behavioural intention, subjective norms and attitude. There has been widespread use of TRA for the exploration of KSB (Chow and Chan, 2008; Wang and Noe, 2010). Ho et al. (2009) investigated the differences between game theory (GT) and TRA in giving an explanation for individual KSB; they believed that in GT there is the assumption that players analyse opponents' decisions, whilst they do not this in the TRA model. Furthermore, the authors argued that the GT model was preferable to the TRA since employees undertake the analysis of other employee decisions within the decision-making process of KS. Put another way, participation in, or avoidance of, knowledge sharing results from the decisions of employees themselves. TRA was also applied in another study concerned with KS amongst personnel in information systems (IS), with the suggestion that in-role behaviour, behaviours with regard to organisational citizenship and a self-confidence, are all precursors to intention constructs, both behaviourally and attitudinally (Teh and Yong, 2010).

As noted by Lin and Lee (2004), TPB can be considered as the extension of TRA through the integration of perceived behavioural control (PBC) and additional construct. It is proposed within TPB that behavioural intention and PBC are determinants with regard to behavioural achievement. In accordance with TPB, and as Aizen (1991) pointed out, the greater the intention of people to practise a behaviour, the greater the possibility that they will engage in that particular behaviour. Moreover, a quantitative study undertaken by Tohidinia and Mosakhani (2010) employed the TPB model, with the results demonstrating that there were strong connections between KSB and elements of TPB; the researchers discovered that factors having a positive impact upon KSB included anticipated reciprocal relationship, perceived self-acknowledgment, the degree of use of communication and information technology, and professional environment.

However, there have been many criticisms of both TPB and TRA in relation to their predictive power and applicability (Chatzoglou and Vraimaki, 2010). Indeed, several studies have suggested

modifications for both models. Study of explicit and tacit KS behaviours has come from TRA analysis, with it being discovered that both types of knowledge have an interrelationship with the intention of sharing knowledge – a discovery that is consistent with the theory of TRA - as shown in the work of Reychav and Weisberg (2010). Their work provided the argument that an IT approach can enhance the effectiveness of explicit forms of KSB, whilst tacit forms of KSB can be improved by relational connections between employees.

In an earlier work, Chang (1998) employed a modified TPB version that used a causal path of the connection between subjective norm and attitude, with the results showing significant improvement on the model type. Ryu et al. (2003) confirmed the findings of Chang with a modified model of TPB (which was supported by the work of Gross and Kluge, 2012) that discovered that the behavioural intentions to knowledge share were very significantly affected by subjective norms. Meanwhile, in the literature related to information systems, there has been extensive application of the widely-accepted model of social capital theory for the validation of individual behaviour (Lin et al., 2009; Tsai and Cheng, 2010). Human behaviour is defined within social capital theory as a dynamic, reciprocal and triadic interaction of behaviour and personal factors and the social network in question (Chiu et al., 2006). Chen and Hung (2010), for instance, developed a research model through the use of social capital theory for investigation of KSB within professional virtual communities (PVC), and they suggested that, in employing a social capital theory application, the relevant question becomes 'Why is that individuals elect to receive or give knowledge from and to other members of a community?'. This question has to be faced from both personal cognition and contextual factors perspectives. Results showed that PVC significantly affected KSBs due to interpersonal trust, reciprocal norms, perceived relative advantage and KS self-acknowledgment. However, despite the above discussion of KSB theory, the theory has been applied insufficiently within the HE sectors.

As Cross et al. (2000) made clear, using social network theory, what you come to know is significantly impacted by who you know. Social network theory advances the idea that network structure formality can impact upon the dissemination of knowledge in an organisation (Dyer and Nobeoka, 2000). Social network theory, as a discipline within management studies, has support

from effective relationships amongst employees that are intra-organisational, as well as by less hierarchical and more informal organisational structures. Linking Siemens (2006) results to network theory, discovered that there are increases in psychological safety along with the frequency with which employees are communicating between themselves. Choo et al. (2007a), however, undertook an empirical study that used a meta-analysis and they were unable to replicate such a demonstration of a link between employee KS and psychological safety. In relation to the interrelatedness of psychological safety and trust, Edmondson (2003: 6) saw psychological safety as "*individuals' perceptions about the consequences of interpersonal risks in their work environment*".

The two theories of social network and social capital recognise that employees work within social networks rather than working, learning or knowledge sharing in isolation. Members of both informal and formal groups or practice communities all bring their social connections to proceedings, not just their skills, abilities and knowledge (Wang and Noe, 2010). Indeed, a number of researchers have looked into online social media, online social networks and the use of PVC, Twitter and blogs (Chow and Chan (2008), Hsu and Lin (2008) and Lin et al. (2008). Through the use of social network analysis, Janhonen and Johanson (2011) undertook a survey of 499 employees in both public and private sectors, with results showing that social networks and knowledge creation had a significant impact upon the performance of teams. In an earlier study, whilst using social network theory in the examination of 182 work groups within a global organisation, Cummings and Cross (2003) discovered that there was a positive correlation of group performance with less hierarchical group structures.

Bandura (1982) noted that the suggestion from social cognitive theory was that the biggest impact on the outcome expectations of an individual came from self-acknowledgment, including intrinsic and extrinsic rewards. Bandura (1997) stated that self-acknowledgment is the state of art in social cognitive theories. Kuo and Young (2008) followed the work of Bandura with an examination of KSB founded upon social cognitive theory and discovered that perceived self-acknowledgment of KS had a statistically significant impact from perceived self-acknowledgment of KS. As noted by Chiu et al. (2016), social cognitive and social capital theories have been joined for the development

of a model to explain individual willingness for knowledge sharing; the authors proposed that key enablers for KSB within a virtual community are trust, social ties, shared vision and mission, a shared language, identification with goals and the community, and reciprocity considerations. Economic exchange theory gave birth to social exchange theory, with the assumption that people partake in exchange behaviour as they consider that the cost will be justified by the reward; with a lower reward justifying a lower investment cost (Liao, 2010). As such, the theory has the view that the KSB of an individual is determined by reciprocal arrangement elements.

Social exchange needs trust in a way that economic exchange does not (Luo, 2002). However, the relationship between KS and affective commitment and the relationship between KS costs and KS is moderated by affective trust in colleagues (Casimir et al., 2012). Liao (2010) and Ozbekek and Toplu (2011) have integrated social power and social exchange theory in order to provide examination of the impact of the social power of managers and the KSB of engineers in research and development. Their results showed that different social powers have different impacts upon KSB. For instance, unlike expert and reference power, reward power can directly impact upon KSB. Game theory (GT) has been applied in various fields, such as business, economics, philosophy, psychology, politics and science, in order for different situations to be examined, including employee knowledge sharing (Dixit and Skeath, 1999). Strategic interdependence is seen as central within GT, whereby multi-person decision problems are analysed (Mas-Colell et al., 1995). The idea of strategic interdependence is inherited in the concept of KS between two or more people, with individuals incurring certain payoffs (both intrinsic and extrinsic) when knowledge is shared with another (Bandyopadhyay and Pathak, 2007). Bandyopadhyay and Pathak went further in examination of the KS phenomenon by analysing it as if it were a game. They went on to suggest that the behaviour of individuals in deciding to share or not share knowledge is predicted from reciprocity. These results were a replication of the findings from the study of around 100 students within HEIs, undertaken by Chua (2003). Likewise, it was suggested by Chua that the reciprocal relationship that is anticipated between players is an essential beneficial element of KS.

There has also been extensive use of an expectancy theory framework within research into behaviour (Liao et al., 2011). Expectancy theory puts forward the view that, the greater the

outcomes from any given action, the more people will want to perform that particular action (Vroom, 1964). Expectancy theory states that individual KSB is enhanced by the perceived expectation that value will be obtained (Nebus, 2004). The findings of Nebus have been confirmed in the work of Cho and Jahng (2009), who integrated goal-setting theory with expectancy theory for investigation of the KSB of a virtual community in South Korea. As shown by Reychav and Weisberg (2010), however, the behaviour of individuals explained by TRA builds upon expectancy theory.

As well as the points made in the literature above, higher education still faces barriers to the sharing of knowledge. According to the limited studies within a developing country context, culture can have a significant bearing on KS (Ikhsan and Rowland, 2004; Riege, 2005; Ramirez, 2007; Jain et al., 2007; Rosen et al., 2007). Weaknesses in social networking and communication skills can act as an obstacle (Riege, 2005). Rosen et al. (2007) noted that lack of time has a bearing on KS, whilst the significance of lack of trust was shown by research undertaken by (Cross and Baird, 2000; Riege, 2005; Yuen and Majid, 2007). Moreover, a number of situations can occur where individuals are unwilling to share their personal knowledge in relation to particular topics. People who have the perception that there is significant pressure with regard to time may be less likely to knowledge share (Connelly et al., 2014). Various factors may contribute to such an unwillingness, including technological, physical, cultural and personality trait characteristics (Riege, 2005; Yuan et al., 2005; Yuen and Majid, 2007).

2.13 Challenges and influences in relation to knowledge-sharing behaviour

There is increasing acknowledgement of the vital importance of KS in the creation of knowledge, the learning within organisations and achievement of desired levels of performance (Bartol and Srivastava, 2002). The sharing of knowledge is thought of as natural within a place of work for communication of knowledge within groups of people, with organisational members continually sharing and creating knowledge. As Ipe (2003) made clear, KS amongst members is a process by which the knowledge that an individual possesses undergoes a conversion to a different form that others can understand and employ.

Leadership can also have a bearing on knowledge workers and motivate them to make a contribution to and actively participate in the creation, sharing and use of knowledge in an effective way (Jayasingam et al., 2010). Before Jayasingam et al's study, it was recognised that leaders across different organisational levels were not only playing important and unique roles in the management of knowledge, but also in engaging in KS processes (Kluge et al., 2012). Singh (2008: 7) saw leadership as "*a cardinal thread that runs through the whole gamut of the KM initiatives in an organisation*". However, as shown by the work of King and Marks (2008), there was a failure to discover that the organisational system had significant impact on the KM system. Instead, they found that a significant predictor for enhancing KSB was supervisory control, and advanced the argument that the setting may have influenced the results strongly, as the study was undertaken within the government sector (joint civilian-military).

Individuals possess knowledge and the inclusion of the knowledge of an individual into the knowledge of an organisation is dependent on the KSB of employees (Nonaka and Konno, 1998). Despite its importance for an organisation, individuals may still withhold their knowledge as they may think it is important to keep it for themselves and thereby remain valuable to the organisation and more secure in their employment (Davenport, 1995). As Ruggles (1998) showed, whilst there are methods for motivating people and encouraging them in KSB, changing individual behaviour remains one of the biggest challenges for succeeding in KS and KM.

If people hesitate in knowledge sharing with other organisation members, then gaps in knowledge will start to emerge, and these may hamper an organisation in achieving its desired outcomes (Baird and Henderson, 2001). As such, it is obviously vital to establish how to help increase employee KSB and reduce gaps in knowledge. Many consider technology to be the most important facilitator of knowledge sharing; however, this is not always the case for various organisations. Technology, despite its numerous sophisticated methods, helps organisations very little in achieving KS. Thus, as well as technological advances, it is key to know the other important factors that can aid in increasing KSB (Davenport and Prusak, 1998). Most studies have included discussions around factors such as professional environment, extrinsic and intrinsic rewards, short-

term costs and benefits, information and communication technologies (ICT) over the long term and other factors that are socio-psychological (Bock et al., 2005; Huang et al., 2008). Job-related issues such as job satisfaction, job performance, job involvement and the characteristics of the job are also significant factors. Other factors that may have an impact on KSB, albeit indirectly, could be organisational factors and stressors, and other issues related to the employee, such as empowerment, turnover of staff, organisational commitment and the psychological contract.

Within this study, four variables were adopted from a TPB created by Ajzen (1991), namely: the independent variables of subjective norm (SN), perceived behavioural control (PBC) and attitude (ATT); and the dependent variable of KSB. As noted by Bock et al. (2005), KSB can be defined as the level to which knowledge is actually shared by an employee with other members of the organisation. KSB is important in that it helps link the organisation and employees or individuals through the movement of knowledge, which then undergoes conversion into something, for the organisation, that is of competitive value (Ipe, 2003). In previous studies that measured KSB, researchers employed variables such as quantity, frequency and the amount of time spent in knowledge sharing. In a work on KSB amongst bank employees in Greece undertaken by Chatzoglou and Vraimaki (2009), there was an indication that an individual's attitude towards KS is the key factor that influences the intention to share knowledge; as such, the evaluation or appraisal of the behaviour, whether favourable or unfavourable, depends on the personal judgement of the individual in question. It was also found that the intention to knowledge share was influenced by the perceived social pressure to perform the sharing of knowledge or not; in other words, the subjective norm. Lastly, it was inconclusive with regard to the direct effects of perceived behavioural control on behaviour and intention, in addition to the effect of intention upon KSB.

Various different variables have been identified within the research in relation to the factors that do have an effect upon KSB. These range from 'soft' issues such as trust (Gao, 2004; Choi et, al., 2008; Aulawi et al., 2009) and motivation (Ardichvili et al., 2003; Hinds and Pfeiffer, 2003; Cheng et al., 2009; Taylor and Murthy, 2009) to 'hard' issues such as the tools and technologies employed (Van den Hooff and De Ridder, 2004; Kim and Lee, 2005; Chennamaneni, 2006). As well as

scoping a research model that is based upon these theories, studies have also provided examination of cultural impacts on KSB. In research conducted in Brazil, China and Russia, for example, it was found that differences in sharing patterns and knowledge seeking could be explained, to a degree, by factors such as competitiveness, in-group orientation, attention paid to hierarchy and power, specific preferences for modes of communication within a culture, saving face, and the degree of collectivism (Ardichvili et al., 2003). The results of the study showed differences in the degree to which the various factors were seen as important amongst the employees within those three countries with, for example, saving face being seen as less important than was expected amongst Chinese employees. In China, it was found that serious barriers to the sharing of information were requirements of modesty and a high level of competitiveness between the employees (however, these factors were not seen to be serious barriers amongst the employees in Brazil and Russia). In comparison with initial assumptions, the perceived differences in hierarchy and power were found in the study to be less critical.

Moreover, the TPB is a model that is psychological and as such it can undertake an examination of individual behaviour, and it states that the behaviour of a particular person is best predicted in any particular setting by the intention of the individual to perform (Ajzen, 1991). Based on the theory, three independent concepts can be seen as a basis for a person's behavioural intention, namely: i) subjective norm, ii) perceived behavioural control and iii) the attitude towards the behaviour. Taken in turn, the definitions for the terms outlined by Chatzoglou and Vraimaki (2010) are:

i) The subjective norm (SN) can be defined as the perception of a general social pressure from others in relation to whether to perform a particular behaviour or not (Armitage and Conner, 1999). Additionally, the SN can be thought of as originating in a combination of both perceptions of whether others consider that a behaviour should be performed or not and the motivation to conform to the desires of others (Randall and Gibson, 1991; Sparks and Shepherd, 1992). Normative beliefs form a basis for the SN, with it being a summation of the beliefs that a person has of other people such as their managers and colleagues and so on (Randall and Gibson, 1991). As such, the SN relates to how an individual feels they ought to act in a particular setting (normative belief) and

how motivated they are to comply with the perceived feelings of others (motivation for compliance). Armitage and Conner (1999) considered normative beliefs to relate to an individual's perception of a specific behaviour, which is influenced by the decisions of significant other people. By the theory, it can be predicted that, if there is the belief that significant others think that an individual ought to engage in a particular behaviour, and if the individual has the motivation to comply with those people, then the individual in question is more likely to feel a normative pressure to act (Randall and Gibson 1991).

ii) The perceived behavioural control (PBC) is thought of as being determined from the complete set of control beliefs that are available. As Randall and Gibson (1991) noted, PBC is a function of the opportunities and resources of an individual, also known as control beliefs, and the perceived facilitation, or assisting effect, of those factors. Ajzen (1991) saw human behaviour as being driven by beliefs over whether factors are able to aid or act as a deterrent to the performing of a behaviour, in addition to the perceived power in relation to those factors, or control beliefs. The term control beliefs refer to the perceived absence or presence of factors that could hamper or aid in the performance of the behaviour in question. Factors of PBC are dispositional in referring to the beliefs of an employee about the perceived opportunities and vital resources that can help KS (Chennamaneni, 2006). Internal factors are those such as skills, emotions, abilities, individual differences and information, whereas external factors are those such as financial limitation, cooperation and time involved (Ajzen, 1991). These perceptions of facilitation and control beliefs can have their basis in previous opportunities or experience (Chiang et al., 2011). The theory, then, makes the suggestion that, the bigger the belief of an employee that they have the opportunities and resources, and the fewer the number and degree of impediment(s) anticipated, then the greater the perceived control the employee has with regard to the behaviour.

In a study of big organisations within Taiwan, Lin (2007) discovered that attitudes and intentions to share were not significantly influenced by expected rewards; on the other hand, it was found that the intrinsic participant motivation and the intentions and attitudes towards the sharing of knowledge were affected by reciprocal benefits. Self-acknowledgment and the identified enjoyment in the act of sharing were also identified as being related to both the intention and

attitude towards sharing. Finally, it was made clear in the study that a more positive attitude to sharing was found in those with the most positive intentions towards the sharing of knowledge. In another study, by Zawawi et al. (2011), however, that looked at 17 Malaysian public universities, it was found that lack of organisational rewards was the most significant barrier when it came to sharing of knowledge. The next most significant barrier was considered to be a lack of suitable ICT systems. There was also found to be a small negative correlation between knowledge sharing and self-acknowledgment. Moreover, technology has been found to be another important factor of mediation in knowledge sharing in a number of studies; see, for example, Bhatt (2001) and Kim et al. (2003). ICT can work as a KS platform; however, on its own, it is not sufficient to encourage knowledge sharing (Liang et al., 2008). Indeed, the ICT role within knowledge sharing can really only be understood in relation to the motivation to engage in knowledge sharing. Lin (2007a), in providing an explanation for KS intentions amongst employees, examined the roles of both intrinsic motivators (enjoyment in helping others and self-acknowledgment of knowledge) and extrinsic motivators (reciprocal benefits and expected organisational rewards). The results of the study showed that factors of motivation, such as enjoyment in helping others, knowledge self-acknowledgment and reciprocal benefits, had significant association with the attitudes of employees towards KS. In addition, it was shown that those motivational factors had a positive influence on the intentions of employees to engage in KS. The organisational rewards that are expected, however, which can vary from non-monetary rewards such as job security and promotion to monetary rewards such as bonuses and increased salary, did not have a significant influence upon the attitudes and behavioural intentions of employees with regard to KS. As such, extrinsic motivations, self-confidence, subjective norms and reciprocal relationships are key determinants with regard to the attitude of academics towards the sharing of knowledge (Ramayah et al., 2013). Furthermore, it has been found in a study by Wang et al. (2014) that KSB had a positive relationship with both evaluation and evaluation plus reward.

Research on knowledge sharing in HEIs, has also looked at the behaviour of instructors in information management departments at technological universities in respect to KS. A study by Lou et al. (2007) looked into the influence of incentive mechanisms and self-motivation upon the KSB of individual instructors and at the barriers to KS. It was shown that instructors in information

management may meet a number of barriers when they are sharing knowledge with others; there was a negative consensus in relation to issues such as intellectual property rights, academic promotion and individual job security that made colleagues unwilling to knowledge share, the department heads did not take knowledge sharing seriously and there was a very distant relationship between colleagues. Among the items that were in positive consensus in the study was an agreement amongst instructors that the research workload was too heavy for KS with others and that KSB was inhibited by aged university information software that did not facilitate KS easily.

iii) The attitude can be defined as the degree to which a person evaluates or appraises the behaviour in question in a favourable or unfavourable way (Ajzen, 1991). Armitage and Conner (1999) provide an alternative definition of the negative or positive behaviour evaluation of ATT in its entirety. A behavioural belief refers to an individual's idea that a behaviour will have a particular consequence or outcome (Randall and Gibson, 1991; Ajzen and Fishbein, 2005). The more the consequences of a particular behaviour are perceived positively, the more favourable is the ATT in relationship to performance of that behaviour. Therefore, if a person has a negative ATT with regard to a particular behaviour, they will be less likely to engage in that behaviour than someone who has a positive ATT about it. Bock et al. (2005) made the suggestion that the likelihood of both individual and organisational rewards and structures of personal belief are essential motivational factors in relation to KS decisions. An outcome from a study by Bock and Kim (2002), in relation to four big South Korean public organisations, was that a negative relationship was found between expected rewards and attitude towards knowledge sharing. Later on, Bock et al. (2005: 87) found the same relationship in relation to expected rewards and, by way of conclusion, they stated that, *"A felt need for extrinsic rewards may very well hinder rather than promote the development of favourable attitudes towards KS"*. Likewise, Gagne (2008) discovered that employees may believe that tangible rewards have an association with a perceived sense of controlled motivation, and the researcher made the suggestion that systems of compensation ought to encourage feelings of capability and autonomy. Those findings contradict economic exchange theories; however, a number of other studies have supported the view. The study of Kim and Lee (2006), for instance, discovered there to be a positive association of knowledge sharing to reward systems in both

private and public organisations within South Korea. Within the study of Bock et al. (2005), however, a view was developed of intrinsic rewards such as taking pleasure from being helpful to others and forming a relationship with them. There was a positive association between reciprocal relationships that were anticipated and attitudes towards knowledge sharing being more favourable. Lin's (2011) survey of senior executives in Taiwan discovered that both extrinsic and intrinsic motivation had positive effects on KS practices and that employees who enjoyed knowledge sharing tended to help in KM implementation. As well as the element of enjoyment, Lin also established that KS required extrinsic motivation. Thus, it was made clear that an employee's perceptions of the benefits to them can lead them to participate and make a contribution towards KM efforts and, subsequently, have an influence upon the evolution of KM. Lin's (2006) study of large organisations, however, found expected rewards had no significant influence upon participants' attitudes and intentions with regard to sharing; by way of contrast, it was found that the participant's intrinsic motivation and attitudes and intentions with regard to knowledge sharing did have an effect. Self-acknowledgment and enjoyment in sharing were also found to have a link to both the attitude towards and intention of sharing. Lastly, the study discovered that the more positive attitudes with regard to sharing were found amongst those with the most positive intentions with regard to KS.

Bartol et al (2009) highlighted the further interaction of sharing in informal situations being motivated by the theory of social exchange. The authors noted the existence of measurement issues, given the difficulties in identification of the incidences of informal KS within a system of formal reward. However, trust and confidence in systems can be inspired by trust in the fairness of the giver of the reward and trust in justice in procedural terms; in turn, knowledge sharing, as a pro-social activity, can lead on from this. Bartol et al (2009) identified practice communities as another interaction field in relation to rewards; their work highlighted the challenges in allocation of rewards in interactions that are informal, and put forward the suggestion that the key to encouragement of sharing within practice communities is intrinsic reward. Likewise, Hislop (2009) had the view that some employees may knowledge share as they see it as simply an intrinsically rewarding way to behave.

Both Bock and Kim (2002) and Bock et al. (2005) had the view that associations and rewards were distinct attitude predictors, and they found that KS had a positive association with reciprocal relationships though a negative one with extrinsic rewards. A similar discovery was made in the work of Lin (2007): self-acknowledgment, pleasure in helping others and reciprocal benefits were found to have a significant association with knowledge sharing; however, KS intentions were found to not be significantly affected by organisational rewards. Another work, by Joseph and Jacob (2001), discovered that favourable attitudes towards knowledge sharing developed from expected mutual relationships. In their investigation of private and public organisations in South Korea, however, Kim and Lee (2006) found that an emphasis on performance by an organisation with a basis in systems of pay led to a positive effect upon sharing.

Further studies have included the influence of reward within an academic setting within Malaysia. Cheng, Ho and Lau (2009), for example, showed there to be a positive association between personal expectation and incentive systems with KS, and they found that both non-monetary and monetary rewards acted to encourage knowledge sharing. A study of 17 public universities by Zawawi et al. (2011) determined that lack of organisational rewards was the most significant obstacle within KS. It is clear, however, that the national culture may have a bearing on these surveys as the research was undertaken within countries that are oriented highly towards a culture that is collective and where, typically, the importance of personal contacts is more strongly emphasised rather than in a country that is more individualist like the UK, for example (Hofstede, 1991). Bock et al. (2005) made this research limitation apparent in their work. Likewise, the findings of the questionnaire suggested that, for respondents, extrinsic rewards such as attendance and conferences, promotion and recognition had a positive effect on their KSB as well as offering the possibility of developing relationships and extension of their network. There was also broad agreement amongst the respondents that organisational performance would be improved by sharing. Within the UK, it has been suggested that academic reward systems are very beneficial for those who are able to produce regular publications (Turner and Gosling, 2012), with one interviewee even thinking that promotion could result from collaboration in their research.

Blau (1964) considered that knowledge could be seen as a resource that has value in exchange and that a calculation of the costs and benefits of such knowledge sharing is made prior to a decision on whether or not to do it. As such, KSB continues where the benefits are perceived as exceeding costs. Broadly, respondents to the questionnaire considered that their sharing of knowledge was probably going to be reciprocated at some point and, overall, did not consider that there would be negative consequences, such as loss of individual competitive advantage, as a result of their sharing (Bordia et al., 2006). The conclusion of Bock et al.'s (2005) study was that professional environment and attitudes towards KS had an impact on the intention to share and a self-confidence. Additionally, they found that professional environment had an impact on subjective norms, and that expected rewards had a negative influence on an individual's attitudes towards KS.

Other research has investigated the concepts of leadership and organisational culture, with it being found that the two concepts cannot be comprehended on their own (Schein, 2004). It is important, then, for organisations to know which factors promote the sharing of knowledge amongst their employees. Whilst there have been many studies of the importance of knowledge management to organisations, there have been much fewer insights provided on how to do it; i.e. there is a need to identify the processes that can be used for use, capturing and sharing of knowledge within organisations, and for guidance in structure, culture and process, and systems for reward, strategy and incentives (Ipe, 2003). Through the provision of infrastructure and organisational frameworks, managers are able to stimulate and facilitate the emergence of social capital within their organisations and, in turn, influence KS (Van den Hoof and Huysman, 2009). In a quantitative study of 301 organisations by Zheng et al. (2010), for example, it was discovered that the strongest impact of the KM practices (including KS, knowledge utilisation and knowledge generation) came from organisational culture, which then, consequently, had an impact upon the overall effectiveness of the organisation. Stated more clearly, a key KS prerequisite is a supportive organisational culture.

In addition, it is important to mention within this research that there have been several studies addressing the above issues between various types of organisations and within various

organisational levels. However, within developing countries there is little familiarity with the concepts of KS and KM (Siddike and Islam, 2011). Despite the fact that these matters are of growing importance within the literature, there is a dearth of empirical study in developing countries, such as Iraq. It is considered that this study may lead to more studies in the field of KSB in Iraq and elsewhere.

2.14 The sharing of knowledge within higher education institutions

Organisations can gain competitive advantage through encouragement and promotion of KS amongst employees (Liebowitz and Wilcow 1997). However, previous study into KS has been dominated by the subject of knowledge sharing within business organisations with an obvious orientation towards the achievement of profit. There are also critical links to knowledge and the preservation of ideas for a university, however; key processes within academia clearly being research, teaching, and publication of books and articles (Hussein and Nassuora, 2011). People's knowledge and intellectual capital are the most significant assets within an organisation, and those resources aid in competitiveness (Serenko et al 2010). It can be considered, then, that KS has even more importance for institutions based on knowledge, such as universities, and so the subject of KS within HEIs is worthy of further study. An institution that is educational is a platform for academics for communication of insights and ideas, and universities themselves can add value to the information-processing environment (Mphidi and Synman, 2004; Martin and Marion, 2005). For some, HEIs can be considered to be in the knowledge businesses, and they are being increasingly exposed to market pressures (Rowley 2000). It has been stated by Allee (1997: 71) that "*knowledge is power, so share it in order for it to multiply*". More recently, a claim was made that KS effectiveness depended on care in the transmission of knowledge by donators and careful knowledge absorption by the potential receivers (Hawamdeh, 2003). Furthermore, the importance of knowledge management in HEIs has been stressed by Steyn (2004), who emphasised that there was a need for a focus on technology, structures and people in order for the power of knowledge to be fully exploited. In order for HEIs, as organisations that are knowledge-based, to sustain competitiveness in the global market and get the most out of intellectual capital, there is a need for KS amongst employees to be promoted (Swart and Kinnie, 2003).

2.14.1 The categorisation of higher education institutions within developing countries

The literature has a number of pieces of research in relation to KS within HEIs in developing countries. For instance, an examination of KSB amongst private university academics within Malaysia highlighted those factors that have a bearing on the behaviour of academics with regard to knowledge sharing, such as technology, and both individual and organisational factors (Cheng et al., 2009). The researchers discovered that the two main inhibitory factors affecting the knowledge sharing of academics are personal expectations and systems of incentives. Simultaneously, their work showed that forced participation is a policy that is ineffective for promotion of KSB amongst academics. The authors noted that, within academia, there may be more prevalence for hoarding knowledge than sharing knowledge due to non-rivalry and non-exclusive nature of knowledge as a public good. Basu and Sengupta (2007) also discovered hoarding of knowledge within an Indian business school setting; they noted that a KS culture was missing, that interaction with experts who were external was limited to personal acquaintance, and that the majority of activities were limited to internal peer groups, and/or individualistic in nature.

Abdullah et al. (2008), in a study of seven major Malaysian public universities, argued that motivational modes for KSB were rewards for contribution in sharing knowledge and the availability of appropriate incentives. These findings are similar to those of Wah et al. (2007) in a study of tertiary education institutions in Singapore; they found that incentives and rewards, the cost/benefit concerns of hoarding knowledge and the open-mindedness of the person doing the sharing are the biggest KSB predictors. Moreover, the study of Sohail and Daud (2009), which was a cross-sectional survey amongst teaching staff in Malaysian management and business HEI schools, found that the biggest KSB predictors were working culture and the nature of the knowledge. Furthermore, the researchers discovered that management support and KS opportunities also had a positive correlation with KSB amongst the teaching staff.

Likewise, in a quantitative study by Babalhavaeji and Kermani (2011), within which there was an investigation into the KSB amongst teaching staff at Iranian private and government universities,

it was revealed that the biggest KS predictor was teaching experience. Their results showed, interestingly, that young teaching staff with less than five years' experience and more senior teaching staff with over 20 years' experience, both shared knowledge more frequently than teaching staff with between five and 10 years' experience, 11 to 15 years' experience and 16 to 20 years' experience. The results of Lou et al. (2007) contradicted those of of Babalhavaeji and Kermani in the former's study of the KSB of instructors within information management departments at both private and public universities in colleges in Taiwan. Lou et al. found that senior instructors with between five and 10 years' experience were the first declining group in sharing knowledge, followed by young instructors who had below 5 years' experience. Those instructors with more than 10 years' teaching experience tended to knowledge share to a lesser degree.

Moreover, an empirical study undertaken by Kim and Ju (2008), which involved members of a faculty in a South Korean research university, examined numerous factors (trust, collaboration, systems of reward, communication channels, perception and openness in communication) to understand their influence upon faculty members' KSB. Reward systems and perception were discovered to have the biggest influence upon KSB. Similarly, examination was undertaken of the academic institutional repositories in 13 countries, including the UK, in a study by Van Westrienen and Lynch (2005); they found that fears and uncertainties with regard to issues of intellectual property (IP) maters as well as impact factors in relation to scholarly credit are the inhibitory impact on IP. Some of the manners by which scholarly activity is promoted are research, teaching and on-campus, publically accessible repositories through which knowledge can be shared (Kidwell et al., 2000; Cronin, 2001). KM application within HEIs shows that investment in technological infrastructure is needed, along with an increase in positions for the management of IT in order to accommodate strategies for KM; however, such interventions have a cost both financially and to the organisation (Metcalfe, 2006).

In an earlier exploratory study, by Kidwell et al. (2000), the suggestion was made that the application of KM concepts within universities and colleges, could be within various processes such as the alumni and student service, the processes of research and curriculum development, and

other services; it was also proposed that there be a portal for procedures related to administration of research and results, and policies for the development of initiatives for knowledge sharing for the achievement of the objectives of the business. Research is also required to investigate whether the type and frequency of knowledge shared varies according to team's developmental stage, particularly when such a team attempts to manage multiple tasks (Wang and Noe, 2010).

The evidence within the discussion above shows that numerous researchers have, indeed, explored factors amongst academics that have a bearing on KSB. These pieces of research have been undertaken in countries such as Iran, Singapore, India, Taiwan, Malaysia and South Korea; however, most significantly, there is yet to be research that explores, in relation to such context-specific KSB, the potential differences and commonalities within various types of university. It can be argued that the best KS practice tends to improve a university's performance, and therefore the existing literature has a gap that can be addressed by this study in providing an exploration of the factors that have a bearing upon KSB in an unstable country setting, such as Iraq and, specifically, within the University of Baghdad. Up until now, there has been very little study undertaken that sought to make a comparison of how private universities differ from public ones. Research undertaken by Jain et al. (2007), with regard to KS amongst academic staff within a selection of universities in Malaysia, discovered that there was the existence of self-serving bias, with respondents having a tendency to have extremely positive perceptions of KS. A further study undertaken by Sandhu et al. (2011) that looked at KS within the public sector discovered that employees were positively inclined towards the sharing of knowledge. To date, there has been no research conducted that compares the perceptions of KS within public and private sectors within Malaysia. There has been an examination of KSB amongst academics within a private Malaysian university; however, that highlighted that the factors that had an influence upon the behaviour of academics towards the sharing of knowledge were individual, technology and organisational factors (Cheng et al., 2009). Their research showed that the two main factors that inhibited the sharing of knowledge amongst academics are personal expectation and systems of incentives. Simultaneously, they showed that forcing participation in the promotion of KSB amongst academics was an ineffective policy.

Higher education within the UAE has not been excluded from this process of development, with the government announcing a new strategy for investment in human capital in 2010, along with the establishment of a society that is knowledge-based within an economy that is also knowledge-based (Al Nahyan, 2012). As such, the UAE government went into partnership with several academia institutes across the world, so that campuses could be established in the UAE in order to make a contribution to lifting higher education standards within the country (Al Nahyan, 2012). Furthermore, with the UAE having one of the biggest incomes (per capita) within the Arab world, decision makers will be provided with the right tools in order to address their tasks more effectively by integrating KS strategies within the HE system (Boumarafi, 2006; Alrawi and Jaber, 2007). Such an approach also aids both private and public academic institutions in the obtaining of accreditation from the Arabian higher education ministries.

The establishing of a US$10 billion project named the 'Mohammed Bin Rashif Al Maktoum Foundation' for the promotion of knowledge within the region has been one of the most significant initiatives for the establishment of a knowledge-based society. According to the president of the foundation, and ruler of Dubai, H.H. Sheikh Muhammed, "...*there is a need to build an Arab model of knowledge that reflects Arab culture*" (Mirghani, O'Sullivan and Ribere, 2008: 111). He indicated that this model would have a number of benefits: he believed that, as well as helping the country keep pace with international standards of performance, quality and production, it would have a definite impact on the development of human capabilities, meet social, cultural and economic development needs within the Arab world, and give protection to inventors, researchers and intellectuals.

Within the Arab world, there are very few papers published with regard to KS, and those that do exist are focused on countries in the Gulf region, where only a small range of private and public sectors have been considered, such as the police forces, telecommunications, petroleum, management and business (Weir and Hutchings, 2005; Al-Alawi et al., 2007; Al-Busaidi, Olfman et al. 2010; Ahmad and Daghfous, 2010; Skok and Tahir, 2010; Al-Adaileh and Al-Atawi, 2011; Rowley et al. 2012; Seba et al. 2012). Amongst the pieces of research looking particularly at KS

within the UAE are the works of Ahmad and Daghfous (2010), Skok and Tahir (2010), Rowley et al. (2012), and Seba et al. (2012).

The practices and activities of KS have been studied by the authors, as well as the impact of certain factors upon it, such as cultural, individual, organisational and technological factors. None of these studies, however, looked into knowledge sharing within the HE sectors.

Since the creation, exchange, storage, transfer and utilisation of knowledge is core to the mission of HEIs, it ought to be obvious that KS is important. That said, this research has the intention of understanding the KSB of academics within the University of Baghdad and evaluating theer influence based on amended planned behaviour theory.

2.14.2 The categorisation of higher education institutions in the Middle East

Over the last two decades, there has been pressure upon states in the Middle East to undergo a liberalisation of their economies from economic stagnation and the dominating impact of the neoliberal economy's economic model of globalisation. Circulated by the International Monetary Fund (IMF) and the World Bank, these neoliberal policies have forced many nations in the Arab world to accept policies of structural adjustment. As a consequence of this, there has been a curtailment of employment in the public sector and previously state-owned companies have become private. As well as this, HE expenditures have been re-routed to schooling in the primary and secondary setting (Guazzone and Pioppi, 2009). Simultaneously, the worldwide attempt to evolve economies from traditional agricultural bases to industrial ones and then to knowledge-based economies has led to an increase in the HE private rate of return. International organisations and local populations alike are putting pressure upon HE ministries in order to seek improvement in the employability of their people by HE expansion and improvement in the quality of instruction (Altbach and Peterson, 2007). The expansion of HE by policymakers is considered an important way in which there can be successful integration of Arabian workers into the world economy (World Bank 2008; Kabbani and Salloum, 2009). Student enrolment in HE has, as a consequence of such expanded education policy, grown rapidly within the Middle East and North Africa nations

(the MENA region); a region that previously had very restricted systems for tertiary education (UNESCO Institute for Statistics, 1970-2010).

The rise in enrolments at university has not only been due to the reality of a larger youth demographic within the population, often termed the 'youth bulge', but is also a reflection of explicit changes in government policy for expansion in the number of enrolments at university. In many states, including Syria and Tunisia, more of the youth have been sent to pathways of academia that have led them to university. Several other countries, such as Jordan and the nations of the Gulf, have introduced a range of new providers of university education and programmes for accommodation of institutions affiliated with them (Bashshur, 2006). The privatisation and fragmentation that were prevalent in Lebanon helped give rise to a system of decentralised and private HE, with over half of Lebanese youngsters studying within private institutions (Nahas, 2009). Palestine is another example of a system that is different to a state-dominated HE one. Only from the time of the 1994 Oslo Accords has the occupied territory of Palestine been allowed to have its own Ministry of Education and HE. As a consequence, the system for HE in Palestine has been, in essence, a private sector one. All of the HEIs independently determine the level of funding and admissions, despite the efforts for coordination and accreditation at the national level (Mazawi, 2005; Nakhleh, 2006). The examples of Palestine and Lebanon are exceptions within an Arab region with a great deal of state control of the higher education sector; the particular histories and political contexts of those countries led to the suggestion that fragmentation and political conflict undermine the ability of a state to manage its HE sector, and therefore lead to higher levels of decentralisation and privatisation. Research that has compared higher education across the world, including in Arab countries, shows that expansion of enrolment can be strongly predicted by decentralisation (Schofer and Meyer, 2005). From examination of the existing gross enrolment rates (GER) within the MENA region, it can be seen that Lebanon and Palestine have GERs that are at the highest levels in HE enrolment expansion (Abdesallem, 2009; Buckner and Saba, 2010). Virtual learning, decentralised campuses and private universities are all included as part of the new university provision in line with models of neoliberalism. If we put aside the rhetoric and consider the impacts of such diversification, privatisation and large-scale massification upon the youth and how they interpret and experience it, it can be seen that as they expose a spectacular departure

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from previous ways of organising opportunity framework. There is a need, therefore, for more research with regard to KS and its effectiveness amongst students in universities within the emerging Middle Eastern economies as they seek to compete on the same level as other institutions of education around the world.

2.14.3 The categorisation of higher education institutions within Iraq

The invasion of Iraq by the Mongols in 1258 brought to an end the unique civilisation that had existed in ancient Baghdad, under the rule of the Abbasid caliphate, for over five centuries. Around the year 840, the House of Wisdom (Bait al-Hikma) was founded in Baghdad and it soon became the world's unrivalled centre for scientific learning and research, with Muslim scholars leading the learning within numerous fields, such as medicine, alchemy, philosophy, mathematics, astrology, geography, physics and so on. The House of Wisdom-as well as other landmarks, hospitals and libraries in Baghdad-was demolished by the Mongols in a rid of destruction and pillage. However, by the beginning of the twentieth century, Baghdad had regained some of its former glory. A School of Law was founded in 1908, which was then followed (and listed chronologically here) by a School of Education in 1932, a School of Medicine in 1933, a School of Pharmacology in 1936, a Higher Education Institute for Girls (known as Queen Alia College) in 1942, a School of Engineering in 1943, a School for Arts and Sciences in 1945, a School for Administration and Economics in 1947, a School of Agriculture in 1952, and a School of Dentistry in 1956. These schools became the faculties that constitute the University of Baghdad that was established by a Royal decree in 1956. Additionally, in the same year, the American Roman Catholic fathers established the Al-Hikma University.

2.14.4 Knowledge-sharing behaviour of academics within higher education institutions in Iraq

The HE sector within the country has quickly evolved in line with economic and political developments. Clearly, the multiple changes in political regime, the long wars and international sanctions that culminated in the invasion of 2003, and the major transformations in the economy through the production of gas and oil have all had an impact upon the HE sector and driven many

distinguished academics out of the country. In order to restore the HE sector to a certain degree, the Ministry of Higher Education and Scientific Research of Iraq made the announcement in 2009 that there was to be an ambitious development plan for the reform of both private and public HEIs. A significant budget of $26 billion was allocated by the Iraqi government for the implementation of the plan between the years 2012 and 2020, with the support of international bodies including the World Bank, UNICEF and UNESCO. As Herbst and Conradie (2011) make clear, the higher education sectors within developing countries such as Iraq are faced with challenges that change in nature quickly, and innovation is needed. It is increasingly the case that educational markets are becoming more global, and the ability of the Iraqi education system to reach the market in a global sense will be dependent upon changes to the curricula, methods and systems. Mathew (2010) noted the importance of KS for building an efficient performance within HE environments and it is key for the enhancement of innovation within universities. It was noted by Lin (2007) that it is extremely necessary within organisations to have an understanding of the processes, outcomes and enablers of KS. In reference to KS, Xiong and Deng (2008) highlighted its effectiveness in employees and its dependence on the style of leadership crucially employed in the planning process for the donation and collection of knowledge. It has been discovered that leaders can affect employee intention with regard to knowledge collection through the development of a knowledge culture (Humayun and Gang, 2013). It has been suggested by Lee et al. (2010) that, when employees work under a leader with a focus upon trust and who involves them in the making of decisions, then they are more likely to be comfortable to share their expertise and knowledge within the organisation without suspicion or fear. It has been argued by Mathew (2010) that a lack of support from the leadership can act as an obstacle for knowledge sharing within HEIs, thereby making effective information and data sharing and knowledge use difficult for staff. There are more studies into the effect that leadership has upon KS; however, there is a dearth of studies that concentrate upon the KSB area, particularly for the context of HEIs in Iraq. There is a need, therefore, for further study with regard to KS and KSB to look into their effectiveness within Iraqi HEIs to enable them to compete with other institutions for education around the world.

2.14.5 The knowledge-sharing behaviour of academics at the University of Baghdad

The establishment of the University of Baghdad in 1956 was the beginning of the current HE sector in Iraq and was a milestone in the reestablishment of scientific research in the country. The university is the first and largest institution for science within Iraq. Due to the high-quality teaching, administrative and technical teams have managed to spread out to the other, more recently established, universities of Iraq. Other public institutions have also benefitted from these administrative and technical teams.

The government had been forced to act to establish a university because of the growth in need for higher education amongst the Iraqi population. Another law was enacted in 1958 with regard to the university and acknowledgement was given to the establishing of a university council to run administrative and scientific matters. At the start, the university was composed of the College of Education, the College of Law, the College of Engineering, the College of Pharmacy, the College of Medicine, the College of Veterinary Medicine, the College of Agriculture, the College of Commerce and the College of Arts. Several other HEIs became a part of the university after that initial phase, i.e. the Institute of Languages, the High Institute of Industrial Engineering, the Institute of Physical Education and the Institute of Administrative Sciences.

Since it began, the University of Baghdad has responded quickly to requirements set within the plans for national development and, in doing so, student numbers have increased in all of the educational specialities. New colleges were also created and now there are a total of 24 colleges and four further higher study institutes, i.e. for the study of laser and plasma, genetic engineering, regional and urban planning, and accountancy and finance. Latest statistics reveal the level of student enrolment at the university as being 2,030 students at postgraduate level and 62,561 students at undergraduate level. In addition, according to the Ministry of Higher Education and Scientific Research, there are 6,642 teaching staff members (MOHESR, 2012). The range for admission at Baghdad university is between sixty and seventy percent, making it quite a selective institution. People from outside the country apply to enrol and, indeed, the university aims to re-establish its reputation within the region and internationally as a provider of scientific research and

teaching programmes that are rigorous, academically speaking. In order to do this, the university operates from five main campuses that play host to a total of 28 institutes and faculties, as well as eight centres for service and research. The aims of the university are the development, transmission and dissemination, and deepening of knowledge sharing between individuals, and to train and educate the community. Overall, there is an aim to link the development plans of the country with university requirements and activities. The university continues to play an important role as a source of reputable academics, who use KS activities to channel knowledge for the benefit of other HEIs within the MENA region. Although there is evidence of KS activities the university, there seems to be a lack of research into KSB at the university within the wider literature. This thesis may be able to provide new knowledge to add to the literature currently in existence related to KSB, particularly related to the work at the university. Ideas can be provided for strategies able to foster activities for KSB amongst the academic staff and their followers.

2.15 Summary

This literature review chapter aimed to provide context for this study and highlight the literature related to knowledge, in terms of the concept and types of it, knowledge sharing and KM evolution, theories of KSB, the KS influences and KS communication pathways. These various perspectives on knowledge can help people to more fully understand the knowledge basis of an organisation and its KM processes.

The distinction between tacit and explicit forms of knowledge is fundamental to discussions with regard to knowledge and, indeed, such debates have been presented within the chapter. The SECI model has been presented as a way of explaining the conversion of knowledge that is tacit into explicit knowledge and then, as in a cycle, from explicit to tacit knowledge. As knowledge can be considered a very important asset for any organisation, KM can be considered crucial. The practice of KM is considered, according to Jarrar (2002), as a type of process whereby all of the knowledge undergoes forms of management with the aim of meeting both emerging and existing needs, as well as the identification and exploitation of knowledge assets that are both acquired and existing, and the development of new opportunities. As well as the management of both explicit and tacit

forms of knowledge, KM is also involved in the engagement of groups and individuals, both inter and intra-organisation, with the aim of achieving improvement in overall organisational performance.

Success in KM requires effective KS, with KS being considered as the process through which, by either informal or formal methods, the communication and dissemination of both explicit and tacit knowledge occurs. Quality of work, skills in decision making, efficiency in solving problems and overall organisational competency can all be greatly improved through proper KS management. The intention of an individual to perform a particular behaviour determines their decision whether to engage in a particular behaviour or not (Fishbein and Ajzen, 1975). Numerous factors affect KS including the KS process, theories of KSB and the influence of enablers of KS. Several theories can be discovered in the literature that all attempt to account for individual KSB, with elements such as professional environment, self-acknowledgment, trust, extrinsic and intrinsic rewards, and reciprocal relationships all reflecting a positive influence on KSB (Wickramasinghe and Widyaratne, 2012).

The literature review in this chapter has portrayed a basis for understanding both KSB and KS theories and the salience of key issues within organisational practice. This analysis, therefore, aims to reveal the key KSB issues within HEIs in Iraq, with a particular focus upon the University of Baghdad. KS practices in HEIs have been explored within other studies through examination of the factors that have a bearing on KSBs. Aspects such as subjective norm, perceived behavioural control, attitude and the academics' experience are considered to be key factors impacting on their KSBs. The number of KS studies on the HE sector is small compared with research into commercial sectors and so it is considered urgently necessary to undertake research that specifically focuses on KSB in the context of HEIs.

Chapter 3: Conceptual framework and hypotheses

3.1 Introduction

The findings from the review of literature in Chapter 2 do suggest that there is an opportunity for further research in the field. It was discovered that subjective norm, perceived behavioural control and attitude towards knowledge sharing are factors that are critical for the enhancement of the intention towards knowledge -haring behaviour within organisations, especially in learning environments. Thus, it was considered there was a need for examination of these relationships within higher education environments in Iraq, particularly within the University of Baghdad; as such, it was chosen as the case study for this research.

This chapter presents the problem that was investigated within this research thesis and provides a description of the study's conceptual model. The chapter describes the relationship between the intention towards knowledge-sharing behaviour and predictors of attitude towards KS, i.e. expected rewards, relational connections, apparent mutual benefits and expected mutual relationships. There is discussion of the subjective norm predictors, i.e. professional environment and self-confidence, and the relationship to intention towards KSB. Then follows a description of the perceived behavioural control predictors, e.g. methods & techniques and self-acknowledgment, and the relationship with intention towards KSB. Finally, the chapter presents the study hypotheses.

3.2 The structural model of the research

The theory of planned behaviour (TPB) model from the work of Ajzen (1991) has been adopted for use in this research study; the model is perhaps the most popular and influential social-psychological one to help in giving explanations and predictions of human behaviour within particular contexts (Ajzen, 2001). The TPB model is an extension from the earlier theory of reasoned action (TR) in the work of Ajzen and Fishbein (1980). As behaviour did not appear to be completely under control and voluntary, the new determinant of perceived behavioural control (PBC) was introduced; this extension led to the formulation of TPB and the postulation that the main determinants of an individual's behavioural action are perceived behavioural control and intention. The intention of an individual is an indication of their readiness for engagement in a

particular behaviour and, in turn, is a function of their attitude towards the behaviour (ATT), the subjective norm (SN) and PBC, with each of the determinants given a significance weighting in relation to the population and behaviour under consideration. The ATT in respect to a particular behaviour is based on behavioural beliefs, which are concerned with the consequences that are expected for a specific behaviour and the unfavourable or favourable evaluation of those consequences. The SN has its basis in normative beliefs which are concerned with the perceived social pressure from a significant referent group for the performance or non-performance of the behaviour in question. The SN is determined by normative beliefs in combination with the motivation for compliance with the expectations of the referent group. The PBC has its basis in control beliefs, which are concerned with the perceived absence or presence of factors that could impede or facilitate the performing of the behaviour in question. PBC is determined by the control beliefs in combination with the perceived power of each of the factors. Intention is boosted by PBC as individuals do not tend to be motivated to perform tasks at which they tend to fail. Moreover, there is also the expectation that actual behaviour is influenced by PBC, particularly when an individual's actual control and their perceptions of behaviour control are in agreement. The greater a person's belief that they possess opportunities and resources, the fewer the anticipated impediments and, as such, they have a greater degree of perceived control in respect to their behaviour. The components of TPB are presented in Figure 3.1.
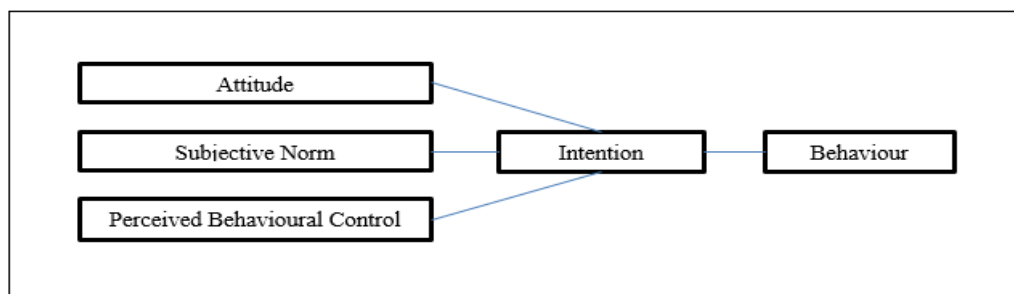
Figure 3.1 The theory of planned behaviour
Source: Adapted from Ajzen (1991)

Ajzen and Fishbein (1980) proposed a theory of reasoned action (TRA), and have been successful in proving that factors of attitude are determinants that are significant to behavioural intentions.

Similar sentiments were shared by Chang (1998), with the strong assertion that behavioural intentions were significantly influenced by the attitude towards moral behaviour. The attitude towards KS refers to the degree to which a person has positive feelings with regard to sharing their knowledge. Bock and Kim (2002), examined attitude towards KS and found that it had a positive effect on the intention towards knowledge sharing. Another study, by Ryu et al. (2003), revealed that the attitudes of physicians towards KS had an effect upon their KS intentions.

Perception was found to be the most influential factor for faculty knowledge sharing in a study by Kim and Ju (2008); as such, there is the belief that KS amongst academics and their colleagues and so on is, in the main, due to attitude. The research model in the current study employs TPB as the theoretical framework for analysis of the motivational factors that have a bearing on knowledge-sharing behaviours (KSB) amongst knowledge workers. The model developed for the research is presented in Figure 3.2, with the suggestion that the factors included are appropriate for the testing of the intention of academics at the University of Baghdad; their opinion may suggest that there is a significant association between the variables included and the intention towards knowledge-sharing behaviour.
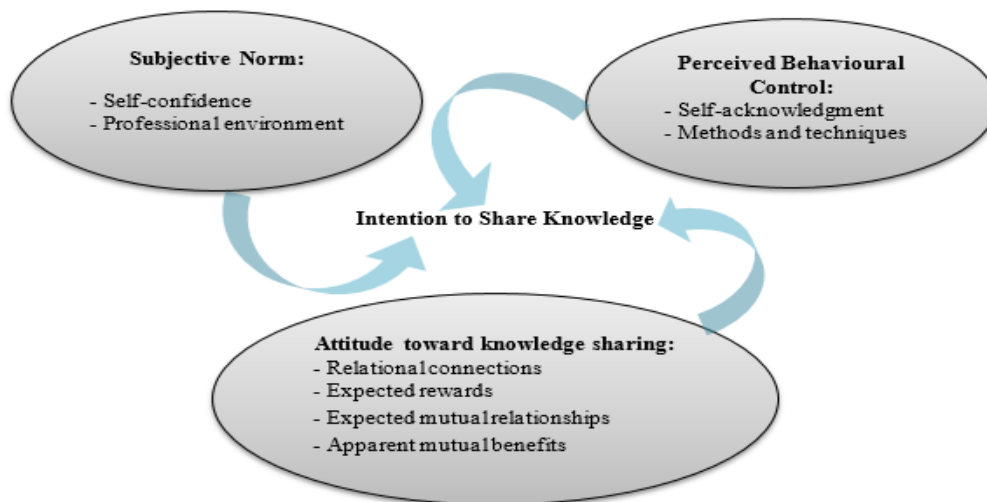
Figure 3.2 The developed framework
Source: Based on the model of Ajzen (1991)

Some of the key factors that have a bearing on knowledge sharing have been discussed within the literature and have been incorporated into the model used in this research. The quantitative research element employs a questionnaire already used within the research of Blau (1964). The factors included in the research of several authors also reflect Bock's model and, therefore, the TPB, namely: Fishbein and Ajzen (1975, 1981), Fishbein and Ajzen (1981), Davis (1989), Constant et al. (1994), Bock et al. (2005), Kankanhalli et al. (2005) and Tohidinia and Mosakhani (2010). Both the beliefs and organisational factors are, consequently, affected by the subjective norm composed of the motivation to share and norms. However, this research is intended to assess the behaviour and intentions of academics at the University of Baghdad, and so certain dimensions specific to academia have been included. The definitions and sources used in the questionnaire, to align with the structural model of the research, are shown in Table 3.1.

Table 3.1 The definitions and sources for the questionnaire aligned with the structural model of the research

Construct	Definition	Source	Items
Attitude towards knowledge sharing	The degree of one's positive feelings about sharing one's knowledge.	Bock et al. (2005)	
Relational communications	"those skills which one needs in order to communicate effectively with another person or a group of people"	Rungapadiachy (1999: 193)	4
Expected rewards	The degree to which one believes that one will receive extrinsic incentives for one's knowledge sharing.	Bock et al. (2005)	2
Expected mutual relationships	The degree to which one believes that one can improve mutual relationships with others through one's knowledge sharing.	Bock et al. (2005)	5
Apparent mutual benefits	Apparent mutual benefits is an antecedent to attitude towards knowledge sharing. Social exchange describes human behaviour in terms of social exchanges.	Blau (1964)	3
Subjective norm	The degree to which one believes that people who put pressure on one's actions expect one to perform the behaviour in question multiplied by the degree of one's compliance with each of one's referents.	Fishbein and Ajzen (1975, 1981)	
Self-confidence	The degree of one's positive cognition based on one's feeling of personal contribution to the organisation through one's knowledge-sharing behaviour.	Bock et al. (2005)	11

Professional environment	The perception of togetherness. The perception that change and creativity are encouraged, including risk-taking in new areas where one has little or no prior experience. The perception that organisational practices are equitable and non-arbitrary or capricious.	Bock et al. (2005)	10
Perceived behavioural control	The perception of ease or difficulty of performing the behaviour of interest by which skills and opportunities must be available to perform the behaviour in question.	Tohidinia and Mosakhani (2010)	
Self-acknowledgment	"Manifested in the form of people believing that their knowledge can help to solve job-related problems, improve work efficiency, or make a difference to their organisation".	Kankanhalli et al. (2005: 122)	8
Methods & techniques	"the degree to which a person believes that using a particular system would be free of effort"	Davis (1989, p.320)	6
Intention to share knowledge: Explicit knowledge	 The degree to which one believes that one will engage in an explicit knowledge-sharing act.	 Fishbein and Ajzen (1981); Constant et al. (1994); Dennis (1996)	5
Tacit knowledge	The degree to which one believes that one will engage in a tacit knowledge-sharing act.	Fishbein and Ajzen (1981); Constant et al. (1994); Dennis (1996)	

3.3 Intention towards knowledge-sharing behaviour

It is noteworthy that the theoretical model is composed of variables taken from different theories. The primary research theory is the theory of planned behaviour; however, the model also includes variables from social exchange theory, social capital theory and social cognitive theory. The model has been used in investigating the influence that factors have upon KS intention behaviour; the framework that was put forward by the researcher, based upon the literature review, is shown in Figure 3.2. The modified factors employed in this study model, derived from previous research, were those that were considered to have a positive impact on the intention towards KS so that the variables used gave a high degree of reliability and validity (Noor and Salim, 2011). This research has a focus upon investigating the relationship between the independent factors and the single dependent variable of intention towards KS behaviour. The expectation for this research was that the independent factors that would encourage individuals to engage in knowledge sharing with their colleagues at the University of Baghdad would be SN, PBC and ATT. The term knowledge-

sharing behaviour refers to the degree to which people share and exchange expertise and knowledge with other colleagues within their organisation so that it can be used for the creation of new knowledge (Mallasi and Ainin, 2015). The term behaviour refers to the degree to which a person actually chooses to perform or not to perform a particular action, which is determined by the intention of the person to perform the action or not (Ajzen and Fishbein, 1980; Ajzen, 1991).

Robertson (2002) stated that KS is a human action. Knowledge sharing behaviour, then, can be considered as the optional behaviour of a person that is not recognised directly and which within collective situations, gives support to the effective functioning of the performance and operations of an organisation (Bordia et al., 2006 in Alajmi, 2010). Accordingly, based on TPB, for the current study context, the knowledge-sharing behaviour of an academic is the degree to which he or she actually shares his or her knowledge with others. The term intention refers to the willingness of individuals to engage in particular behaviour(s) (Ajzen, 1985; 1991; 2002). Intention is considered to be the predictor and factor most significant and central in having an influence on a person's behaviour (Ajzen and Fishbein, 1980; Ajzen, 1991; Chang, 1998). Based upon TPB, the intention to share knowledge is the willingness and readiness of an individual to engage in KSB. Thus, the intention of an individual to share knowledge is highly determinant of his or her behaviour with respect to actually sharing knowledge with other people (Alajmi, 2010). In the context of knowledge sharing, research has discovered that the knowledge-sharing behaviour of an individual is significantly and directly affected by intention (Lin and Lee, 2004; Keyes, 2008; Shin, Ramayah and Jahani, 2008; Chatzoglue and Vraimaki, 2009; Chen, Chen and Kinshuk, 2009; He-feng, 2009; Tohidinia and Mosakhani, 2010; Alajmi, 2010, 2011; Babalhavaeji and Kermani, 2011; Ellahi and Mushtaq, 2011).

3.4 Attitude towards KSB

It was demonstrated quite a while ago that attitude is a significant predictor of organisational behavioural intentions; a substantial amount of empirical research has given support for this relationship. For example, Bock, Zmud, Kim and Lee (2005), in conducting research that tested a knowledge-sharing model by surveying 30 organisations, had results that gave the suggestion that

attitude towards knowledge sharing both significantly and positively impacts upon behavioural intention. Additionally, Kwok and Gao (2005), undertook research, with a basis in the theory of reasoned action, that investigated individual attitude towards the sharing of knowledge through examination of three variables, i.e. absorptive capacity, extrinsic motivation and channel richness, as factors that have a bearing on people's attitude towards KS. A structural survey was undertaken for the testing of relationships between the three variables and attitude, and the results demonstrated no impact was imposed by extrinsic motivation on individual attitude towards KS; however, the other two factors did play a significant role. This research has applied a variety of variables related to attitude towards KSB such as, intrinsic and extrinsic motivational drivers namely: expected rewards, relational connections, apparent mutual benefits and expected mutual relationships as background to the attitude towards KS.

3.4.1 Relational connections

Prior to exploration of the factors that inhibit and facilitate KS, there is a need to have an understanding of the rationale behind the way people behave and the reason(s) why they have particular attitudes towards knowledge sharing. With regard to decision making about the sharing of knowledge with colleagues, usually people take into consideration the costs and benefits, motivation, interpersonal relationships, and personal expectancy factors. Within social science, there is a focus upon the relationships between an individual and the social environment in which they operate, and so both sociology and psychology are considered able to inform an understanding of behaviour with regard to KS (Hollander and Howard, 2000). The suggestion has been made that personal networks and relationships work through processes of social exchange (Weir and Hutchings, 2005). As social exchange is considered a complex activity, different elements of KS have been highlighted in various research projects. Some researchers have used social exchange theory to examine the relationship of justice/fairness and trust, as key elements of interpersonal relationships, in their relationship to KS (Organ 1990; Robinson 1996). Examination of fairness and trust is important because knowledge sharing involves the provision of knowledge with expectations of reciprocity whether with another person or a collective such as a practice community or team (Wu et al., 2010).

Constant et al. (1994) emphasised the importance of context and self-interest in KS, whereas Chua (2003) emphasised reciprocity. A theoretical basis for a relationship between KS and fairness has been taken from equity theory and other social exchange theories that attempt to explain relational satisfaction based on perceptions of unfair or fair resource distributions within interpersonal relationships. There is a belief that fair treatment is valued by people and this motivates them to maintain fairness within their dealings with the organisation and their co-workers. Adams' (1965) equity theory suggests that a fair balance exists between what people get out of a job, such as recognition, reputation, development and job security, and what they put in with their efforts, abilities, personal sacrifice and time. There is a need for people to perceive there to be a fair balance between outputs and inputs. As mentioned above, the social exchange theory of Blau (1964) demonstrates that if people observe that contributions are justly and sufficiently satisfied by outputs, they have a sense of happiness and are motivated to continue inputting at the same level. However, if people felt that their expected outputs were outweighed by their inputs, there would be a reduction in their inputs and they would become demotivated. When processes are fair, commitment and trust are built and these produce cooperation that is voluntary and this, in turn, drives on people's performance with them going 'beyond the call of duty' in the application of their creativity and the sharing of their knowledge (Kim and Mauborgne 1997; 1998). It was argued by Lind and Tyler (1988) that having procedural fairness was important for fostering trust in the relationships between employees and their supervisors; indeed, a key manner in which trust can be established is through ensuring fair outcomes for team members in the work place. In line with the equity theory of Adams (1965), it was argued by Robinson and Morrison (1995) that there is a tendency amongst employees to avoid behaviours that are helpful if there are inadequate outcomes provided by the employer.

In general, it is considered that relational connections are one of the key psychological barriers to the sharing of knowledge. As such, the researcher has imported this particular factor from other theories into the variable for attitude towards knowledge sharing so that it can be tested along with other factors from TPB. The hypothesis then, based upon previous literature, is that interpersonal relationships have a positive effect on academics' knowledge-sharing intention behaviour.

3.4.2 Expected rewards

It is often the case that knowledge is seen as a good that is marketable and that can be bought, placed in storage and accessed by a third party by means of a mode of market exchange (Antal and Richebe, 2009). Knowledge sharing is also a communicative act between people that needs both effort and time (Gibbert and Krause, 2002). In that way, the knowledge of individuals is shared with others if, and only if, there is perceived to be a direct return as a result of their action. Stated another way, KS only happens when the rewards are greater than the costs (Kelley and Thibaut, 1978; Constant et al., 1994). It is usual, then, for KS to be described as a process that is free of emotion and that has its basis only in the estimation of benefits and costs (Antal and Richebe, 2009). There are some cases of organisations that have successfully employed reward systems for encouraging employees to share knowledge. For instance, in Siemens' ShareNET project, employees were effectively motivated to KS by explicit rewards (Ewing and Keenan, 2001). Another example is that of Samsung Life Insurance's Knowledge Mileage Program wherein the company utilised redemption points as employee rewards and it led to a huge growth in the employees' knowledge registration (Hyoung and Moon, 2002). As noted by Bartol and Srivastava (2002), the Lotus Development company bases a quarter of its evaluation of its workers' total customer support performance upon the extent of their KS activities. Likewise, there are built-in functions within universities to reward performance that has resulted from KS. For example, academics who are successful in publishing their research articles within top-ranked journals will be rewarded in terms of monetary incentives and opportunities for promotion. Thus, there is the expectation that academics will be motivated to KS when their sharing acts are compensated by extrinsic benefits such as increments in wages or salary or by promotion. With regard to the literature above, the hypothesis is made that expected rewards have a positive effect on academics' knowledge-sharing intention.

3.4.3 Expected mutual relationships

In general, empirical evidence provides support for the proposition that reciprocity has a positive association with KS. A strong connection between attitude towards KS and the expected mutual

relationships has been discovered by Bock et al. (2005). Expected mutual relationships have been defined as the degree to which a person believes that their KS can improve their mutual relationships (Bock et al., 2005). There is no exact price for knowledge and so it is considered an intangible commodity. Individuals can be motivated to give their knowledge to others as a way of maintaining a good relationship with other social circle members (Short et al., 1976). If academics have the belief that their relationships with others and mutual interactions can be improved through KS, then a favourable perception towards KS is embedded in their minds. Based on the previous literature, the hypothesis is that expected mutual relationships have a positive effect on academics' knowledge-sharing intention.

3.4.4 Apparent mutual benefits

The significance held by apparent mutual benefits gives a degree of indication that knowledge workers have a likelihood of engaging in KS with an expectation of the receipt of help from others in the future in return for that knowledge sharing. In the context of KS, reciprocity has been defined as the expectancy of benefit from a future request for knowledge being met because of the current contributions being made (Kankanhalli et al., 2005). As noted by Fehr and Gächter (2000), reciprocity is a type of conditional gain, i.e. people have the expectation that their present actions will lead to future benefits. So, that knowledge will be contributed, individuals have to have the belief that the contribution they make is worth making. Davenport and Prusak (1998) considered that people's energies, knowledge and time have limits; as such, other than where there is profit to be gained, people are normally unwilling to share their scarce resources with other people. Within a team, people who have more of a willingness to share good ideas, and that anticipate, have a tendency to expect the same of others. As noted by Hsu and Lin (2008), expected reciprocal benefits relate to the degree to which someone believes that they may acquire mutual benefits through the sharing of knowledge. Previous pieces of research have shown that a strong sense of reciprocity facilitates KS within online communities (McLure, Wasko and Faraj, 2005; Wasko and Faraj, 2005). Moreover, researchers have noted that effective motivation for facilitation of the sharing of knowledge hails from reciprocal benefits, and thus long-term mutual cooperation is achieved (Bock et al., 2005). It was indicated by Lin (2007) that, if employees have the belief that

they may acquire reciprocal benefits from their colleagues through knowledge sharing, they are more likely to have a favourable view of sharing knowledge, and thus have greater KS intentions. Based on previous research, it was hypothesised that apparent mutual benefits have a positive effect on knowledge-sharing intention among academics.

3.5 Subjective norm

The definition of subjective norm (SN) is a person's perception of whether people he or she considers to be important think that a behaviour ought to be performed (Ajzen and Fishbein, 1980; Pavlou and Fygenson, 2006). SN is a reflection of a participant's perceptions about whether a behaviour is considered acceptable and encouraged and implemented by their circle of influence; in the literature, there is the suggestion that a positive relationship lies between intended behaviour and subjective norm (Thompson et al., 1991; Karahanna and Straub, 1999; Venkatesh and Davis, 2000; Bock et al., 2005; Srite and Karahanna, 2006; Taylor, 2006). Evaristo and Karahanna (1998) consider that subjective norms can potentially, through informational and normative influences, lower the uncertainty with regard to whether it is appropriate to use a system. There does seem to be a positive relationship between the intention to share knowledge and subjective norm. It has been explained by Ajzen (1991) that there is a strong link between the term subjective norm and the social pressure on workplace staff to perform a particular behaviour. Several research works have provided proof that subjective norms have a significant and positive impact in the prediction of knowledge-sharing behaviour and intentions (Venkatesh and Davis, 2000; Ryu et al., 2003; Hsiu-Fen and Gwo-Guang, 2004; Bock et al., 2005; Srite and Karahanna, 2006; Taylor, 2006). Lin (2011) showed that there is a need for managers to have subjective norms, attitudes and behavioural intention for positive inspiration of KSB amongst the staff working within an organisation. Ding and Ng (2009), on the other hand, showed the variable of attitude has more significance than subjective norms for the establishment of the intention to share knowledge. Meanwhile, Bock et al. (2005) established that a significant relationship exists between knowledge-sharing intention and subjective norm, and also concluded that the relationship strength between intention to share knowledge and subjective norm is influenced tremendously by a positive professional environment. The authors revealed an integrative understanding of the

aspects that have an association with knowledge-sharing behaviour; their research findings showed that KSB is influenced strongly by a person's attitudes towards KS, his or her plans for sharing knowledge and the subjective norms concerned with KS.

3.5.1 Self-confidence

Acts of KS are interaction processes that are ongoing and need suitable feedback. It has been expressed that if others make responses in a manner that had been anticipated, then there is a tendency to conclude that the initial behaviour and line of thinking were correct (Kinch 1973).

It was claimed by Gecas (1971) that a process of reflected appraisal is, indeed, instrumental to the formation of the self-worth of an individual which, in turn, is strongly affected by that person's sense of competence, as noted by Covington and Berry (1976), and has close ties to effective performance, as noted by Bandura (1978). Through the feedback that has been received based on previous occurrences of the sharing of knowledge, academics can observe how such activities have helped in the working lives of others and/or aided in improving the performance of organisations. With an understanding that such KS actions have contributed to improvement in others and would, accordingly, have a boosting effect upon self-confidence, there would, accordingly, be a tendency amongst academics to develop attitudes towards KS that are more favourable in comparison to the attitude of others less able to see such links (Bock et al., 2005). As such, the second research hypothesis is that a self-confidence have a positive effect on academics' knowledge-sharing intention.

3.5.2 Professional environment

The variable of professional environment (OC) was applied as a subjective norm antecedent and, similar to the study of Bock et al. (2005), it was discovered to have a significant and substantial impact upon SN. The higher the perceptions that OC is conducive to KS, the higher the subjective norm formation towards KS. Within organisational and industrial behaviour and psychology there is a long history of studies related to OC. As far back as the 1930s, in the work of Kurt Lewin, there was an initial addressing of the psychological climate concept (Litwin and Stringer, 1968).

In order to explain this concept, Lewin identified certain elements that needed to be taken into account when OC was being addressed; these elements included needs, stimuli, goals, social relations, the degree of freedom within an organisation and whether the environment is hostile or friendly (Lewin et al., 1939; Litwin and Stringer, 1968; Kundu, 2007). Climate can be considered as acting as a key functional link between the environment and an individual (Lewin, as cited in Litwin and Stringer, 1968). Within a study by Lewin et al. (1939), the view was presented that climate had a greater impact upon individuals than tendencies of previously acquired behaviour, and so could change the observed group members' behaviour patterns. The professional environment theory puts forward the notion that managers are able to have an impact upon the perceptions of workers with regard to their work roles through either directly changing expectations by training or changing the membership of the group (Litwin and Stringer, 1968). Expressed in a different way, OC is a representation of the feelings that employees have about the atmosphere in the organisation in which they are working.

Professional environment was discovered to be influential with significant impacts upon work performance of both administrative and academic staff at the University of Cyprus (Pashiardis and Brauckmann 2009; McMurray and Scott, 2013). It is interesting to note that OC is considered to have had an influence on tertiary disposition towards change, improvement and innovation in terms of the implementation of principles of quality within a HEI setting (Sa'ari et al., 2016). Consequently, it is considered that the existence of a healthy climate leads to the commitment of the workforce being enhanced. Moreover, the existence of a positive connection between employee satisfaction and performance and OC was shown in the work of McMurray and Scott, (2013) and Rahimic (2013). A literature review on work considered with OC has concluded that despite there being plenty of evidence for the positive impact of OC on the workplace, there have been few studies undertaken in a HEI setting that have made particular reference to the performance of academic staff. Thus, this research aims to investigate the extent to which OC has an impact upon the performance of academic staff at the University of Baghdad. As such, the first hypothesis is that professional environment have a positive effect on knowledge-sharing intention among academics.

3.6 Perceived behavioural control

There needs to be a sufficient degree of behavioural control as well as favourable intention if there is to be success in performing a behaviour. Perceived behavioural control can serve as a proxy of control that is actual and so can be employed in predicting behaviour. To draw an analogy with the expectancy attitude value model, there is an assumption that there are factors present that can act to impede or facilitate the performance of a particular behaviour. More specifically, the strength of each of the control beliefs can be weighted by the control factor power that is perceived, and then an aggregation done of the products. As it is a reflection of actual behavioural control, PBC can, tighter with intention, be used for prediction of behaviour. As many behaviours can pose difficulties for execution that result in limits to the amount of volitional control, it is helpful to give consideration to PBC as well as intention. It has been suggested that difficulties in undertaking assessment of actual control have led to perceived control being employed as a proxy for it (Eagly and Chaiken, 1993). Ajzen (1991: 188) defined PBC as "*the perceived ease or difficulty of performing the behaviour and it is assumed to reflect past experience as well as anticipated impediments and obstacles*"; this conceptualisation is a reflection of individual controllability for either acting in a particular way or not (So and Bolloju, 2005). PBC, as a concept, is considered to have the same sort of characteristics as the perceived self-acknowledgment concept of Bandura (1982): it is considered as individual self-judgement in respect to the capability of a person to achieve a particular goal (Kuo and Young, 2008). If someone is considered to have a greater degree of control over the sharing of their knowledge and strong levels of competence, there would be a higher intention to share (So and Bolloju, 2005; Cabrera, et al., 2006; Lin, 2007); ultimately, the person is more likely to actually engage in KS (Thomas-Hunt, et al., 2003; Hsu et al., 2007).

3.6.1 Self-acknowledgment

Self-acknowledgment has been defined by Pavlou and Fygenson (2006) as individual judgements that have been made with regard to the capabilities of a person to perform a particular behaviour. It was suggested by Bandura (1997) that self-acknowledgment is one of the key forces, in cognitive terms, that guide a person's behaviour. Self-acknowledgment can be considered as the confidence

that a person has in their ability to provide valuable knowledge to other people (Kankanhalli et al., 2005). Previous research has also shown that, if a person has strong knowledge self-acknowledgment, they would tend to have self-motivated power for the promotion of KS (Bock and Kim, 2002; Hsu et al., 2007). In terms of knowledge sharing, the action of an individual to either hoard or share knowledge is determined by self-acknowledgment; as noted by Bandura and Locke (2003: 87-99), "*people reflect on their efficacy… form intentions that include plans and strategies for realising them*". For several years, it has been suggested that self-acknowledgment is a primary determinant factor in behavioural control (Bandura, 1977; Hsieh et al., 2008). Within Malaysia, 17 public universities were surveyed by Zawawi et al. (2011) and the conclusion was that lack of organisational rewards was the most important barrier to KS. The next most significant barrier was found to be lack of ICT systems, and there was discovered to be a small negative correlation between knowledge sharing and self-acknowledgment. Moreover, the theory of planned behaviour (TPB) model was employed in a piece of quantitative research undertaken by Tohidinia and Mosakhani (2010), with the findings revealing strong relationships between elements of TPB and KSB; their research showed that factors such as anticipated reciprocal relationship, perceived self-acknowledgment, professional environment, and the levels of usage of communication and information technologies have a positive bearing upon KSB.

Further study has been sought on the enhancement of the positive mood state of social associations; this preceded the research on KSB and provided feedback for improvement to the self-acknowledgment of individuals (Bock and Kim, 2002). It was explained by Bandura (1997) that those beliefs can be considered as determinants of the way people feel, think and behave. Self-acknowledgment was defined by Ormrod (2006) as the belief of a person with regard to their abilities to obtain particular goals or perform in a certain way. The self-acknowledgment concept has been applied to the management of knowledge in order to validate the effect of personal efficacy belief upon KS. Hsu and Chiu (2004) consider that the wish to share knowledge is not enough for the performance of KSB; the producer of knowledge also has to have the perceived abilities for completion. Furthermore, the opportunity to share useful expertise within an organisation can serve to enhance the sense of self-acknowledgment. If there is an increase in knowledge self-acknowledgment, individuals can grow in confidence in what they are able to do

(Constant et al., 1994). If people consider that their expertise can help increase productivity and improve efficiency in the workplace, their attitude to knowledge sharing is likely to change and lead to a greater inclination to engage in knowledge sharing with other people (Jarvenpaa and Staples, 2001; Bock et al., 2005; Kankanhalli et al., 2005; Wasko and Faraj, 2005; Kulkarni et al., 2006; Shin et al., 2008). Furthermore, as noted by Endres et al., (2007), the theory of self-acknowledgment has proved to be one of the better motivators for individuals and it enhances understanding of why there is a tendency for people to share their knowledge. In a way, self-acknowledgment is a form of self-evaluation that has an impact upon decisions over what behaviour ought to be utilised within a particular situation. In general, self-acknowledgment plays a crucial role in the motivation of a person's behaviour (Kankanhalli et al., 2005; Wasko and Faraj, 2005; Hsu et al., 2007).

Another key factor for the fostering of learning is academic self-acknowledgment. Previous research has put forward the suggestion that students that have a good level of academic self-acknowledgment have a tendency towards greater involvement in the processes of learning (Carawayet al., 2003); on the other hand, students with lower levels of academic self-acknowledgment show more indifference within class (Bassi et al., 2007). The motivational function of academic self-acknowledgment could be at work here; the term academic self-acknowledgment refers to a person's confidence in their abilities to accomplish particular academic tasks, and it may have thought of as a force that is motivational (Bandura, et al., 1999). Those academics that experience a greater sense of self-acknowledgment will be motivated to employ further learning strategies and seek to improve their cognitive competency, and will have more likelihood of making an effort and showing persistence when faced with learning challenges (Pajares, 1996; Wright et al., 2013). Thus, greater engagement is shown by the manifestation of behaviours that are required for the attainment of particular academic goals. With a basis in the literature, the hypothesis is put forward that self-acknowledgment have a positive effect on academics' knowledge-sharing intention.

3.6.2 Methods & techniques

In terms of KS, methods & techniques is a key mediating factor. Information technology is an intervention that has undeniable importance as a tool used in the effective implementation of knowledge management (Bhatt, 2001; Kim et al., 2003). However, as Hendricks (1999: 91) suggested, the functioning of ICT as a KS platform is, by itself, not enough for encouraging KS: "*The role of ICT for knowledge sharing can only be fully understood if it is related to the motivation for knowledge sharing...*". Brazelton and Gorry (2003) also noted that technologies may not be able to encourage KS activities effectively by themselves. Kim and Jarvenpaa (2008) considered the relationship that already exists between communicating parties to have importance as a formula for shaping knowledge activities that are enabled by technology. It was suggested by Suneson and Heldal (2010) that there may be a need for understanding of other organisations and their view of technology for the efficient use of complex technology (communication and information) when used jointly by two or more organisations. Impediments to co-operation could come about because of a lack of understanding acting as a knowledge barrier between organisations. Knowledge creation and social development have a reliance upon social development theory with a focus upon participation in social development based on attitudes, knowledge and skills. There is a need for concentration upon the conceptualisation process, implementation and the evaluation of social development with regard to the creation of new knowledge. As noted by Biao (2011), globalisation and technology make knowledge recreation possible in order to reach out to societies with development and skills. Within the field of education, skills, professional identity and knowledge are essential for developing learning processes within working practice for knowledge creation and social development (Grossman and McDonald, 2008). Within academic programmes, technology becomes a knowledge creation mediation for skills development. Socio-cultural perspectives illuminate the emphasis upon learner interventions by contact and the development of dialogues. As such, attention needs to focus upon how learners are made to interact with others in order to enhance their learning as peers within culturally organised activities; with regard to this, learners, as peers, change their relations and perceptions and develop reflections and inter-subjectivity (Mercer, 2002; Naraian, 2011; Maskit

and Firstater, 2016). Based on the relevant literature, the hypothesis is that methods & techniques have a positive effect on academics' knowledge-sharing intention.

3.7 Summary

Azjen's (1991) theory of planned behaviour model has been presented in this chapter within the context of wider literature from the field. A critical study evaluation has clarified that there is a lack of empirical evidence related to KSB within academic environments within developing countries, especially Iraq. As many efforts are being made to reform HEIs and to enhance the performance of universities, there needs to be an emphasis on the importance of KS, especially within a learning environment. Initiatives around KS can potentially aid the HE sector to benefit from academic enhancement and give it a more competitive edge. Evidence has been provided in this chapter from previous empirical studies to show that KSB has been proven to have an effect on the behaviours of academics and, therefore, there is the suggestion that other KSB types could also influence academics. Thus, it was decided that a specific model was to be developed within this research that was based upon TPB for application within the different academic context of the University of Baghdad. The model in question consisted of three constructs: subjective norm (professional environment and self-confidence), perceived behavioural control (methods & techniques and self-acknowledgment), and attitude towards KS (expected rewards, relational connections, apparent mutual benefits and expected mutual relationships). According to the broad literature on the subject, the elements listed are considered to be strong KSB predictors and the model has the aim of providing an examination of the intention towards KSB in the University of Baghdad. Therefore, this study used the following hypotheses which is used to state the relationship between the research independent variables and the dependent variable.

Table 3.2 The research hypotheses

Hypotheses
H1: Relational connections have a positive effect on academics' knowledge-sharing intention
H2: Expected rewards have a positive effect on academics' knowledge-sharing intention
H3: Expected mutual relationships have a positive effect on academics' knowledge-sharing intention
H4: Apparent mutual benefits have a positive effect on academics' knowledge-sharing intention
H5: Self-confidence have a positive effect on academics' knowledge-sharing intention
H6: Professional environment have a positive effect on academics' knowledge-sharing intention
H7: Self-acknowledgment have a positive effect on academics' knowledge-sharing intention
H8: Methods & techniques have a positive effect on academics' knowledge-sharing intention

The above table shows the developed hypotheses from the existing literature which they have already explained in sections 3.4.1-3.6.2. The chapter that follows presents the research methodology and the methods applied within this research.

Chapter 4: Research methodology and methods

4.1 Introduction

For several decades, philosophers have been discussing the important research issues of the relationship between theory and data. There is a heavy reliance on philosophical considerations of factors that affect general preparations within the concept of research design; indeed, research quality can be seriously affected by a failure to have such considerations (Easterby-Smith et al., 2012). This chapter, then, aims to consider the methodologies employed as a basis for the way the research was to be conducted. In addition, the chapter examines the philosophies that lie behind, and give satisfactory support to, the study results.

Many useful reasons have been gathered to explain the value of understanding the philosophical issues within research, and this chapter takes a look at three of these important issues. Firstly, such an understanding helps in clarification of the research design through the gathering and interpretation of the evidence needed in order for an appropriate answer to be given to the research questions. Secondly, a sound understanding of research philosophy helps the researcher to appreciate the limits of certain research approaches and to avoid wasting time taking the study down too many different routes. Philosophy knowledge can help the researcher to identify a design that fits their specific research aims and objectives well. Thirdly, awareness of research philosophy helps the researcher in identification or creation of new designs that have not been considered previously (Easterby-Smith et al., 2012).

Other points of view are brought forward within philosophical argument within the social sciences and it is very important that both sides of an argument are understood so that the right research design can be chosen for the research problem in question; a more balanced view is reached when the researcher considers more than one outlook on an issue.

This chapter, then, discusses the research approach taken, the research design chosen and the rationale behind the adoption of particular research methods; this way, there is justification for the methods chosen to tie in with the study purpose. The nature of the existence (ontology) and reality of a particular phenomenon has an effect upon ways in which knowledge production is carried out

in respect to the phenomenon (epistemology) and this, in turn, has an effect upon the manner in which the research proceeds. Therefore, the influences upon research are considerations that are ontological, epistemological, theoretical, value-based, and practical (Bryman and Bell, 2007). Thus, for this study, an appropriate methodology was chosen that considered the assumptions in ontological and epistemological terms, and that increased research quality and supported researcher creativity.

4.2 Reviewing research study objectives

Justified that the research philosophy and methodological choices can be put into perspective, it is helpful to revisit the research aims and objectives. The choice of methodology and methods ought to be tailored to the nature of the problem and the objectives of the research. The principal aim of this study is to determine the effective ways of motivating academics at the University of Baghdad to perform KSB. Thus, in order that the research aim can be achieved, a number of research objectives were set, as follows:

a) To apply and validate attitude toward knowledge sharing as a measurement of knowledge sharing behaviour within academics at the University of Baghdad

b) To apply and validate subjective norm as a measurement of knowledge sharing behaviour within academics at the University of Baghdad

c) To apply and validate perceived behavioural control as a measurement of knowledge sharing behaviour within academics at the University of Baghdad

d) To develop and test a conceptual framework that portrays the critical factors that affect the KSB of academics in the University of Baghdad.

e) To propose practical recommendations to nurture KSB amongst academics in the University of Baghdad.

4.3 Defining research

According to Mertens (2005), research can be considered as an investigative process that is systematic and that can be used for increasing or revising current knowledge through the discovery

of new facts. The term research includes any type of gathering of information, data and/or facts for the purpose of advancing knowledge, with a basis in methodological processes of collection and analysis of information, for the enhancement of understanding in relation to the phenomenon being investigated. As noted by Sekaran (1992), research can be divided into two main categories: i) basic research that is inquiry with the aim of increasing scientific knowledge, ii) applied research efforts with the aim of employing basic research for finding the solution to problems or for the development of new techniques, products or processes.

For the purposes of this research, the study is an investigation that seeks knowledge, and the research is a process by which existing knowledge is used as a foundation for further new knowledge expansion that bridges a current gap in understanding. Consequently, this study has the aim of identifying and evaluating good practice in the field of knowledge-sharing behaviour in order to gain understanding of ways to successfully knowledge share within the University of Baghdad.

4.4 Research methodology and research methods

Interpretations of the terms 'research methods' and 'research methodology' are often confused as writers have used them interchangeably in their works (Saunders et al., 2009). A main difference between the terms is that research methods are the instruments/tools by which a researcher collects data related to a topic or phenomenon, such as a focus group, interviews or questionnaires. The methodology, on the other hand, relates to the system of methods used in a study and relates to the philosophical assumptions that underlie the process of research. Numerous authors have made the distinction between them through the use of the former to indicate the selection of procedures and instruments by a researcher for obtaining data and its analysis, and the latter to describe the general way in which a study should be carried out (Saunders et al., 2009). Likewise, Easterby-Smith et al. (2012: 18) made the distinction between the two by describing methodology as "*a combination of techniques used to inquire into a specific situation*" while methods were described as "*individual techniques for data collection, analysis, etc*". As such, the researcher has to have an understanding of research methodologies and methods in order for an appropriate research study

strategy to be identified. As Creswell (2009) notes, the strategy behind a piece of research is its overall direction including the process by which it is conducted. Several fundamental elements influence the selection of an appropriate strategy, such as the nature of the research problem, the nature and type of the objectives of the research, and the data needed (Yin, 2009).

4.5 Ontology and epistemology

The terms ontology and epistemology can be considered as relating to knowledge theory and the view of reality that underpins the theoretical perspective taken in a piece of research and its methodology. Ontology refers to the reality that researchers are investigating, whilst epistemology refers to the relationship between that reality and the researcher; the particular set of techniques that a researcher uses to investigate the reality in question is considered to be the methodology (Torchim, 2006). Hanson et al. (2005) stated that ontology within the social sciences refers to those primary principles that individuals hold about the nature of the research issue. The authors considered that ontology relates to the researcher's belief in predicting the operation of social behaviour in a way that is similar to that of the natural world, arguing that the term refers to the belief of a researcher about whether society is inanimate or a living thing. By such thinking, then, social behaviour can be considered as being potentially shaped by the degree of social structure, rather than by personal social actors. Therefore, in highlighting the answers to such research matters, the beliefs that the researcher is following in making a social world study are framed (Johnson et al., 2007).

Morse (2010) views the term 'epistemology' as relating to the type of proof and its level. If something is to be accepted as being true, a high level of evidence is required; proof could possibly relate to trust, personal experience, logic, faith and empirical evidence. Creswell and Clark, (2011) have indicated that the term epistemology refers to the part of philosophy that unearths the answers to questions such as 'How does a researcher acquire the sought-after knowledge?' and 'What does it mean to know?' (Table 4.1).

Table 4.1 Branches of philosophy

Branches of philosophy	Definition
Ontology	The study of the nature of being, reality or existence
Epistemology	The study of the nature of knowledge and what constitutes acceptable knowledge within a particular field of study

Source: Saunders et al. (2009)

According to Hoverman et al. (2008), there are four knowledge-source types. Firstly, there is intuitive knowledge that, within an argument that is epistemological, has its basis upon the feelings of the individual, such as belief and faith, rather than upon facts (Brown, 2017). Secondly, there is authoritative knowledge, the weaknesses or strengths of which depend upon source quality. Thirdly, logical knowledge is that which is based upon the notion that new knowledge can be constituted from a connection between two points of reference; reasoning progressively away from one particular point to another (Trappey et al., 2014). The fourth type, presented by Feilzer (2010), is empirical knowledge based on the demonstration of facts using various different methods, such as by observation and experimentation. When undertaking sociological endeavours, the methodology relates to the methods by which reasonable knowledge of the social world is obtained by the defining of reliable and valid knowledge that is replicable and consistent and that can be considered representative of the population sample within the positivist, quantitative world (Galbraith, 2010). The term validity relates to the measurement extent and the degree to which it can be considered accurate; expressed another way, the concern is whether the measurement is able to measure what it is supposed to be measuring (Fiegen, 2010). Therefore, a reasonable sociological methodology has to have both validity and reliability. In general, the ontology establishes the epistemology, and the epistemology determines the sociological methodology; once the sociological methodology is decided upon, the research methods for data collection can then be determined. As noted by Feehan and Salganik, (2016), different sociological concepts often relate to one another in a manner that offers various ideas for the study of social science.

4.6 Research philosophy

Discussion related to the general research notions are termed 'research philosophy'; Saunders et al. (2009) defined the term as being the belief that the researcher has about the development of knowledge that influences the way in which a piece of research is undertaken. Thus, to have sound knowledge of the philosophy behind a piece of research is important for determination of an appropriate design in keeping with the nature of the research in question; it helps in the answering of the research questions and helps to avoid ambiguity and confusion (Easterby-Smith et al., 2012). According to Collis and Hussey (2009), the term 'philosophy' can be thought of as an alternative to the term 'paradigm'. Bryman and Bell (2007) highlighted that a paradigm is a basic system of belief or worldview that acts as guidance to investigation. For Crotty (1998), the terms philosophy or worldview refers to beliefs and attitudes with regard to knowledge. Whilst there is no straight distinction between worldview and paradigm, Denicolo and Becker (2012) considered that a paradigm was a basic set of assumptions and beliefs, whilst a worldview acts to underpin subject theories and methodologies and, therefore, acts to guide action. Understanding the research paradigm helps the researcher to more clearly determine the design strategy that would be appropriate for answering the questions that were raised, and helps in identification of key study components, such as the approaches to be used, and the appropriate methods for data collection and analysis. Consequently, understanding research philosophy enriches the hold that a researcher has upon scientific knowledge and enables him or her to apply this within their field of study so that research accuracy can be improved (Saunders et al., 2007). In addition, literature in relation to methodologies shows that numerous authors make the distinction between two key philosophical schools of thought – positivism and phenomenology (Collis and Hussey, 2009; Saunders et al., 2009; Easterby-Smith et al., 2012). The first of these, positivism, is also known by the labels of quantitative, scientific, experimentalist, objectivist and traditionalist. The second, phenomenology, is also known by the labels of interpretivist, subjectivist, qualitative and humanistic. Table 4.2 below characterises the differences between the two research approaches.

Table 4.2 Differences between positivist and interpretive research approaches

Metatheoretical assumptions concerned with…	Positivism	Interpretivism
Ontology	The person (researcher) and reality are separate.	The person (researcher) and reality are inseparable (life-world).
Epistemology	Objective reality exists beyond the human mind.	Knowledge of the world is intentionally constituted through a person's lived experience.
Research object	The research object has inherent qualities that exist independently of the researcher.	The research object is interpreted in light of the meaning structure of a person's (researcher's) lived experience.
Method	Statistics, content analysis.	Hermeneutics, phenomenology, etc.
Theory of truth	Correspondence theory of truth: one-to-one mapping between research statements and reality.	Truth as intentional fulfilment: interpretations of research object match lived experience of object.
Validity	Certainty: data truly measures reality.	Defensible knowledge claims.
Reliability	Replicability: research results can be reproduced.	Interpretive awareness: researchers recognise and address implications of their subjectivity.

Source: Cepeda and Martin (2005)

The study purpose for this research was to have both a positivist and interpretivist approach; however, as the study progressed, it became clear to the researcher that it was better to concentrate upon positivism. As there are these two main research philosophies or paradigms within the mainstream literature, the choice of which to adopt within a piece of research has several implications (see Table 4.3).

Table 4.3 Implications of the philosophies of positivism and interpretivism

	Positivism	Interpretivism
The observer	Must be independent	Is part of what is being observed
Human interests	Should be irrelevant	Are the main drivers of science
Explanation	Must demonstrate causality	Aim to increase general understanding of the situation
Research progresses through	Hypotheses and deductions	Gathering rich data from which ideas are induced
Concepts	Need to be operationalised so that they can be measured	Should incorporate stakeholder perspectives
Units of analysis	Should be reduced to simplest terms	May include the complexity of whole situations
Generalisation through	Statistical probability	Theoretical abstraction
Sampling requires	Large numbers selected randomly	Small numbers of cases chosen for specific reasons

Source: Easterby-Smith et al. (2008: 59)

The two main research philosophies within the field of management research are discussed in the sub-sections below in more detail. In addition, there is explanation and justification for the decisions made with regard to the methodologies adopted within this research study.

4.6.1 Positivism

A positivist philosophy has the same position as naturalism, and is most often employed for study of observable social realities. Moreover, Creswell (2003) noted that studies that are positivist have final outcomes similar to the study results from physical and natural research in that the results or findings can be taken forward and made into generalisations that are 'law-like'. By using an empirical study, a positivist paradigm aims at shaping theory, with assumptions being developed by the researcher with regard to the correlation between at least two variables through use of literature and/or research studies (Remenyi et al., 1998). Empirical means are then used to seek out significant relationships amongst variables, with the gathered data subjected to statistical testing. As such, within a positivistic paradigm, the basic perspective adopted is one where the scientific method is considered consistent across all knowledge fields; the method works as a

foundation for scientific unity. The tendency with positivists is to identify the causes of social phenomena and to look for facts, without having regard for subjective states of individuals (Mangan et al., 2004). Saunders et al. (2007) argued that positivist philosophy relates to an observed social reality and the end product of law-like generalisations, as with the physical and natural sciences. Later, Saunders et al. (2009) noted that the positivist researcher has the main aim of generalising findings for a wider population. Thus, when research reflects a positivist philosophy, traditional scientific methods of natural science are adopted for studying social reality; as such, there can be development of knowledge through the use of suitable research approaches, research methods and analysis procedures (Bryman and Bell, 2007). Positivism has, fundamentally, a basis in the belief that it is possible to measure everything and that the researcher of a study is a detached outsider. Often, however, the collection of numbers and statistics does not sufficiently address, and provide understanding of, experience, beliefs and meanings; these are understood better by collecting qualitative data. Assessment of knowledge sharing within Iraqi HEIs may be quantified by means of interpretivism, positivism or a combination of both.

4.6.2 Interpretivism

A distinction has been made within interpretivist philosophy between the social and natural worlds. Denzin and Lincoln (2008: 222) considered that "*an interpretivism believes that to understand this meaning of the world one must interpret it*". As was made clear by Bryman and Bell (2007), the avocation of an interpretivist position by researchers involves the application of various study methods for investigating the social world so that its reality can be understood and explained. By interpretivist philosophy, the world can be highlighted as socially constructed and subjective, and the observer is considered as being a part of the reality being observed. A consciousness that is interpretivist is interested in all kinds of experiences and events and looks to find an answer for the questions of 'how?', 'why?' and 'what?'. Thus, interpretivist approaches investigate the nature of social phenomena as their own entities (Saunders et al., 2007; Collis and Hussey, 2009). Easterby-Smith et al. (2002) stressed that interpretivism (social constructionist or phenomenological) philosophy has importance for business and management research. The importance of understanding the emerging literature; used by the interpretivist researcher with

their study of problems in real life, has been stressed by Remenyi et al. (1998). Instead of having a reductionist quality, an interpretivist research philosophy has holism and permits complex situations to be thoroughly examined. The interpretivist philosophy has the aim of focusing on the context of a study in reference to a qualitative research paradigm that seeks to highlight the subjective experiences of those people being studied (Denscombe, 2014; Rubin and Babbie, 2009). An element of the context of the research study, then, is the nature of the research being conducted and the characteristics of the research setting. Interpretivist approaches can achieve approximately the same type of results as those gathered by researchers adopting a positivist philosophy (Remenyi et al., 1998). The conclusion could be that an interpretivist philosophy has an epistemological position that provides support for the notion that a researcher must understand the differences of the roles being played by humans in being social actors. Collis and Hussey (2003) summarised the alternative terms for the research philosophies, as shown in Table 4.4.

Table 4.4 Summary of alternative terms for research philosophies

Positivist philosophy	Interpretivist philosophy
Quantitative	Qualitative
Objective	Subjective
Scientific	Humanistic
Experimentalist	Interpretivist
Traditionalist	--

Source: Collis and Hussy (2003: 58)

It is considered that research philosophies have fundamental assumptions with implications for how a research study should be conducted (Creswell, 2005). The advantages and disadvantages of both of the philosophies, based on the work of Saunders et al. (2016), are shown in Table 4.5 below.

Table 4.5 Advantages and disadvantages of positivism and interpretivism

	Positivism	Interpretivism
Advantages	Economical collection of large amount of data. Clear theoretical focus for the research at the outset. Greater opportunity for researcher to retain control of research process. Easily comparable data	Facilitates understanding of how and why. Enables a researcher to be alive to changes that occur during the research process. Good at understanding social processes.
Disadvantages	Inflexible - direction often cannot be changed once data collection has started. Weak at understanding social process. Often does not discover the meaning people attach to social phenomena	Data collection can be time consuming. Data analysis is difficult. Researcher has to live with the uncertainty. Patterns may not emerge. Generally perceived as less credible by non-researchers.

Source: Saunders et al. (2007: 74)

To conclude, a positivist would see that truth has a concrete existence that has independence separate from the observer. Interpretivist approaches, on the other hand, have the belief that the observer shapes or influences the truth, and that reality is a relative concept and is not separate from the observer. Additionally, positivist approaches rely on experimentation and empirical data to act as evidence for discovery of the truth, whilst interpretivist approaches rely on the meaning that is acquired from qualitative data gathered from subjective observation and interviews, so that a perceived truth can be described. It was stressed by Easterby-Smith et al. (2012) that, by and large, a contentiousness remains between researchers over which philosophy is the most suitable one for a study in a particular circumstance; clearly, it is important that the weaknesses and strengths of different paradigms within different research situations are understood prior to embarking on data collection for a study. The strengths and weaknesses of the quantitative and qualitative research philosophies are illustrated in Table 4.6.

Table 4.6 Strengths and weaknesses of research philosophies

Philosophy	Strength	Weakness
Positivism	May provide broad coverage of the range of a situation. Can be economical and fast. Where statistics are aggregated from large samples, they can be of considerable relevance to policy decisions.	Methods employed tend to be rather artificial and inflexible. Not very effective for understanding processes or the significance that people attach to actions. Not very helpful in generating theories. In having a focus on what is, or what has been recently, positivist approaches make it hard for policy makers to infer what actions and changes ought to take place in the future.
Interpretivism	Data-gathering methods seen as natural rather than artificial. Ability to look at change processes overtime. Ability to understand people's meaning. Ability to adjust to new issues and ideas as they emerge. Contribute to theory generation.	Collection can be tedious and require more resources. Analysis and interpretation of data may be more difficult. Harder to control the pace, progress and end-points of research process. Policy makers may give low credibility to results emerging from a qualitative approach.

Source: Amaratunga et al. (2002: 20)

In assessing the two approaches to research, it ought to be noted that they are not diametrically opposed; for an informed decision over their use, it is better to understand the assumptions that underlie them. Collis and Hussey (2009) compared the underlying assumptions for the paradigms using the following headings: ontology, epistemology, axiology, rhetoric and methodology; based on their work, the perspectives are summarised in Table 4.7. An understanding of philosophical features and assumptions can lead to enhanced decision making with regard to research methods.

Table 4.7 Assumptions of the two main research philosophies

Assumption	Questions	Quantitative	Qualitative
Ontological	What is the nature of reality?	Reality is objective and singular, apart from the researcher	Reality is subjective and multiple as seen by participants in a study
Epistemological	What is the relationship of the researcher to that being researched?	Researcher is independent from that being researched	Researcher interacts with that being researched
Axiological	What is the role of values?	Value-free and unbiased	Value-laden and biased
Methodological	What is the process of research?	Deductive process Cause and effect Static design categories isolated before study Context-free Generalisations leading to prediction, explanation and understanding Accurate and reliable through validity and reliability	Inductive process Mutual simultaneous shaping of factors Context-bound Emerging design categories identified during research process Patterns, theories developed for understanding Accurate and reliable through verification

Source: Collis and Hussey (2009: 58)

Often interpretivist and positivist approaches are combined in management and business research, perhaps as a reflection of a realistic viewpoint (Saunders et al., 2009). Thus, if a realistic approach is taken to the study of human beings (as with this research), there is a recognition of the importance of having an understanding of the socially constructed interpretations and meanings that people have, i.e. their reality in subjective terms. The importance of having such a realistic appreciation is key to understanding the social forces and processes and wider societal structures that impact upon, and perhaps constrain, the behaviour of people and their view of nature (Saunders et al., 2009).

4.6.3 Realism

The term realism is an umbrella term for a variety of realisms; the traditional perspective being one with an emphasis on seeing the world as external and concrete, with science progressing only through observations being made that directly correspond with the phenomenon under

investigation (Easterby-Smith et al., 2012). In recent decades, this stance has experienced modification as science philosophers note the differences between the laws of nature and physics, and the theoretical knowledge that scientists have about such laws.

4.6.4 Pragmatism

Based on the work of Dewey (1916), pragmatic philosophy is frequently seen as having a compromised position between an internal realism and a relativism (a variant of realistic philosophy). There is no acceptance of pre-determined frameworks or truth and knowledge shaping theories with a pragmatic approach; it is considered that people cannot make their own truths from nothing. The significant viewpoint is that structures of meaning have to hail from individual lived experience. Pragmatic perspectives have value in management research as they focus on particularly relevant processes to the study of learning and knowledge. Indeed, their impact can be seen within the methods and tradition of grounded theory.

4.6.5 Justification for the research philosophy chosen for this study

The research philosophy adopted by this researcher has within it a number of significant assumptions about how the world is perceived, and the strategy and methods of the research aim to underpin those assumptions. The adoption of a philosophy is, in part, influenced by practical matters; however, the key influence is likely to be the relationship between knowledge and its development process (Saunders et al., 2007). Thus, in understanding such matters, there is great importance in considering the type of evidence needed, and the manner in which data collection and interpretation is to be conducted, in order to be confident that adequate answers are gleaned during the research process to address the relevant research questions (Easterby-Smith et al., 2012). In many circumstances, there may be various types of data required (Gilbert, 2008). Indeed, as Collis and Hussey (2009) noted, it is better to see the research paradigms as being on a continuum, with neither being automatically the best. Amongst researchers there is considerable debate over deciding upon a suitable research philosophy and many consider that no one type is better; the choice depends upon the achievement of the research objectives and the particular strengths of philosophies within a particular research setting (Saunders et al., 2007). A researcher

can more easily make a decision about the research position if he or she knows the weaknesses and strengths of the research paradigms. Given the nature of this study and its research objectives, and given the arguments outlined above, there is justification for suggesting a positivist philosophy underpins this study instead of an interpretivist one. Taking a positivist philosophy, it is important that the researcher remains independent and detached from the study participants so that, they are free to give as honest an opinion as possible, to help in reaching the research objectives; as such, as far as is possible under the circumstances, value-free and impersonal data was collected with regard to knowledge sharing and knowledge-sharing behaviour at the University of Baghdad.

Initially, there was the intention to adopt mixed methods approach for the research, i.e. both quantitative and qualitative; however, given the nature of the problem being researched, the belief in an objective reality and the established research objectives, it was decided to adopt a positivist approach.

The paradigm in the study is, in the main, positivist as the research looks for numerical evidence as a basis for factual information. The focus on the identification of a correlation or causal connection between the KS and KSB variables led to the choice of a quantitative, positivist approach using a survey. The research also aims at an explanation for how factors may relate to each other and/or why they are happening. Thus, this research has the aim of gauging the perceptions of academic staff towards activities of knowledge sharing, and assessing their initiatives in relation to KSB. Lastly, the research aims to make recommendations for a framework of KSB that would be suitable for the University of Baghdad.

As well as interpretivism and positivism, there are several alternative positions that researchers could choose; a brief discussion of these follows below.

4.7 Research strategy

The strategy of a piece of research is the researcher's overall plan of how they aim to answer the question within the study; it can be seen as the procedure for achieving a specific, intermediary

research objective through use of, for example, sampling and data collection and analysis (Saunders et al., 2009). Yin (2003) defined a research strategy as a logical plan that acts to guide a piece of research in the answering of an initial question set, and leads towards the creation of conclusions in respect to these research questions. Furthermore, Creswell (2009) refers to the research strategy as being an inclusive plan, followed by the researcher, for the satisfaction of research aims and objectives and the answering of the research questions. Each design can be used for research that is exploratory, explanatory or descriptive; it is, however, an oversimplification to attribute strategies to one approach or another (Saunders et al., 2009). Several authors have, given its importance at the early stages of a piece of research, brought attention to consideration of the various different aspects of research design. A general plan should be designed so that the study relates in empirical terms to the research problem in theoretical terms; as such, there are significant implications for the whole research process based on the research strategy that is selected (Easterby-Smith et al., 2012; Collis and Hussey, 2009; Creswell, 2009). A research strategy should indicate the objectives of the research, noting what requirements there are for the collection of data, the resources needed, and an estimation of the research limitations, along with an expression of how the particular strategy chosen was, indeed, chosen (Creswell, 2009). There needs to be a focus upon the adoption of strategies that suit the specific research question and the research objectives, without them having mutual exclusivity. Research methods for management and business have been arranged into five types of research strategy by Yin (2009), as shown in Table 4.8 below.

Table 4.8 Relevant situations for different research strategies

Strategy	Form of research question	Requires control over behavioural events?	Focuses on contemporary events?
Experiment	How, why	Yes	Yes
Survey	Who, what, where, how many, how much	No	Yes
Archival analysis	Who, what, where, how many, how much	No	Yes/No
History	How, why	No	No
Case study	How, why	No	Yes

Source: Adapted from Yin (2009: 8)

Research can be classified, based upon its purpose, as either exploratory, explanatory, analytical or descriptive (Collis and Hussey, 2009). The three research purposes of this study, used within each strategy, are explanatory, exploratory or descriptive (Yin, 2003).

4.7.1 Descriptive research

When employing a descriptive research strategy, there should be a sound structure and a good understanding of the research problem (Ghauri and Gronhaug, 2002). It has been claimed that the reason for using a descriptive type of research is the provision of a description of the phenomena in question in order to draw a picture or report on an organisation, an industry, an individual, or other perceptions; the tendency is for the researcher to try and discover an answer to the question 'What is going?' (De Vaus, 2001; Sekaran, 2003). It has also been argued that descriptive research is useful in discovering the characteristics of a tough problem and gaining knowledge of it (Collis and Hussey, 2009); often, the collected data is quantitative in nature and it is usual for the information to be summarised by quantitative means and statistics.

4.7.2 Exploratory research

Research that is considered exploratory is that where circumstances mean the availability of relevant information is low or even where there is not enough information in relation to how similar types of research problem have been addressed before (Zikmund et al., 2010). It has been noted by Collis and Hussey (2009) that case studies, historical analyses and observation, which all draw upon quantitative and qualitative data, have often been employed within exploratory studies. Zikmund et al. (2010) highlighted three exploratory research purpose, namely: the diagnosis of a situation, the discovery of new ideas and the screening of alternatives.

4.7.3 Explanatory research

Research that is explanatory is employed in studying associations between variables and making them clear (Saunders et al., 2007). Statistical test results from data collection determine whether

or not a relationship exists between variables (Jansen, 2015). It has been established that there are seven different types of research design or strategy in total, i.e. survey, experiment, action, case study, analysis of archival records, grounded theory and ethnography (Yin, 2003; Saunders et al., 2007).

4.7.4 Justification for selection of descriptive research

On the basis of the above discussion, this current research study is considered to be a descriptive one in its attempt to investigate the challenges for KS within universities in Iraq. Description of all types of roles, relationships and events can be performed through the use of this type of strategy, and at the level of the individual, the social group or the community (Robson, 2002). According to the main aim of the study, this study is considered as descriptive and in accordance with the research objectives. Descriptive research has the aim of providing explanation of study participant characteristics and giving estimation of unit percentages of a specific population that exhibits a particular kind of behaviour; the aim is to systematically describe attitudes, a problem or a situation (Robson, 2002; Vaismoradi et al., 2013). Since exploratory research projects use pilot studies to explore circumstances where there is a dearth of previous research, this study used a pilot study for enhancement of the reliability of the research. Exploratory research has the purpose of developing preliminary ideas prior to research question investigation (Neuman, 2000; Vaismoradi et al., 2013). There is the objective with exploratory research of undertaking investigation into the processes of meaning, experience and associated problems in relationship to specific situations, as well as the discovery of new ideas (Ghauri and Gronhaug, 2002; Zikmund et al., 2010). For this current study, it was considered necessary to have a method that was quantitative. As mentioned above, a key study aim is to determine the effective ways of motivating academics of the University of Baghdad to perform knowledge-sharing behaviour (KSB). The combination of research techniques can help in the provision of more robust and rich findings. There are, however, several reasons why quantitative research has been employed in this study. Firstly, since the research is a comparative study, it is easier to compare quantitative data. Secondly, with data that is objective, there is avoidance of ambiguity in collecting the data. Thirdly, it is easier to analyse large amounts of quantitative data than similarly large volumes of

qualitative data. The research target population is comprised of academic staff, lecturers, and senior lecturers at the University of Baghdad. Various sampling methods were undertaken during the quantitative research phase. Some research methods would not be able to handle an examination of the whole population; however, random sampling was appropriate; sampling is potentially quick and efficient when constraints and resourcing issues foreclose the possibility of examination of an entire population. Moreover, in some instances, overall higher accuracy can hail from sampling rather than examination of all of a population (Cohen et al., 2013; Bryman, 2008). The university has a relatively large number of staff and for a survey to be comprehensive it would require a great deal of time and resources. As such, it was considered that a wide insight could be gleaned more easily through the selection of a range of staff profiles.

4.8 Research approaches

The selection of a research methodology is primarily dependent upon certain particular circumstances, such as the study topic, the research aims and objectives, and the discoveries from the literature review (Saunders et al., 2009). Similarly, the research approach taken is dependent upon the questions in the research and its aims and objectives. The suitability of the research approach selected, then, depends upon its relevance to the study context and setting, whether the researcher follows either an inductive research approach or a deductive one; in gaining new knowledge within the field of business research, those two are the main approaches that researchers take (Saunders et al., 2009; Harrits, 2011). The deductive approach involves the development of an existing theory, and precise, investigative testing of the observations that have been made, followed by generalisation or the application of the theory to particular contexts or settings (Punch, 2013). On the other hand, an inductive research approach is concerned with the generation or building up of new theory and therefore involves commencing from precise observation of specific issues leading to conclusions that generalise in relation to the particular phenomenon under examination (Saunders et al., 2009). Teddlie and Tashakkori (2009) note a third possible research approach, the abductive approach. With a starting point in the literature, an abductive approach uses deduction from current theory and involves the researcher developing expectations and a hypothesis related to beliefs over what is likely to be observed, whilst at the same time using

observations from the evidence that is gathered in order to develop interpretations. This current research aims at an exploration of the challenges faced by academics in their sharing of knowledge at the University of Baghdad in Iraq by unearthing answers related to previously established theories through use of a supporting research design that is deductive. The study does not aim for generation of new theory; rather, the researcher aims to achieve the research aims and objectives, and to answer the research question, by following a deductive approach.

4.8.1 Inductive and deductive approaches

It is important to consider the research approach to be followed so that any theories behind the design of the research are clear and explicit to the reader. The researcher is able to make more informed decisions, seek identification of what approaches are appropriate and adopt a design that copes with the constraints for the research context. Deduction and induction offer two different approaches to theory building that helps business phenomena to be understood, explained and predicted (Sekaran, 2003). An inductive research approach uses a data observation process in generating theory (Ghauri and Gronhaug, 2002). Rubin and Babbie (2009: 39) concluded that, in influencing the process of research, either the inductive or deductive research approach can be employed for theorising:

> ''*An inductive approach is a research process based on inductive logic, in which the researcher begins with observations, seeks patterns in those observations, and generates tentative conclusions from those patterns. A deductive approach is a research process based on deductive logic, in which the research begins with a theory, then derives hypotheses, and ultimately collects observations to test the hypotheses*''.

In contrast, the deductive approach involves the gathering of facts in order to confirm or reject relationships between variables that have been hypothesised following deduction from knowledge that already exists. Deductive research, then, starts with theories and concepts that already exist and hypotheses are then formulated and tested through use of empirical data. Inductive research, on the other hand, starts from the collection of empirical data from which models, theories and concepts are later derived (Darabi, 2014). Inductive theory has also been

called building theory and it permits a researcher to obtain a better understanding of the nature of a particular phenomenon being studied by data collection and analysis.

Saunders et al. (2009) suggested a combination of inductive and deductive research approaches could be advantageous. However, this research employs a deductive approach for the theoretical framework and the aims of the research. The reason for choosing this approach is due to an abundance of sources in the literature and to avoid the risk of shortage of time that the researcher may face in completing the research study. Table 4.9 shows the main differences between the two different research approaches.

Table 4.9 Key differences between deductive and inductive approaches

Deductive approach	Inductive approach
Scientific principles	Gaining an understanding of the meaning humans attach to events
Moving from theory to data	A close understanding of the research context
The need for explanation of the causal relationship among variables	Qualitative data collection
Quantitative data collection	A more flexible structure to permit changes of research emphasis as research processes
The application of controls to ensure data validity	A realisation that the researcher is part of the research process
The operationalisation of concepts to ensure definition clarity	Less concern with the need to generalise
A highly-structured approach	
The independence of the researcher from what is being researched	
The necessity to select samples of sufficient size in order to generate a conclusion	

Source: Saunders et al. (2009: 127)

4.9 Quantitative and qualitative

There are two primary research approaches for determining data, i.e. qualitative and quantitative (Bryman and Bell, 2007; Patton, 2015). Qualitative data is that where there is no quantification and the data is non-numeric and can only be used in suitable research strategies. Quantitative data,

on the other hand, can be used in all types of research strategy, and is that where numerical or quantified data has been collected (Saunders et al., 2007). According to Creswell (2009), researchers can be considered as having a choice between three types of research approach, i.e. qualitative, quantitative and mixed methods approaches. For Hartas (2015), quantitative research is normally founded on an objectivist convention, with observations of an external reality acting as the basis for understanding. As Ragin (1994) noted, a quantitative approach can be considered as more scientific than research conducted through qualitative means. Creswell (2009) and Saunders et al. (2009) proposed numerous criteria when deciding upon an appropriate research approach to use; the most significant of these are listed below:

a) **The research topic**. If there is plenty of relevant literature to help a researcher develop hypotheses and a theoretical framework, then it may be appropriate to adopt a deductive/quantitative approach. When there is little relevant literature in existence, then adoption of an inductive/qualitative approach may be more suitable.

b) **The available time for conducting the research**. Adoption of a quantitative research approach may be a strategy with lower risk involved, as qualitative research tends to be take much longer.

c) **Respondent preferences.**

Table 4.10 shows the differences between qualitative and quantitative approaches, based on the work of Ary et al. (2010).

Table 4.10 Distinction between quantitative and qualitative approaches

	Quantitative approach	Qualitative approach
Purpose	Study relationship, cause and effect	Examine a phenomenon as it is, has rich detail
Design	Developed previous study	Flexible, evolves during study
Approach	Deductive: Tests theory	Inductive: May generate theory
Tools	Preselected instruments	The researcher is primary data collection tool
Sample	Large samples	Small samples
Analysis	Statistical analysis of numeric data	Narrative description and interpretation

Source: Ary et al. (2010: 25)

4.9.1 Advantages and disadvantages of quantitative methods

Employing a quantitative approach may offer certain advantages for a researcher. Muijs (2011), for example, highlighted that, with its regard for data aggregation, a quantitative approach has fixed classifications that are accepted, and with most assigned values being numerical, generalised statements can be built by the researcher. For Robson (2002), researcher influence upon the phenomenon in question is eliminated or challenged by a quantitative approach. Patton (2002) has indicated that the quantitative approach facilitates measurement of responses from a few questions and allows data to be easily collected and compared. Patton (2002) also emphasised that the collection and comparison of data is simplified for the gathering of large amounts of data from many of respondents when using a quantitative approach. The following advantages of quantitative approaches have also been suggested Johnson and Onwuegbuzie (2004):

i) Research hypotheses can be built and tested;

ii) Research findings can be generalised;

iii) Quantitative predictions can be obtained;

iv)Employment of quantitative tools helps the researcher to collect data more quickly;

v) The analysis of the data is less time consuming than when using qualitative approaches.

With regard to its disadvantages, Robson (2002) highlighted quantitative approach was considered as having several disadvantages that act to limit research by Robson (2002: 23) in stating: "*first by directing research to what is perceived by the senses; and second by employing only standardized tools, based on quantifiable data, to test hypotheses*". Furthermore, it was argued by Onwuegbuzie and Leech (2005) that a focus on research hypothesis testing, rather than research hypothesis generalisation, may lead to researchers failing to acquire a more fulsome appreciation of the phenomena in question.

4.9.2 Advantages and disadvantages of qualitative methods

Qualitative research methods tend to stress the use of inductive approaches with a focus upon the generation of theories (Bryman and Bell, 2003). In part, the qualitative method involves examining and reflecting upon research participant perceptions in order to gain an appreciation of the rationale behind workplace activities (Easterby-Smith et al., 2008); qualitative methods are often considered suitable for exploratory inductive research (Easterby-Smith et al, 2008). Qualitative methods can also help when the researcher has the intention of providing a description of phenomena that are complex and limited, or even help a researcher grasp a phenomenon that, prior to investigation, is barely understood by anyone (Johnson and Onwuegbuzie, 2004; Easterby-Smith et al., 2008). There are disadvantages, however; for instance, the researcher's perception of a situation whilst in the process of data collection and interpretation has an influence on the results. For Easterby-Smith (2008), qualitative research is limited to developing an understanding of individual attitudes and behaviours and observation. Furthermore, qualitative research has been criticised as it primarily involves personal contact and is overly subjective and, as such, the outcomes require trust in the absence of thorough testing (Flick, 2007; Patton, 2015).

Bergman (2008) made the suggestion that employing a mixed methods approach can overcome the weaknesses of using just one or the other. The discussion above shows the common reasons for using positivist and interpretivist approaches within research on management. For this study, however, the research philosophy has been linked to the research objectives and selected based upon previous KS and KSB studies that used an approach that was mono-method; therefore, in order to achieve the research purposes, this research adopts a mono-method approach.

However, given the Iraqi regional context, and because of cultural barriers, participants may have been reluctant to participate in a qualitative study, and so a quantitative approach was considered as being more helpful in reaching such participants.

4.9.3 Mixed methods approach

Johnson and Onwuegbuzie (2004: 17) define the mixed methods research approach as: "*the class of research where the researcher mixes or combines quantitative or qualitative research techniques, methods, approaches, concepts or language into a single study*". If both quantitative and qualitative research methods are employed in the collection of data, the method is called triangulation (Easterby-Smith et al., 2009). Triangulation has been defined by Denzin (1978: 291) as: "*the combination of methodology in the study of the same phenomenon*". A mixed method can aid the researcher to have a more fulsome study and facilitate a deeper understanding of change, such as change to systems for accounting; however, no one particular method should be thought of as perfect (Morse, 2010; Thyer, 2010). It was proposed by Collis and Hussey (2003:77) that "*A questionnaire survey providing quantitative data could be accompanied by a few in-depth interviews to provide qualitative insights and illuminations*". Indeed, research can be conceptualised as a mixture of quantitative and qualitative research that is concurrent, sequential or parallel (Teddlie and Tashakkori, 2009; Kritzinger and Michalowitz, 2008). Creswell (2009) and Teddlie and Tashakkori (2009) are amongst those who have noted the potential for research limitations to be minimised through the use of different methods within the same piece of research. Some researchers, however, believe that qualitative and quantitative methods should not be mixed as the assumptions that underlie them are entirely different. A researcher can find model components and offer justification for their use when using both qualitative and quantitative methods. Moreover, results following the use of a method can be used when informing and developing the use of a subsequent method, and insights into various unit analysis levels can be provided when a method is nested within another one (Greene, 2007; Saunders et al., 2007). It has been noted that mixed methods approach seems to have been used often within the study of strategic management and international business (Cameroon and Molina, 2010). The literature review of KSB and KS, however, has shown that a survey technique was used in the majority of empirical studies.

Table 4.11 Quantitative, mixed methods and qualitative research

	Quantitative Research	Mixed Methods	Qualitative Research
Scientific method	Deductive or 'top-down'. The researcher tests hypotheses and theory with data	Deductive and inductive	Inductive or "bottom-up" The researcher generates new hypotheses and grounded theory from data collected during fieldwork
View of human behaviour	Behaviour is regular and predictable	Behaviour is some-what predictable	Behaviour is fluid, dynamic, situational, social, contextual, and personal
Most common research objectives	Description, explanation, and prediction	Multiple objectives	Description, exploration and discovery
Focus	Narrow-angle lens, testing specific hypotheses	Multiline focus	Wide-angle and "deep-angle" lens, examining the breadth and depth of phenomena to learn more about them
Nature of observation	Attempt to study behaviour under controlled conditions	Study behaviour in more than one context or condition	Study behaviour in natural environments. Study the context in which behaviour occurs
Nature of reality	Objective (different observers agree on what is observed)	Common sense realism and pragmatic view of world (i.e. what works is what is "real" or true)	Subjective, personal and socially constructed
Form of data collected	Collect quantitative data based on precise measurement using structured and validated data collection instruments (e.g. closed-ended items, rating scales, behavioural responses)	Multiple forms	Collect qualitative data (e.g. in-depth interviews, participant observation, field notes and open-ended questions) The researcher is the primary data collection instrument
Nature of data	Variables	Mixture of variables, words, and images	Words, images, categories
Data analysis	Identify statistical relationships	Quantitative and qualitative	Search for patterns, themes, and holistic features
Results	Generalisable findings	Corroborated findings may generalise	Particularistic findings. Representation of insider (i.e. "emic") viewpoint. Present multiple perspectives
Form of final report	Statistical report (e.g. with correlations, comparisons of means, and reporting of statistical significance of findings)	Eclectic and pragmatic	Narrative report with contextual description and direct quotations from research participants

Source: Creswell (2003)

In other studies, in order to achieve the research objectives, researchers use a mixed method approach as it is thought that employing a qualitative or quantitative approach separately is insufficient to enable the achievement of the research aim and objectives. A mixed methods approach was felt to be more suitable for acquiring a greater understanding of the specific phenomenon in question (Teddlie and Tashakkori, 2009). As stated by Swanson (2005: 329):

"*the mixed methods research methodology is also suitable when the objective of the methodology is to use the results of one method to elaborate on the results of the primary method used for the investigation*".

As shown by Flick (2007), due to their autonomous nature, quantitative and qualitative analyses processes are not dependent upon one another, and so the phases in a study can be kept apart until the latter stage when findings can undergo comparison and a broader, more fulsome understanding can be gained. In some cases, qualitative research results may be able to provide extra information that adds to the quantitative research findings and expands the comprehension of a phenomenon. The quantitative research data and findings can be confirmed by the further research data and findings (Bryman and Bell, 2008). However, for this study the quantitative research method is the primary approach for data collection and analysis. It was felt that the research would benefit from this mono-method approach in order to achieve the research purpose, which as a result led to the findings having more validity (Saunders et al., 2009).

4.9.4 Triangulation

Sekaran and Bougie (2010), stated that triangulation is enabled by mixed methods to support research findings' reliability and validity. Within business research, triangulation tends to refer to information that has been gathered from a variety of sources for analysis with a view to ensuring that the information obtained from a participant is not biased (Ghauri and Gronhaug, 2005; Saunders et al., 2009). For mixed methods research, the triangulation design is, perhaps, the most widely used approach (Creswell, 2009). For Creswell and Clark (2007: 18), triangulation is important for research due to "*the complexity of problems that need to be addressed, the rise of*

interest in qualitative research, and the practical need to gather multiple forms of data for diverse audiences". Furthermore, as noted by Denzin and Lincoln (2008), the use of combinations of various kinds of methods helps to give research both greater accuracy and gravity in some research studies.

As an approach to acquiring data and analysing it, more and more researchers are favouring the use of a multi-methods approach (Saunders et al., 2009). As such, considering that the purpose of this study is to determine the challenges faced by academics in knowledge sharing at the University of Baghdad, it was not considered appropriate to use triangulation for achieving the objectives of the research. For this research study at the university, a mono-method approach has been selected, giving a chance for greater understanding of the issues faced by the university. Thus, a mono-method was used in this study to optimise the balance of advantages and disadvantages in order to produce the best set of results possible under the circumstances (Creswell, 2009; Saunders et al., 2009). Thus, at first, data is to be collected by use of a review of the literature, and this is then followed by use of a questionnaire for self-administration. For the setting of Iraqi universities, a mono-method is considered most appropriate for such an environment as it helps in the analysis of the principles of the academics and the processes involved; which of these principles and processes exist can be determined and the relationship between KSB and KS can be tested using a method that is quantitative. It was decided, then, that the collection of data would be mainly carried out through a review of the literature followed by a questionnaire sent to a considerable sample. The research paradigm maintains consistency, and the hypothesis and structural equation modelling technique enrich the results and associated findings.

4.10 Research methods

Saunders et al. (2009) defined a research method as a way of creating a research design or a way in which a researcher collects, analyses and interprets data within their studies. The way in which a researcher designs a piece of research, however, is dependent upon whether the research questions are either descriptive or explanatory. The process of designing a piece of research has to ensure that the primary research questions are being addressed and clearly answered. If the relevant

evidence is to be gathered, there is a need to ascertain what is needed for a phenomenon to be adequately depicted, a theory to be convincingly tested, or for the research question to be answered satisfactorily (Bryman and Bell, 2007). According to Yin (2009), the designing of a piece of research is the addressing of a logical problem rather than a logistical problem. If, for example, consideration is given to the role of an engineer in designing the structure of a building, a work plan is formulated prior to construction and then decisions are made with regard to tools and materials that are going to be needed, depending on occupant need and building use. Likewise, for management and business research, the choice of the sample, the data collection techniques and the analysis procedures have to be complementary to the evidence required in order for the research question to be answered (Saunders et al., 2009). All too frequently, researchers are guilty of delivering questionnaires and conducting interviews before they have given adequate consideration to what data is actually required in order to answer the research questions convincingly. Without due consideration to and suitable dealings with the research design at an early stage, the research results are likely to be lacking in strength and not able to fully answer the research question (Creswell, 2007). Thus, as noted by Maylor and Blackmon (2005), it is important that due consideration is focused upon defining, designing, conducting and describing the research problem in question. Thus, this study involves the use of an extensive, relevant literature review to ensure the identification of relevant variables to effective implementation of KSB and KS. In addition, it is ensured that the research design has an investigative research instrument that looks at the prevailing circumstances of the HE sector in Iraq without omitting any key perspectives. The design is, then, as follows:

- The questionnaire survey of a large sample of the University of Baghdad academic staff to be analysed using SPPS software, given its user-friendly nature and offer of reliability for use in social science-type studies. Most questions use a five-class response-rating scale, the adequacy of which is enhanced through employing a non-forced scale (Malhotra, 2008);
- Once the SPSS has been used, the SEM and AMOS technique is adopted for the statistical testing of the adequacy of the theoretical model under investigation;
- The hypothesis of the research then examines the relationship between the independent and dependent variables.

4.10.1 Data collection methods

Researchers use various methods of data collection to explore, define, understand and describe phenomena and to analyse the relationships between their elements (Cohen et al., 2013). Yin (2009) suggested six main sources of evidence for use within a case study approach; the strengths and weaknesses of these are shown in Table 4.12. Yin (2009) did not see one data source as having complete advantage over any other; instead, multiple sources of evidence can play their part in clarifying the real meanings of the phenomena in question. Silverman (2010) and Denzin and Lincoln (2008) also recognised the value of corroboration of findings to improve data validity, and so encouraged researchers to use more than one method.

Table 4.12 Strengths and weaknesses of six sources of evidence

Source of evidence	Strengths	Weaknesses
Documentation	Stable: Can be reviewed repeatedly Unobtrusive: Not created as a result of the case study Exact: Contains exact names, references and details	Retrievability: Can be low Biased selectivity, if collection is incomplete Reporting bias: Reflects bias of the author Access: May be deliberately blocked
Archival Records	Same as above Precise and quantitative	Same as above Accessibility may be limited for privacy reasons
Interviews	Targeted: focuses directly on case studies Insightful: Provides perceived causal inferences	Bias due to poorly constructed questions Response bias Inaccuracies: Interviewees say what they think interviewer wants to hear
Direct observation	Reality: Covers events in real time Contextual: Covers context of event	Time consuming Selectivity: Poor, unless broad coverage Reflexivity: Events may be processed differently

Participation / direct observation	Same as for direct observation Insightful into interpersonal behaviour and motives	Same as for direct observation Bias due to investigator's manipulation of events
Physical Artefacts	Insightful into cultural features Insightful into technical operations	Selectivity Availability

Source: Yin (2009: 102)

Saunders et al., (2007) the data collection methods are those instruments and mechanisms used for the research data acquisition, such as questionnaires, interviews and observation, with some being qualitative and others quantitative. The research strategy and methods are tailored by the researcher with a tendency towards quantitative approach (Creswell, 2009). A quantitative method comprises procedures and techniques for the collection and analysis of data involving numerical data generation. The survey questions are formed having read the existing literature and integrated so that the research objectives can be achieved through measurement and evaluation of the extent of the intention of academics to conduct KSB within the University of Baghdad. Originally, this kind of research was developed for investigating natural phenomena; however, it is now employed extensively within studies of the worlds of management and business. Examples of quantitative methods include laboratory experiments and surveys (Mertens, 2014).

A qualitative method, on the other hand, is involved with a social inquiry process that looks to develop a more holistic and complex understanding. Objectives of qualitative methods are founded on describing, discovering, meanings, understanding and the creation of hypotheses. The work of Bryman and Bell (2007) has a discussion of how the qualitative method may be difficult to employ within research given that it is subjective and impressionistic, and relies upon the views of the researcher in a way that can often be unsystematic, unstructured and overly reliant upon personal ingenuity. Given the adoption of a quantitative method, the research benefits from its inherent advantages, and so the data collection procedure adopted

involves a questionnaire survey, as is often the case with quantitative research. Along with the use of SEM and AMOS, the quantitative method is able to increase collected data validity and reliability and so this approach was selected and used within this research (Bryman and Bell, 2007).

4.11 Qualitative method

4.11.1 Interviews

Amaratunga et al. (2002: 4) gave a useful definition of the interview used in qualitative research, describing it as an approach "*whose purpose is to gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of the described phenomena*". Saunders et al. (2009) simply consider an interview to be a purposeful discussion held with two or more people. The method provides valid and reliable data and therefore has relevance for the research purposes of some studies. The interview is considered one of the key sources of information within case studies; a valuable technique for data acquisition, especially within qualitative studies (Yin, 2009). Saunders et al. (2007) classified three different types of interview, which are shown in Table 4.13, in relation to the type and strategy of research.

Table 4.13 The use of different types of interview

Types of interview	Exploratory	Descriptive	Explanatory
Structured		√√	√
Semi-structured	√		√√
In-depth	√√		

√√ more frequent √ less frequent

Source: Saunders et al. (2007: 314)

Bryman and Bell (2003: 574) defined the structured interview as "*a research interview in which all respondents are asked exactly the same questions in the same order with aid of a formal interview schedule*". A structured interview involves the asking of a group of previously prepared questions, the responses to which are recorded in a standardised schedule, which can vary depending on the organisational context and the conditions of the interview (Easterby-Smith et al.,

2008). Certain questions may be omitted by a researcher on occasion or further questions added, if the researcher considers the supplementary information would aid in exploration to address the research questions, aims and objectives. The data is collected by the interviewer through means of note taking and/or the use of a tape machine or Dictaphone to make recordings (Yates, 2004).

The structured interviewing method, also known as the quantitative research interview, is able to facilitate the gathering of deep information about specific variables that have aroused interest; however, in using such an approach, there may be a failure to see the bigger picture (Harrison and Reilly 2011). The unstructured interview, also known as the in-depth interview, has no pre-determined list of questions or themes. Unstructured interviews are usually held in order to obtain clear ideas of what issues have importance or that may be applicable to a specific problem or situation. An unstructured or in-depth interview can be seen, then, as a basic informal discussion that has no rigid guidelines, so that open discussion is permitted (Gross, 2015). Such an approach may elicit feelings that have been repressed that participants may have been unaware that they had or had been unwilling to acknowledge within themselves. Given that such an interview is without formality, it is often known as a non-directive interview (Saunders et al., 2007). On the other hand, a semi-structured interview involves pre-determined interviewees and questions, and the research questions and objectives are possibly explained to participants prior to commencement (Saunders et al., 2009). With such an interview, the researcher may clear up any uncertainties and help make sure that the respondents fully understand the questions with which they are being presented, and that the responses made are clear. Additionally, if considered appropriate, an interview may be amended to suit the situation and/or participant, with explanations provided, and questions altered, added to, or taken away as the researcher sees fit (Saunders et al., 2009; Gross, 2015).

Saunders et al. (2007) noted that semi-structured and in-depth interviews can be employed within qualitative research to unearth issues and provide a deeper understanding of the 'How?', 'What?' and 'Why?' of a particular situation. The strength of this interview method is that the researcher can explore ambiguities, complexities and contradictions, and probe issues and processes that interviewees may reveal that they face (Hesse-Biber and Leavy, 2011). The potential meanings of the interview questions and answers can be explored and negotiated by the researcher, and the

interviewer can explore the respondent's perspective more particularly. However, this method is time consuming and expensive, especially when there is a large sample size to interview. Furthermore, as the interaction between the interviewee and interviewer may potentially affect the interview process, there may also be a consequent effect upon the question validity and reliability.

4.11.2 Semi-structured interview in the context of this research

Originally, face to face, individual semi-structured interviews were going to be held for this study; however, because of the political situation within the country in recent years, the researcher decided not to employ this method. If this method had been used, a variety of opinions and views would have been recorded with regard to activities for KSB, from a variety of different dimensions, with the research having benefited from triangulation. The potential participants for such a study would have needed to have had a great deal of work experience and, as academics (both lecturers and senior lecturers), would have worked at different levels or grades. They would have been selected randomly from within each of the relevant staff groups within the University of Baghdad's structure. Such an approach would have enriched the research considerably, and lent the interview process greater accuracy, and provided confidence in the interview process and the research reliability as a whole.

4.11.3 Semi-structured interview questions

It was highlighted by Rubin and Babbie (2009) that a permanent interview record, such as with a digital recorder, for example, is critical. Often, the process of transcription can be very burdensome and it is sometimes necessary to repeatedly playback sections of the recording, to ensure accuracy, if there is a lack of clarity due to certain accents or phrases. DiCicco-Bloom and Crabtree (2006) consider that a recording ought to be transcribed with complete precision, though they make reference to the amount of time required for the achievement of accuracy in doing that. Within Table 4.14 below, there is a list of questions that were included within the substantive study along with reference to the literature that supposed to be used in this study to inform the inclusion of each question and the prompts that were associated with them. In general, the interview should last

approximately around half an hour, though, depending on the length of answers given, the duration can vary somewhat.

Table 4.14 List of sample interview questions and sources (semi-structured interview guide)

	Questions	Sources
1	Describe a recent incident where another academic requested knowledge from you. Which factors did you consider important when considering this request?	Nahapiet and Ghoshal (1998); Riege (2005)
2	What in general affects the level of knowledge sharing within your department?	McDermott and O'Dell (2001); Riege (2005); Lee (2007)
3	Describe the ways in which you share your knowledge. Are different types of knowledge shared in different ways?	Hansen et al. (1999); Radaelli et al. (2011)
4	Do feel that your Head of Department expects you to share your knowledge? If yes, how is this expectation communicated?	Connelly and Kelloway (2003); Srivastava et al. (2006)
5	Which rewards for sharing your knowledge do you value the most?	Bock et al. (2005); Hislop (2009)
6	Suggest ways in which your university can encourage knowledge sharing?	Howell and Annansingh (2013)
7	Why do you think moves to encourage knowledge sharing may be resisted?	Cronin (2000); Riege (2003); Tippins (2003)
8	Describe the culture and structure within your department. What effect do these have on knowledge sharing? How can these be improved?	Dopson and McNay (1996); Lee (2007)
9	Describe the collaborative technology that links you to others in the department. How could this be improved?	Noble (1998); Jarvenpaaa and Staples (2005)
10	Do you belong to a community of practice? If yes, in what ways does this affect your knowledge-sharing activities?	Wenger and Snyder (2000); Hildreth and Kimble (2004)

The above set of interview questions have been adopted from the literature review before the researcher decided to use a mono-method only for this study. However, the first two questions had the intention of orientating the interviewee with an introduction into the terminology behind KS factors and consideration of those factors in a way that could be expanded upon later. The third question had the intention of expanding on the previous questions, which had identified knowledge-sharing types and discovered the degree to which virtual and face-to-face communication means were being used. Questions 5, 6, 9 and 10 had the intention of exploring the critical factors behind KS that had been identified within the literature, in a way that was deeper than if just a questionnaire was used. Questions 4, 7 and 8 had the expectation of teasing out of the

interviewees what their own experience had been so that barriers could be identified and sharing behaviour improved.

4.11.4 Interview procedures

McCoyde and Kerson (2006) noted that interview provides richer non-verbal data such as social cues, tonal quality, mannerisms and dress and can be considered the best standard of qualitative interviewing. Sometimes, however, it is impractical to conduct all of the interviews in a face to face way because of geographical considerations and resource and time limitations. It is possible, however, to use Voice Over Internet Protocol (VOIP) instead through use of Skype. Table 4.15 below has a summary of the advantages and disadvantages of using Skype for interviews, based on the work of Hay-Gibson (2009). Generally, the interviews at the university were supposed to be conducted on a face-to-face basis however, for the reasons mentioned earlier those interviews have been suspended.

Table 4.15 Advantages and disadvantages of VoIP interviewing

Advantages	Disadvantages
Costs – Free using PC-to-PC calls; calls to landlines may be made at a small cost	Technology requirements – Internet access needed by the calling party (VoIP to landline) and for both parties when calling PC-to-PC.
Human element – Participants and viewer able to see each other and read face and body language in video calls	VoIP-enabled program must be installed at both ends for PC calls, as well as microphones and cameras for respective audio and video inputs.
Recordable – Audio recordings can be made of the interview session	Human element –Participants may feel embarrassed or nervous to be on camera

Adapted from Hay-Gibson (2009)

Of course, as with a face-to-face interview, mannerisms and non-verbal cues can also be picked up during an interview on Skype, and it is possible to record Skype interviews. Given that the technology was readily available with the academics frequent Skype users, it was considered that all the interviewees would be at ease and comfortable conducting the interviews using the camera. Rubin and Babbie, (2009) considered the digital recorder as a critical issue for a permanent

interview record to be kept. As earlier mentioned it is considered that transcription ought to be performed with complete precision regardless of the timescales involved (DiCicco-Bloom and Crabtree, 2006). The question list for the substantive study, the justifying literature for those questions and the prompts associated with them are shown in the above section. However, to conduct those interviews via the aforementioned technology, the researcher find a culturally difficulties to communicate with the interviewees.

4.11.5 Interview data analysis

As discussed above, the logic and justification for using semi-structured interviews was to obtain information form selected sets of individuals, all of whom were thought to have knowledge of the topic in question. There was the opportunity to reject, support or confirm the results acquired during the primary data collection phase (the questionnaire) (Blumberg et al. 2011). Notable scholars, including Bryman and Bell (2011) and Easterby-Smith et al. (2012) have indicated that there is no single data analysis technique for data obtained from interview transcriptions; there are numerous ways in which such analysis can be undertaken. Specific techniques include transcript analysis through content or grounded analysis, argument and conversation analysis, discourse analysis by narrative and/or the use of computer software (NVivo being a notable example). For most researches, the decision should be taken to employ content analysis due to the numerous perceived benefits, i.e. its flexibility and unobtrusiveness, the ability for knowledge to be extracted, and the ability to permit analysis to be expanded (Bryman and Bell, 2011). However, as Bryman and Bell (2011) noted, there are some limitations with content analysis, such as it being considered to be too theoretical and the difficulty in coding themes. Furthermore, it is not considered easy to discover solutions for questions of a 'why?' type. The data analysis process for the data collected by the study researcher commenced with the conducting of the questionnaires. The information should be made available by the questionnaires, the transcription and translation of the data obtained, and further transcription and translation of notes made by the researcher that recorded thoughts as the research process proceeded. Once the data had been transcribed, the responses to each question should categorised by the researchers so that the results could be visualised and

conclusions drawn about the main patterns and themes that commonly emerged in relation to each point or question.

A five-step approach need to be adopted by the researchers, as shown in the work of Taylor-Powell and Renner (2003). This approach can be summarised as follows: i) become knowledgeable of the data by reading and re-reading it so there is familiarity with the study area; ii) have a focused analysis with a review of the analysis core; iii) ensure the information is categorised, either with pre-set categories or otherwise; iv) undergo identification of any connections between the categories or patterns; and v) thoroughly interpret the data so that final, logical conclusions can be drawn. The strengths and weaknesses of content analysis are summarised and shown in Table 4.16 below.

Table 4.16 Strengths and weaknesses of content analysis

Advantages	Disadvantages
It is a socially-oriented research method, capturing real-life data in a social environment. It offers flexibility. It offers high face validity. It gives speedy results. It is low in cost.	It affords the researcher less control than individual interviews. Data is difficult to analyse. Moderators (interviewers) require special skills. Differences between groups can be troublesome. Groups are difficult to assemble. The discussion must be conducted in a conducive environment.

Source: Krueger (1988: 44)

4.11.6 Semi -structured interview instrument

The interview technique is thought to be very effective when collecting high quality and complex data as a rapport can be generated that helps in boosting the response rates (Saunders et al., 2009). A researcher needs to focus on having questions for participants that are open and help them provide descriptions of opinions in a way that enables accommodation of complex and

comprehensive answers. As noted by Heaton (2004), semi-structured interviews are a frequently adopted qualitative research method that enables qualitative data to be collected from respondents easily. Qualitative, semi-structured interviews, with their question lists or themes, are seen as non-standardised though with sufficient flexibility to enable areas to be explored if and when they arise (Easterby-Smith et al., 2009; Saunders et al., 2009). Any further insights obtained may have relevance to the research objectives and, indeed, semi-structured interviews are often considered the key source of data in case study research (Yin, 2003). Interviews can benefit from communication forms that are non-verbal, and more confidence in the process can be generated than would be the case with questionnaires (Hussey and Hussey, 1997). The pursuance of information that lies behind participant experience is a strength of the interview technique (Saunders et al., 2007). For this study, it was expected that formal interviews would have been appropriate, with them commonly being pre-set, structured and identical. However, a semi-structured interview that is framed openly lets a focused, yet informal, two-way conversation shift bit by bit from questions that are general to more particularly focused ones (Ellis and Chen, 2013). As well as the flexibility of a semi-structured interview, there may be exploration of new subject areas and issues if they crop up (Yates, 2004; Jankowicz, 2005).

4.12 Quantitative method

4.12.1 Questionnaire

Numerical data can be gathered to help in the achievement of the aim and objectives of a piece of research; this study used a questionnaire as its primary data collection method. Questionnaires can be either administered by interview or self-administered, with the latter category involving the instrument being completed by the participants themselves and then returned to the researcher by the method requested. There are a number of ways in which the questionnaire can be returned, for instance, by post, the internet, leaving it at a specific place for collection or handing it over personally. For an interview-administered questionnaire, the researcher and/or an assistant is involved in personally administering it by asking each participant the questions that appear upon the instrument, and then ticking boxes as appropriate or writing answers to questions that are more open. The approach chosen for this research was

to have a questionnaire that was self-administered and then collected afterwards by the researcher. This approach was taken because of the lack of a reliable Iraqi postal system and the belief that it was more secure for the researcher to take responsibility for questionnaire delivery and collection. In addition, there was the belief that a self-administered questionnaire was the most commonly accepted and popular primary data collection method within research for business and management (Saunders et al. 2012). As such, the approach was adopted with a reasonably high confidence level.

Many authors have noted that using a self-completed questionnaire can have numerous advantages (Easterby-Smith et al. 2008; Blumberg et al. 2011; Saunders et al. 2012; Bernard and Ryan 2010). Personally-administered questionnaires may involve the researcher spending many hours in travelling and in completing the interview. A self-completed questionnaire survey of a large sample can be managed by just one researcher, however, particularly if there is internet facility and/or a regular mail service. Thus, the self-administered approach can be particularly advantageous, especially when potential participants may be difficult to reach due to having busy work schedules. Anonymity can also be seen as an advantageous quality in self-administered questionnaires, as is the fact that flexibility over when to complete the questionnaire (within a specified time period of perhaps weeks or maybe months) tends to enhance the response rate overall.

The strategy does, however, have a number of drawbacks; the main one being the apparent reluctance of potential participants to give their time, especially if the kind and volume of information requested is perceived to be too complicated and excessive. Therefore, a researcher needs to skilfully design a questionnaire so that the respondent faces a task that has been set up to seem as easy and clear as possible. Postal questionnaires can also have the disadvantage of giving the researcher little control over participants; a senior manager, for example, may forward a questionnaire to a personal assistant for completion, and that person may not have the relevant information or knowledge at their disposal.

4.12.2 Questionnaire sampling procedures

The selection of a population subset is referred to as sampling, with the aim of deriving conclusions about the characteristics of an entire population (Hair et al., 2007). Sampling issues are key to whether research findings are limited in the degree to which they are generalisable. Saunders et al. (2012) highlighted how it is necessary to collect data from a sample when constraints in terms of budget or time available restrict the researcher from gathering data from an entire population. It has been argued by Sekaran and Bougie (2011), however, that a higher degree of overall accuracy may be achieved by sampling rather than conducting a survey of the whole population.

Within the literature there are two types of sampling approach, i.e. probability sampling and non-probability sampling. For the former, which is also known as representative sampling, all cases are equal and known, and so a researcher is able to achieve the research objectives and statistically test results; such an approach associated with experimental research and surveys. Types of probability sampling technique include systematic, stratified, multi-stage, cluster and simple random (Hair et al., 2007; Bryman, 2012). With the second sampling approach, non-probability sampling (also known as judgmental sampling), none of the cases are known; this sampling type is normally employed within case studies. Types of non-probability sampling include purposive, snowball, convenience and quota sampling; the most commonly used of these are convenience and purposive sampling (Berg, 2012; Saunders et al., 2012). It is reported within the literature that probability sampling has the key advantage of keeping the error within the sampling to a minimum level (Cooper and Schindler, 2008). This kind of sampling is more effective than other approaches if the study population is spread over a wide geographical area and if the researcher is able to access the whole population easily (Saunders et al., 2009). As this research employs a questionnaire approach for the data collection, and as the questions within the research need the population features to be estimated by the researcher, it is considered that it is most appropriate to use random probability sampling.

4.12.3 Questionnaire design

The questionnaire design is thought of as a key point within the process of collecting data. If a design is good, it optimises the chance of internally valid and reliable data being obtained. In order to establish if there is a need to carry out any fine-tuning, some type of pilot testing ought to be conducted to improve the likelihood of effective completion of the questionnaire (Saunders et al. 2012). If the questionnaire is properly designed, with a focus upon the objectives of the research, then it is more likely to be successful (Sekaran, 2003); if enough attention is given to questionnaire construction, then the chances of the information collected being irrelevant is reduced considerably. Easterby-Smith et al. (2012) highlighted five principles that have to be upheld when designing questionnaires, as follows: i) the language in the questionnaire ought to be simple; ii) the language employed within the questionnaire ought not to be laden with colloquialisms or jargon; iii) use of negatives within the questions ought to be avoided; iv) each of the questions in a questionnaire has to be concerned with just one point, i.e. be clearly and singularly focused; and v) questions ought not to be written in such a way that a respondent would be led towards making a particular response. Moreover, Sekaran (2003) brought attention to other key aspects for consideration when designing a questionnaire; they mentioned the importance of incorporating the request for the participants' personal data in a well-sequenced set of questions, the importance of having wording that was very precise, including the language and appropriateness with which a question has been crafted, and the importance of careful formatting. It is clear that the kinds of question and their formatting is a key concern within the research process (Sekaran, 2003; Easterby-Smith et al. 2012). Two kinds of question can be seen with such a research instrument, i.e. open and closed. The first of these needs the respondent to answer in a manner that is not in any way prescribed, and so, in essence, qualitative data is collected here. For closed questions, the participant is asked for identification of a single response from a given range or perhaps to select between 'Yes' and 'No' (Oppenheim, 1966). The research philosophy determines the kind of question to be asked, with an interpretivist approach needing questions to be open, and a positive approach having an association with closed questions (Collis and Hussey, 2009).

Saunders et al. (2012) highlighted six options for closed questioning, as follows: a) categorisation of questions for the selection of only one of the items; b) offering participants an answer list for selection of one or more responses; c) requesting participants to rate answers on a scale of, perhaps, five, six or seven point ratings; d) requesting participants rank questions in a given list by placing them in order to accord with their opinion; e) having matrix questions, where two or more items are selected for analysis purposes; and f) the use of questions related to quality, where a respondent is requested to give a characteristic amount for an attribute or behaviour.

Three kinds of question were employed within this research. Rating questions were most usually employed with Likert-type scales to obtain data with regard to the attitudes that staff from the University of Baghdad have towards particular aspects (Sekaran 2003; Easterby-Smith et al. 2012; Saunders et al. 2012). These rating questions were supported through the use of a number of ranking and categorical questions.

The researcher considered the importance of appropriate wording in the designing of the questionnaire, as highlighted above, and ensured that the wording served to reflect each question's purpose. As Sekaran (2003) noted, such careful wording has even greater importance in the elimination of response bias within a setting where there are cultural differences. The sequencing of the questions was also given due consideration and the researcher, following the guidance of Sekaran (2003), adopted a funnel type of approach that let the questionnaire have a smooth start with simple questioning before proceeding to questions that were more incisive and difficult.

4.12.4 Questionnaire structure

As pointed out above, the length and structure of the questionnaire are believed to be important in bringing about a satisfactory response rate. It has been argued by Dillman (1978) that a higher response rate results from a shorter questionnaire. However, a questionnaire has to cover all of the perspectives required in order to acquire the data needed to meet the entire range of research

objectives. Potential respondents have to be briefed properly on the purpose of the research and the nature of the particular research instrument in order for a helpful frame of mind to be developed, and for the questionnaire to be completed in a way that is knowledgeable. Thus, to facilitate cooperation, and in keeping with the research ethics, the questionnaire in this research was accompanied by a letter that provided precise details of the research title, its aim and some background subject information, along with an assurance that any information provided by the respondent would be handled with confidentiality. Once the questionnaire was completed, participants were asked if they would like a report of the eventual study results.

4.12.5 Questionnaire translation

When translating a questionnaire into a different language, a researcher needs to be careful with regard to syntax, grammar and idiomatic, experiential and lexical matters (Saunders et al., 2009). Based on the work of Usunier (1988), there can be considered to be four techniques that can be employed for translation, as follows:

a) *Direct translation*. Translation of the questionnaire is performed directly without any assistance. Whilst this method is inexpensive and easy, it can lead to numerous discrepancies in meaning between the target questionnaire and the source;

b) *Back-translation*. In back-translation the source questionnaire is translated by the researcher into the target language and afterwards translated by two independent translators back into the original language. The two new questionnaires are then compared in the original language so that a final version can be created;

c) *Parallel translation*. With parallel translation, the original questionnaire undergoes translation, by at least two independent translators, to a target language. These two questionnaires are then compared so that a final version can be created;

d) *The mixed technique.* The mixed technique employs back translation by at least two independent translators and then the two new questionnaires in the original language are compared so that a final, target language version can be created.

Whilst the mixed technique has the same advantages as the back-translation method, such as unearthing issues with lost words, mistranslation and incorrect meanings, it can be expensive and more than two independent translators are needed. Thus, the back-translation technique was employed in the translation of the original questionnaire in English into an Arabic version, and then it was translated back into an English version again. Comparison was then made of the two English versions of the questionnaire and discussion held with the two translators; where discrepancies in meaning were discovered, the Arabic version was refined, with the assistance of the two translators.

4.13 Pilot test

Many authors have emphasised the need for a pilot test stage, with authors such as Saunders et al. (2012) highlighting the importance of testing a questionnaire before it is finally distributed amongst the research population. Numerous benefits have been identified for pilot testing; for instance, a questionnaire can be enhanced to make it more easily understood prior to it being finally distributed. In addition, the face data validity and reliability of the data collection can undergo assessment and enhancement prior to final distribution, and assurances can be gained that the data is indeed appropriate for the objectives of the research and help in their achievement. The researcher took particular steps in ensuring the questionnaire was capable of addressing the objectives of the research. Firstly, the researcher enlisted the assistance of several experts in auditing and accounting; these included the supervisory team and three PhD candidates studying at LJMU and other UK universities, who examined the questionnaire and determined whether or not there was the need for amendments to be made. Secondly, a total of 45 questionnaires were distributed to a pilot group of individuals based at the University of Baghdad; based on the recommendations of Saunders et al. (2012), the individuals were asked for particular feedback with regard to how long it took them to complete the questionnaire, whether they felt that any of the questions had been difficult to answer or unclear, and whether, from their professional point of view, they thought there was anything missing. Feedback gained from the piloting process led to a certain number of amendments before the final version of the instrument was ready for distribution. In particular, there was considered to be a need to

change the original six-point Likert scale to a five-point one. Moreover, as there was a reluctance for certain open questions to be completed by respondents, they were removed and only one open question remained for any participants who were willing to provide further information.

4.14 Ethical considerations

The importance of due consideration of the ethical dimension to the activities involved in the collection of data was emphasised by Saunders et al. (2012). In this regard, it is considered vital to ensure ethical approval is secured from an authority overseeing the work before the investigation commences, as this provides assurance that the researcher has no intention of harming anyone during the research process (Henning et al., 2004). Thus, the researcher made an application to the Research Degree Committee (RDC) of LJMU and was then granted approval to embark on the early research journey stages, subject to certain criteria. The criteria stipulated involved amendment to the covering letter that accompanied the questionnaire, as follows: it had to be clearly stated that participants had the right to withdraw their participation at any point; it had to be clearly stated that any responses given would be treated with confidentiality throughout the research process and following it; the RDC stressed that the researcher had to provide participants with information with regard to the nature and purpose of the study; and, finally, prior to the participation of a respondent, the researcher had to obtain the consent of that participant in either written or oral form.

4.15 Exploratory factor analysis and reliability assessment

The exploratory factor analysis (EFA) method is a way of factor loading into groups so that underlying latent factors can be extracted. The technique is employed to "*take what the data gives you*" (Hair et al., 2006: 104); it involves the grouping together of variables upon a factor or a precise number of factors and is employed widely within research in the social sciences. The technique is used for identification of latent factors and the summarising of large sets of the variables observed and their reduction into a much smaller number of factors that account for co-variation within the research (Hair et al., 2006; Tabachnick et al., 2001). Within this

domain, the technique is effective for more structural model testing (Hair et al., 2006). At first, this research involved the application of EFA in order to put data within a group for a factor and then the application of confirmatory factor analysis techniques for confirmation that the measurement variable group was related to the factor for examination of the hypotheses. As noted in the work of Field (2009), the existence of clusters of large coefficients of correlation between the variable subsets suggested that such variables may actually be measuring aspects of the same dimension that underlies the variables. EPA was applied by the researcher using SPSS Version 23 for Windows in order to extract factors for which several available methods could be used for the factor extraction and rotation. Amongst these available methods, the most commonly used one, a default one within the SPSS programme, is the principal component extract method; it was employed for extraction of the minimum group of variables to account for the maximum data variance (Tabachnick et al., 2001). Numerous ways are available for the assessment of extraction adequacy and the factor numbers; however, the most common methods are the scree plot and the eigenvalues.

Prior to extracting the factors, it is important that score variability (variance) is calculated for any given variables or measures (Field, 2009). Heir et al. (2006) considered communality to be the total variance amount that all other variables that are included within an analysis share with an original variable. A communality of 1 equates to a variable having no variance, whereas a communality of 0 equates to a variable sharing nothing with the other variables (Field, 2009). It is possible for communality to be calculated from factor loading in which a model is needed that contains multiple constructs with communalities of below 0.5, and less than 0.7 is needed when there is a larger sample size (Heir et al., 2006). Variables with a communality value of over 0.5 were applied within this research. The varimax rotation method was employed so that the best possible factor interpretation could be achieved. Rotation is important for selection for improvement of the scientific utility and interpretability of the solution and is employed for maximisation of high correlation between variables and factors and minimisation of low correlations. Rotation relates to the discrimination between predictors precisely where it implies (Hair et al., 2006). This research has applied a varimax orthogonal technique, which is most often employed within rotation in order to maximise the variance. Tabachnick et al., (2001)

consider that varimax rotation has the goal of maximizing the variance of factor loading through the making of low loadings lower and high loadings higher for each of the factors. Factor loadings with a value greater than +/- 0.50 were, in practice considered as significant (Hair et al., 2006). In this research, Cronbach's alpha technique was used for assessment of reliability, with it being applied to the factors that were derived from the EFA in order to test the internal factor consistency (Churchill, 1979; Peter, 1979; Litwin, 1995; De Vaus, 2002). In line with the work of Nunnally (1978) and De Vaus (2002), result values that were equal to or over 0.70 were considered as having a level of reliability that was acceptable.

4.16 Confirmatory factor analysis and scale validity

The confirmatory factor analysis (CFA) technique is normally used for confirmation a priori hypotheses with regard to the relationship amongst measurement item sets and their associated factors (Netemeyer et al., 2003). it is applied to exam if the pre-specified relations on the foundation of the theory are current in the data (Hair et al., 2006). CFA relates to the number of latent constructs or common factors that are required to account for a correlation amongst the variables observed. Indeed, factor analysis unearths dimensions that are underlying, where variables appear to be meaningfully grouped. This can be achieved through seeking variables that have a high correlation with another variable group, though without having correlation with variables that lie away from that group (Field, 2009). Construct validity is a vital prerequisite for further testing and development of theory (Carmines and Zeller, 1979; Steenkamp and Trijp, 1991). Thus, CFA is employed in giving a stricter assessment of the validity of a construct on order to provide assurance that the theoretical construct meaning has been captured empirically by the indicators (Steenkamp and Trijp, 1991). In general, it is utilised for the testing of scale uni-dimensionality, which is considered to have importance for two reasons in particular. Firstly, calculation of the reliability indicator, the coefficient alpha, is only meaningful for an item set that is uni-dimensional (Clark and Watson, 1995). Secondly, it is appropriate to calculate the composite scores for use within a covariance structure model or another analysis type if there are uni-dimensional, individual items (Neuberg et al., 1997). Netemeyer et al.

(2003) considers that the summed (composite) score will contain the effects from other factors upon which an item is loaded, if any of the individual items are not uni-dimensional.

4.17 Structural equation modelling and assessment of model fit

The structural equation modelling technique lets a relationship be set between dependent variables and variables that are independent (that are either discrete or continuous). Hair et al. (2006) consider that structural equation modelling gives an appropriate and efficient estimation technique for undertaking simultaneous estimation of a series of separate multiple regression equations. It is developed through two components, such as the structural model and measurement model, with the aim of finding the overall model fit to provide confirmation that the estimated model and the theoretical model are consistent (Diamantopoulos and Siguaw, (2000); Hair et al., (2006); Tabachnick et al., (2001). Within the field of statistics, there are many methods available for development of an overall model fit with a basis in both absolute and incremental goodness of fit measures. Diamantopoulos and Siguaw (2000) have stated that the size of the sample, the estimation procedure, the model complexity, and the violation of underlying assumptions of variable independence and multivariate normality are able to have superiority to other statistical methods whilst under conditions that are different. Model testing was applied in this research through the use of two separate stages in line with the recommendations of Anderson and Gerbing (1982; 1988). One of the stages is structural model testing in order to show causal relationships between the latent constructs (Anderson and Gerbing, 1988; Chau, 1997; Diamantopoulos and Siguaw, 2000). Prior to reaching this stage, it is essential to develop the measurement model in order for the relationships between a construct and its associated indicators to be confirmed; CFA assists this model (Chau, 1997; Anderson and Gerbing, 1988; Diamantopoulos and Siguaw, 2000). Thus, so that the measurement scales can be assessed by construct validity, the following criteria ought to be assessed: a) construct uni-dimensionality (Anderson and Gerbing, 1988; Steenkamp and Trijp, 1991); b) reliability; c) convergent validity; d) discriminant validity, and e) nomological validity (Anderson and Gerbing, 1988; Steenkamp and Trijp, 1991). Construct uni-dimensionality ought to be achieved prior to attempting any testing of further theory (Anderson

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and Gerbing, 1988); this is to demonstrate that the multiple construct indicators have internal consistency and are distinct externally from the other measures. The CFA gives assurance that a construct has uni-dimensionality so that it is comprised of a theoretical (logical) indicator set (Hair et al., 2006). The term nomological validity refers to the examination of hypothesised relationships between a construct, the empirical indicator links and the associated dimensions that underlie them (Peter and Churchill, 1986). Additionally, use of the goodness of fit indices is useful in assessment of nomological validity. The previous section has made reference to the remaining factor.

Following estimation of the measurement model, the structural model is applied in order to illustrate the causal variable relationships. The overall structural model fit gives confirmation of the theoretical model consistency and the estimated model with its basis in the values that were observed (Diamantopoulos and Siguaw, 2000; Hair et al., 2006). Within statistics, there are many methods for testing the overall fit of models, and none of them can give complete assurance of it. At least four tests were recommended by Kline (1998), including chi-square, GFI, CFI or NFI, the SRMR and also the NNFI. The most commonly used fit indices, however, are Goodness of Fit Index (GFI), chi-square (X^2), Root Mean Square Error Approximation (RMSEA) and Adjusted Goodness of Fit Index (AGFI). Within structural equation modelling, the most common test of fitness is the chi-square statistics (X^2). Diamantopoulos and Siguaw (2000) have stated that the chi-square is a test of perfection within which there is a null hypothesis that the population data fits the model perfectly. When there is statistical significance, the null hypothesis is rejected in this test. As noted in the work of Diamantopoulos and Siguaw (2000), the chi-square value is computed as (N − 1) F*min* with N being the sample size, F*min* being the value of the fitting function and the relevant degree of freedom being calculated as ½ k (k + 1) – t, where k is the number of variables observed and t is the number of parameters that are be estimated. When using AMOS software, chi-square test results are shown by way of minimum discrepancy (CMIN).

The goodness of fit index is a measurement of the relative degree of covariance and variance, and is a measure that is non-statistical that gives an indication of the overall degree of fitness (Hair et al., 2006). The predicted squared residuals are compared with the value observed, and the range of value of GFI possible goes from 0 to 1, with a better fit being indicated by higher values (Hair et al., 2006). Values that range from 0.80 to 0.89 indicate fitness that is reasonable (Doll et al., 1994), and values lying between 0.90 and 1.00 are thought to have a good fit (Diamantopoulos and Siguaw, 2000). The adjusted goodness of fit index (AGFI) is a version of GFI that is extended and adjusted through the ration between the degree of freedom that is available and the degree of freedom for the model that is proposed (Hair et al., 2006). Values of 0.90 or above are thought to have a good fit and there is thought to be a reasonable fit for those values that range from 0.80 to 0.89 (Doll et al., 1994; Hair et al., 2006). Incremental fit measures give a comparison of the fit of a targeted model with a null model within which there are uncorrelated variables (Diamantopoulos and Siguaw, 2000; Hair et al., 2006). Some of the most commonly used measures of incremental fit are the normed comparative fit index (CFI), the non-normed fit index (NNFI) and normed fit index (NFI). The normed fit index gives a comparison of the base model with the model that is suggested without consideration of the freedom degree; it is calculated as $(X^2 \text{ null} - X^2 \text{ proposed}) / X^2 \text{ null}$ where X^2 is chi-square value (Hair et al., 2006). The NFI may have values between 0 and 1, and, whilst there is no threshold value that is absolute, it is generally recommended that 0.90 and over indicates good fit (Hair et al., 2006).

The NNFI gives a comparison of the null and the proposed model by taking into consideration the degree of freedom of the two models; it is calculated as $[(X^2 \text{ null} / \text{df null}) - (X^2 \text{ proposed} / \text{df proposed})] / (X^2 \text{ null} / \text{df null})$ where X^2 is chi-square value and df is degree of freedom (Hair et al., 2006). Unlike, all other incremental fit indices, the NNFI takes a level greater than 1.0 (Diamantopoulos and Siguaw, 2000); however, the level of good fit value recommended is equal, i.e. 0.90 and over is considered as a good fit (Doll et al., 1994; Hair et al., 2006). The CFI is another index of relative fit that is more appropriately used when analysing a small size of sample (Hair et al., 2006); CFI values of 0.90 and anything over is normally considered as a

good fit (Mueller, 1996). Within this study, the approach was adopted of using the two steps of the measurement model and structural model; this approach was a suggestion of Anderson and Gerbing (1988), with the measurement model estimation preceding the structural model. The approach chosen lets the researcher establish constructs that are valid that can undergo further theory testing in order to prove whether there are causal relationships between them. The second model, the structural equation model, enables confirmation of the pre-specified links between the exogenous and endogenous variables and a simulated analysis of multiple regression is run (Hair et al., 2006).

4.18 Validity and reliability

Three important issues were identified by Saunders et al. (2009) in relation to the semi-structured type of interview used in qualitative research, i.e. the validity, the reliability and bias. The term validity relates to the degree to which access to the experience and knowledge of the participants is gained by the researcher, whilst the term reliability refers to whether similar information would be revealed by alternative research (Berg, 2012). In terms of bias, there are two kinds that ought to be given consideration when conducting research that is qualitative, i.e. response bias and interviewer bias. Moreover, validity can be viewed from two dimensions; internal and external. Internal validity ensures that the researcher investigates what he/she claims to be investigating. On the other hand, external validity is the extent to which the research findings can be generalised to a wider population (Noble and Smith, (2015).

Saunders et al. (2007) have suggested several methods by which validity and reliability can be ensured and bias avoided, as follows:

- A researcher ought to plan and be prepared for interviews in advance so that poor performance can be avoided;
- A researcher ought to provide participants with an interview theme list prior to the interview so that they can prepare to engage in discussion;

- Good relationships with participants ought to be established by the researcher so that a climate of confidentiality is created, and so that the interviewees are relaxed and more likely to be open when it comes to sharing information;

- A researcher ought to ask questions that are very clear;

- A researcher ought to give interviewees enough time, listen carefully to their explanations, make good notes and ensure that the interviews are recorded.

For this research, reliability and validity have been establishes through use of the method of questionnaire survey; a discussion of these matters can also be found in the chapter related to findings.

4.19 Summary

This chapter has provided the logic lying behind the combining of the two main research paradigms of interpretivism and positivism. When the research began, there was the intention of taking a combined approach; however, as the research process began to progress, it became evident that such an approach would not be applicable for the purpose of this research. The standpoints of the philosophies were developed within this chapter, and it was seen that individuals' behaviour and attitudes could be measured using an approach that was positivist. It is a fact that many researchers within the fields of knowledge sharing and knowledge management have adopted a positivist approach; likewise, it was considered appropriate to do so in this study. As such, the study data was collected from a sample of academics at the University of Baghdad using a questionnaire survey.

The survey instrument was structured to have eight sections, i.e. sections related to knowledge-sharing intention behaviour, self-confidence, professional environment, apparent mutual benefits, expected mutual relationships, self-acknowledgment, methods & techniques, and expected rewards. Alongside these were questions focused on demographic information such as age, gender, position, number of years working within higher education and academic qualifications.

A pilot study was carried out for measurement of the questionnaire validity and reliability prior to commencing the full, actual study. This chapter has also discussed details related to practical considerations, such as participation, sampling, scales of measurement and the procedures for data analysis. Once the study was completed, data was cleaned ready for coding and entering into the SPSS Version 23 for Windows package. This chapter has included a brief discussion of the analysis techniques, which included exploratory factor analysis and descriptive statistics. Following the exploratory factor analysis, confirmatory factor analysis was used to confirm factors based upon structural equation modelling (SEM); this is utilised to provide a strict assessment of the validity of the construct so that it could be ensured that the construct meaning, in theoretical terms, was captured empirically by the relevant indicators. Following this, there was a discussion of the study model fit assessment using the Amos Version 23 software. There was discussion of the model of measurement at the level of the individual and the use by the researcher of the maximum likelihood estimation procedure for all of the structured models. It was noted that there are five goodness of fit indices for assessment of models of measurement, i.e. the goodness of fit index (GFI), the chi-square (X_2), the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the non-normed fit index (NNFI). Finally, this chapter highlighted the ethical issues that are involved in conducting a research study such as this.

Chapter 5: Findings and analysis of data

5.1 Introduction

In order to achieve the objectives of this research, this chapter focuses upon data analysis and unearthing of relationships between dependent and independent variables. Quantitative methods were adopted within the study, with the data obtained through the use of a questionnaire survey. Details of the methodology and methods employed in the research study have been provided in the previous chapters. This chapter, however, focuses upon analysis of the data collected and subsequent discussions that arise because of the findings. In order to analyse the quantitative data, several statistical techniques were employed with their basis in structural equation modelling (SEM) founded on the software AMOS (Version 23) and the Statistical Package for Social Sciences (SPSS) (Version 23). Following this introduction, the chapter consists of sections that look, in turn, at the management of the data, the screening of the data before it was analysed, the demographic characteristics, factor loading and the analysis of data, the testing of the hypotheses and, finally, provide conclusions.

5.2   The management of data

The questionnaire survey was carried out over the weeks from October 2015 to January 2016 by emailing and visiting potential participants who had been randomly selected from samples taken from a variety of departments at the University of Baghdad in Iraq. The survey participants were all academic members of faculties such as senior lecturers, lecturers and assistant lecturers, and professors, assistant professors and associate professors. All employee categories were taken into consideration proportionately within the random sampling. In collecting the data, due process was adopted such as the sending of at least two reminders to those who had not responded after the initial two weeks.

All of the participants were free to make responses anywhere and at any time and so there was no duress in completing the form. In the main, SPSS (Version 23 for Windows) was employed in the data analysis in order to undertake an assessment of the descriptive statistics and an exploratory factor analysis. Once the exploratory factor analysis had been completed, confirmation of the factors was performed through a confirmatory factor analysis upon the basis of the structural

equation modelling (SEM) technique. Following this, AMOS (Version 23) software was applied in order to provide an assessment of the study's model fit. All participant responses were entered into the software using a numeric response value, with question item coding being undertaken for entry of data into SPSS spreadsheet rows and columns that had been developed. As mentioned within the chapter related to methodology, Chapter 4 above, a five-point Likert-scale was employed for gathering the respondents' attitudes with respect to factors with a relation to knowledge sharing. As such, a value of 1 was given to represent 'Strongly disagree' and a value of 5 was given to represent 'Strongly Agree'. In addition, a value of 99 was given to represent incidences where the data was missing. Lastly, in order to clean the data, descriptive statistics tests were employed and a frequency test was carried out so that unexpected entries, such as typing errors, and/or missing data could be identified.

5.2.1 The preparation and screening of data

Data accuracy is needed in order to analyse participant responses because missing data could impact upon the analysis and subsequent statistical results, leading to bias and invalidity (Hair et al., 2010). As discussed below, issues such as linearity, outliers, normality and missing data can all have an impact on variable relationships (Field, 2009; Hair et al., 2010). For the purposes of this research study, questionnaires that were not possible to use were filtered out prior to undertaking the data analysis.

5.2.2 Missing data

Whilst preparing data, researchers may be faced with the issue of missing data for several reasons. A number of respondents may fail to finish all of the questionnaire survey or decide to skip certain questions. Moreover, there may be a refusal to answer questions that are considered too personal or a respondent may feel that they lack knowledge in a particular topic area (Little and Rubin, 2014). For the researcher, therefore, the main aim at this particular stage is the identification of relationships and patterns that underlie the missing data so that, if a remedy is applied, a distribution of values as close as possible to the original value distribution can be maintained (Hair et al., 2010). Therefore, the SPPS package was applied in this study in order to find the missing

data, and it was discovered that only four of the questionnaires were experiencing the issue and this was considered to be a manageable and insignificant level.

5.2.3 Outliers

For this research, the frequency function given in SPSS was used to check the missing data; however, the Mahalanobis distance-computing feature of SPPS was used to check the outliers. The Mahalanobis distance indicates the distance of the response of a particular participant from a centroid of the responses that remain that have been gathered from the other participants; the point made by the variable means being the centroid (Tabachnick and Fidell, 2001). If the Mahalanobis distance of a response under a construct undergoes division by the degrees of freedom (which equals the number of items under a construct) and the resulting merit figure is less than four, then multivariate outliers can be detected (Hair et al., 2006). In employing Mahalanobis distance to test multivariate outliers, the presence of outliers was indicated as it was discovered that the ratio D2/DF was within four for most cases, with a few cases being away from that four reference figure. Given the small number of such outliers, which were also discovered to be close to the four thresholds, it was decided that deletion of those responses was not necessary as they were not extreme outliers.

5.2.4 Data normality

The term normality within statistics refers to the distribution of data, which is an assumption that is fundamental in the measurement of variable variation. Whilst normal distribution of variables is not always discovered, it has been found to be better for data analysis (Donald 2016).

Normality only has a serious effect when there are small samples of less than or equal to 50; when the size of the sample in question is greater than or equal to 200 cases, the impact diminishes in effect. This particular study has a sample size of 326, and so the results are minimally affected by normality. The visual indications of the figures that follow below show that there is a normal distribution of data in this study. It is common for normality to be assessed by visual inspection of the distribution (Ghasemi and Zahediasl, 2012). Visual checking of normality is often carried out

using a scatter plot, a frequency distribution (histogram), and a probability-probability plot (P-P plot) (Field, 2009; Ghasemi and Zahediasl, 2012). As noted in the work of Filzmoser (2016), the frequency distribution with a plot of the values observed against their frequency enables a visual judgement to be made over the shape of the distribution, i.e. whether it is bell-shaped or not, and provides insights into data gaps and the existence of outliers. As shown in Figure 5.1 below, a P-P plot shows cumulative variable probability against the cumulative probability of a normal distribution for a particular distribution. In addition, with data that has been presented visually, those reading a published piece of research work can make their own judgement over distribution assumptions (Ghasemi and Zahediasl, 2012).
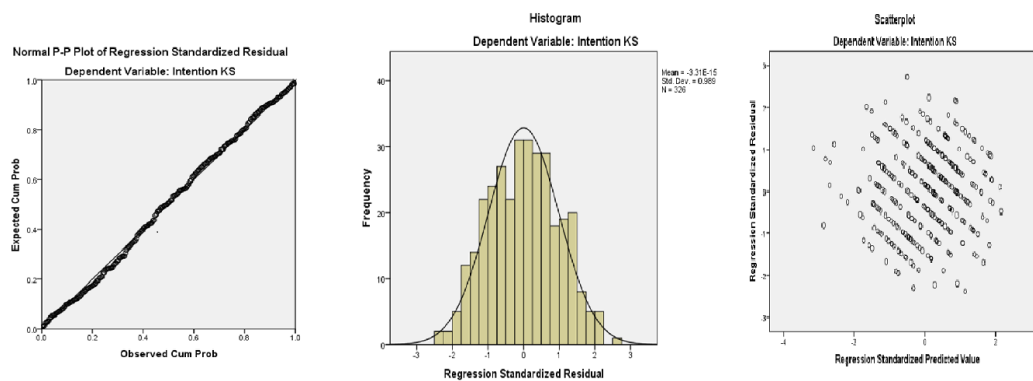
Figure 5.1 Histogram, P-P plot and scatter-plot (all clearly suggesting a normal data distribution)

5.2.5 Homoscedasticity

The homoscedasticity is an estimate of the variance of dependent variables when related to independent variables. There is an assumption that variable variation ought to be constant within multiple regression analysis (Field, 2009). Hair et al. (2006: 83) consider that "*homoscedasticity is the assumption that dependent variable(s) exhibit equal levels of variance across the range of predictor variable(s)*". Consequently, there is reference to an assumption of normality such that, when the assumption of multivariate normality is met, the variables have relationships that can be said to be homoscedastic (Field, 2009; Tabachnick and Fidell, 2001). With the grouping of data, homoscedasticity is referred to as being in homogeneity – measurement of which can be

undertaken by both statistical and graphical methods (Field, 2009; Hair et al., 2006). As shown in Figure 5.2 below, for this study, a graphical method was applied in order for the homogeneity of variances to be established. The constant placement of circles around the horizontal line shows that the error variance is constant with the predictive variable varying values.
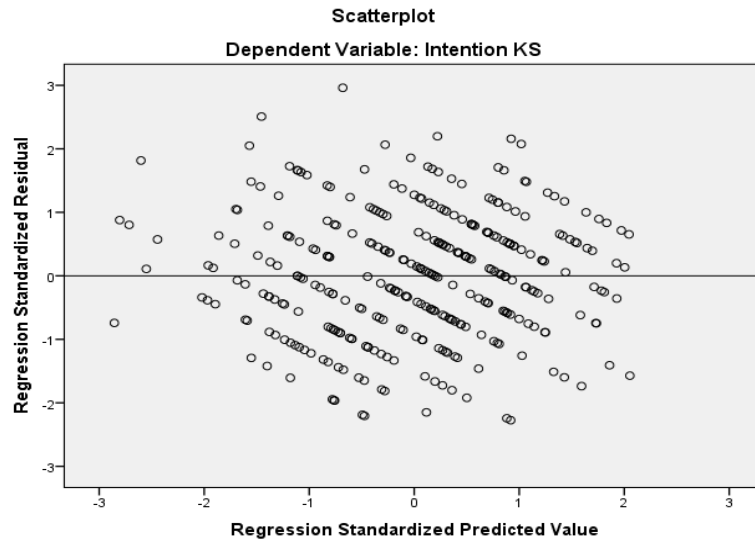
Figure 5.2 Scatterplot

5.2.6   Response rate and description of the sample

Within this section of the study, respondents' demographic details are given and then the KS types that are used by the academics are classified and discussed. Following this, the university questionnaire data is presented with the individual factors that have a bearing on KS placed within tables and discussed. As per the suggestion of Pallant (2010), the results were invited in order to facilitate comparison between the means and percentages. Consistency of the particular variable questions has been shown within the results.

5.3 The demographic statistics

In order to determine if potential participants were appropriate for inclusion within the research study, all of them were asked a number of personal and categorical questions; and the overview could then be presented for the relevant beneficiaries (Howitt and Cramer, 2008). This section describes the demographic of the participants' characteristics from the various university

departments. There is a demographic distribution of the academics based on their age, gender, profession, tenure and qualifications, as shown in Table 5.1 below.

The percentage of female participants was 26.7% (n=87) and for males it was 73.3% (n=239). As such, the female participants can be seen to be greatly outnumbered in the study; this is mainly because of cultural and social factors within the region. The participants were grouped into five categories related to age, as shown in Table 5.1. As such, it can be seen that 7.1% of participants (n=23) were aged between 25 and 30 years, 36.9% of participants (n=129) were aged between 31 and 40 years, 28.8% of participants (n=94) were aged 41 and 50, 21.8% of participants (n=71) were aged between 51 and 60 years, and the smallest number of respondents were aged 61 or over comprising 2.8% (n=9) of the participants. From these results and because of the nature of the work involved, it can be assumed that, for the University of Baghdad, the preferred age group (the one with the highest percentage) is the 31 to 40 group.

Table 5.1 The demographic statistics for the sample from the University of Baghdad

Characteristic	Group	Frequency/Percentage		Overall sample	
		No	%	No	%
Gender	Male	239	73.3	326	100
	Female	87	26.7		
Age	61 or over	9	2.8	326	100
	51-60	71	21.8		
	41-50	94	28.8		
	31-40	129	39.6		
	25-30	23	7.1		
Academic profession	Professor	67	20.6	326	100
	Assistant professor	32	9.8		
	Lecturer	133	40.8		
	Assistant lecturer	94	28.8		
Academic qualification	PhD	201	61.7	326	100
	Master	125	38.3		
Tenure	26 or more years	41	12.6	326	100
	21-25 years	49	15.0		
	16-20 years	80	24.5		
	11-15 years	95	29.1		
	6-10 years	38	11.7		
	1-5 years	23	7.1		

(Please note, No = number and % = percentage)

Moreover, Table 5.1 also shows the percentages and frequency for the participants' profession. The biggest respondent group were lecturers, who formed 40.8% of those studied (n=133), with the second biggest group being assistant lecturers who made up 28.8 % of respondents (n=94). Professors formed 20.6% of respondents (n=67) and the smallest group of respondents were assistant professors who formed 9.8% of the total (n=32). Respondents were also formed into groups according to the academic qualification achieved, and this revealed that 38.8% of respondents had a Master's degree and 61.7% had a doctorate. In relation to tenure, the respondents were grouped according to how long they had held their position, as follows: 7.1% had been in their role for 1 to 5 years, 11.7% had held their post for 6 to 10 years, 29.1 % had held their post for 11 to 15 years, 24.5 % for 16 to 20 years, 15 % for 21 to 25 years and, finally, 12.6% had held their post for 26 years or more.

5.4 Data results

Within this chapter section, the data results collected from participants are shown for the various departments at the University of Baghdad.

5.3.1   Attitudes towards the sharing of knowledge

Relational connections (II)

Table 5.2 The relational connections result

Q	Bock et al. (2005)	STD	DIS	NE	AG	SAG	Mean	SD
II1	My knowledge sharing with other academics in the university is good		4.0	19.6	49.7	26.7	3.99	0.79
II2	My knowledge sharing with other academics in the university is an enjoyable experience	0.3	2.5	18.7	49.7	28.8	4.0	0.77
II3	My knowledge sharing with other academics in the university is valuable to me		2.8	17.8	48.5	31.0	4.0	0.77
II4	My knowledge sharing with other academics in the university is a wise move		3.1	19.6	49.1	28.2	4.0	0.77

(STD = Strongly Disagree, DIS = Disagree, NE= Neutral, AG = Agree and SAG = Strongly Agree)

The items here have been adapted from the research of Bock et al. (2005) and, in general, it can be seen that academics are determined to knowledge share as most responses to all of the questions are in the category of agreement. In addition, Table 5.2 shows the standard deviation and mean for

all of the factors. Since the standard deviation ranged from 0.77 to 0.79 and the mean ranged from 3.99 to 4.0, the data normality for the research is acceptable.

Expected rewards (AER)

Table 5.3 The statistical results for expected rewards

Q	Bock et al. (2005)	STD	DIS	NE	AG	SAG	Mean	SD
AER1	I will receive monetary rewards in return for my knowledge sharing	3.1	12.9	10.7	42.9	30.4	3.8	1.0
AER2	I will receive additional points for promotion in return for my knowledge sharing	1.8	14.1	10.4	42.3	31.3	3.8	1.0

Generally, as shown in Table 5.3, most respondents had a positive attitude with regard to extrinsic rewards. For this element of the questionnaire it seems that academics, in general, considered that their KS was likely to accrue extrinsic rewards. On the other hand, 20.6% of respondents were in disagreement with the statement that 'I will receive monetary rewards in return for my knowledge sharing'. The standard deviation was from 1.0 to 1.1 and the mean ranged from 3.2 to 3.8.

Expected mutual relationships (ARR)

Table 5.4 The results for expected mutual relationships

Q	Bock et al. (2005)	STD	DIS	NE	AG	SAG	Mean	SD
ARR1	My knowledge sharing would strengthen the ties between existing members in the university and myself	0.6	15.6	31.9	32.2	19.6	3.5	0.99
ARR2	My knowledge sharing would get me well-acquainted with new members in the university	2.1	10.4	32.2	39.9	15.3	3.5	0.94
ARR3	My knowledge sharing will expand the scope of my association with other members in the university	0.6	4.6	35.9	38.3	20.6	3.7	0.85
ARR4	My knowledge sharing would draw smooth co-operation from outstanding members in the future	1.2	4.9	34.7	38.7	20.6	3.7	0.88
ARR5	My knowledge sharing would create strong relationships with members who have common interests in the university	0.9	5.2	35.6	38.3	19.9	3.7	0.87

This questionnaire section sought to provide measurement of the anticipated reciprocal relationship and was concerned with relationship changes with regard to respondents' dealings with other staff members. In general, this questionnaire section shows that academics have the belief that their KS is likely to accrue reciprocal relationships and relationship development. Table 5.4 shows whether respondents agree or are neutral with regard to whether engaging in knowledge sharing with another university staff member is more likely to lead to good relationship development. The standard deviation ranged from 0.85 to 0.99 and the mean ranged from 3.5 to 3.7.

Apparent mutual benefits (PRB)

Table 5.5 The results for apparent mutual benefits

Q	Blau, (1964)	STD	DIS	NE	AG	SAG	Mean	SD
PRB1	When I share knowledge with other university academics, I expect them to respond to my knowledge needs		0.3	31.0	31.0	37.7	4.0	0.83
PRB2	When I share knowledge with other university academics, I believe that my queries regarding knowledge will be answered in the future		0.3	29.1	31.6	39.0	4.0	0.82
PRB3	Other members of my university help me, so in return I help them out when they need my knowledge		0.3	28.2	31.9	39.6	4.1	0.82

This questionnaire section aimed at assessing the perceptions of participants with regard to their level of agreement about enrichment of the degree of KS-type communication between academics at the University of Baghdad. Table 5.5 clearly demonstrates that participants tended to either strongly agree or agree with all three of the statements provided. In the main, participants were more inclined to agree strongly. The standard deviation ranged from 0.82 to 0.83 and the mean ranged from 4.0 to 4.1.

5.3.2 Subjective norm

Self-confidence (SSW)

Table 5.6 The results for self-confidence

Q	Bock et al. (2005)	STD	DIS	NE	AG	SAG	Mean	SD
SSW1	My Head of Department thinks that I should share my knowledge with other academics in the university		0.9	25.5	44.2	29.4	4.0	0.76
SSW2	My manager thinks that I should share my knowledge with other academics in the university		0.9	35.9	42.6	20.6	3.8	0.75
SSW3	My colleagues think I should share knowledge with other academics of the university		1.2	31.3	41.4	26.1	3.9	0.78
SSW4	Generally speaking, I try to follow the Vice Chancellor's policy and intention			35.0	41.4	23.6	3.8	0.75
SSW5	Generally speaking, I have my own views and accept and carry out my manager's decision		1.2	21.5	38.3	39.0	4.1	0.79
SSW6	Generally speaking, I respect and put into practice my colleagues' decisions			33.7	35.0	31.3	3.9	0.80
SSW7	My knowledge sharing would help other members in the university solve problems		1.2	21.2	43.9	33.7	4.1	0.76
SSW8	My knowledge sharing would create new business opportunities for the university		0.3	31.6	45.7	22.4	3.9	0.73
SSW9	My knowledge sharing would improve work processes in the university		1.2	20.6	47.5	30.7	4.0	0.74
SSW10	My knowledge sharing would increase productivity in the university			27.0	43.9	29.1	4.0	0.75
SSW11	My knowledge sharing would help the university achieve its performance objectives		0.6	30.4	38.7	30.4	3.9	0.79

The question cluster here sought to measure the beliefs of respondents with regard to the likelihood of their sharing of their knowledge leading to improvement in the performance of their organisation. The study respondents agreed with all the section statements and, broadly speaking, were in agreement that knowledge sharing would be helpful to other university members in problem solving. The standard deviation ranged from 0.67 to 0.82 and the mean ranged from 3.8 to 4.3.

Professional environment (OC)

Table 5.7 The results for professional environment

Q	Bock et al. (2005)	STD	DIS	NE	AG	SAG	Mean	SD
OC1	Academics within my department keep close ties with each other	2.5	8.6	34.0	31.3	23.6	3.6	1.0
OC2	Academics within my department highly consider the standpoints of others			22.7	49.4	27.9	4.0	0.71
OC3	Academics within my department have a strong feeling of 'one team'	2.5	8.6	31.6	38.3	19.0	3.6	0.96
OC4	Academics within the university co-operate well with each other			25.5	35.9	38.7	4.1	0.79
OC5	My department encourages suggesting ideas for new opportunities	1.2	16.3	37.1	40.5	4.9	3.3	0.84
OC6	My department puts much value on taking risks even if that turns out to be a failure		14.1	28.5	57.4		3.4	0.72
OC7	My department encourages finding new methods to perform a task	2.5	16.3	37.7	38.7	4.9	3.2	0.87
OC8	I can trust my manager's judgement to be sound			30.7	35.3	34.0	4.0	0.80
OC9	Objectives are given to me which are often reasonable	2.5	16.6	37.4	38.7	4.9	3.2	0.88
OC10	My manager shows favouritism towards others equally			39.6	38.7	21.8	3.8	0.76

Within the section dedicated to professional environment, all the statements were responded to with positive sentiment. As shown in Table 5.7, the questions were answered in a way that reflected positive attitudes in respect of their organisation and towards other academic members of staff in their knowledge sharing. It can be seen that 57.4% of the participants were in agreement with the statement that the 'department puts much value on taking risks even if that turns out to be a failure'. The standard deviation ranged from 0.71 to 1.0 and the mean had a range from 3.2 to 4.1.

5.3.3 Perceived behavioural control (PBC)

Self-acknowledgment (SE)

Table 5.8 The results for self-acknowledgment towards knowledge sharing

Q	Kankanhalli et al. (2005)	STD	DIS	NE	AG	SAG	Mean	SD
SE1	I have enough time available to share knowledge with my fellow academics	2.8	19.0	34.4	43.9		3.1	0.83
SE2	I have the ability to share knowledge with my fellow academics	1.2	23.0	34.0	39.3	2.5	3.1	0.85
SE3	Sharing knowledge with my fellow academics is within my control	1.2	12.3	19.9	46.3	20.2	3.7	0.96
SE4	I am able to share knowledge with my fellow academics easily	2.8	17.8	35.0	43.9	0.6	3.2	0.84
SE5	I feel confident clearly expressing my ideas with other members of my university	1.5	23.0	37.1	38.3		3.1	0.81
SE6	I feel confident responding to others' communications within my university			23.9	51.8	24.2	4.0	0.69
SE7	I feel confident articulating my ideas into written, verbal or symbolic forms	1.2	8.6	32.2	36.5	21.5	3.6	0.94
SE8	I feel confident applying my knowledge to help others resolve their problems		0.3	41.1	28.5	30.1	3.8	0.84

Within this questionnaire section, the respondents had various opinions, though they were, in the main, positive with regard to self-acknowledgment, as can be seen in Table 5.8. It can be seen that 46.3% of respondents were in agreement with the statement that 'Sharing knowledge with my fellow academics is within my control', and 51.8% of respondents were in agreement with the statement that 'I feel confident responding to others' communications within my university'. However, 23.0% of respondents were in disagreement with the statements 'I feel confident clearly expressing my ideas with other members of my university', 'I have the ability to share knowledge with my fellow academics' and 'I feel confident clearly expressing my ideas with other members of my university'. The standard deviation had a range from 0.69 to 0.96 and the mean ranged from 3.1 to 4.0.

Methods & techniques (TT)

Table 5.9 The results for methods & techniques

Q	Davis (1989)	STD	DIS	NE	AG	SAG	Mean	SD
TT1	In my university, I can easily access tools & technology when I want to share knowledge	19.0	36.2	19.3	19.3	6.1	2.5	1.1
TT2	In my university, it is easy to use tools & technology to share knowledge	13.2	31.3	30.4	25.2		2.6	0.99
TT3	In my university, tools & technology for sharing knowledge is reliable		19.0	41.4	39.6		3.2	0.73
TT4	In my university, tools & technology for sharing knowledge can be customised to fit individual needs		21.8	37.1	41.1		3.1	0.77
TT5	In my university, I am satisfied with the overall quality of tools & technology for sharing knowledge	19.9	34.4	22.1	19.3	4.3	2.5	1.1
TT6	I have the necessary tools to share knowledge with my fellow academics		24.8	34.4	40.8		3.1	0.79

As shown in Table 5.9, this section of the questionnaire revealed rather negative attitudes with regard to the statements related to methods & techniques. A total of 34.4% of respondents disagreed with the statement 'I am satisfied with the overall quality of methods & techniques for sharing knowledge' and 36.2% disagreed with the statement 'I can easily access methods & techniques when I want to share knowledge'. The standard deviation ranged from 0.73 to 1.1 and the mean ranged from 2.5 to 3.2.

5.3.4 The intention to share knowledge (ISK)

Table 5.10 The results for the dependent variable intention to share knowledge

Q	Constant et al. (1994); Dennis (1996); Fishbein and Ajzen (1981)	STD	DIS	NE	AG	SAG	Mean	SD
ISK1	I will share my work reports and official documents with academics of my university more frequently in the future		0.3	30.7	31.6	37.4	4.0	0.83
ISK2	I will always provide my manuals, methodologies and models for academics in my university	0.6	15.6	31.9	32.2	19.6	3.5	0.99
ISK3	I intend to share my work experience with other university academics more frequently in the future	2.5	8.6	33.7	31.6	23.6	3.6	1.0
ISK4	I will always provide my know-where or know-whom at the request of other university academics		1.2	31.9	42.0	24.8	3.9	0.78
ISK5	I will try to share my education or training expertise with other university academics in more effective way	20.2	34.0	22.1	19.3	4.3	2.5	1.1

Table 5.10 shows that participants were in disagreement with the first two of the statements. For instance, 58.3% of respondents were in disagreement with the statement that 'I will always provide my manuals, methodologies and models for academics in my university'. Respondents did, however, agree with the remaining statements, with 55.2% in agreement with the statement that 'I will try to share my education or training expertise with other university academics in more effective way'. The standard deviation ranged from 0.64 to 0.72 and the mean ranged from 1.7 to 4.2.

5.4 The t-test

The independent samples t-test offers comparison of two groups that are independent so it can be determined whether statistical evidence exists to demonstrate the presence of a significant difference between the associated population means. A t-test investigates whether it is unlikely for a difference between the averages of two groups to have occurred due to random chance in the selection of the sample. The difference is more likely to be actual and meaningful if: i) there is a large sample size; ii) there is a large difference between averages; and iii) the responses are not spread out widely and they are consistently near to the average values, i.e. there is a low standard deviation. The two-main t-test outputs are the effect size of the t-test and the statistical significance

of the t-test. The statistical significance is an indication of whether the difference between the averages of samples is likely to be a representation of a real difference between the populations. As such, the t-test was employed in comparing the differences between female and male respondents, giving a figure of 0.345. In addition, the t-test was employed for comparing differences in the qualifications of the group, giving a figure of 0.349. The t-test for the mean differences revealed an insignificant level for both of the groups with a figure of 0.05; as such, it was confirmed that no non-response bias was present (Hair et al., 2010). Figure 5.3 below highlights the t-test results for the qualification and gender groups.

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Intention KS	Male	239	3.5155	.46964	.03038
	Female	87	3.6069	.46401	.04975

	Qualification	N	Mean	Std. Deviation	Std. Error Mean
Intention KS	PhD	201	3.5353	.46346	.03269
	Master	125	3.5472	.48002	.04293

Figure 5.3 t-test results for the group gender and qualification

5.5 One-way ANOVA test

Rather than a t-test, comparison of the means of three or more independent groups was performed through use of the analysis of variance (ANOVA) test, so that there could be assessment of whether there were differences statistically significant between them. According to Tabachnick and Fidell, (2007: 38), in essence, ANOVA is "*a set of analytic procedures based on a comparison of two estimates of variance*" and this enables determination of whether a score set hails from the same group of the population. The first of the estimates had a calculation founded on the differences between the scores within groups, and the second of the estimates came from differences between the means of the groups. If there is not a substantial difference in the two variance estimates, it could be concluded that any differences amongst the means of the groups could be attributed to random error. On the other hand, with a significant difference, it can be concluded that the difference is because they hail from groups that are different.

A significant difference between all of the age groups within the demographic statistics was found by the ANOVA test. The highest mean of 4.00 was found for the age group of 31 to 40, and this was followed by the 41 to 50 age group with a mean of 3.50. A lower mean was then found for the 51 to 60 age group at 3.09 and, finally, a mean of 2.57 was the lowest which was found for the group who were 61 years and over. The results show that middle-age academics had more intention of knowledge sharing than those members in both the older age group (those aged 61 years or over) and the younger age group of 25 to 30 years of age, with a mean of 2.80. Figure 5.4 shows the ANOVA test result for the age groups.

Intention KS

	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	63.470	4	15.868	631.051	.000
Within Groups	8.071	321	.025		
Total	71.542	325			
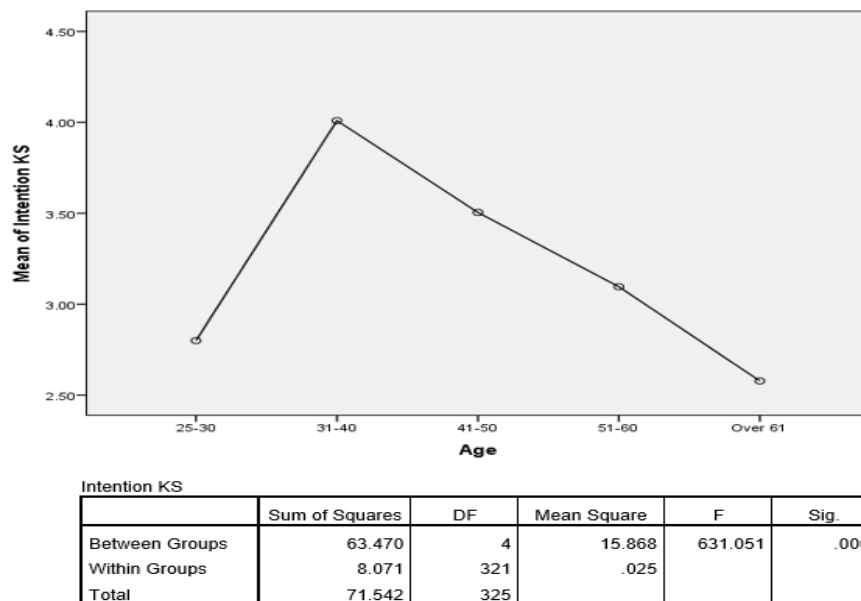
Figure 5.4 ANOVA test result for group age

Testing was performed on the effect made by academic profession through use of the one-way ANOVA test and then Tukey's HSD test. It was shown that knowledge-sharing intention scores had a significant difference at $p<.05$ for groups that had different job positions (Figure 5.4), and this, with DF (3,325), F=602.7 and P=0.000, had a significant difference across the four groups. The means for the groups within the Tukey post-hoc comparisons indicated the lower mean of 2.73 for the role of assistant professor. Professors had a significantly more positive intention to share knowledge, with the second lowest mean score of 3.09. Respondents in lower academic

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position had a higher intention to share knowledge, as shown by the mean scores of 3.49 for the assistant lecturer position and 3.98 for lecturers. These results suggest that participants holding lower academic positions are more involved with the sharing of knowledge and, so, had perceptions that were more positive.

Intention KS

	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	60.719	3	20.240	602.175	.000
Within Groups	10.823	322	.034		
Total	71.542	325			
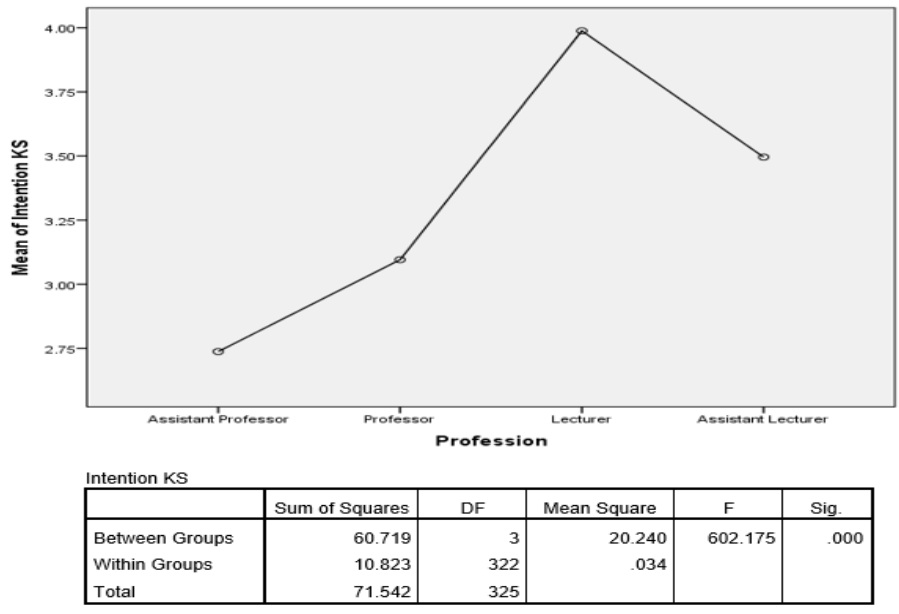
Figure 5.5 ANOVA test result for academic profession group

The effect of the length of experience in working in the role was tested through use of the one-way ANOVA test followed by use of the Tukey HSD test. The results of these tests showed that, across groups, there were significant differences ($p<.05$) for the intention to share knowledge (see Figure 5.15); these had significant differences across the six groups (DF of 5,325; F of 704.49; P=0.000). Tukey post-hoc comparisons performed on the six groups showed that there were lower means of 2.80, 3.00, and 3.06 for work experience ranges of 1 to 5 years, 6 to 10 years and 26 or more years, respectively. Thus, the mean showed that respondents with 26 or more years and less than 10 years of experience were less likely to have the intention to share knowledge. The mean score for respondents with 16 to 20 years' experience was highest for all the groups at 4.14, however, which shows a significantly positive intention to share knowledge. The second highest mean score (3.40)

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was for respondents who had 21 to 25 years of experience, whilst those respondents with 11 to 15 years of experience had a mean score of 3.70, showing a positive intention to share knowledge.

Intention KS
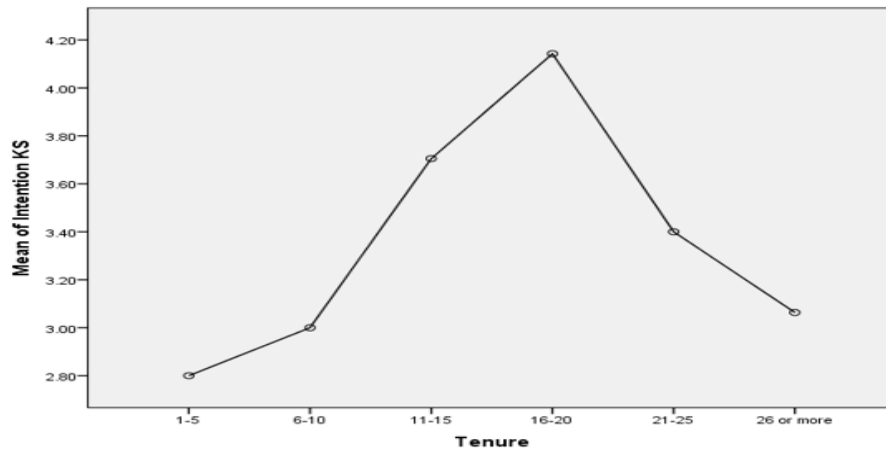
	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	65.584	5	13.117	704.491	.000
Within Groups	5.958	320	.019		
Total	71.542	325			

Figure 5.6 ANOVA test result for academic tenure group

5.6 Factor loading and data analysis

Data reduction was conducted using factor analysis (FA) techniques to identify variable clusters of groups. The factor that produces the group variables shows the relationship that the variables have to the factor. Three main uses for factor analysis have been defined by Field (2009: 169) as:

a) *To provide an understanding of the structure of a group of variables;*

b) *To construct a questionnaire for the measurement of any underlying variables;*

c) *To reduce a set of data to a size that is more manageable whilst as much of the original information is retained as possible.*

Underlying dimensions with which there appears to be a meaningful grouping of variables are included in factor analysis; as Field (2009) noted, this can be achieved through seeking out

variables that have a high correlation with another variable group though without having a correlation with other variables lying outside the group. Factor analysis does, in fact, give the tools for analysis of the structure of correlations (interrelationships) amongst large numbers of variables through definition of groups of variables (that have a high degree of interrelationships), also known as factors (Hair et al., 2006). Various techniques can be employed to achieve this purpose, such as confirmatory or exploratory factor analysis. Both of these approaches are used in data reduction or structuring variable groups; however, confirmatory factor analysis (CFA) techniques involve the grouping together of variables upon a factor or a specific number of factors for the testing of hypotheses and the exploratory factor analysis (EFA) technique is employed to "*take what the data give you*" (Hair et al., 2006: 104). At first, this research used EFA for gathering data in a group for a factor and then implemented CFA techniques in order to confirm the measurement variable group was related to a factor for the examination of the hypotheses. The existence of clusters existing for large correlation coefficients between variable subsets suggests that these variables may have measured elements of the same dimension underlying them (Field, 2009).

5.7 Exploratory factor analysis

SPSS version 23 for Windows was used for the exploratory factor analysis in this research. Within SPSS, there are several procedures that can be used for factor extraction and rotation. Of these procedures, the most common one, and a default within SPSS programmes, is the principal component extraction method for the extraction of maximum variance with each of the components from a set of data. The principal component extraction is the combination linearly of the variables observed that are separating subjects through maximisation of the variance for their component score (Tabachnick et al., 2001). There are numerous ways of assessing the number of factors and extraction adequacy; however, the most common ones are the scree plot and eigenvalues. Prior to proceeding with extracting factors, it is key that the variability within scores (the variance) for any of the given variables or measures is calculated (Field, 2009). As Hair, et al. (2007) noted, communality refers to the total variance amount that an original variable shares with all of the other analysed variables. A communality of 1 would be for a variable without a specific variance (or variance that is random). If a variable does not share anything with the other variables,

then it would have a communality of 0. Factor loading can be used to calculate communality where the model contains multiple constructs in which there is a need for communalities of less than 0.5, and, for a sample size that is larger, communalities are required that are less than 0.7 (Field, 2009; Hair et al., 2007). For this study, variables were applied that had a communality value that was above 0.5. The results illustrated that all of the variables held in the factor loading had communality values that were above 0.5, and confirmed that variation was high, from a level of 0.634 to 0.974, which indicated a high level of variance amongst the variables.

5.7.1 The eigenvalue

Within the principal component extraction method, eigenvalues have an association with a variance that is indicative of the substantive importance held by that factor. As noted in the work of Tabachnick et al., (2001), a rapid estimation of the factor numbers can be acquired from the size of the reported eigenvalues as an element of a first run model with the principal component extraction. With a contribution of 1 from each variable of component analysis variance, components with an eigenvalue lower than 1 have no importance (Field, 2009; Hair et al., 2006; Tabachnick et al., 2001). Thus, there is only significance for factors that have eigenvalues that are more than 1; all of the factors that have latent roots that are below 1 are seen as being insignificant and, therefore, can be disregarded (Hair et al., 2006). For this research, data extracting factors showed 10 factors that had an eigenvalue that was bigger than 1 (Table 5.11). Following an initial high value factor, successfully lower eigenvalues were discovered.

Table 5.11 Total variance explained

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.714	16.255	16.255	4.714	16.255	16.255	3.615	12.467	12.467
2	3.697	12.747	29.001	3.697	12.747	29.001	3.329	11.479	23.945
3	3.194	11.012	40.014	3.194	11.012	40.014	3.014	10.392	34.338
4	2.796	9.642	49.656	2.796	9.642	49.656	2.862	9.869	44.206
5	2.283	7.872	57.528	2.283	7.872	57.528	2.514	8.670	52.876
6	1.977	6.818	64.346	1.977	6.818	64.346	2.431	8.383	61.259
7	1.853	6.389	70.735	1.853	6.389	70.735	2.274	7.843	69.102
8	1.426	4.918	75.653	1.426	4.918	75.653	1.900	6.551	75.653
9	.852	2.937	78.589						
10	.728	2.510	81.100						
11	.648	2.235	83.334						
12	.635	2.191	85.525						
13	.591	2.037	87.562						
14	.437	1.505	89.068						
15	.414	1.428	90.495						
16	.382	1.318	91.813						
17	.357	1.232	93.045						
18	.330	1.139	94.184						
19	.311	1.073	95.257						
20	.261	.900	96.156						
21	.214	.737	96.893						
22	.185	.637	97.530						
23	.178	.614	98.144						
24	.141	.488	98.631						
25	.121	.416	99.048						
26	.091	.314	99.362						
27	.087	.300	99.662						
28	.069	.238	99.901						
29	.029	.099	100.000						

Extraction Method: Principal Component Analysis.

5.7.2 The scree plot

With identification of extraction factors through use of eigenvalues, it is common for a scree plot to be employed in confirming the maximum factor number. By way of logic, factors ought to be extracted with eigenvalues that are high; however, this decision can be made through the plotting of a scree graph. Derivation of the scree plot test is achieved through the plotting of the latent roots against the factor numbers by the order by which they were extracted; the resulting curve shape is employed for an evaluation of the cut-off point (Hair et al., 2006). It is usual for there to be a negative decrease in the scree plot, with the first factor having the highest eigenvalue and moderate decreasing levels over the following few factors before smaller values are reached for the final factors (Tabachnick et al., 2001). Through application of a scree plot test on the data for confirmation of the extracted factors by the eigenvalues, the same number of factors was confirmed by the researcher (Figure 5.7).
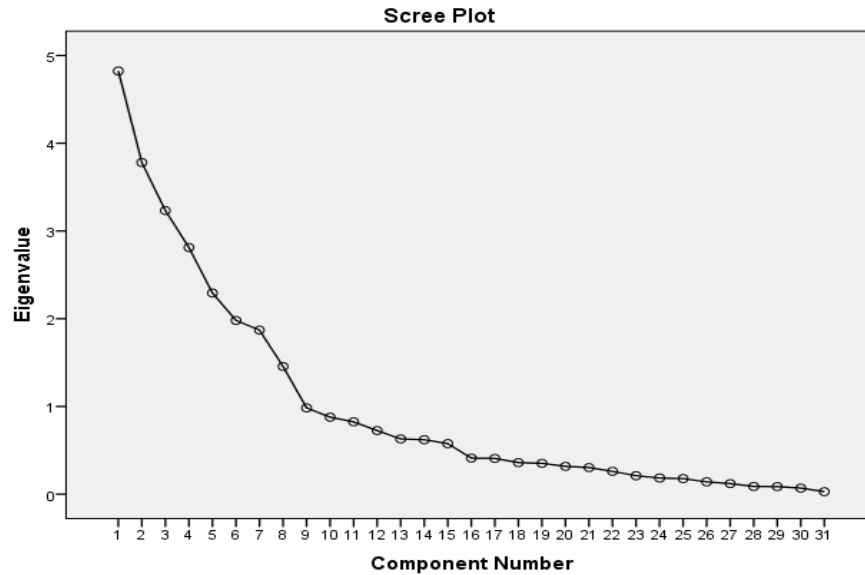
Figure 5.7 Scree plot

In inspecting the scree plot shown above in Figure 5.7, it can be seen that there is a clear break in the curve following the 8th component. Following use of the Scree Test of Catell (1966), the decision was made to keep the 8th component for closer investigation.

5.7.3 Factor extraction and rotation

Following extraction of the factors, there is a need to know the degree to which variables load upon them. To improve the interpretability and the solution utility in scientific terms, it is important to have rotation. Rotation is employed in the maximisation of high correlations of factors and variables, and the minimisation of those that are low; whilst various techniques can be employed in the development of factors from the variables, the rotation technique is clearly of great help. Two rotation method types are the oblique rotation and orthogonal rotation methods (Field, 2009; Hair et al., 2006; Tabachnick et al., 2001). Oblique rotation is helpful for use with co-relational values, whilst the orthogonal rotation method is helpful and used when variables involved are independent means factor rotated if there are non-correlational variables. Solutions that are orthogonal provide ease of interpretation, description and the reporting of results; however, unless the researcher is convinced that the process is close to being independent (with the vice versa being

the case for the oblique), then reality is strained (Tabachnick et al., 2001). However, as different extraction methods lead to similar results if the data set is good, also using different rotation methods which have the tendency to give similar results if there is a reasonably clear correlation pattern within the data (Tabachnick et al., 2001). A varimax orthogonal techniques, most commonly employed for rotation, was applied within this study, with it being employed in maximisation of variance. Tabachnick et al., (2001) consider the goal of varimax rotation to be the maximisation of factor loading variance through making low loadings lower for each of the factors, and high ones higher. The SPSS results showed that the Kaiser-Meyer-Olkin (KMO) measurement for sampling adequacy equated to 0.741; Field (2009) believed that the value ought to be higher than 0.50. Thus, the correlation matrix forcibility was supported by the value that was acquired within the current research (Figure 5.8).

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.741
Bartlett's Test of Sphericity	Approx. Chi-Square	6976.887
	DF	465
	Sig.	.000

Figure 5.8 KMO and Bartlett's Test

The rotated component matrix of scale was as shown in Table 5.12. The presence of eight components with eigenvalues over 1 was shown by the Principal Component Analysis with explanation of the variance being, respectively, 16.25%, 12.74%, 11.01%, 9.64%, 7.87%, 6.81%, 6.38% and 4.91%. A clear cut-off of these components was shown by the scree plot and, in order to help with interpretation of the eight components, a varimax rotation was performed. The presence of a simple structure was shown by the rotated solution, and it showed a strong loading number, with all of the variables shown to be loading upon components. Once the internal consistency of the factors was developed, Cronbach's alpha measure was used to assess each of the loaded factors. Item clusters were then specified for the most relevant element dimensions. Eight factors were then to be taken for more analysis (Table 5.12).

Table 5.12 The final eight factors for further analysis

Variables	Component							
	F1 SSW	F2 OC	F3 ARR	F4 PRB	F5 TT	F6 SE	F7 II	F8 AER
Colleagues think I should share with others	.877							
My KS would improve work processes	.858							
My KS solves problems	.852							
My Head of Department thinks	.832							
I have my own views	.784							
Strong feeling of 'one team'		.853						
Finding new methods to perform a task		.833						
Objectives given are often reasonable		.801						
Academics keep close ties with each other		.786						
Suggesting ideas for new opportunities		.673						
KS expands the scope with other members			.919					
KS creates strong relationships			.916					
KS draws smooth co-operation			.916					
KS gets me well-acquainted			.633					
When I share knowledge, I expect a response				.962				
I believe that my queries are answered				.948				
Members help me, in return I help them				.947				
I can easily access methods & techniques					.940			
I am satisfied with the quality of TT					.927			
It is easy to use methods & techniques					.772			
I have enough time available						.784		
Sharing knowledge is within my control						.769		
I feel confident expressing my ideas						.724		
I feel confident articulating my ideas						.685		
My KS with others is valuable to me							.922	
My KS with other academics is good							.909	
My KS with academics is a wise move							.648	
I will receive monetary rewards in return								.757
I will receive points for promotion								.720
Cronbach's Alpha for Reliability Analysis	.899	.860	.873	.974	.891	.777	.805	.941
% of Variance Explained	16.25	12.74	11.01	9.64	7.87	6.81	6.38	4.91
Extraction Method: Principal Component Analysis, Rotation Method: Varimax with Kaiser, Rotation Converged in 6 iterations								

The degree that variance was explained by the factors was at the level of 75.61% (Hair et al., 2006). Internal consistency of each factor's items was confirmed by Cronbach's alpha of each factor (Nunnally, 1978); the results showed that the factors could be considered as a foundation for the application of the confirmatory factor analysis (CFA). Anderson and Gerbing (1988) consider that, prior to the imposition of any causal relations amongst constructs, there ought to be proper specification through confirmatory factor analysis of the causal relations between underlying constructs and any related indicators. During the following stage, factor analysis was

performed for assessment of the construct and convergent scale validity. The eight components shown in Table 5.12 were named and given labels as follows:

- Factor 1: Self-confidence (SSW)
- Factor 2: Professional environment (OC)
- Factor 3: Expected mutual relationships (ARR)
- Factor 4: Apparent mutual benefits (PRB)
- Factor 5: Methods & techniques (TT)
- Factor 6: Self-acknowledgment (SE)
- Factor 7: Relational connections (II)
- Factor 8: Expected rewards (AER)

There was a consistent grouping of strong loadings upon some of the components, as mentioned above. However, certain items seemed to be measuring a variable that was different than that intended and, as such, were taken out from the set of data. Some of these items were problematic such as, for example, cross loading when the first order of factor analyses test was being run, giving a result of 17 factors prior to the removal of items, as shown in Table 5.13. The result became 12 factors following the second order of factor analyses, with exclusion from further analyses of items that were more problematic such as factors that had only a single variable.

Table 5.13 Twenty problematic items eliminated from further analysis

Factor	Item
Relational connections	My KS is an enjoyable experience (II2)
Expected mutual relationships	My knowledge sharing would strengthen the ties (ARR1)
Self-confidence	My manager thinks that I should share my knowledge (SSW2)
	I try to follow the Vice Chancellor's policy and intention (SSW4)
	I respect and put into practice my colleagues' decisions (SSW6)
	My KS would create new business opportunities (SSW8)
	My KS would increase productivity (SSW10)
	My KS would help achieve its performance objectives (SSW11)
Professional environment	Academics highly consider the standpoints of others (OC2)
	Academics co-operate well with each other (OC4)
	My department takes risks even if that turns out to be a failure (OC6)
	I can trust my manager's judgement (OC8)
	My manager shows favouritism towards others equally (OC10)
Self-acknowledgment	I have the ability to share knowledge (SE2)

	I am able to share knowledge easily (SE4)
	I feel confident responding to others' communications (SE6)
	I feel confident applying knowledge to resolve their problems (SE8)
Methods & techniques	In my university, TT is reliable (TT3)
	In my university, TT is customised to fit individual needs (TT4)
	I have the necessary tools to share knowledge (TT6)

5.8 Confirmatory factor analysis

The confirmatory factor analysis (CFA) technique is usually used for confirmation of a priori hypothesis with regard to the relationship that exists between a measurement item set and the respective factors (Netemeyer et al., 2003). A two-step approach was recommended by Anderson and Gerbing (1988) for structural equation modelling which facilitates the examination of all of the pattern coefficients and offers a very helpful framework for making formal comparisons of the substantive model in question with the next most likely alternative theories. As noted by Hair et al. (2006), with application of the measurement model assessment approach, testing is first performed on construct validity through CFA. After this approach, examination of the relationships amongst constructs was conducted through structural modelling.

Construct validity is a necessary prerequisite before any further testing and development of theory (Carmines and Zeller, 1979; Steenkamp and Trijp, 1991). Thus, CFA is employed in more strictly assessing the validity of the construct so that the theoretical construct meaning empirical captured by its indicators can be ensured (Steenkamp and Trijp, 1991). Through application of this approach, the researcher was able to assess the strength of the relationships are between all of the manifest variables of the same construct (Fornell and Larcker, 1981; Anderson and Gerbing, 1988; Hair et al., 2006). Moreover, assessing the measurement model by CFA gives confirmation of the overall model validity, such as validity that is nomological; in that, the measurement model goodness of fit indices are employed (Steenkamp and Trijp, 1991; Lages, 2000). The maximum likelihood (ML) method of estimation was used for assessment of the measurement model by CFA (Hair et al., 2006; Tabachnick et al., 2001). The ML approach is relevant when the size of the sample has not met the criterion of there being five or more observations for each of the variables (Anderson and Gerbing, 1988; Hair et al., 2006). Thus, because of the likely problems of standard errors because of the application of the ML method and a X^2 (chi-square) static that is unreliable,

the model fit indicators were used in the model validation (Bentler and Chou, 1987). For each study scale, separate measurement model estimation by CFA was performed by the researcher. Figure 5.9 illustrates the original measurement model confirmatory factor analysis with its basis on the results of the EFA.
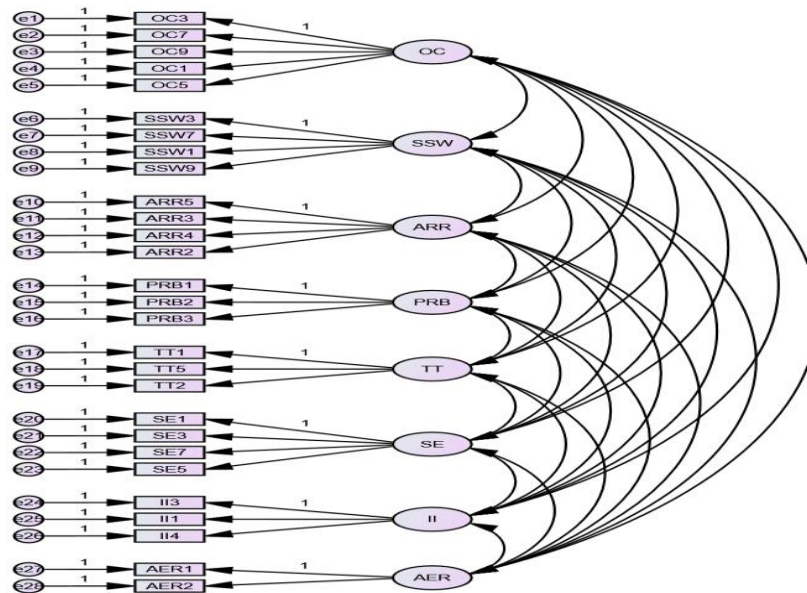
Figure 5.9 Original run model

Growing SEM popularity, particularly within research related to social science, was noted by Babin and Svensson (2012). This popularity is, in part, due to more user-friendly software packages being introduced, such as Amos, which provides an interface that graphically enables clear depiction of relationships between factors. Within this research, Amos 23 was used to meet the research purposes.

5.9 The measurement model

With structural equation modelling complexity, it is frequently the case that a proposed model is a poor fit. It is, however, risky to allow modification indices to dictate the process as results can be substantially improved through local modifications. Individual assessment of the fit of all the constructs and their items is good practice so that it can be determined whether there is weakness

in any of the items. As it indicates a very high error level, items with a level below 0.20 ought to be removed from an analysis; after this, the modelling of each construct ought to take place in conjunction with all the other constructs within the model in order to determine if discriminant validity has been achieved. Thus, the relationship strength between the indicator and the latent variables has to undergo assessment. Nunnally (1978) recommended a minimum of two indicator variables for each of the latent factors; however, Hatcher (1994) considered it to be preferable to have at least three. The recommendation for the minimum number of observations or questionnaires completed is 150. For SEM, there are two steps, i.e. the measurement model and structural model; the first being employed in the evaluation of the hypothesised model validity, and the latter being used for testing of the causal relationships between the model variables (Byrne, 2016). As Blunch (2012) noted, the measurement model can specify the correlations between the factor loadings that exist for the observed and latent variables. The measurement model validity is dependent upon: i) establishment of the acceptability level for model goodness of fit, and ii) discovery of specific evidence for construct validity (Hair et al., 2010; Blunch, 2012). CFA using Amos 23 was performed to assess the construct validity (comprising convergent and discriminant validity) in order to evaluate measurement model validity. Convergent validity was examined through investigation of factor loadings which were taken as significant if they were at least 0.5 (Hair et al., 2010).

5.9.1 The first-order model of measurement

In the application of the maximum likelihood estimation for CFA in the measurement model first run, the measures of the model fit indicated factor solutions that are valid. A good fit of chi-square (x^2) was shown by the fit indices of the model; a good model fit was shown by the goodness of fit measure (GFI) being 0.888 and root mean square error of approximation (RMSEA) being 0.051 (Fornell and Larcker, 1981; Hair et al., 2006). Further to this, a good model fit was also shown by incremental fit indices such as a normed fit index (NFI) of 0.912, a normed comparative fit index (CFI) of 0.958 and an adjusted goodness of fit index (AGFI) of 0.859 (Doll et al., 1994; Hair et al., 2006). The conclusion was that the measurement model for these factors could be considered nomologically valid (Steenkamp and Trijp, 1991; Lages, 2000).

Table 5.14 illustrates the fit indices for assessment of the model specification. The results showed that the values of the indices were consistent with the fit indices values recommended.

Table 5.14 First-order of model fit

Goodness of Fit (GOF) Measure	Conceptual Model Original Order	Comments
x² / Degree of Freedom	1.842	Accepted
NFI	0.912	Accepted
TLI	0.950	Accepted
GFI	0.888	Accepted
AGFI	0.859	Accepted
CFI	0.958	Accepted
RMR	0.043	Accepted
RMSEA	0.051	Accepted

It has been recommended that further detailed assessment should be conducted in order for the model to be refined and a better fit to be achieved. Both Byrne (2016) and Hair et al. (2010) have highlighted certain criteria to follow in the assessment of the measurement model, including the loading of estimates, the use of regression weights, modification indices and standardised residuals. Thus, the first CFA run output was examined to see if any of the items were proving to be problematic to the study. The first-order measurement model is depicted in Figure 5.10.
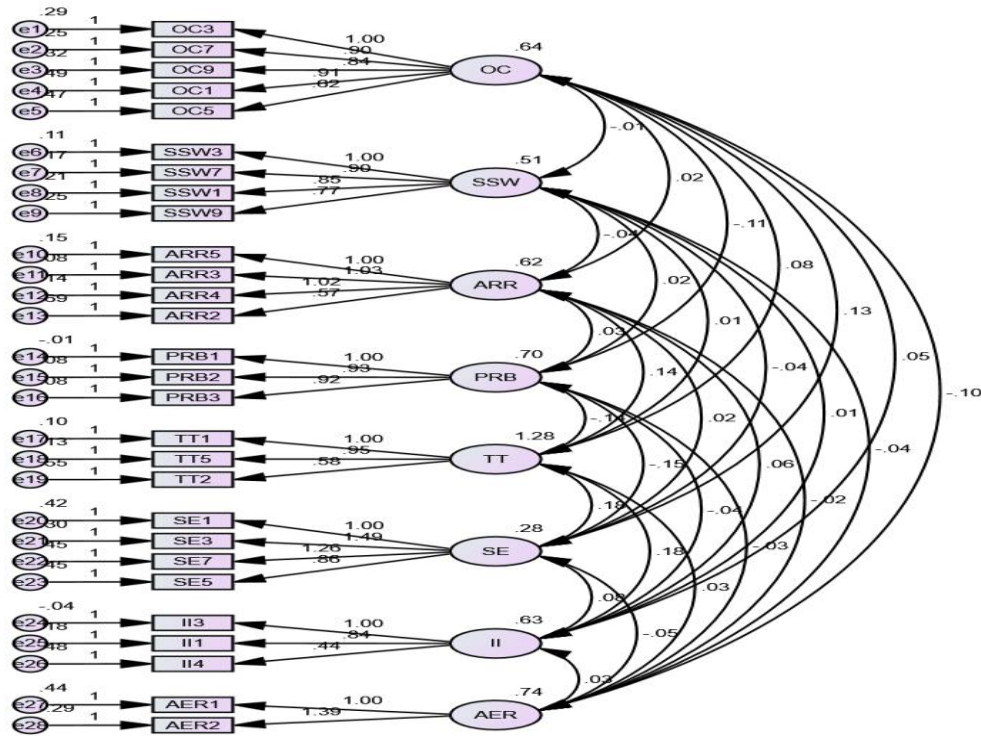
Figure 5.10 First order model

The first run hypothesised model clarified that eight of the factors could be taken for further examination, with four of the items being from the professional environment (OC) factor. Four items were contained in the self-confidence (SSW) factor and also in the self-acknowledgment (SE) factor. Additionally, four items were included within the expected mutual relationships (ARR) factor, three within the apparent mutual benefits (PRB) factor, three within the relational connections (II) factor and also three within the methods & techniques (TT) factor. Finally, there were two items within the expected rewards (AER) factor. For further refinement, the first-order measurement model was rerun, the details of which are given in the following section.

5.9.2 Second-order model of measurement

Achievement of good model fit can be achieved following the required adjustments to the section constructs. Overall, measurement model assessment revealed that all of the eight factors that had been extracted by EFA were fit for the scale. To confirm the scale nomological validity, the

element fit tests were assessed and they were found to be fit (Table 5.15) (Steenkamp and Trijp, 1991; Lages, 2000). The covariance of items was tested, however, for factor measurement through confirmative factor analysis. Six of the items in three factors were covariate (Figure 5.11); the items covaried with each other were e20 with e23 in the SE factor, e17 with e19 in the TT factor and e11 with e13 in the ARR factor.
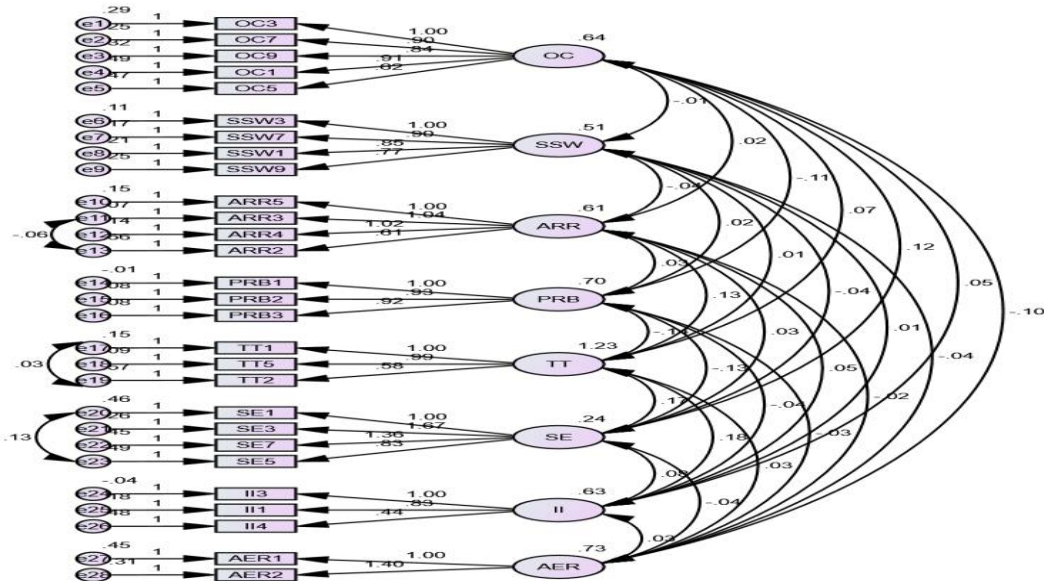
Figure 5.11 Second order measurement model

Table 5.15 First-and-second order comparison

Goodness of Fit (GOF) Measure	Criterion	Conceptual Model First Order	Actual Model	Comments
x^2 / Degree of Freedom	≤ 3	1.842	1.766	Accepted
NFI	> 0.9	0.912	0.917	Accepted
TLI	> 0.9	0.950	0.955	Accepted
GFI	> 0.8	0.888	0.893	Accepted
AGFI	> 0.8	0.859	0.864	Accepted
CFI	> 0.8	0.958	0.962	Accepted
RMR	< 0.05	0.043	0.043	Accepted
RMSEA	< 0.10	0.051	0.049	Accepted

The goodness of fit measurement was found to have improved following items being covaried, particularly with CFI and AGFI, as shown in Table 5.15.

5.9.3 The construct reliability

Within this research, Cronbach's alpha reliability coefficients were employed for assessment of the internal consistency of each of the measures. Construct reliability based on the construct of the total of factor loading squared for a construct as a measure of reliability and internal consistency; the formula suggested in the work of Fornell and Larcker (1981) and Hair et al. (2010) was used to calculate construct reliability for each construct.

$$CR = \frac{(\sum_{i=1}^{n} \lambda_i)^2}{(\sum_{i=1}^{n} \lambda_i)^2 + (\sum_{i=1}^{n} \delta_i)}$$

Where,
λ is factor loadings (standardised regression weights)
i is total number of items
d is the error variance term for each latent construct

The guide for good construct reliability is that it should be equal to or greater than 0.7, which would indicate the existence of internal consistency (Field, 2009; Byrne, 2016; Hair et al., 2010). All of the model constructs have a high level of internal consistency and adequate degree of reliability, as shown in Table 5.16.

Table 5.16 Construct reliability of CFA second-order model

Construct	CR	Recommendation
Relational connections (II)	0.843	Accepted (>0.7)
Professional environment (OC)	0.863	Accepted (>0.7)
Self-confidence (SSW)	0.893	Accepted (>0.7)
Expected mutual relationships (ARR)	0.896	Accepted (>0.7)
Apparent mutual benefits (PRB)	0.974	Accepted (>0.7)
Methods & techniques (TT)	0.898	Accepted (>0.7)
Self-acknowledgment (SE)	0.763	Accepted (>0.7)
Expected rewards (AER)	0.972	Accepted (>0.7)

Table 5.16 illustrates that for each factor and all of the items there was significance, with construct reliability having factor loadings with a level greater than 0.70. For example, the factor loading for PRB was 0.974 and for SE it was 0.763. Thus, construct validity may undergo assessment by discriminant, nomological and convergent validity.

5.9.4 The discriminant validity

Construct validity gives an examination of the extent to which measurement items reflect the latent construct that they have been designed to measure. One element of construct validity assessment in CFA is discriminant validity, which is a measure of the extent that a construct can be considered truly distinct from the other constructs (Hair et al., 2010). Then, measurement of discriminant validity can be performed through use of extracted average variance (Fornell and Larcker, 1981; Hair et al., 2006).

The average variance extracted results ought to be more than the estimates of squared correlation (Fornell and Larcker, 1981; Hair et al., 2006). Through use of this approach, the study researcher discovered that all latent constructs had discriminant validity (Table 5.18). The results revealed that all average variance extracted values are more than the estimates of the relevant squared correlation - therefore, discriminant validity is confirmed. Assessment of the convergent validity for each construct was performed using average variance extracted (AVE), and the factor loadings for construct and construct reliability (CR).

Based on the work of Fornell and Larcker (1981) and Hair et al. (2010), the formula below was used to calculate AVE:

$$AVE = \frac{\sum_{i=1}^{n} L_i^2}{n}$$

Where,
λ is factor loadings (standardised regression weights)
i is total number of items
n is the sample size

For assessment of convergent validity, the minimum criterion for cut-off in relation to AVE reliability is a level of greater than 0.5. As shown in Table 5.17, all of the AVEs had a figure that was more than 0.5. Thus, the results reveal a high convergent validity level for the constructs that were employed in the second-order model.

Table 5.17 Convergent validity of CFA second-order model

Construct	AVE	Recommendation
Relational connections (II)	0.662	Accepted (>0.5)
Professional environment (OC)	0.562	Accepted (>0.5)
Self-confidence (SSW)	0.678	Accepted (>0.5)
Expected mutual relationships (ARR)	0.694	Accepted (>0.5)
Apparent mutual benefits (PRB)	0.925	Accepted (>0.5)
Methods & techniques (TT)	0.750	Accepted (>0.5)
Self-acknowledgment (SE)	0.555	Accepted (>0.5)
Expected rewards (AER)	0.947	Accepted (>0.5)

Therefore, within this research the average variance extracted (AVE) was employed as a measure of convergent validity that was complementary. For assessment of the discriminant validity, comparison was made of the AVE of each of the constructs with the correspondent squared inter-construct correlation (SIC). When AVE is more than the SIC, then discriminant validity exists for each construct. As shown in Table 5.17, the AVE estimates for all of the constructs in the first-second model are more than their SIC; this acts as a demonstration of a high level of discriminant validity amongst the constructs.

By way of summary, statistical and theoretical validity of the constructs was provided by the overall results from the construct validity employing convergent, discriminant and nomological

measurement model validity assessment. Thus, there was robust establishment of the underlying latent variables for the testing stage of the structural equation model.

Table 5.18 Squared inter-construct correlations of CFA final-order model

	SE	OC	SSW	ARR	PRB	TT	AER
SE	**0.608**						
OC	0.290	**0.704**					
SSW	-0.113	-0.009	**0.745**				
ARR	0.066	0.042	-0.074	**0.748**			
PRB	-0.325	-0.157	0.032	0.048	**0.834**		
TT	0.270	0.056	0.014	0.144	-0.111	**0.793**	
AER	-0.122	-0.143	-0.082	-0.026	-0.046	0.033	**0.784**

5.9.5 Assessment of the model fit

There has been considerable debate over the issue of which model fit indices to employ. It was suggested by Kline (2005) that different articles can stress different fit indices, and that this process can also be affected by the views of the articles' reviewers. Hooper et al. (2008) found a lack of consistency during their synthesis of current thought on the topic of model fit indices. A number of fit indices that were previously considered acceptable are now seen as having drawbacks. It was usual for chi-squared (x^2) to be used; however, both large and small sample sizes can have an adverse effect. Since the inconsistencies were noted, several other measures have been suggested; see Table 5.19 below for criteria recommendations for a number of the indices.

Table 5.19 Recommended criteria for goodness of fit measures

Goodness of Fit (GOF) Measure	Recommended Criterion	Source
x^2 / Degree of Freedom	≤ 3	Schumacker and Lomax (2004); Hair et al. (2010)
NFI	> 0.9	Wang and Wang (2012)
TLI	> 0.9	Hair et al. (2010)
GFI	> 0.8	Etezadi-Amoli and Farhoomand (1996)
AGFI	> 0.8	Etezadi-Amoli and Farhoomand (1996)
CFI	> 0.9	Lau (2011)
RMR	< 0.05	Hair et al. (2010)
RMSEA	< 0.10	Devaraj et al. (2002)

Wang and Wang suggested the normed fit index (NFI) and non-normed fit index (NNFI), and Etexadi-Amoli and Farhoomand (1996) suggested the goodness of fit index (GFI) and adjusted goodness of fit index (AGFI). Hair et al. (2010) recommended the further indices of the incremental fit index (IFI), the non-normed fit index (NNFI) and the comparative fit index (CFI) (Lau, 2011). The root mean square residual index (RMR) was also put forward by Hair et al. (2010), and the root mean square error of approximation (RMSEA), originating from the work of Steiger and Lind (1980), and from Deveraj et al. (2002), tries to make allowance for any population approximation error. As noted by Byrne (1998: 84), RMSEA has *"...only been recently recognised as one of the most informative criteria in covariance structure modelling''*. The measures above are supposedly useful in the assessment of the accuracy of the model fit with the observed data; a measurement of 1.0 indicates an exact fit-other than with RMR, where a measurement of zero shows an ideal fit (Devaraj et al., 2002).

In terms of the thresholds that are acceptable for CFI, IFI and NFI, a value of at least 0.90 is indicative of an adequate fit (Hair et al., 2010); a good fit is suggested by a value of over 0.95. For a good fit to be indicated for AGFI and GFI, a value of 0.95 or more ought to be achieved (Etezadi-Amoli and Farhoomand, 1996). With regard to RMSEA, a value of less than 0.05 shows a good fit; however, a mediocre fit may be shown by values of between 0.08 and 0.10 (Byrne, 1998). Finally, a good fit is indicated by a chi-square value of equal to or less than 3 (Hair et al., 2010). A few researchers, such as Barrett (2007) consider that only chi-square (x^2) ought to be used. Many other researchers, however, consider that other measures ought to be included because of issues with the sample size when using the measurement (Israel, 1992). It has been suggested that because of potential discrepancies that are associated with the chi-square measure, a selection (though not all) of the goodness of fit measures above should be utilised (Hulland, et al., 1996). It has been indicated that the CFI, NNFI and IFI ought to be the preferred methods for undertaking model fit analyses; however, CFI ought to be the pre-eminent index of the group (Bentler and Chou, 1987). Fan et al. (1999) also recommended that the NNFI and CFI be used in addition to the RMSEA; consequently, this research uses RMSEA and x^2 for model fit and CFI and TLI for model comparison. Byrne (2001) also recommended that a parsimony goodness of fit index be included. Mulaik, et al., (1989) originated the PGFI in order for model complexity to be assimilated. The

PGFI index is less well defined than other indices; however, values closer to 1.0 indicate a better model fit (Schreiber et al., 2006), though values may be as little as 0.5 (Mulaik, et al., (1989). Kline (2005) considers that, regardless of the problems that have been reported, chi-square ought to always be noted and, indeed, it will form part of the analysis of model fit for this research. There has been a recommendation that p-value be more than 0.05 (Hair et al., 2006); however, Ramdani et al., (2013) suggested that the p-value test may be inconclusive and much less powerful in the presence of a low CMIN/DF. In addition, p-values lower than 0.05 are far more likely to occur when the sample size is large. A study of CFA reporting practices between 1998 and 2006 was conducted in which it was affirmed that the majority of studies *''...reported multiple fit measures from different families, namely absolute and incremental''* (Jackson, et al., 2009: 17). Thus, this investigative research presents the results in a similar way with different latent variables dealt with in individual sections.

5.10 Structural equation modelling with the dependent variable (DV)

It is important to note that the relational connections (II) factor does not possess its own measured indicator set; instead, it was indirectly linked to indicators that measured lower-order factors. As such, there is a need for final-order CFA model analysis in order to complete the measurement model assessment. For the assessment of the goodness of fit of the final factor model of CFA, similar steps are taken as for the first and second factor model of CFA, however, with the addition of dependent variables. The SEM measurement model is shown in Figure 5.12.
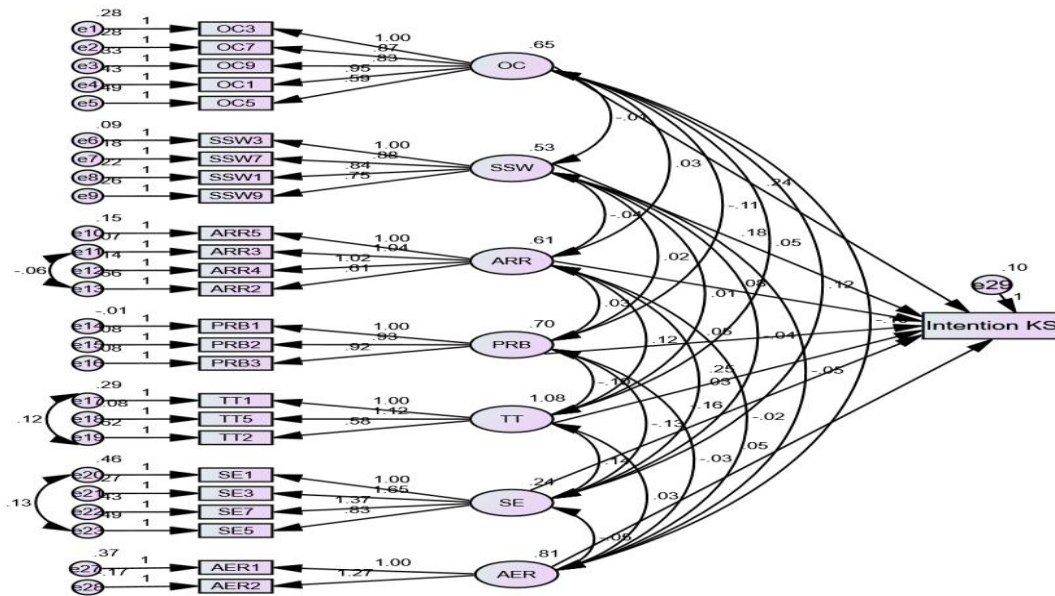
Figure 5.12 SEM model with dependent variable

In Table 5.20 below, the model fit thresholds for the final measurement model are listed. Achievement of a good model fit was reached once the required adjustment had been made to the constructs from the previous section. An examination was made of the overall model fit for the data that was observed so that validity of the model could be assessed. Incremental and absolute fit indices were shown and it was discovered that the model adequately represented both the dependent and independent proposed constructs. In order to measure the goodness of fit of the model, CFI and NFI measures were applied; the figures for the indices were 0.94 and 0.91, respectively, values that lay above the criterion value of 0.90 (Lau, 2011; Wang and Wang, 2012). The AGFI and GFI were 0.85 and 0.88, respectively, with Etezadi-Amoli and Farhoomand (1996) having suggested that a criterion of 0.80 can be thought of as acceptable. As both the AGFI and GFI values were within an acceptable range, the fit of the model was thought to be acceptable. Thus, the measures for the absolute fit indicated that the structural equation model represented a fit that was satisfactory for the collected data sample. When the x^2 statistic was divided by the degree of freedom, it also indicated a reasonable fit, with a figure of 2.17.

The conclusion can be made, then, that the proposed model maintained a good fit from the data that was observed.

Table 5.20 Final-order of model fit

Goodness of Fit (GOF) Measure	Criterion	Second Model	Actual Model	Comments
x^2 / Degree of Freedom	≤ 3	1.766	2.178	Accepted
NFI	> 0.9	0.917	0.910	Accepted
TLI	> 0.9	0.955	0.938	Accepted
GFI	> 0.8	0.893	0.886	Accepted
AGFI	> 0.8	0.864	0.851	Accepted
CFI	> 0.9	0.962	0.948	Accepted
RMR	< 0.05	0.043	0.045	Accepted
RMSEA	< 0.10	0.049	0.060	Accepted

By way of summary, the CFA final-order results illustrated that the constructs employed in the measurement model had reliability at an adequate level, as well as validity in convergent, nomological and discriminant terms. The results provided confirmation that the model fitted the data and showed that no further model refinement was needed. Indeed, the uni-dimensionality of the data and model was established.

5.11 Goodness of fit indices for the structural model

Examination of goodness of fit indices and other parameter estimates was performed in order to assess the hypothesised structural model. The indices of the fit showed that the hypothesised structural model gave a good fit for the data, and the absolute fit and incremental fit measures indicated the model had goodness of fit. The structural model represented a dependence relationship set between the hypothesised model constructs (see the discussion in the next section) in order to determine whether relationships between constructs existed or not (Byrne, 2016; Hair et al., 2010).

5.12 The testing of the hypotheses

The research hypotheses were tested, with a basis in the structural model, using the t value (critical ratio) and the standardised estimate. For analysis of the data, Amos 23 for Windows software was

employed by the researcher in running the model for examination of the hypotheses. The summary of the results is shown in Table 5.21 below and within the chapter related to the theoretical framework. Seven hypotheses underwent examination in this research study, through use of path estimates and t values (critical ratio). Six of the seven had, at the 0.01 level of significance, t values that lay above the 1.96 critical values. The other construct related to the dependent variables was found to have t values that were negatively significant (t = -3.134, p = 0.002).

This thesis has the aim of predicting the causal relationships between the independent variables, self-confidence (SSW), professional environment (OC), apparent mutual benefits (PRB), expected mutual relationships (ARR), expected rewards (AER), self-acknowledgment (SE), and methods & techniques (TT), and the dependent variable, knowledge-sharing intention behaviour (IKS). For this research, independent variables were selected from three differing scales, i.e. perceived behavioural control, attitude towards sharing of knowledge and subjective norm. SSW and OC were seen to be related to subjective norm, SE and TT were seen to be related to perceived behavioural control, and the remaining AER, PRB and ARR are related to attitude towards the sharing of knowledge. Table 5.21 shows how all the final-order estimates are positive and have significance except for self-acknowledgment, which appears as a negative.

Table 5.21 Regression weights

DV	IDV	Estimate	S.E.	C.R.	Sig
Intention <---	OC	.242	.027	9.100	***
Intention <---	SSW	.177	.026	6.729	***
Intention <---	ARR	.079	.024	3.328	***
Intention <---	PRB	.054	.023	2.359	.018
Intention <---	TT	.246	.019	12.797	***
Intention <---	SE	-.155	.050	-3.134	.002
Intention <---	AER	.047	.019	2.551	.011

(**Note:** *Estimate* = regression weight; *S.E* = standard error;
C.R = critical ratio, *Sig* = ***)

For the hypotheses, it was found that the paths between dependent and independent variables had statistical significance, except for self-acknowledgment (SE), which loaded as having negative

significance. It was discovered, then, that self-confidence (SSW), apparent mutual benefits (PRB), expected mutual relationships (ARR), expected rewards (AER), methods & techniques (TT), professional environment (OC) and self-confidence (SSW) had an impact that was statistically significant upon the knowledge-sharing intention behaviour. The first independent predictor variable of professional environment was discovered to have a significant and positive relationship to the dependent variable of knowledge-sharing intention behaviour, with β of 0.242, p of < 0.01, and t of 9.100; as such, H1 was accepted. The second independent predictor influence upon the dependent variable was such that SSW was found to have a positive and significant relationship to the knowledge-sharing intention behaviour, with β of 0.177, p of < 0.01, and t of 6.729; as such, H2 was accepted. Amongst the data for intention to perform knowledge-sharing behaviour, a significant impact, in statistical terms, was found to hail from ARR, with β of 0.079, p of < 0.01, and t of 3.328; H3 was accepted.

The evaluation of structural equation modelling with regard to the relationships between the dependent variable and the independent predictors revealed that variables are, as dependent variables, determinants for the knowledge-sharing intention behaviour. The t values and standardised estimates, as shown in Table 5.21, revealed that the paths for the first three of the independent factors in relation to the dependent factor were positive and significant in statistical terms. The fourth of the independent predictors, PRB, was discovered to have a positive and significant relationship to the dependent variable of the behaviour related to intention to share knowledge, with β of 0.054, p of < 0.01, and t of 2.359; H4 was accepted. Amongst the variables, methods & techniques (TT) was found to have the biggest impact upon the dependent variable of knowledge-sharing intention behaviour, with β of .246, p of < 0.01, and t of 12.797; H5 was accepted. With examination of corresponding t values and path estimates for the relationships between knowledge-sharing intention behaviour and self-acknowledgment (SE), it was found that there was a negatively significant relationship, with β of -0.155, p of > 0.02, and t of -3.134; H6 was strongly rejected. The influence of the last of the independent predictors, expected rewards (AER), was also found to have a positive and significant relationship, with β of 0.047, p of > 0.01, and t of 2.551; H7 was accepted.

The results above show that six out of the seven independent variables had relationships that were positive and significant with the dependent variable of knowledge-sharing intention behaviour, whilst it was confirmed that one of the predictors, self-acknowledgment, had a negative and significant relationship with knowledge-sharing intention behaviour. The result showed that academics are more likely to share knowledge (Table 5.22).

Table 5.22 Results summary for hypotheses testing

Hypotheses	Sig	Results
H1: Professional environment have a positive effect on academics' knowledge-sharing intention	**	Supported
H2: Self-confidence have a positive effect on academics' knowledge-sharing intention	**	Supported
H3: Expected mutual relationships have a positive effect on academics' knowledge-sharing intention	**	Supported
H4: Apparent mutual benefits have a positive effect on academics' knowledge-sharing intention	*	Supported
H5: Methods & techniques have a positive effect on academics' knowledge-sharing intention	**	Supported
H6: Self-acknowledgment have a positive effect on academics' knowledge-sharing intention	*	Forcefully rejected
H7: Expected rewards have a positive effect on academics' knowledge-sharing intention	*	Supported

(Note: * $p < 0.05$, ** $p < 0.01$)

H1: Professional environment have a positive effect on academics' knowledge-sharing intention behaviour. Table 5.22 illustrates the estimates, critical ratio and standardised error for professional environment; the suggestion is that the path has statistical significance. The results showed strong backing for hypothesis H1, as the research model proposed, and so it was demonstrated that OC had a positive and significant effect upon knowledge-sharing intention behaviour.

H2: Self-confidence have a positive effect on academics' knowledge-sharing intention behaviour. The results showed strong backing for hypothesis H2. This demonstrated that SSW had a strong positive and significant effect upon the knowledge-sharing intention behaviour; the indication was that if SSW was increased then it would have a positive influence upon knowledge-sharing intention behaviour at the University of Baghdad.

H3: Expected mutual relationships have a positive effect on academics' knowledge-sharing intention behaviour. The results strongly supported H3. They demonstrated that expected mutual relationships had a strong and positive effect of significance upon knowledge-sharing intention behaviour; this indicated that ARR had a positive influence upon knowledge-sharing intention behaviour.

H4: Apparent mutual benefits have a positive effect on academics' knowledge-sharing intention behaviour. The results showed that there was strong backing for this hypothesis. It was demonstrated that the apparent mutual benefits (PRB) had a strong positive and significant effect upon knowledge-sharing intention behaviour.

H5: Methods & techniques have a positive effect on academics' knowledge-sharing intention behaviour. The findings revealed that the strongest and most positively significant effect upon knowledge-sharing intention behaviour was from methods & techniques (TT).

H6: Self-acknowledgment have a positive effect on academics' knowledge-sharing intention behaviour. The findings showed there was negative support for hypothesis H6; the hypothesis that self-acknowledgment (SE) positively affects knowledge-sharing intention behaviour was strongly rejected, the indication being that SE does not positively influence knowledge-sharing intention behaviour.

H7: Expected rewards have a positive effect on academics' knowledge-sharing intention behaviour. The results revealed strong support for hypothesis H7; it was demonstrated that expected rewards had a strong and positively significant effect upon knowledge-sharing intention

behaviour, the indication being that increasing AER at the University of Baghdad will have a positive influence upon knowledge-sharing intention behaviour.

5.13 Summary

To conclude, this chapter has presented results from the final purified scales testing and hypotheses testing. Firstly, the data was screened by identifying data outliers and missing data so that the data could be prepared for further analysis. Data accuracy was checked by normality, linearity and homoscedasticity tests in order to infer that the data was portraying accurate results. That section was then followed by explanation of the factor loading used for identification of the variable clusters or groups. The exploratory factor analysis technique was employed in showing the variables' relationships to factors. Within this part, factors had been extracted using a scree plot and eigenvalues. Through application of a varimax orthogonal technique related to the principal component, rotation of factors was performed to show the maximum factor loading variance. The results showed results that were significant for seven out of the eight factors extracted. After the exploratory factor analysis, the measurement scale for the research was subjected to CFA. The measurement and structural models underwent assessment using Amos 23 software for the total of 326 cases. Prior to the results being inferred, both construct and reliability validity tests were also carried out, with all of the measurement scales being found to be satisfactory. With regard to hypotheses testing, t values and standardised estimates were implemented from the structural model, with the results showing that significantly positive relationships, in statistical terms, existed between the dependent variable and the independent variables. All of the independent variables were discovered to have positive and significant correlations with the dependent variable, other than self-acknowledgment (SE), which was discovered to have a significant and negative relationship to the dependent variable. Moreover, the findings were confirmed by using multiple correlations, with all factors possessing predictive power, other than SE, which was discovered to be a factor that was negatively predicted. The findings for significant relationships amongst the constructs were as they had been expected theoretically. A more detailed discussion in relation to the results will be given in the following chapter.

Chapter 6: Discussion

6.1 Introduction

This research has drawn upon the theory and previous research studies based within various research fields, such as knowledge management, information systems, organisational learning and so on; from these, three groups of critical factors were identified that were considered to have a significant bearing upon knowledge-sharing behaviour, i.e. the subjective norm, the attitude towards knowledge sharing, and the perceived behavioural control. The theory of planned behaviour (TPB) framework was applied within the study in order to undertake an investigation into the impact that the aforementioned factors have upon knowledge-sharing behaviours (Ajzen, 1991). The objectives of this study were to undertake an examination of the relationships and predictive influence of a number of independent variables, i.e. self-confidence (SSW), professional environment (OC), apparent mutual benefits (PRB), expected mutual relationships (ARR), expected rewards (AER), methods & techniques (TT), and self-acknowledgment (SE), upon the dependent variable of the intention to share knowledge (IKS). The data collection was carried out at an Iraqi public-sector university, namely the University of Baghdad. Development of hypotheses was performed based upon the relationships between dependent and independent variables and, in general, it was clear from the findings that self-acknowledgment was a negative predictive factor for knowledge-sharing intention behaviour. Direct relationships were discovered between knowledge-sharing intention behaviour and self-confidence, professional environment, apparent mutual benefits, methods & techniques, expected rewards and anticipated reciprocal relationship. These findings were a significant improvement upon previous studies within the field of knowledge-sharing behaviour (Bock and Kim, 2002; Ryu et al., 2003; Lin et al., 2004; Bock et al., 2005), and this chapter provides a more detailed discussion of the findings in respect to each of the individual predictors and in the light of the original hypotheses.

The chapter is divided into a number of sections as follows. Firstly, the aim and objectives of the research are revisited before issues relating to the population and sample are presented. Following this, attention is given to the scale purification results before a section is dedicated to reviewing the findings for all the hypotheses testing and their comparison with previous research studies.

Finally, there is a discussion of the results related to workplace social relationships and the readiness for organisational change.

6.2 Population and sample issues

This research was undertaken in Iraq at the University of Baghdad. This university has a total academic population of 6,642 within 24 colleges and four higher study institutes. In collecting the data, random sampling was undertaken from amongst academic staff such as lecturers, professors, assistant professors and assistant lecturers (Hair et al., 2006; Tabachnick and Fidell, 2001). The questionnaires survey was distributed to 578 academics in different faculties at the university; 347 of the questionnaires were returned and were placed in order using the SPSS computer software. Therefore, it is important to deal with any missing data issue from a data sample in a research study. Within social science literature, various suggestions have been made, such as the use of the mean of the scores on the variance (Stevens, 1992) or, alternatively, removal of the sample or samples where there has not been a response to any of the questions (Norusis, 1995). For the robustness of the analysis to be increased, 21 of the questionnaires (6%) were removed because they were discovered to be unusable, either because they were incomplete or because there was obvious bias in the way they were filled in; their deletion did not alter the analysis outcome. thus, the final number of questionnaires considered valid and ready for analysis was 326; the implication was, then, that there was around a 56% response rate. The sufficiently large sample was considered representative of the population and the underlying structure as the reliable correlations and prediction power of the factors had been examined (Hair et al., 2006; Tabachnick and Fidell, 2001).

Marshall et al., (2013) consider that a sample size of 1000 can be treated as excellent, 500 as very good, 300 as good, 200 as fair, and a number between 50 and 100 can be treated as poor. Consequently, the large sample in this research shows a good level of representation of the total university population. Any outliers cannot be characterised categorically as being either problematic or beneficial (Hair et al., 2006); however, they can inflate standard deviations and bias the mean (Field, 2009). Consequently, the researcher ought to be aware of such values as they can bias the fit of the research model to the research data (Field, 2009). In order to find multivariate

outliers and confirm their effect, the Mahalanobis distance case was applied. Only a few cases were actually found to be away from the reference for indication of outlier presence. As there were so few cases and so few outliers discovered close to the four thresholds, it was not considered necessary for response deletion as the outliers were not thought to be extreme.

6.3 Refinement of the measurement scale

Primarily, development of the study scale, the professional environment, the knowledge-sharing intention behaviour, the expected mutual relationships, the self-confidence, the methods & techniques, the expected rewards and the apparent mutual benefits was performed on the basis of the conceptual framework. Thus, the first issue for discussion is study concept operationalisation and validation. Quantitative refinement was made to the scale item pool. Assessment of content and face validity was carried out through the use of a pilot study within which participants were asked for opinions with regard to the items. In addition, assessment of the survey instrument was made, at the initial research stage, by expert university field researchers (Wong et al., 2015). The experts were asked for their comments on the scale item lists. Furthermore, the scales that were developed were subjected to two rounds of exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and data reduction, along with a number of statistical tests, such as discriminant validity (DV), convergent validity (CV), Cronbach's alpha reliability (α), average variance extracted (AVE) and composite reliability (ρ). As a result of these actions, operationally and theoretically valid and reliable scales were developed, and the hypotheses were performance tested. A number of inferences were made upon the development of the scales and issues concerning their refinement, and these are discussed below. Overall, the scales that were finalised were discovered to possess a satisfactory level of validity and reliability and consequently they were used within the testing of the hypotheses. Pilot study participants made a number of suggestions to make the questionnaire clearer and stronger. Firstly, rather than the term 'employee', the term 'academic' was inserted; in doing so, it made it clearer to the participants that responses were being requested in relation to the university. Secondly, it was considered that the gender ought to be open within the demographic scale; it was suggested that such a modification could reduce the level of gender bias. Lastly, in the scale related to attitude to KS,

the expression 'my knowledge sharing or sharing knowledge' was applied, at the start, for all scale items; the suggestion was made to put the phrase with all of the item questions within the scale so they could be understood more easily.

There is consistency of nearly all of the construct dimensionalities with those that have been reported within the literature. However, a few of the items were not loaded onto any factor or predictor group within the EFA technique. A few of the items taken from each of the factors were not loaded into a group for this test. For instance, six of the items from the self-confidence factor were not loaded for the subjective norm predictor (Bock et al., 2005). In particular, this issue was concerned with the subjective norm concept for which assessment of the factor was conducted in previous literature; the literature suggested that subjective norm has its basis within beliefs that are normative. Normative beliefs are concerned with perceived social pressure to either carry out or not to carry out a specific behaviour that comes from an important referent group (Fishbein and Ajzen, 1975). Because of cross loading or single loading (see previous chapter), these items were excluded from the study. All of the remaining factor items from dependent variable and independent predictor variables were set within their respective groups. To summarise, then, two primary ideas were reflected within the scale purification findings. Firstly, if the scale undergoes adaptation and application to another region and culture, there is a need to assess the relevance of the scale's context for achieving inference validity (Dwork, 2015). The primary question could be whether the same context is in existence within another country and, furthermore, if it is in existence would it have a different form or different elements (Curtiss, 2014). Next, in order to ensure applicability of the adapted scale, it is essential that external validity is assessed, as well as internal criteria, such as validity and reliability (Dwork, 2015). Construct validity was assessed by the researcher, however, as it is considered a vital condition for the testing and development of further theory (Carmines et al., 1979; Steenkamp and Trijp, 1991).

6.4 Research objective 1

As outlined in Chapter 1, the first research objective aimed to apply and validate subjective norm as a measurement of knowledge sharing behaviour within academics in developing countries,

with a specific focus at the University of Baghdad in Iraq. In order to achieve the objective, the following research discussion was formulated.

6.4.1 The effects of subjective norm

This research is concerned with examining the beliefs and behaviours of academics with respect to the intention to knowledge share. Overall, there is a statistically positive and significant relationship of academic subjective norm predictors with the intention to knowledge share. It was also discovered that the relationship between each of the subjective norm variables had statistical significance; the suggestion from this is that, with other things being equal, the greater the perceived positive behaviour and beliefs towards the organisation, the more positive the intention to knowledge share. The definition of subjective norm is the perception of a person regarding whether people important to them think that a behaviour ought to be performed (Ajzen and Fishbein, 1980; Pavlou and Fygenson, 2006). The subjective norm is a reflection of the participant's perceptions as to whether a behaviour is acceptable, encouraged and implemented by that participant's circle of influence; the literature suggests that there is a positive relationship between intended behaviour and subjective norm (Thompson et al., 1991; Karahanna and Straub, 1999; Venkatesh and Davis, 2000; Bock et al., 2005; Taylor, 2006; De Leeuw et al., 2015). Fu et al., (2013) consider that subjective norms can, by informational and normative influences, decrease levels of uncertainty with regard to whether or not a system use is appropriate. There does seem to be a relationship that is positive between intention to knowledge share and subjective norm. Ajzen (1991) has explained that the subjective norm term has a strong link to the social pressure for performance of a specific behaviour when individual is at work. Several studies have shown that subjective norms have a positive and significant impact in prediction of KSB and intentions (Venkatesh et al., 2000; Ryu et al., 2003; Hsiu-Fen and Gwo-Guang, 2004; Bock et al., 2005; Taylor, 2006; Srite and Karahanna, 2006).

In Lin and Lo's (2015) study, it was shown that managers have to imbue subjective norms, behavioural intention and attitudes into their staff in a way that acts to positively inspire knowledge-sharing behaviour within the organisation. Ding and Ng (2009) found that the variable

for attitude had more significance than subjective norms in the establishment of the intention to share knowledge. Bock et al. (2005), however, noted the significance of the relationship between subjective norm and the intention to share knowledge, and concluded that relationship strength between subjective norm and intention to KS is influenced greatly through facilitation of the professional environment that is positive. Bock et al. (2005) highlighted the elements that have an association with KSB and their work showed that KSB, is influenced strongly by the knowledge-sharing plans of a person, his or her attitudes in respect to KS and the subjective norms that are present in relation to KS. In this research study, those predictors noted in previous research were applied as independent variables for the examination of the behaviour intention in respect to KS amongst academics at the University of Baghdad. Through the application of EFA using the SPSS version 23 for Windows software, the self-confidence and professional environment factors were loaded. With application of CFA within the Amos 23 software, the result was that there was confirmation of the same two factors for subjective norm which seemed to provide confirmation that academics at the university had a concern for knowledge sharing and wished to help their university achieve it.

Assessment was made of the results in relation to influence, in relative terms, of the self-confidence and professional environment variables upon the dependent variable of intention to knowledge share through the methods of identifying their standard coefficients (β coefficient) (Table 5.22 in the findings chapter).

6.4.1.1 Factor one - professional environment (OC)

The first factor found to influence the dependent variable (intention to share knowledge) is the OC which discussed earlier in chapter two and three. OC is the perception of togetherness, the perception that change and creativity are encouraged, including risk-taking in new areas where one has little or no prior experience. This factor reflecting agreement among respondent, the mean score was 3.38 for the five items used to measure OC presented in the EFA (table 5.13). Additionally, the result of CFA confirmed that OC has a high composite reliability coefficient and an elevated level of construct validity.

The result of survey participants shows that 16.9% considered that passable OC was available to implement KSB. The findings showed a positive prediction with the intention to share knowledge dependent variable. A positive contribution to the intention to knowledge share was indicated by a beta coefficient of professional environment ($\beta = 0.242$, $p < 0.01$, $t = 9.100$); this appeared to be reasonable, at least for the University of Baghdad, where academic behaviour is developed based on professional environment. Indeed, there seems to be the intention amongst academics to remain at and demonstrate a sense of togetherness towards their institution (Bock et al., 2005). Previous research by Tohidinia and Mosakhani (2010) discovered that a factor such as professional environment had a positive influence upon knowledge-sharing behaviour. In addition, Bock et al., (2005) study had the conclusion that attitude towards knowledge sharing, professional environment and self-confidence had an effect upon knowledge sharing intention; however, OC effect SN and expected rewards had a negative impact on individual's attitude towards knowledge sharing.

The results of the current research are consistent with the findings from prior studies. For example, research by Carlucci and Schiuma (2014) implied that OC was discovered to have significant impacts upon work performance. Similar study conducted by Fu and Deshpande (2014) found positive connection between employee satisfaction and performance and OC. The result of the current study is also in line with the study of Qureshi et al., (2014), which confirmed that OC have positive influence on the university's academic staff. Also, the current study result is supporting the claims of Bock's study; H1: professional environment have a positive effect on knowledge-sharing intention among academics, and to back up previous claims, evidence was provided that academics had affection for their institution.

OC is today's potential issue to be recognised for the most of organisations in regard to deliver an efficiency and effectiveness of KSB (Lin 2011). Hence, OC has been recognised as critical factor for most of public organisations (Carlucci and Schiuma 2014). However, the literature review has concluded that despite there being plenty of evidence for the positive impact of OC on the workplace, there have been few studies undertaken in a HEI setting that have made particular

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reference to the performance of academic staff (Fu and Deshpande 2014). OC is a critical component for KSB therefore, universities required a climate that support academics staff to enable the execution of KSB culture.

6.4.1.2 Factor two - self-confidence (SSW)

A self-confidence (SSW) is the level of positive cognition that a person has based upon his or her feelings that personal behaviour related to knowledge-sharing is contributing towards an organisation (Bock et al., 2005). Thus, organisations need to consider SSW when reacting to KSB intentions. There is particular importance for SSW if an organisation is in the process of KSB or in the process of introducing a culture of knowledge sharing, with assessment of the degree to which members of the organisation consider themselves as contributors through their sharing of knowledge (Bock et al., 2002).

Results related to the predictive variable SSW, predicted less than professional environment within the subjective norm scale. A positive contribution to the intention to share knowledge was shown by the beta coefficient for self-confidence (t = 6.729, β = 0.177, p < 0.01). The results indicated that academics within the university made less of a contribution to the intention to share knowledge; this did seem a reasonable finding since, at the University of Baghdad in particular, academics have a tendency to understand the values related to self-confidence in respect to the intention to share knowledge. Within previous research studies, assessment of a self-confidence was performed to gain understanding of the degree of individuals' positive cognition based upon their feelings of making a personal contribution to their organisation by way of their behaviour in respect to KS; positive results were found (Teh and Yong, 2010; Ramayah et al., 2013).

The results of the study serve to show that there are positive and direct relationships between SSW and the attitude of individuals towards KS, and the results are in support of the work undertaken by Fullwood et al., (2013). These findings are, however, inconsistent with empirical work undertaken by Bock et al. (2005) that noted that there are indirect influences from SSW upon attitudes towards KS by way of subjective norms. Also, it needs to be mentioned that numerous

studies have addressed the issues above within various levels of organisations and between a variety of types of organisation. Within countries that are developing, however, KSB concepts are not widely known (Siddike and Islam, 2011). Even though such matters have a greater profile in the literature in recent years, not only is there is a serious lack of relevant empirical studies undertaken in Iraq, there is a lack of relevant empirical study of developing country contexts in general.

This research study's results gave support for H2: Self-confidence have a positive effect on academics' knowledge-sharing intention, and provided proof of academic key factors derive from the individual contribution of the organisation.

To summarise, an environment that encourages a self-confidence and a suitable professional environment can aid organisations to have an effective impact upon the attitudes of employees with respect to the sharing of knowledge. The results above show that all of the subjective norm variables that were tested within this study had significant and positive relationships with the construct for knowledge-sharing intention. This shows that University of Baghdad academics who are committed to the organisation tend to be more likely to share their knowledge. From the conceptualisation, it is suggested that academics who are committed have an acceptance of and strong belief in the goals and values of the university, and this has a positive impact upon KS. Previous research has indicated that achievement of a self-confidence motivates individuals to contribute to virtual communities (Bock et al., 2005). The suggestion from the significant relationship between self-worth disconfirmation and confirmation is that the raising of core knowledge contributors' self-confidence is an important approach (Wasko and Faraj, 2005).

6.5 Research objective 2

In an attempt to show how these research objectives have been met, it has considered the key findings related to each research objective in the light of the literature. In order to achieve this research objective, discussion was formulated as follows:

6.5.1 The effects of academic attitude towards knowledge sharing

The attitude that an individual has towards the sharing of knowledge refers to the degree towards which they feel positive about it (Bock et al., 2005). The concept has been characterised by development of behavioural beliefs and personal feelings related to the expected consequences of a particular behaviour and an evaluation of these consequences that is favourable (Bock et al., 2005). As shown in the literature review discussion, the more positive the perceived consequences of a particular type of behaviour, the more favourable is the attitude taken towards performance of that particular behaviour. Thus, if someone has a negative attitude in relation to a particular behaviour, she or he is less likely to engage in that behaviour in comparison to someone who views that particular behaviour with a positive attitude. Within this research, in order to provide an examination of the behaviours and attitudes of academics at the University of Baghdad, attitudes to factors related to knowledge sharing were applied against the dependent variable of the intention towards KS. Within the scale for attitude towards the sharing of knowledge, variables such as expected rewards, expected mutual relationships, apparent mutual benefits and relational connections were applied. At an earlier stage, in the EFA, all of the predictor attitudes towards KS factors were loaded. The suggestion was, for further investigation to undertake reassessment of the instrument dimensionality using CFA. Application of CFA within the Amos 23 software led to results that did not give confirmation of the same factors for attitude towards KS.

All of those variables had relationships that were statistically positive and significant with the intention towards KS. The relational connections factor, however, was excluded from the final run of the CFA; it did not have its own measured set of measured indicators-though, instead, they linked in an indirect way to indicators that measured lower-order factors. The suggestion from this is that, if all other things are equal, the greater the positivity perceived in the attitude, the greater the intention towards KS that will be noted at the University of Baghdad. For quite a while, attitude has been shown as being a significant predictor of behavioural intentions within organisations, and there is now considerable empirical support for this relationship. A survey conducted by Bock et al. (2005) of 30 organisations in order to test a model of KS had results that suggested that attitude towards KS had a positive and significant influence upon behavioural intention. In addition, using

the basis of reasoned action theory, Kwok and Gao (2005) undertook an investigation of individuals' attitudes towards KS through examination of three variables, i.e. absorptive capacity, channel richness and extrinsic motivation as influential factors having a bearing upon the people's attitudes towards KS. A structural survey was conducted to test the relationships between the three variables and attitude. The results revealed that extrinsic motivation had no impact upon the attitude of an individual towards KS, whilst the other two factors had a bearing upon KS that was significant.

6.5.1.1 Factor three – expected mutual relationships (ARR)

In accordance to the theory of social exchange, KS intention can be further affected by ARR (Kankanhalli, et al., 2005; Hsu and Lin, 2008). KSB can be regarded, specifically, as a form of behaviour related to social exchange, with the main concern being the relationship instead of extrinsic benefits (Blau, 1964; Bock et al., 2005). Thus, when members of an organisation give consideration to the potential for their mutual relationships with other people to lead to improvements by way of KSBs, then there is greater likeliness that they would engage in the sharing of knowledge (Bock et al., 2005). ARR are, in terms of theories of relationship marketing, a reflection of the relational benefits from KSB. Other studies have empirically examined positive relationships between ARR and KSB; see, for instance Hsu and Lin (2008) and Huang et al. (2008). ARR and benefits mediate the impact upon KSB from norm of reciprocity; indeed, the managers of an organisation with responsibility for KM ought to recognise that it is not adequate to just set the reciprocity norm(s). If the reciprocity norm(s) cannot be translated in ARRs and benefits, then the apparent norm(s) would not lead to KSBs. Thus, attention ought to be paid within organisations to both the process of building norm(s) and internalising them. ARRs were found to have a significant level of impact upon KSB; the suggestion here is that some tools ought to be provided by organisations in order to improve relationship visibility, such as through social media. Also, particular mechanisms ought to be offered so that an employee can undertake an evaluation of how fair social exchanges are through a system of knowledge management that highlights what he or she gives and receives. In particular, a system of knowledge management ought to have a profile built for all of the users in order to describe expertise and the questions asked and the answers

provided, respectively. With the contributions of prior knowledge being transparent, encouragement can be given to previous contributors of knowledge and pressure can be exerted upon potential or actual free-riders.

The expected mutual relationships factor refers to the degree to which a person believes that they will be in receipt of extrinsic incentives for the sharing of their knowledge. Thus, this can affect an individual's behaviours and attitudes towards knowledge sharing within an organisation. Within the theoretical study framework, the factor of expected mutual relationships was conceptualised as an independent variable to KS intention. In a study undertaken by Bock et al. (2005), the suggestion was made that expected mutual relationships had a positive association with having a more favourable attitude to knowledge sharing when intrinsic rewards were taken into consideration, such as deriving pleasure from helping others and the forming of relationships. Within the current study, five of the items that were used by Bock et al. (2005) were used to examine the academics' perception of expected mutual relationships; a beta coefficient of expected mutual relationships was ($t = 3.328$; $\beta = 0.079$; $p < 0.01$) in the study, which was an indication of a positive contribution being made towards intention to share knowledge. This result showed that expected mutual relationships may have an influence upon the attitudes amongst academics towards intention to knowledge share. Thus, the findings give support to H3, i.e. expected mutual relationships have a positive effect on academics' knowledge-sharing intention; this is also evidence of the academic attitude within the University of Baghdad. In general, empirical evidence supports the proposition that reciprocity has a positive association with the sharing of knowledge. A strong link between the attitude towards sharing of knowledge and expected mutual relationships was discovered by Bock et al. (2005). The definition of expected mutual relationships is the degree to which someone has the belief that their mutual relationships can be improved through the sharing of their knowledge (Bock et al., 2005). As a commodity, knowledge is intangible and has no exact price. For Short et al. (1976), individuals can be motivated towards the contributing of knowledge to others in their social circle as a way in which good relationships can be maintained. Therefore, if academics have the belief that their relationships with others and their mutual interactions may be bettered through the sharing of knowledge, then a favourable perception towards the sharing of knowledge can be implanted within their brains.

6.5.1.2 Factor four – apparent mutual benefits (PRB)

As seen in Table 5.22 within the findings chapter, the effect of the results of the apparent mutual benefits was assessed by their standard coefficients (β coefficient). A positive contribution towards the intention to share of knowledge is indicated by the beta coefficient of apparent mutual benefits ($t = 2.359$; $\beta = 0.054$; $p < 0.01$); this statistical result illustrated that academic attitudes towards the intention to share knowledge can be influenced by apparent mutual benefits. Thus, H4 was considered acceptable, i.e. apparent mutual benefits have a positive effect on knowledge-sharing intention among academics. This research also gave support to previous research and this researcher expanded the study through examination of the variable of apparent mutual benefits in order to examine the attitudes of academics towards the intention of sharing knowledge within the University of Baghdad.

In the context of sharing knowledge, reciprocity can be defined as the expectancy of benefit from a future request for knowledge being reached due to current contributions (Kankanhalli et al., 2005). Reciprocity is a type of conditional gain, with people expecting their present actions to reap future benefits (Fehr and Gächter, 2000). For knowledge to be contributed, individuals have to have the belief that their efforts in making a contribution will be worth it. As noted by Davenport and Prusak (1998), there is a limit to a person's knowledge, energy and time. Thus, except when there is profit involved, an individual is not normally willing to share their scarce resources with other people. Within a team, there is an expectation that people who anticipate and have more of a willingness to share their good ideas also have the expectation that others will respond in kind. Expected reciprocal benefits involve the level to which an individual has the belief that she or he could acquire mutual benefits through the sharing of knowledge (Hsu and Lin, 2008). Previous research has shown that a strong sense of reciprocity facilitates KS within online communities (McLure-Wasko and Faraj, 2005).

This research has utilised previous studies in order to examine the factors that have a bearing upon the KSB of academics and the corresponding expectations for KS. The findings revealed that there

was the perception amongst academics that reciprocal benefits encourage them towards KS between other organisational members whilst, simultaneously, expecting desirable outcomes and rewards. The findings also gave justification to knowledge power outcomes within another kind of context. Within academia, knowledge power does not have great significance in terms of effect of KS amongst academics; however, the factor could have the negative role of stopping individuals sharing knowledge if they have a fear that they will lose their positions or particular uniqueness. This research project has also shown that the factors having a bearing upon the knowledge sharing of individuals may vary according to context and conditions. There is importance, then, in examining KS determinants and the consequences of different people and circumstances.

Moreover, research has shown that reciprocal benefits may give effective motivation for the sharing of knowledge, thereby leading to the achievement of long-term mutual cooperation (Bock et al., 2005). Work by Lin (2007a) has shown that, when employees have the belief that they are able to acquire reciprocal benefits from colleagues through knowledge sharing, then they are more likely to look upon the sharing of knowledge favourably and therefore have higher intentions with regard to sharing knowledge.

6.5.1.3 Factor five - expected rewards (AER)

The storage of information within an educational establishment is not new and, obviously, the provision and receipt of knowledge is, central to life in academia (Antal and Richebe, 2009). Generally, most institutions of higher education have had the practice of storing all of their relevant documents, that were contributed by resources that were 'in-house', into a repository of knowledge or database. It is a recent shift, however, for the knowledge to be made available and more freely shared so that members can take advantage of information that has been generated within their community. Furthermore, a repository of knowledge can be used by institutions of higher education as a means of mapping existing experience and skills and diagnosing current needs so that any deficiencies or gaps within the knowledge base of institution can be filled (Jain and Veeranjaneyulu, 2013).

In this study and based upon a beta coefficient in the results for the structural equation modelling, it is clear that the variable of expected rewards predicts attitude towards KS. There was discovered to be a significant and positive relationship between the influence of expected rewards and the development of attitudes (t = 2.551; β = 0.047; p < 0.01). Thus, hypothesis H7 was found to be acceptable, i.e. expected rewards have a positive effect on academics' knowledge-sharing intention. This result also gives support to the results of previous research within which attitudes to KS were linked with expected rewards (Bock et al., 2005; Kim et al., 2015). Within this research study, the researcher expanded the expected rewards factor in order to examine the attitudes of academics towards the intention to share knowledge at the University of Baghdad. Often, knowledge is seen as a good that can be marketed and bought, that can be stored and accessed by a third party in a mode of market exchange (Antal and Richebe, 2009). KS is, of course, an act of communication between people that requires both effort and time (Gibbert and Krause, 2002). From such a perspective, individuals can only be seen to knowledge share with other people if there is the perception that their action will give rise to a direct return; put simply, KS only happens when it is thought that rewards will exceed costs (Kelley and Thibaut 1978; Constant et al., 1994). From such a perspective, then, knowledge sharing is usually described as a process that is free of emotion and has a basis only in estimation of benefits and costs (Antal and Richebe, 2009). There are a number of examples of organisations that have successfully used reward systems in encouraging employees to knowledge share; one is the Siemens' ShareNET project, where employees were motivated to share their knowledge through explicit rewards (Ewing and Keenan, 2001). Another example is that of Samsung Life Insurance's Knowledge Mileage Program when the launch of redemption points led to a massive growth in the knowledge registration of employees (Hyoung and Moon, 2002). As noted by Bartol and Srivastava (2002), a quarter of the performance evaluation of the customer support workers at Lotus Development can be seen as having a basis in the extent of their KS activities. Likewise, there are built-in functions at universities for rewarding performance that results from KS. For example, academics who have been successful in publishing articles within top-tier journals stand to receive monetary incentives and awards and have a greater chance of being promoted. Thus, it is expected that academics will have the motivation to share their knowledge when acts of sharing receive compensation in terms of extrinsic benefits, such as salary increments, wages and/or promotion. To conclude, the

hypotheses testing findings suggest that the University of Baghdad academics are able to develop their attitudes because of individual and institutional predictors. The university can actively employ internal promotion policies for expected mutual relationships, perceived reciprocal relationships and extrinsic rewards in order to influence individuals' intention to KS.

6.6 Research objective 3

In order to achieve the third objective in this study, the following research discussion was formulated as follows:

6.6.1 The effects of perceived behavioural control

Determination of perceived behavioural control (PBC) is through the entire set of control beliefs available; as noted by Randall and Gibson (1991), PBC is a function of their control beliefs (the opportunities and resources of an individual) and the perceived facilitation (the effect of assistance of those factors). Additionally, as Ajzen (1991) noted, the behaviour of humans is fuelled, to a degree, by beliefs in relation to factors that are able to help or hinder performance of a particular behaviour and the control beliefs (the perceived power of these factors). The term control beliefs refer to the perceived absence or presence of factors that could impede or help in the performance of the behaviour in question (Chennamaneni, 2006). PBC variables are dispositional factors referring the employees' perception of opportunities and vital resources that could help in knowledge sharing (Chennamaneni, 2006). Internal factors in this are skills, information, individual differences, emotion and abilities; external factors include financial limitations, cooperation with others and time involved (Ajzen, 1991). As noted by Chiang et al. (2011), these perceptions of facilitation and control beliefs can be based upon past opportunities or experience. Therefore, the suggestion from the theory is that the greater the belief of the employee that they are in possession of resources and have opportunities, then the fewer the impediments that they anticipate; as such, the employee has greater perceived control in relation to their behaviour.

6.6.1.1 Factor six – methods & techniques (TT)

This research study has applied the predictive variable of the methods & techniques in the workplace in order to examine the perceived behavioural control for intention to share knowledge amongst academics. Standardised estimates and t values, as shown in Table 5.22 in the findings chapter, demonstrated that there was a positive and significant path between the methods & techniques in the workplace predictor variable and the intention towards sharing of knowledge (t = 12.797; β = 0.246; p < 0.01). From the respondents' view point, a positive attitude towards the variable for methods & techniques meant that they had more likelihood of being satisfied with regard to the intention to share knowledge. Thus, hypothesis H5 was considered to be acceptable, i.e. methods & techniques have a positive effect on academics' knowledge-sharing intention.

Methods & techniques is a mediating factor that is important in the sharing of knowledge. It is inevitable that IT is an important tool in the successful implementation of knowledge management (Bhatt, 2001; Kim et al., 2003). However, as Hendricks (1999: 91) suggested "*The role of ICT for knowledge sharing can only be fully understood if it is related to the motivation for knowledge sharing*"; clearly, it is insufficient for encouraging KS if ICT is functioning alone as a platform for KS. As well as the motivation for sharing knowledge, Brazelton et al. (2003) also highlighted the notion that technology alone is not sufficient to effectively encourage KS activities. Kim and Jarvenpaa (2008) also provided support for the notion of the importance of using technology to shape KS activities as a formula to tailor them with existing relationships between the communicating parties. It was suggested by Suneson and Heldal (2010) that when in situations when complex technology (communicational and informational) is to be employed by at least two organisations together, for it to be efficiently employed, there might be a need for each organisation to understand the other and have an awareness of their view of the technology in question. A lack of understanding could act as a knowledge barrier between the organisations that impedes high-quality co-operation between them. In general, the results have suggested that, for workplace methods & techniques, it could be necessary to give attention to the development of positive attitudes amongst individuals with regard to the intention for KS at the University of Baghdad.

The findings of this current research have alignment with the work undertaken by Kim and Jarvenpaa (2008) that gave confirmation that there were positive effects of employing technology for the shaping of KS activities and for positively implementing KS within organisations. Likewise, it was shown by Davison et al. (2013) that there is a deep reliance upon careful technological investment within organisations to improve the knowledge of team members about which people know what things, thus that KS can be successful. This research, therefore, indicated that academics ought to have adequate levels of skill and knowledge and a lucid appreciation of the beneficial qualities of technologies and tools so that their fears of knowledge sharing can be eliminated. This study offers support, then, to the idea that technology and tools can support universities and have positive impacts upon the KSB development within teams, and that support from technology and tools can have positive impacts upon KS and the application of knowledge. Furthermore, improvement in the effectiveness of training and skills in relation to the utilisation of technology and tools within the context of conflict, as in Iraq, for example, is essential for the achievement of the strategic goals of an organisation.

6.6.1.2 Factor seven - self-acknowledgment (SE)

Lastly, assessment of self-acknowledgment as an independent predictor was performed through their standard coefficients (β coefficient); the findings did not confirm either a positive or significant relationship to the intention towards KS (t = - 3.134; β = -0.155; p > 0.02). The statistical findings indicated that the self-acknowledgment factor may not actually have been influencing the behaviour of academics in respect to intention towards KS, at the University of Baghdad. Amongst the individual PBC factors, the self-acknowledgment construct had a negative impact among the construct for intention of academics to share knowledge. Thus, hypothesis H6 was rejected, i.e. self-acknowledgment have a positive effect on academics' knowledge-sharing intention.

In addition, participants made some observations about the self-acknowledgment factor, which was not found to have a significant or positive relationship with intention towards sharing of knowledge; this factor has, however, been applied broadly by several researchers who discovered

positive results (Bandura, 1997; Van Acker et al., 2014). In the research of Amin et al. (2011), however, a small negative correlation was found between KS and self-acknowledgment. The results of this study put forward the suggestion that there is a need to pay attention to self-acknowledgment, and more training and development of skills ought to be launched at the University of Baghdad.

Self-acknowledgment was defined by Pavlou and Fygenson (2006) as the judgements of individuals with regard to their capability to perform a behaviour. It was suggested by Bandura (1997) that self-acknowledgment as a major cognitive force is significant for guiding behaviour. Particularly relevant within an academic environment, self-acknowledgment is the confidence that a person has in their ability to provide valuable knowledge to others (Kankanhalli et al., 2005). Previous research studies have shown that individuals with strong self-acknowledgment in knowledge would tend to be strongly self-motivated in their promotion of KS (Bock and Kim, 2002; Hsu et al., 2007). In respect to KS, self-acknowledgment is a determining factor in whether an individual takes action to share or hoard knowledge; as Bandura and Locke (2003: 87) note, "…*people reflect on their efficacy… form intentions that include plans and strategies for realising them*".

For several years, it has been suggested that self-acknowledgment is a vital determinant factor in respect to behavioural control (Bandura, 1977; Hsieh et al., 2008). A total of 17 public universities within Malaysia were surveyed by Amin et al. (2011) and they drew the conclusion that lack of organisational rewards was the most important barrier to the sharing of knowledge. Next, a lack of ICT systems was considered an important barrier and there was also discovery of a small correlation that was negative between sharing knowledge and self-acknowledgment. Moreover, the model for theory of planned behaviour (TPB) was used in a quantitative research study by Tohidinia and Mosakhani (2010), with the results showing there to be strong connections between KSB and the TPB elements. Their research showed that a positive impact upon KSB was reflected from factors such as professional environment, perceived self-acknowledgment, the level of communication and information technology, and anticipated reciprocal relationship. As noted by Bock and Kim (2002), further study is required that has a focus upon enhancement of a positive

mood within social associations that precedes the behaviour of KS and would provide feedback for improvement in the self-acknowledgment of individuals.

Thus, the behaviour of an individual is a combination of personal factors and factors that are behavioural environmental, wherein the person could belong to a particular socio-cultural grouping and yet, simultaneously, have a variety of cultural identities (Bandura, 1978; Hau et al., 2013). The study results show that self-beliefs have an evaluative nature that makes them perform a role as a mediator or filter for later behaviour, and that the judgement of an individual, in relation to self-acknowledgment, mediates other effects related to further behavioural determinants (Van Acker et al 2014; James, 2009; Pajares, 1996). The idea that a less significant role is played by self-acknowledgment within collectivist cultures can, therefore, be rejected (Bandura, 1997); there is acknowledgement for considerable variety amongst individuals within a collectivist setting. The study results are akin to those from the work of Mueller (2014) in relation to the distances of interaction amongst Russian, Iraqi and Argentinian students that discovered that there were significant differences in contact culture samples. These study results may be able to foster a clearer understanding of the communication behaviour within Arab cultures and increase the degree to which theories that have been developed within western cultural settings can be generalised.

6.7 Research objective 4

The fourth study objective had the aim of assessing the attitudes and perceptions of academics that are involved with KSB processes at Baghdad University. Thus, that the objective could be achieved, a number of sub-sections were established (as below) in order to discuss demographic variable effects of the age of the academics, their gender and education level upon their intention for KSB. In order for exploration of the role that each of the demographic variables has upon decision making with regard to the adoption or rejection of KS, ANOVA, t-tests, Chi-square tests and descriptive analysis were employed; the analytical tools were also used for investigation of the differences amongst groups in respect to DVs. The findings revealed that the demographic variables of participant gender and their level of education did not have a significant bearing upon

the decision of academics to develop KSB. Furthermore, no significant difference was shown in relation to DVs by the demographic groups. However, tenure groups, level of education and age were discovered to have varied perceptions with regard to KSB. The sub-sections that follow discuss the differences in more detail.

6.7.1 Age group

The results of the current study showed the willingness for knowledge sharing differed significantly in accordance with the respondent age group. There appeared to be a greater willingness for knowledge sharing amongst participants who were middle-aged rather than those in older and younger age groups. The Figure 5-3 upon page 157, shows clearly the perceptions of the academics in respect to KSB. The descriptive analysis showed that academics who were younger, i.e. from 25 years of age to 30 years of age, had a 2.8 mean score; in other words, there was disagreement or neutrality in perceptions towards recent intention towards KSB. The group of older academics, i.e. those who were more than 61 years of age, also had a mean score of the same value. Further validation, provided by the Pearson's Chi-squared test, showed that, between age groups, dependence/association existed (P<0.05); it showed that younger academics had less of a willingness to knowledge share when compared to older academics who were 31 years of age or over (Section 5.5). Thus, the inference is that age is a factor that is influential in determination of KSB. Age related results within this research, then, provide confirmation for findings from previous research publications; for instance, it was found by Venkatesh et al. (2000) that age had a direct, moderating and significant effect upon knowledge sharing, behavioural intention and behaviours in relation to usage. Furthermore, the study of Hasnain (2013) made note that there was a very low rating for the age group that was younger in relation to the absorption and implementation of KS within Bangladesh; contrastingly, the author discovered that there was a greater likeliness that those within an older age group of from 36 years to 55 years of age would absorb KS and implement it.

6.7.2 Academic profession

In relation to academic profession, the findings of the current research showed significant differences in willingness for knowledge sharing in relation to participant education level. Participants that had a high level of education appeared to have less likeliness of knowledge sharing than academics who had lower levels of education. Likewise, academics with lower levels of education had greater likeliness of viewing recent projects for sharing knowledge as being successful when compared to academics who had higher levels of education. It was shown by inferential analysis that assistant professors (N=32) had, for the dependent variable in relation to intention to KSB, a lower 2.7 mean score. Lecturers (N=133), on the other hand, had the highest level of mean score of approximately 3.9. Further validation of dependence/association (P<0.05) for academic profession was provided by the Chi-squared results, in showing that individuals at lower professional levels (assistant lecturers and lecturers) felt enlightened by knowledge sharing with other team members within the university when compared to academics at higher levels of their profession (assistant professors and professors). The inference is, therefore, that education level is a factor that is influential for determination of KSB within Iraqi universities.

As an institution, a university is very complex and bureaucratic. Within developing countries, politicisation of every aspect to higher education, government involvement within decision making in academia, and bureaucratic control have all had a detrimental impact upon the values within higher education institutions and the strength of their norms, and upon the profession of academia as a whole. Within developing countries, the profession of academia has significant differences to the professoriate within western countries. Assistant professors and professors may have a tendency to share knowledge less because of feelings towards the issue of job security. Job stress and huge responsibilities can leave academics with very little time to knowledge share and communicate with others. It was argued by Grubic-Nesic et al. (2015) that academic profession has a significant bearing upon the sharing of knowledge and intention. It was stated by Bakker et al. (2006) that people, in the main, approach others with levels of expertise/education that are higher for sharing knowledge; the academic profession does, by contrast, not play a significant

role in the sharing of knowledge if co-workers have trust between them. All parties, then, are willing to exchange knowledge regardless of level of education (Carroll and Cameron, 2017).

6.7.3 Tenure group

As is typical of many different developing countries, a bureaucratic culture dominates public organisations within Iraq. Within cultures that are bureaucratic, key attributes include experience duration as reflected within the variable for demographic aspects (See Section 5.5). It was shown that tenure groups embraced differing perceptions with regard to DV; the findings revealed significant difference ($P<0.05$), with means at lower levels of 3.06, 3.00 and 2.80 for the ranges of work experience of 26 years or over, 6 years to 10 years and 1 year to 5 years, respectively. Thus, it was shown by the mean that participants with experience of 26 years or over and those with experience of below 10 years had less likeliness of having the intention of knowledge sharing. For respondents that had from 16 years to 20 years of experience, the mean score was at its highest for all groups with a level of 4.14, therefore showing a significant positive intention with regard to the sharing of knowledge. The second highest score for mean of 3.40 was in relation to respondents with from 21 years to 25 years of work experience. Meanwhile, there was a 3.70 mean score for respondents who had experience of from 11 years to 15 years; this showed a positive intention towards the sharing of knowledge upon the dependent variable. The results support the research findings of Gilson et al. (2013) which involved investigation of tenure having a positive influence upon explicit knowledge of individuals at high KS levels and that exhibited negative influence at low KS levels. However, as has been argued in previous studies, sole exposure to those with different organisational tenure levels is no guarantee that there will be positive effects upon explicit knowledge or that there will be resultant increases in creativity. Knowledge sharing, then, is essential in order for positive association to be facilitated. On the other hand, if there is no sharing of knowledge, relationships may, in reality, become negative (Abdelrahman et al. 2016).

6.8 Research objective 5

The research objective that was the fifth one within the current study had a focus upon the developing and testing of a conceptual framework for portrayal of the factors that critically affected

KSB intention with Baghdad University; this was in order to set an example for universities within the MENA region and for Iraq in particular. The sub-section that follows has a discussion of how the findings of the study have met the objective in relation to the KSB contextual model for Iraq.

6.8.1 Final research model

As has been explained in the sections above, this research has employed empirical data, the analysis of factors and SEM in order to enhance the level of understanding with regard to the sharing of knowledge. This was done through specification of a model for KSB that is context-based that is suitable for the reality of developing country contexts and which has the purpose of improving the likelihood of there being a positive attitude towards knowledge sharing within developing countries. If leaders are able to predict the uptake of KS and identify success predictors, then they are able to focus resources upon suitable initiatives and interventions, thereby driving forward efficiency in relation to the utilisation of possibly scarce resources. Throughout the social sciences, there is widespread use of models, and within the management and business fields, there has been widespread application of SEM (Wong, 2013). As Frank (2002) notes, however, models have to be suitably representative, i.e. correspond to the collected data and the system in question (isomorphic); thus, academics find conceptual models to be of limited utility. This study has examined a SEM that is KSB-based that produced acceptable fit indices set; this showed that the model had a fit to the empirical data that was acceptable and showed that numerous latent variables have a significant bearing upon the 'KSB intention' DV. The results for the SEM (RMR, RMSEA, CFI, GFI and NFI) for the final model of seven variables was that it was a model with a relatively better fit in comparison to the original eight variable model. The current study results progress the level of understanding in relation to the suitability of the application of the model for KSV within the context of Iraq. The results have not supported the impact of all of the factors proposed as shown within Chapter 3; instead, the results have revealed that, amongst factors related to KSB, there is an ineffectual impact of self-acknowledgment upon DV and so it was not included within the final version of the model. The study results did, however, give adequate levels of support for causal relationships amongst variables and for the final versions of the research model (Table 5.22).

6.9 Conclusion

To conclude, this chapter has discussed the results gathered via questionnaire. With the aim of demonstrating the meeting of the objectives of the research, consideration has been given to the primary findings in relation to each of the research questions and in view of the relevant literature. There has been discussion of all of the framework hypotheses in relation to readings of the previous literature and discovery of inferences for future use. The factor flow employed within this research could be enriched through consideration of individual attitudes and behaviours towards the intention to KS. Of the independent predictor variables, one out of the seven of them did not have a positive and significant relationship to the intention towards KS. There was no suggestion that the variable of self-acknowledgment influenced the development of individual behaviours at the University of Baghdad. Furthermore, the methods & techniques and professional environment predictor variables were discovered to be more strongly related to the intention toward KS than the other variables of the study.

The chapter that follows presents the implications for policy, along with a note of the limitations to the research and a more detailed discussion of other potential directions for research.

Chapter 7: Conclusions and implications

7.1 Introduction

This thesis had the aim of examining the knowledge-sharing behaviour intentions of academics at the University of Baghdad as an example of the higher education in Iraq, and their determinants; examination of such relationships at the university was considered significant for enhancing knowledge-sharing behaviour there and improving capacities for problem-solving within that field. Chapters one to six presented the study objectives, the review of literature, the conceptual framework of the research, the research design, the results from the collection of data and the consequent quantitative analysis, and a discussion of the findings. Finally, this chapter presents a summary of the main study findings that were discovered by the quantitative research approach, and gives a study overview. There is discussion of the theoretical and practical implications of the research and then recommendations are given for policymakers at the university with regard to the practice of knowledge-sharing behaviour and effective strategy development for promotion of a KS culture at the university. Finally, the chapter concludes with mention of the study limitations and presentation of ideas for future research. Next section is a revisit to the aim and objectives of the research study.

7.2 Revisiting the aim and objectives of the research

The philosophy of the research and the choices with regard to methodology were given due attention, but there is value in taking another look at the research aim and objectives; it is important that the methodology and method selection are tailored to the nature of the problem and the objectives of the research. Moreover, this research has the principal aim of determining the effective ways of motivating academics at the University of Baghdad to KSB. Therefore, in order to achieve the study aim, the research objectives were set as follows:

a) To apply and validate attitude toward knowledge sharing as a measurement of knowledge sharing behaviour within academics at the University of Baghdad

b) To apply and validate subjective norm as a measurement of knowledge sharing behaviour within academics at the University of Baghdad

c) To apply and validate perceived behavioural control as a measurement of knowledge sharing behaviour within academics at the University of Baghdad

d) To develop and test a conceptual framework that portrays the critical factors that affect the KSB of academics in the University of Baghdad.

e) To propose practical recommendations to nurture KSB amongst academics in the University of Baghdad.

7.2 Conclusion

The sharing of knowledge has been shown to be the key knowledge management enabler. Knowledge-management systems are used by organisations to support KS and lever knowledge resources; however, whilst systems for knowledge management are important, the presence of technology to help in this is no guarantee that knowledge will actually be shared in practice. Given the growing significance that the sharing of knowledge has for knowledge-management success and organisational survival, academics have been calling for factors that discourage or promote knowledge-sharing behaviours in the context of the University of Baghdad to be identified. This exploratory research study has been an attempt to fill the gap in the existing research in the area of KS through an investigation of the factors that have a bearing on the knowledge-sharing behaviour of academics. Various research streams have been drawn upon, including studies from the fields of knowledge management and social psychology, and an integrated theoretical model was developed with three critical factor sets from planned behaviour theory shown, i.e. subjective norm, perceived behavioural control and attitude towards knowledge sharing, which are all considered to have an effect upon knowledge-sharing behaviour. Through use of a field survey of 326 of the academics, validation of the theoretical model was carried out for a single empirical study context. Significant support for the research model was provided by the findings, accounted for about 56% of the variance in the behavioural intention for KS. Support was given for six of the seven relationships that were hypothesised; as such, the findings indicated that all of the research objectives had been reached. Thus, it was shown that mean knowledge-sharing behaviour could be predicted by the academics' intention towards KS. The intention for KS was, in turn, predicted from the academics' attitude towards KS, perceived behavioural control and subjective

norm. The academics' perceptions of expected mutual relationships, expected rewards and apparent mutual benefits had a positive association with having a favourable attitude towards KS. Self-confidence and professional environment had a positive influence upon the academics' subjective norm, and methods & techniques of facilitation also had a positive association with perceived behavioural control. A negative effect on perceived behavioural control was exerted by self-acknowledgment perceptions.

With a basis in the findings, SEM was employed in the testing of hypotheses related to the variables' relationship at the University of Baghdad. The research has discussed the implications for theory and practice for the intention to share knowledge within the context of the workplace. Taken as a whole, the study results do advance upon previous research within the field of KS through revealing more information on the determinants of KSB amongst academics. The research model helps to deepen collective understanding of the processes of attitude that underlie the context that helps induce KSB. Furthermore, as well as making a theoretical contribution, the study findings also provide insights for working practice that organisations may employ in the development of realistically conducive environments for KS. A particular problem that this research has addressed is the lack of models created for the investigation of KSB within developing country HEIs, especially Iraq. The model proposed for this research underwent examination through use of a quantitative mono-method, as described in the chapter on methodology above. Using SEM, the research discovered that, for long-term survival, academics rely upon the support and help of other colleagues. A self-oriented attitude may work for an academic in the short term but not over the longer term and academics to tend to recognise this truth. Thus, there is a belief that KS strengthens relationships with their existing colleagues as well as being helpful in smoothing the cooperation of other future colleagues in cultivating an optimistic attitude towards KS.

Furthermore, through realisation that KS is more helpful than harmful for the university as a whole, an individual's feelings towards KS are enhanced and this explains why there is a positive association between intention towards KS and a self-confidence. In order to realise that benefits result from KS acts, individuals need to be more aware of the expectations that other significant

individuals have towards KSB and have greater compliance with those expectations; as such, the positive impact that a self-confidence (as put forward by H2) has in the subjective norm factor has been clarified.

Similar to the work of Bock e al. (2005), it was found within this research that professional environment had a positive impact upon subjective norm; the higher perceptions were of professional environment being conducive to KS, the higher was the formation of the subjective norm towards the intention to KS. Professional environment, then, has a significant direct effect upon the intention to share knowledge; the suggestion from this finding then is that the professional environment will have a motivational impact upon knowledge workers in their sharing of their knowledge with their colleagues. The findings were consistent with those of Jarvenpaa and Staples (2000) that had identified the formal dimensions of culture that support KS as being collectivism, a need for achievement, employee-orientation, sociability and solidarity. The research findings also confirmed those of Ajzen and Fishbein (1980) which pointed out that external factors, such as professional environment, may have a bearing upon an individual's subjective norm by giving them cues as to what behaviour is expected of them and considered desirable. This finding, then, is consistent with previous findings in showing that professional environment (hypothesis H1) does indeed make a significant contribution to KSB (Lin et al., 2008; Lin, 2007b). Through making friendly relationships, the teamwork fosters more opportunities for knowledge exchange between employees and strengthens the level of trust amongst them. In addition, without the support of the organisation to encourage and protect innovation and innovative teams, staff are unable to be innovative in their work. These days, universities have become very competitive as academics seek to win promotions, awards, research grants, titles and higher positions and so on. Survival instincts can drive an academic to be cautious with regard to KS as he or she may feel that the sharing of knowledge could weaken their position. However, human beings do not always act in a way that accords with such natural instincts and, based on the mean values of the findings related to the extent of KS, it is clear that there is an encouragingly modest level of attitude towards KS within local universities. The situation at the University of Baghdad provides verification of the acknowledgement by academics of the importance of frequent KS in their day-to-day working lives.

The findings of this research related to expected rewards (hypothesis H7) are also consistent with previous study findings. The suggestion has been made that effective motivation of people to KS can hail from explicit monetary reward (Hu and Randel, 2014). In the ShareNet project of Siemens, for instance, employees were motivated to knowledge share by explicit rewards (Ewing and Keenan, 2001). Likewise, within the Knowledge Mileage Program of Samsung Life Insurance, there was a rapid growth in employee knowledge registration due to the use of redemption points (Hyoung and Moon, 2002). It has also been argued that KS is encouraged by organisational rewards (Kankanahalli et al., 2005). Likewise, the research findings related to hypothesis H3 align with previous studies that have indicated the positive impact that expected mutual relationships have upon attitude towards the sharing of knowledge (Constant et al., 1994; Bock et al. 2005). The findings for perceived reciprocal benefit (hypothesis H4) also showed a significantly positive effect upon the attitude towards the sharing of knowledge. A degree of indication of the likelihood of knowledge workers to engage in the sharing of knowledge is provided by the significance of the PRB, with expectations that the sharing of knowledge will lead to the receipt of future help. This finding indicates that through KS an individual will derive significant personal benefits, such as increased competence, enhanced reputation, greater feelings of organisation commitment, increased social affiliation, and heightened pride and self-esteem. The findings from this research study are consistent with previous research in relating that the expected reciprocal benefits involved the amount to which someone believed that knowledge sharing would lead to mutual benefits (McLure-Wasko and Faraj, 2005; Hsu and Lin, 2008).

In contrast, the methods & techniques factor (hypothesis H5), if implemented whilst other KS motivational factors were neglected, leads to solely the reinforcement of the existing behaviour (Davenport, 1994). Tools & technologies can, of course, play a significant role in supporting KSB; however, previous research has provided proof that the presence of methods & techniques does not guarantee the occurrence of the desired KSB (Orlikowski et al. 2016; Ruggles, 1998; McDermott, 1999; Cross and Baird, 2000). It is better that tools & technologies are considered as, at best, reinforcement of other knowledge-sharing activities, whilst, at their worst, they can serve to put people off knowledge sharing (Cross and Baird, 2000). Consequently, so that the gaps in

knowledge-sharing behaviour can be bridged, organisations ought to emphasise the methods & techniques updates.

This research study has been consistent with the theory of planned behaviour (TPB) in hypothesising the knowledge-sharing intention predictors to be subjective norm, perceived behavioural control and attitude towards KS. As was hypothesised, the significant predictors of intention towards KS were seen to be expected mutual relationships, expected rewards, self-confidence, apparent mutual benefits (as attitude towards knowledge sharing), methods & techniques (as perceived behavioural control), and professional environment (as subjective norm); findings that have consistency with those of other research into TPB (Bock and Kim, 2002; Ryu et al., 2003; Lin and Lo., 2015; Bock et al., 2005). Thus, it was hoped that this research could fill some of the gaps within the existing research through the provision of insights, from both methodological and theoretical academic perspectives, and by the testing of theories within a different context. Moreover, the research has aimed to aid in the development of strategies with regard for promoting KSB culture at the University of Baghdad that could help in the achievement of improved intention towards KS and help the expectations of the MOHESR's planned strategy to be met. The next section will outline the implications of this research and the potential contributions that it can make.

7.3 The study implications

7.3.1 Implications of the study for theory

The research makes a contribution to knowledge in two ways, i.e. both methodologically and theoretically. In providing an investigation into the knowledge-sharing behaviour intentions of academics at the University of Baghdad, and their determinants, the research has provided significant results that have contributed to the theory within this particular field of study. The research has, in fact, contributed to the literature in a number of ways. Firstly, information has been provided about the intention to knowledge share through the application of the study to a different setting, i.e. the University of Baghdad, where there have been no previous studies with a focus on KS (Casimir et al., 2012; Zhou and Li, 2012; Fullwood et al., 2013; Titi Amayah, 2013).

To date, this particular topic has not been researched within a Middle Eastern H.E. environment and so a study for a developing country such as Iraq is a first. The research provides a perspective on knowledge-sharing behaviour that is holistic through the development of a theoretical model that is intention-based, employing theory of planned behaviour (TPB) and extending it through the use of constructs from economic exchange theory, social exchange theory and self-determination theory; the result being the provision of a stronger knowledge-sharing behaviour model than those used previously, as the identified factors provide for a better, more comprehensive whole (Bock and Kim, 2002; Bock et al., 2005). The current study results provide confirmation that the three components of KSB (subjective norm, perceived behavioural control and attitude towards KS) do indeed have an influence upon KSB, and aid in providing a deeper understanding of the relationships between them. This confirmation is important as it shows that KS aspects have a bearing on the capabilities of academics that, under traditional ways of KS, are not fully developed.

Additionally, in keeping with the call in the work of Bock et al. (2005), the research has sought to provide further examination of the difficulties in practice related to the attitude of academics towards KS within a developing country setting (Zwain et al., 2012). This research offers further support for a view that is knowledge-based and, in empirical terms, gives strength to the view that it is key to enhancing the intention towards KSB at the University of Baghdad. The results provide a deeper understanding of how knowledge can help HEIs gain a competitive advantage. KS is considered as involving the transferral of the experiences, expertise, skills, knowledge and information of individuals into organisational and explicit assets that can lead to improved performance (Nonaka et al. 2005; von Krogh et al., 2012). The effective management and sharing of knowledge as a strategic resource is a fundamental tool for enabling universities to enhance their survival chances and competitive advantage. Moreover, the research has provided further information about which attitude type is affected the most by the intention to share knowledge; this has importance for organisations wishing to establish strategies for the stimulation of the intention towards KS within their environment. There have not been any previous studies of expected mutual relationships (ARR), apparent mutual benefits (PRB) and expected rewards (AER) within the context of the Iraqi education sector. Thus, this research provides an evaluation of Bock et al.'s (2005) model of the three variables, thereby providing an initial clue as to the way

in which knowledge sharing occurs within the sector. Whilst there have been recent studies that have looked, in isolation, into the effects of subjective norm (Pi et al., 2013; Ramayah et al., 2013), on KS (Al-Debei et al., 2013; Humayun and Gang, 2013; Witherspoon et al., 2013), they have had limitations with respect to the study of sectoral differences; this research expands their scope to the context of Iraqi HEIs. Furthermore, through identification of the prevalence of certain kinds of supportive policies, this research has provided comparative information about the relationships that exist between professional environment, intention towards KS and the self-confidence; knowledge of these relationships is extended to the University of Baghdad.

In addition, this research has shown that professional environment and a self-confidence are insufficient in themselves for the production and enhancement of the intention towards KS within the university of Baghdad's environment. It has indicated that organisational context is important in the relationship between professional environment, intention towards KS and self-worth, whilst elements that are transitional, such as commitment to learning and training and support from the top management, are essential for the intention towards KS at the university. The study results provide a certain amount of evidence that academics are already changing in their intention towards KS, which gives additional value to the theory of KSB for the HE sector context. The current findings also extend and give confirmation to the universality of the theory of perceived behavioural control and its effects across different cultures, through having Iraq as a developing country case study for the examination of the impact that perceived behavioural control has upon the intention towards KSB within the University of Baghdad (Bock et al., 2005). Indication from the findings is given that, whether consideration is being given to a context in the East or the West, a significant role is played by perceived behavioural control in the promotion of a culture of KSB and enhancement of KS at the university.

From the perspective of methodology, this research has supported and achieved reliability and validity within its constructs for the measurement of KSB within a different geographical area. Greater accuracy is, then, given to the University of Baghdad results and a valuable example is provided of a methodology that academics and researchers may use within similar research for tracking the degree of KSB and its effect upon the intention towards KS. Through use of an

approach that is mono-method, this research has shown that quantitative data, with regard for the differences between practices for KSB and the effect that relationships have amongst subjective norm, perceived behavioural control and KS, can be useful for understanding the findings and are an effective way in which the study questionnaire can be answered.

7.3.2 Implications of the study for practice

As well as covering the first study objective, this research has implications for academics at the University of Baghdad. Clarification of KSB in contributing to enhancement of the intention towards KS may be able to help managers in their endeavours to create strategies with the aim of fostering a greater degree of commitment to an intention to KS. For this culture to be underpinned within the university environment, academics need to have an awareness of the importance of staff processes that are effective and that have a greater emphasis upon the quality of working relationships. It is essential that there is more of a focus upon the building of a spirit of teamwork through the fostering of collaboration amongst staff and the provision of the necessary support to such networks.

The current study results show that the attitude towards KS in the University of Baghdad is important in encouraging the intention towards KS. Consequently, the university management ought to foster expected mutual relationships as an approach for focusing effort upon academic staff development. Such a focus will, in turn, provide a clear direction and sense of purpose for the academic, with the establishment of an environment of respect and mutual trust. With regard to the attitude towards KS, the most important assets are the human resources; thus, academics ought to be inspired through apparent mutual benefits and expected rewards through motivation from attendance on courses, taking on responsibility for research projects, adopting new technologies and attendance on new training programmes. For the University of Baghdad, results have indicated that attitude towards KS is a significant predictor of intention to KS, and therefore the university management ought to provide the coaching, consideration, encouragement and support to academic staff that the situation necessitates. Thus, the university management ought to articulate a vision of the future that is stimulating and try to motivate the academics to work in line with that

vision. This research has found that the subjective norm factor is essential for the practice of intention towards KS amongst the University of Baghdad academics. Subjective norm antecedent variables such as professional environment and a self-confidence are able to create the effective level of commitment and the culture of trust necessary so that academic members of staff have a willingness to overcome any natural resistance they may have to sharing their knowledge. Predictors like these can foster the stimulation of the faculty towards the intention to KS activities through encouragement by means of the establishment of workshops, lectures, sessions and other informal and formal forms of communication for sharing and exchanging experiences and learning. Furthermore, leaders who create positive relationships with their followers can foster a willingness amongst academic staff members to knowledge share with other institute members through creation of a climate that has friendly relationships, improvement in the level of fairness within the organisation and the creation of an innovative climate. Thus, successful KS climate creation is dependent upon the existence of a supportive management for the organisation. In addition, it is clear that at the University of Baghdad there needs to be more awareness of the importance of the role played by perceived behavioural control and more effort placed upon the creation of effective attitudes towards KS mechanisms for the promotion of a culture of KS. It has been suggested in previous studies that a focus on training programmes can develop a positive attitude to KS (Serenko et al., 2016). As such, it is considered that the university ought to seek to implement courses in attitude towards KS through which academics would be able to learn how to effectively encourage a good attitude towards the sharing of knowledge within the workplace.

The implication of the importance of attitude to KS variable for the implementation of a KS culture is that the university management has to concentrate and expand its efforts on the promotion of more relevant training for academics. The study findings revealed that attitude towards KS was the strongest predictor of KSB, therefore organisations should conduct strategies to encourage their staff in engaging with knowledge sharing activities, such as internal and external KS communications.

Moreover, the quantitative findings unearthed the fact that a suitable organisational context can make the relationship between academics and KSB stronger. It was shown that apparent mutual

benefits, extrinsic rewards, expected mutual relationships and professional environment are all elements that are required in this. Expected rewards (AER) are able to help in the determination of the flow of knowledge, the access to, and sharing of, knowledge that is in existence already, and new knowledge generation. AERs lead to an increase in the levels of communication amongst all of the campus departments and they facilitate knowledge collection and delivery both outside and within departments. Thus, the university ought to establish suitable reward systems, such as promotions and bonuses; other pieces of research have identified the presence of such systems of reward; however, there is a need for more promotion of them at the university.

A recognition of KS activities in apparent mutual benefits may be able to help in reducing the perceived cost of those activities. The institution could also, perhaps, benefit from noting that adopting this strategy may be a way of reducing the reluctance that academic staff have to spend time in KS through making direct links to systems of evaluation and reward. Thus, apparent mutual benefits are able to have a positive effect upon KS and mate it more likely that academics will view it as an integral aspect of their day-to-day job activities. In addition, the university may adopt strategies that have the aim of providing a climate for the working environment that is more conducive for the practice of knowledge sharing. It was shown by the findings of this research that the professional environment serves to facilitate and promote KSB activities between those people who have control over the access to knowledge and those who undertake the collection of knowledge. This research has also discovered that expected mutual relationships for KS are pivotal in the development of a culture of KS both outside and within departments; indeed, such relationships are vital for staff members to collaborate with others and to share their new learning. For purposive channels of learning such as teamwork and KS, it is necessary for expected mutual relationships to be allocated to activities that are formal; this allocation enables members of a faculty to have contact with colleagues and to share their skills, reports, knowledge, publications and experiences throughout their institute or university. Expected mutual relationships for activities that are informal, such as social communities and personal relationships, on the other hand, may be able to facilitate the learning of knowledge and the development of trust, friendship and respect amongst members of staff – these being core aspects of KSB. Thus, there is a need for the university to establish expected mutual relationships for KS and to aim for the adoption of

strategies for reflection on meeting effectiveness and the encouragement of social interaction. The university could establish strategies or channels by which knowledge is shared to encourage more intention towards KS, such as recognition and reward systems for boosting the active participation of academic staff in communicating and exchanging their skills, experience, expertise and knowledge through research projects and publications and so on. The study findings have suggested that the university ought to pay particular attention to orientations of learning and training, which are likely factors for the enhancement of the intention to KS; they are helpful in the building of relationships that are essential in KS, and they help build social ties, create a language in common and increase interaction. Account ought to also be taken of the potential for communication skill training to help academic staff to be more effective in the exchanging and sharing of their information. Thus, the University of Baghdad ought to seek to provide cross-functional training and encourage activities for continuous learning and establish sessions, social communities, workshops and symposia through which members of the faculty can acquire knowledge and multiple skills that will enhance intention towards KS.

7.4 General recommendations to policymakers at the University of Baghdad

Based on the research findings, this study has the following recommendations for consideration by the managers of the University of Baghdad:

- Cadres should be nurtured and trained with a fundamental readiness to have KSB, with the creative abilities needed to best use such a readiness;
- More workshops, seminars, open meetings and training programmes should be held so that expertise can be frequently and regularly exchanged with other sectors;
- The teaching within the university has to be in the English language in order to enhance the status of Iraq's university education in the eyes of the world and to facilitate further securing of grants and scholarships;
- The creativity of outstanding university professors ought to be utilised through the adoption of an expected rewards policy, such as the establishment of cash rewards, promotion to respected positions, adequate payment packages, work travel to overseas temporary posts, allowances

for attendance at conferences and opportunities of attendance on specialised training courses. These measures can aid in increasing the activity of academics, with people feeling valued in their work and in receipt of public praise;

- The conventional, pyramidal structures of the organisation should be removed in order to ensure more flexible responses to change within the general environment. Additionally, a culture of exchange can be fostered through the exercise of developmental authority to secure cultural agreements with colleges that are equivalent in the West and within the Arab world;

- The university management ought to be encouraged to increase scholarships and to provide research and study mission opportunities;

- Academics should be encouraged to harness the spirit of interchange, knowledge sharing and renewal by using scientific criteria for measuring present and future KSB;

- Modern assessment tools related to KSB of academics and their output ought to be adopted;

- The effectiveness of planning training programmes ought to be upgraded and improved in order to make them responsive to the future actual university needs;

- An analytical study on KS of scientific departments should be conducted and an evaluation performed of the levels of KSB through use of modern assessment tools so that weak and strong aspects can be outlined and the risks and opportunities that face each of the departments identified;

- Excellence and the proposals ought to be seen as investments rather than burdens upon the university's budget, and appropriate tools and means ought to be provided so that successful adoption can be guaranteed.

7.5 Critique of the research methodology employed

A number of challenges were encountered by the researcher during the study. It was necessary for him to switch his thinking to a new education setting that had different components in terms of structure, culture and context; with the research being undertaken within a different environment, additional demands were placed upon the researcher and his sensitivities. Thesis preparation meant that the researcher was introduced to the concepts of KS and KSB within the HE sector; whilst several studies of these factors have been conducted within the developed world, there is a lot less research that looks into them within developing countries, especially Iraq.

There is a need for more research into this field to be published, as it is one that could lead to the generation of much debate and ideas for the country. The robust methodology of the study is one of its key strengths, along with its strong foundation in theoretical terms. Rigour was gained for the analytical research aspect through the blending of quantitative techniques such as structural equation modelling that afforded the research the benefit of having some statistical analysis upon which to base its recommendations. Moreover, the relationships between the hypotheses widened the analysis scope and allowed for a clearer picture to be given of the state of the system within the University of Baghdad. The researcher, however, considers that it would be beneficial to undertake further research using a different methodology; in particular, the exploratory research method with an initial inductive approach that could be used based on the views of the university's academics, upon theory can be generated, and a second stage of a deductive approach for the testing of the theory. A potential option could be the exploration of various other factors that promote KSB amongst academic staff. Alternatively, interpretivist approach might help provide deeper insights, which would be different though not necessarily better than the strategy adopted within this current research; each approach has its own particular angle on studying a subject.

This thesis came about in working towards a PhD, and the researcher has acquired a great deal of practical experience in the process such as, for example, the applying of research methods of which he had little prior knowledge. In addition, the researcher gained experience in some previously unfamiliar data analysis software, such as the use of software for structural equation modelling. It is hoped that the researcher can make a contribution to the developing of skills and their enhancement amongst the University of Baghdad academics with regard to the aforementioned aspects of communication. Engaging in the research process now means that the current skills and knowledge of the researcher have equipped him to have a more focused and critical reflection on his own personal strengths and weaknesses. His skills have improved with regard to various aspects of research: the thinking, the writing, the selection of an appropriate research method, the solving of problems that crop up, the analysis and evaluation of data and its presentation. Furthermore, the researcher has learned a great deal about conducting field research within Iraq and gained insights into the importance of effective interaction amongst various people in order

for efficient gathering of data. In addition, the researcher has overcome certain challenges and improved his English language skills, especially for use within an academic context, through attendance and participation in mentoring, workshops, seminars, conferences and teaching; these have served to open doors for potential future exploration. The researcher appreciates that the process of researching is not one whereby all uncertainties are closed off but rather one where new questions are raised; the more he discovered, the more he realised there is so much more to know.

The research has developed a model that links attitude towards KS, perceived behavioural control and subjective norm with the intention towards KS. The researcher has been allowed, through reading about KS, KSB and knowledge management, and through development of the model, to have a deeper understanding of the impact that those three components of KSB have upon the intention towards KS and the effects upon the university's academics; and, in doing so, a clearer explanation of the factors has been given for the potential benefit of future researchers. Furthermore, given the various challenges faced by the researcher whilst undertaking the study, the qualities of persistence and perseverance for achieving a goal, in this case trying to finish a thesis, have been enhanced. Thus, if the opportunity arose to repeat such a study, the researcher would undertake it in a different cultural setting, which could provide a valuable way of achieving a varied richness in reflexive terms. Indeed, the researcher believes he is on a never-ending journey and has the intention of continuing to work on developing new dimensions to these ideas.

7.6 Limitations of the study

As with all studies that set out to provide an agenda for potential areas for future research, this research study has its own limitations. The research does make significant contributions to the body of knowledge related to the relationships between subjective norm, attitude towards KS and perceived behavioural control, and the differences within these relationships upon intention towards KSB within the University of Baghdad. However, the research has limitations in being solely focused on KSB when such a style is normally in combination with KS and knowledge management. Therefore, potential future research could provide an exploration of the impacts that all of the three knowledge types have in order to try and establish which of them has the greatest

impact upon the KS amongst academic staff. The study sample had a focus upon the University of Baghdad and therefore the research results are not generalisable to different sectors. Future potential research could explore the aforementioned relationships though in different sectors in order to examine whether or not the current study results are supported.

In geographical terms, the context was within a developing country setting, i.e. Iraq; clearly, it is not possible to generalise the findings to different countries as cultural differences could lead to different impacts (Hofstede et al., 2010). To give the model greater validity, it could be applied within different cultures, countries and cities; an extending out to other settings could lead to different results. This research has been limited to a focus upon KSB and the intention towards KS as a KS enabler; however, consideration is not given to all critical enablers for KS, such as the management of knowledge or sociological factors. As such, it is clear the body of knowledge for the field could benefit from research being applied to the study of other factors.

With regard to the collection of data within this research, there could also have been a number of limitations. Whilst the approach of delivering and collecting questionnaires yielded an approximate response rate of 56% at the University of Baghdad, a larger response rate may have been reached through the use of survey method.

7.7 Potential future research directions

Several recommendations for further research were developed from the study findings, such as the possibility of comparing the model within two different developing countries; such a comparison could make a contribution to knowledge in the field and offer new insights into the effect that KSB has upon intention towards KS, as well as insights into the factors that have a bearing upon those relationships within developing countries. The KSB measures used within this research were developed using insights gleaned from a number of previous research works; however, whilst these works had strong validity and reliability, and a strong validity of the construct was reached for this study, certain variables had a magnitude that was low, i.e. lower than 0.5, within the EFA and were consequently omitted. Thus, potential future research would be served well through increasing the

item numbers and testing constructs within a different environment so that the results would be more robust. This research tested the intention for KS as a variable that was dependent within a one-dimensional KSB relationship, even though the factor analysis provided a distinction between the donation and collection of knowledge. It has also been indicated by Hooff and Weenen (2004) that these processes of KS (collection and donation) have various effects. Thus, potential future research could provide further clarification of which knowledge-sharing processes have more influence in the enhancement of KSB within the education sector. Potential further analysis could be undertaken at the level of the department so that, for example, the impacts of donation of knowledge and collection of knowledge upon KSB could be studied, both outside and within departments, to see how they differ. KS may lead to other positive outcomes that result in an organisation gaining a competitive advantage (Nonaka et al. 2005). Potential interesting themes for future research could be examination of the impact that KS processes have upon other outcomes such as the quality of education, the performance of academics, staff satisfaction and organisational learning. Numerous significant findings were acquired from the sample of 326 respondents; however, a bigger sample would have brought a greater statistical power to the research and allowed for a more refined approach to statistical analysis. Moreover, this research ought to be replicated within a much broader range of universities to provide more insight into the subject. Finally, the review of literature as shown in chapter three revealed that few KSB studies have been undertaken within the HE sector or, indeed, within Arab countries as a whole. Thus, there is a need for more research in the field to be undertaken within these areas.

7.8 Summary

This research project has provided a number of recommendations for further study. For example, the research provided examination of the direct relationships between dependent kinds of variables, such as the intention of knowledge sharing behaviour, and independent kinds of variables, such as apparent mutual benefits, professional environment, expected mutual relationships, self-confidence, tools and technology, self-acknowledgment and expected rewards. A primary way forward for researchers in the future could be to provide examination of relationships of greater sophistication between dependent and independent variables; in this

respect, research in the future could provide further development of theoretical models with a concern for the KSB for various kinds of relationships amongst predictors. It is, therefore, reasonable to make the suggestion that there may be various relationships amongst factors that are more complicated and that call for more and/or deeper investigation.

As the research data collection was undertaken at one particular time, in-depth research that was longitudinal and cross-sectional surveying were considered useful so that the behaviours and attitudes of academics (with regard to knowledge sharing) could be determined over time. This was possible through the application of the model of the research for examination of the academics in Iraq in terms of their intentions for KSB at varying specific times, and then making comparisons of the results for the different periods of data collection. With the development of this study, and the validation of an instrument of measurement for prediction of the intention of academics towards KSB, it is apparent that further studies of validation within various contexts would be helpful for improving external instrument validity.

Likewise, so that external validity for proposed study models can be enhanced, research in the future could potentially be focused upon examination of KSB within other countries that have similar socio-cultural backgrounds to that of Iraq, such as other countries of the MENA region. Other study examinations could be replicated in other countries that have different kinds of cultural settings, in countries both developed and developing. The models proposed could also be investigated within other Iraqi provinces. Such studies could help in the development of deeper understanding of effects upon KSB that are cross-cultural, and also verify research model robustness in a variety of cultural and social scenarios.

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Appendices

Appendix 1: Questionnaire

Questionnaire Survey

Section 1- Personal Information

This part aims to deal with participants' demographic information to assess the differences between answers and views based on this anonymous information. Please tick one box for each question that is appropriate to you to allow the assessment of answers and views.

1. **Gender:** *Male □ Female □*
2. **Age:** *25-30 □ 31-40 □ 41-50 □ 51-60 □ Over 61 □*
3. **Position:** *Assistant Professor □ Professor □ Lecturer □ Assistant Lecturer □*
4. **Academic Qualification:** *PhD □ Master □*
5. **Number of Years Working in Higher Education:** 1-5 □ 6-10 □ 11-15 □ 16-20 □ 21-25 □ 26 or more □

Section 2- Attitude toward Knowledge Sharing

This section of the questionnaire describes attitude toward knowledge sharing at the University of Baghdad. Please read each of the following statements carefully and rate the extent of your agreement or disagreement by ticking the appropriate box.

(STD = Strongly Disagree, DIS = Disagree, NE= Neutral, AG = Agree and SAG = Strongly Agree)

		STD	DIS	NE	AG	SAG
II1	My knowledge sharing with other academics in the university is good					
II2	My knowledge sharing with other academics in the university is an enjoyable experience					
II3	My knowledge sharing with other academics in the university is valuable to me					
II4	My knowledge sharing with other academics in the university is a wise move					
AER1	I will receive monetary rewards in return for my knowledge sharing					
AER2	I will receive additional points for promotion in return for my knowledge sharing					

ARR1	My knowledge sharing would strengthen the ties between existing members in the university and myself					
ARR2	My knowledge sharing would get me well-acquainted with new members in the university					
ARR3	My knowledge sharing will expand the scope of my association with other members in the university					
ARR4	My knowledge sharing would draw smooth co-operation from outstanding members in the future					
ARR5	My knowledge sharing would create strong relationships with members who have common interests in the university					
PRB1	When I share knowledge with other university academics, I expect them to respond to my knowledge needs					
PRB2	When I share knowledge with other university academics, I believe that my queries regarding knowledge will be answered in the future					
PRB3	Other members of my university help me, so in return I help them out when they need my knowledge					

Section 3- Subjective Norm

The following statements indicate the opinion of academics' subjective norm. Please choose which statement applies to you.

		SD	DIS	NE	AG	SAG
SSW1	My Head of Department thinks that I should share my knowledge with other academics in the university					
SSW2	My manager thinks that I should share my knowledge with other academics in the university					
SSW3	My colleagues think I should share knowledge with other academics of the university					
SSW4	Generally speaking, I try to follow the Vice Chancellor's policy and intention					
SSW5	Generally speaking, I have my own views and accept and carry out my manager's decision					
SSW6	Generally speaking, I respect and put into practice my colleagues' decisions					
SSW7	My knowledge sharing would help other members in the university solve problems					
SSW8	My knowledge sharing would create new business opportunities for the university					
SSW9	My knowledge sharing would improve work processes in the university					
SSW10	My knowledge sharing would increase productivity in the university					

		SD	DIS	NE	AG	SAG
SSW11	My knowledge sharing would help the university achieve its performance objectives					
OC 1	Academics within my department keep close ties with each other					
OC 2	Academics within my department highly consider the standpoints of others					
OC3	Academics within my department have a strong feeling of 'one team'					
OC4	Academics within the university co-operate well with each other					
OC5	My department encourages suggesting ideas for new opportunities					
OC6	My department puts much value on taking risks even if that turns out to be a failure					
OC7	My department encourages finding new methods to perform a task					
OC8	I can trust my manager's judgement to be sound					
OC9	Objectives are given to me which are often reasonable					
OC10	My manager shows favouritism towards others equally					

Section 4- Perceived Behavioural Control

This section describes the perceived behavioural control at the University of Baghdad. Please read each of the following statements carefully and state your agreement or disagreement by ticking the appropriate box.

		SD	DIS	NE	AG	SAG
SE1	I have enough time available to share knowledge with my fellow academics					
SE2	I have the ability to share knowledge with my fellow academics					
SE3	Sharing knowledge with my fellow academics is within my control					
SE4	I am able to share knowledge with my fellow academics easily					
SE5	I feel confident clearly expressing my ideas with other members of my university					
SE6	I feel confident responding to others' communications within my university					
SE7	I feel confident articulating my ideas into written, verbal or symbolic forms					
SE8	I feel confident applying my knowledge to help others resolve their problems					
TT1	In my university, I can easily access methods & techniques when I want to share knowledge					
TT2	In my university, it is easy to use methods & techniques to share knowledge					
TT3	In my university, methods & techniques for sharing knowledge is reliable					

		SD	DIS	NE	AG	SAG
TT4	In my university, methods & techniques for sharing knowledge can be customised to fit individual needs					
TT5	In my university, I am satisfied with the overall quality of methods & techniques for sharing knowledge					
TT6	I have the necessary tools to share knowledge with my fellow academics					

Section 5- Intention to Share Knowledge

This section describes the academic's intention to share knowledge at the University of Baghdad. Please read each of the following statements carefully and state your agreement or disagreement by ticking the appropriate box.

		SD	DIS	NE	AG	SAG
ISK1	I will share my work reports and official documents with academics of my university more frequently in the future					
ISK2	I will always provide my manuals, methodologies and models for academics in my university					
ISK3	I intend to share my work experience with other university academics more frequently in the future					
ISK4	I will always provide my know-where or know-whom at the request of other university academics					
ISK5	I will try to share my education or training expertise with other university academics in more effective way					

Appendix 2: Data analysis techniques used

Data analysis techniques used

Software package used	Purpose of the analysis
Cronbach's Alpha test SPSS version 23	• To assess construct internal consistency of the current study questionnaire.
Descriptive statistics SPSS version 23	• To create a profile data of the surveyed respondents' characteristics. • To summarise the results in a form of easy-to-understand tables and charts.
Data management SPSS version 23	• To check the normality of the quantitative data in the current research (the extent to which data distribution is close to normal distribution). • To check the missing data and potential outliers, which can affect the results of the analysis.
t-test SPSS version 23	• To compare the attitudinal mean differences between more gender groups and level of education.
ANOVA SPSS version 23	• To compare the attitudinal mean differences between more than two groups (experience of academic, age group and position).
Exploratory factor analysis SPSS version 23	• To identify the underlying structure of the research model constructs and the observable variables for these constructs. • To summarise and reduce the number of study variables to a smaller and more manageable set of variables. • To explain the variance in the observed variables in terms of underlying latent factors.
Kaiser-Meyer-Olkin Bartlett's test SPSS version 23	• To assess the suitability of the data set for EFA, sample size and the pattern of relationships among the variables.
Confirmatory factor analysis SPSS version 23	• To assess the goodness-of-fit for the measurement model in the present study. • To validate relationships between the observed and latent variables. • To confirm the validity of the scales and measures derived from EFA.
Structural equation modelling SPSS version AMOS 23	• To assess the goodness-of-fit for the structural model of present study. • To test the relationships among the different constructs in the proposed model.

Appendix 3: Model fit summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	84	593.063	322	.000	1.842
Saturated model	406	.000	0		
Independence model	28	6774.014	378	.000	17.921

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.043	.888	.859	.704
Saturated model	.000	1.000		
Independence model	.184	.412	.368	.383

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.912	.897	.958	.950	.958
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.852	.777	.816
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	271.063	206.561	343.390
Saturated model	.000	.000	.000
Independence model	6396.014	6132.272	6666.158

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1.825	.834	.636	1.057
Saturated model	.000	.000	.000	.000
Independence model	20.843	19.680	18.869	20.511

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.051	.044	.057	.401
Independence model	.228	.223	.233	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	761.063	777.522	1079.162	1163.162
Saturated model	812.000	891.554	2349.480	2755.480
Independence model	6830.014	6835.501	6936.047	6964.047

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	2.342	2.143	2.564	2.392
Saturated model	2.498	2.498	2.498	2.743
Independence model	21.015	20.204	21.847	21.032

Appendix 4: Frequency tables

II1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	13	4.0	4.0	4.0
	Neutral	64	19.6	19.6	23.6
	Agree	162	49.7	49.7	73.3
	Strongly Agree	87	26.7	26.7	100.0
	Total	326	100.0	100.0	

II2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.3	.3	.3
	Disagree	8	2.5	2.5	2.8
	Neutral	61	18.7	18.7	21.5
	Agree	162	49.7	49.7	71.2
	Strongly Agree	94	28.8	28.8	100.0
	Total	326	100.0	100.0	

AER1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	31	9.5	9.5	9.5
	Disagree	67	20.6	20.6	30.1
	Neutral	54	16.6	16.6	46.6
	Agree	138	42.3	42.3	89.0
	Strongly Agree	36	11.0	11.0	100.0
	Total	326	100.0	100.0	

AER2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	1.8	1.8	1.8
	Disagree	46	14.1	14.1	16.0
	Neutral	34	10.4	10.4	26.4
	Agree	138	42.3	42.3	68.7
	Strongly Agree	102	31.3	31.3	100.0
	Total	326	100.0	100.0	

ARR1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	.6	.6	.6
	Disagree	51	15.6	15.6	16.3
	Neutral	104	31.9	31.9	48.2
	Agree	105	32.2	32.2	80.4
	Strongly Agree	64	19.6	19.6	100.0
	Total	326	100.0	100.0	

ARR2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	2.1	2.1	2.1
	Disagree	34	10.4	10.4	12.6
	Neutral	105	32.2	32.2	44.8
	Agree	130	39.9	39.9	84.7
	Strongly Agree	50	15.3	15.3	100.0
	Total	326	100.0	100.0	

ARR3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	.6	.6	.6
	Disagree	15	4.6	4.6	5.2
	Neutral	117	35.9	35.9	41.1
	Agree	125	38.3	38.3	79.4
	Strongly Agree	67	20.6	20.6	100.0
	Total	326	100.0	100.0	

ARR4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.2	1.2	1.2
	Disagree	16	4.9	4.9	6.1
	Neutral	113	34.7	34.7	40.8
	Agree	126	38.7	38.7	79.4
	Strongly Agree	67	20.6	20.6	100.0
	Total	326	100.0	100.0	

ARR5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	.9	.9	.9
	Disagree	17	5.2	5.2	6.1
	Neutral	116	35.6	35.6	41.7
	Agree	125	38.3	38.3	80.1
	Strongly Agree	65	19.9	19.9	100.0
	Total	326	100.0	100.0	

PRB1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.3	.3	.3
	Neutral	101	31.0	31.0	31.3
	Agree	101	31.0	31.0	62.3
	Strongly Agree	123	37.7	37.7	100.0
	Total	326	100.0	100.0	

PRB2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.3	.3	.3
	Neutral	95	29.1	29.1	29.4
	Agree	103	31.6	31.6	61.0
	Strongly Agree	127	39.0	39.0	100.0
	Total	326	100.0	100.0	

PRB3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.3	.3	.3
	Neutral	92	28.2	28.2	28.5
	Agree	104	31.9	31.9	60.4
	Strongly Agree	129	39.6	39.6	100.0
	Total	326	100.0	100.0	

SSW1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.3	.3	.3
	Neutral	73	22.4	22.4	22.7
	Agree	140	42.9	42.9	65.6
	Strongly Agree	112	34.4	34.4	100.0
	Total	326	100.0	100.0	

SSW2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	.9	.9	.9
	Neutral	117	35.9	35.9	36.8
	Agree	139	42.6	42.6	79.4
	Strongly Agree	67	20.6	20.6	100.0
	Total	326	100.0	100.0	

SSW3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	1.2	1.2	1.2
	Neutral	103	31.6	31.6	32.8
	Agree	136	41.7	41.7	74.5
	Strongly Agree	83	25.5	25.5	100.0
	Total	326	100.0	100.0	

SSW4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	114	35.0	35.0	35.0
	Agree	135	41.4	41.4	76.4
	Strongly Agree	77	23.6	23.6	100.0
	Total	326	100.0	100.0	

SSW5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	104	31.9	31.9	31.9
	Agree	107	32.8	32.8	64.7
	Strongly Agree	115	35.3	35.3	100.0
	Total	326	100.0	100.0	

SSW6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	110	33.7	33.7	33.7
	Agree	114	35.0	35.0	68.7
	Strongly Agree	102	31.3	31.3	100.0
	Total	326	100.0	100.0	

SSW7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.3	.3	.3
	Neutral	35	10.7	10.7	11.0
	Agree	149	45.7	45.7	56.7
	Strongly Agree	141	43.3	43.3	100.0
	Total	326	100.0	100.0	

SSW8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.3	.3	.3
	Neutral	103	31.6	31.6	31.9
	Agree	149	45.7	45.7	77.6
	Strongly Agree	73	22.4	22.4	100.0
	Total	326	100.0	100.0	

SSW9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	7	2.1	2.1	2.1
	Neutral	75	23.0	23.0	25.2
	Agree	143	43.9	43.9	69.0
	Strongly Agree	101	31.0	31.0	100.0
	Total	326	100.0	100.0	

SSW10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	88	27.0	27.0	27.0
	Agree	143	43.9	43.9	70.9
	Strongly Agree	95	29.1	29.1	100.0
	Total	326	100.0	100.0	

OC1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	2.5	2.5	2.5
	Disagree	28	8.6	8.6	11.0
	Neutral	111	34.0	34.0	45.1
	Agree	102	31.3	31.3	76.4
	Strongly Agree	77	23.6	23.6	100.0
	Total	326	100.0	100.0	

OC2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	74	22.7	22.7	22.7
	Agree	161	49.4	49.4	72.1
	Strongly Agree	91	27.9	27.9	100.0
	Total	326	100.0	100.0	

OC3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	2.5	2.5	2.5
	Disagree	28	8.6	8.6	11.0
	Neutral	103	31.6	31.6	42.6
	Agree	125	38.3	38.3	81.0
	Strongly Agree	62	19.0	19.0	100.0
	Total	326	100.0	100.0	

OC4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	83	25.5	25.5	25.5
	Agree	117	35.9	35.9	61.3
	Strongly Agree	126	38.7	38.7	100.0
	Total	326	100.0	100.0	

OC5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.2	1.2	1.2
	Disagree	53	16.3	16.3	17.5
	Neutral	121	37.1	37.1	54.6
	Agree	132	40.5	40.5	95.1
	Strongly Agree	16	4.9	4.9	100.0
	Total	326	100.0	100.0	

OC6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	46	14.1	14.1	14.1
	Neutral	93	28.5	28.5	42.6
	Agree	187	57.4	57.4	100.0
	Total	326	100.0	100.0	

OC7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	2.5	2.5	2.5
	Disagree	53	16.3	16.3	18.7
	Neutral	123	37.7	37.7	56.4
	Agree	126	38.7	38.7	95.1
	Strongly Agree	16	4.9	4.9	100.0
	Total	326	100.0	100.0	

OC8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	100	30.7	30.7	30.7
	Agree	115	35.3	35.3	66.0
	Strongly Agree	111	34.0	34.0	100.0
	Total	326	100.0	100.0	

OC9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	2.5	2.5	2.5
	Disagree	54	16.6	16.6	19.0
	Neutral	122	37.4	37.4	56.4
	Agree	126	38.7	38.7	95.1
	Strongly Agree	16	4.9	4.9	100.0
	Total	326	100.0	100.0	

OC10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	129	39.6	39.6	39.6
	Agree	126	38.7	38.7	78.2
	Strongly Agree	71	21.8	21.8	100.0
	Total	326	100.0	100.0	

SE1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	2.8	2.8	2.8
	Disagree	62	19.0	19.0	21.8
	Neutral	112	34.4	34.4	56.1
	Agree	143	43.9	43.9	100.0
	Total	326	100.0	100.0	

SE2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.2	1.2	1.2
	Disagree	75	23.0	23.0	24.2
	Neutral	111	34.0	34.0	58.3
	Agree	128	39.3	39.3	97.5
	Strongly Agree	8	2.5	2.5	100.0
	Total	326	100.0	100.0	

SE3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.2	1.2	1.2
	Disagree	40	12.3	12.3	13.5
	Neutral	65	19.9	19.9	33.4
	Agree	151	46.3	46.3	79.8
	Strongly Agree	66	20.2	20.2	100.0
	Total	326	100.0	100.0	

SE4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	9	2.8	2.8	2.8
	Disagree	58	17.8	17.8	20.6
	Neutral	114	35.0	35.0	55.5
	Agree	143	43.9	43.9	99.4
	Strongly Agree	2	.6	.6	100.0
	Total	326	100.0	100.0	

SE5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	1.5	1.5	1.5
	Disagree	75	23.0	23.0	24.5
	Neutral	121	37.1	37.1	61.7
	Agree	125	38.3	38.3	100.0
	Total	326	100.0	100.0	

SE6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	78	23.9	23.9	23.9
	Agree	169	51.8	51.8	75.8
	Strongly Agree	79	24.2	24.2	100.0
	Total	326	100.0	100.0	

SE7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	1.2	1.2	1.2
	Disagree	28	8.6	8.6	9.8
	Neutral	105	32.2	32.2	42.0
	Agree	119	36.5	36.5	78.5
	Strongly Agree	70	21.5	21.5	100.0
	Total	326	100.0	100.0	

SE8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	.3	.3	.3
	Neutral	134	41.1	41.1	41.4
	Agree	93	28.5	28.5	69.9
	Strongly Agree	98	30.1	30.1	100.0
	Total	326	100.0	100.0	

TT1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	62	19.0	19.0	19.0
	Disagree	118	36.2	36.2	55.2
	Neutral	63	19.3	19.3	74.5
	Agree	63	19.3	19.3	93.9
	Strongly Agree	20	6.1	6.1	100.0
	Total	326	100.0	100.0	

TT2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	43	13.2	13.2	13.2
	Disagree	102	31.3	31.3	44.5
	Neutral	99	30.4	30.4	74.8
	Agree	82	25.2	25.2	100.0
	Total	326	100.0	100.0	

TT3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	62	19.0	19.0	19.0
	Neutral	135	41.4	41.4	60.4
	Agree	129	39.6	39.6	100.0
	Total	326	100.0	100.0	

TT4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	71	21.8	21.8	21.8
	Neutral	121	37.1	37.1	58.9
	Agree	134	41.1	41.1	100.0
	Total	326	100.0	100.0	

TT5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	65	19.9	19.9	19.9
	Disagree	112	34.4	34.4	54.3
	Neutral	72	22.1	22.1	76.4
	Agree	63	19.3	19.3	95.7
	Strongly Agree	14	4.3	4.3	100.0
	Total	326	100.0	100.0	

TT6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	81	24.8	24.8	24.8
	Neutral	112	34.4	34.4	59.2
	Agree	133	40.8	40.8	100.0
	Total	326	100.0	100.0	