Critical Success Factors of Knowledge Management in Higher Education Institutions: A Comparative Study between Western Sydney University in Australia and King Fahd Security College in Saudi Arabia

Abdulaziz Alshahrani

A thesis submitted for the degree of

Doctor of Philosophy

School of Business

Western Sydney University

2018
Dedication

This thesis is dedicated to my dear mother who spent all her life supporting me, to the soul of my father (my Allah have mercy and blessing on him) who passed away in 2008, to my lovely wife for her support, sacrifice and encouragement, to my lovely and beautiful daughters Norah, Juri, Maisam and Fatimah and to my beloved brothers and sisters for their encouragement.
Acknowledgement

I would like to thank Allah who gave me the power and good health status to complete my thesis.

This thesis is a result of much time, help and consideration from the following individuals whom I would like to thank. In particular, I have been extremely lucky to have worked with my research team, a truly exceptional group of people who provided me with extraordinary support and guidance throughout my study.

I would like to express my deepest appreciation to my supervisors, Dr. Thomas Klikauer, Dr. Ann Dadich and Dr. Youqing Fan, for their strong commitment to academic work, their willingness to help me, and their insightful advice and comments. Their guidance, advice and encouragement were fundamental and valuable for completion of this work. They always provided me with valuable knowledge and insightful comments and critiqued my worked during my research. I wish this thesis meet their anticipations.

I am also grateful to Directors of research, Associate Prof. Meg Smith and Associate Prof. Terry Sloan, who always sought to provide assistances for HDR students any time everywhere. I am also grateful to Mr. Paul Jewell for his incredible counselling, thoughts and sharing in different aspects of my work.

I am dedicating this thesis to my mother who supported, encouraged and guided me through my whole life, and also to my father who passed away nine years ago. It was their guidance and support that helped me concentrates on my studies. I am also grateful to my lovely wife and daughters for their support and encouragement and to my brothers and sisters for providing enormous amount of love and support from thousands of miles away.

I would like to express my gratitude to all study participants, colleagues and friends – at King Fahd Security College and Western Sydney University– who shared their thoughts with me during my work including Major General, Saad Bin Abdullah Alkhlaawi, the general director of King Fahd Security College.
Declaration of Originality

This is to certify that, to the best of my knowledge, the thesis entitled ‘Critical Success Factors of Knowledge Management in Higher Education Institutions: A Comparative Study between Western Sydney University in Australia and King Fahd Security College in Saudi Arabia’ by Mr. Abdulziz Alshahrani, is composed of his original work, and that the assertions made by him in the Statement of Declaration and subsequent sections of preliminary pages are truthful and complete. I confirm that the thesis is ready for assessment and endorse thesis submission.

Signed On 12/10/2017
Training and Publications during the PhD Program

Short Courses and Workshops:

2. Writing Your Literature Review Workshop (04 September 2014). Office of Research Services, Western Sydney University, Australia.
5. Thesis Writing Circle Workshop (29 January 2015). Office of Research Services, Western Sydney University, Australia.
6. Introduction to Ethics Workshop (26 March 2015). Office of Research Services, Western Sydney University, Australia.

Publications

3. Alshahrani, AS 2016, 'Barriers to knowledge management in higher educational institutions: a Delphi study', in *Proceedings of 5th Global
# Table of Content

Dedication .................................................................................................................... i

Acknowledgement ...................................................................................................... ii

Declaration of Originality.......................................................................................... iii

Training and Publications during the PhD Program .............................................. iv

Table of Content ........................................................................................................ vi

List of Tables ........................................................................................................... xiii

List of Figures and Illustrations............................................................................. xiv

List of Abbreviations .............................................................................................. xvi

Abstract................................................................................................................... xvii

Chapter 1: Introduction ............................................................................................ 1

1.1. Introduction ....................................................................................................... 1
1.2. Problem Statement ............................................................................................ 4
1.3. Rationale ............................................................................................................ 7
1.4. Significance of the Study .................................................................................. 8
1.5. Conceptual Framework ..................................................................................... 9
1.6. Research Aim .................................................................................................. 10
1.7. Research Questions ......................................................................................... 10
1.8. Organisation of the Thesis ............................................................................... 11
1.9. Summary ......................................................................................................... 11

Chapter 2: Literature Review ................................................................................. 13

2.1. Concepts of Knowledge and Knowledge Management ................................. 13
3.1.1. Epistemology ............................................................................................. 78
3.1.2. Theoretical Perspective ............................................................................ 79
3.1.3. Methodology ............................................................................................ 82
3.1.4. Methods .................................................................................................. 85
3.2. Data Collection ............................................................................................ 85
   3.2.1. Research Instrument ............................................................................ 86
   3.2.2. Sampling and Recruitment ................................................................... 87
   3.2.3. Procedure ............................................................................................. 88
   3.2.4. Organisational Documentation and Archival Records ....................... 89
3.3. Data Analysis ................................................................................................ 89
3.4. Assessing Research Quality ......................................................................... 92
   3.4.1. Credibility ............................................................................................ 92
   3.4.2. Transferability ..................................................................................... 93
   3.4.3. Dependability ...................................................................................... 93
   3.4.4. Confirmability .................................................................................... 94
3.5. Ethical Considerations ................................................................................. 94
3.6. Summary ...................................................................................................... 95

Chapter 4: Case Study 1: School of Social Science and Psychology at Western Sydney University in Australia ................................................................. 97

4.1. Demographic Characteristics of Participants ............................................. 97
4.2. Critical Success Factors of Nonaka’s Knowledge Creation Process .......... 98
   4.2.1. Internal Factors ................................................................................... 98
      4.2.1.1. Leadership .................................................................................. 99
      4.2.1.2. Organisational Culture .............................................................. 104
      4.2.1.3. Organisational Rules ................................................................. 109
      4.2.1.4. Organisational Structure ............................................................ 113
      4.2.1.5. Responsibility .......................................................................... 117
      4.2.1.6. Information Technology Infrastructure .................................... 121
      4.2.1.7. Management Measurements .................................................... 123
4.2.1.8. Training ................................................................. 126
4.2.1.9. Employees’ Involvement ............................................. 129
4.2.1.10. Teamwork ............................................................ 131
4.2.1.11. Employees’ Empowerment ....................................... 134
4.2.1.12. Knowledge Structure .............................................. 137
4.2.1.13. Organisational Strategies ....................................... 140
4.2.1.14. Worthy Relationships between Employees ................. 144

4.2.2. External Factors Related to the Knowledge Environment ....... 146
4.2.2.1. Socio-Cultural Factors .............................................. 146
4.2.2.2. Ethical Considerations .............................................. 146
4.2.2.3. Political Conditions, Consequences and Forces ............... 146
4.2.2.4. Financial Considerations .......................................... 147
4.2.2.5. Complexity and Uncertainty ..................................... 147
4.2.2.6. Inconsistencies in KM Concepts .................................. 147

4.3. Summary ............................................................................. 148

Chapter 5: Case Study 2: King Fahd Security College in Saudi Arabia .... 152

5.1. Demographic Characteristics of Participants .......................... 152
5.2. Critical Success Factors of Nonaka’s Knowledge Creation Process .... 153
5.2.1. Internal Factors related to the Knowledge Environment ........ 153
5.2.1.1. Leadership ............................................................ 154
5.2.1.2. Organisational Culture .......................................... 159
5.2.1.3. Organisational Rules .............................................. 163
5.2.1.4. Organisational Structure ......................................... 167
5.2.1.5. Responsibilities ..................................................... 172
5.2.1.6. Information Technology Infrastructure ......................... 176
5.2.1.7. Management Measurements ...................................... 179
5.2.1.8. Training ................................................................. 181
5.2.1.9. Employees’ Involvement ................................................................. 184
5.2.1.10. Teamwork ...................................................................................... 187
5.2.1.11. Employees’ Empowerment ............................................................ 189
5.2.1.12. Knowledge Structure ...................................................................... 193
5.2.1.13. Organisational Strategies ............................................................... 196
5.2.1.14. Worthy Relationships between Employees .................................... 199
5.2.2. External Factors related to the Knowledge Environment ..................... 200
  5.2.2.1. Socio-Cultural Factors ..................................................................... 200
  5.2.2.2. Ethical Considerations ..................................................................... 201
  5.2.2.3. Political Conditions, Consequences and Forces ............................... 201
  5.2.2.4. Financial Considerations .................................................................. 201
  5.2.2.5. Complexity and Uncertainty ............................................................ 201
  5.2.2.6. Inconsistencies in KM Concepts ...................................................... 202
5.2.3. Summary .................................................................................................... 202

Chapter 6: Discussion ............................................................................................ 206

6.1. Study Overview ............................................................................................. 206
  6.1.1. Research Aim and Question .................................................................. 207
  6.1.2. Research Design and Method ............................................................... 207
  6.1.3. Findings ................................................................................................... 208
6.2. Specific Findings ........................................................................................... 209
  6.2.1. Research Aims ......................................................................................... 209
  6.2.2. Discussion of Major Findings .................................................................. 213
6.3. Critical Success Factors of the Knowledge Creation Process ....................... 217
  6.3.1. Internal Factors related to the Knowledge Environment ....................... 217
    6.3.1.1. Leadership, Commitment and Accountability ................................. 218
    6.3.1.2. Organisational Culture ..................................................................... 221
    6.3.1.3. Organisational Rules and Regulations ............................................. 225
    6.3.1.4. Organisational Structure ............................................................... 228
6.3.1.5. Knowledge Structure ................................................................. 234
6.3.1.6. Individual and Collective Responsibilities, Trust and Collaboration ................................................................. 235
6.3.1.7. Information Technology Infrastructure ............................................ 236
6.3.1.8. Measurement .................................................................................... 239
6.3.1.9. Training and Development ............................................................... 241
6.3.1.10. Employees’ Involvement ............................................................... 243
6.3.1.11. Collaboration and Teamwork ......................................................... 244
6.3.1.12. Employees’ Empowerment ............................................................ 245
6.3.1.13. Organisational Strategies ............................................................... 247
6.3.1.14. Mutual Relationships and Interaction ............................................ 248
6.3.2. External Factors related to the Knowledge Environment ................. 249
  6.3.2.1. Socio-Cultural Factors ................................................................. 249
  6.3.2.2. Ethical Considerations ................................................................. 249
  6.3.2.3. Complexity/Uncertainty ............................................................... 250
  6.3.2.4. Political Conditions and Consequences ........................................... 250
  6.3.2.5. Concepts of Knowledge and Knowledge Creation .......................... 251
  6.3.2.6. Financial Considerations ............................................................... 251
6.4. Summary ....................................................................................................... 252

Chapter 7: Conclusion ........................................................................................... 253
  7.1. Overview ................................................................................................... 253
  7.2. Theoretical Contributions ........................................................................... 257
  7.3. Research Implications .............................................................................. 259
  7.4. Research Limitations ............................................................................... 259
  7.5. Directions for Further Research .............................................................. 260

References ............................................................................................................... 262
Appendices

Appendix A: The Context of School of Social Science and Psychology at Western Sydney University in Australia ................................................................. 307
Appendix B: The Context of King Fahd Security College ................................. 309
Appendix C: Brief Review of CSFs and KCP ..................................................... 311
Appendix D: Semi-Structured Interview .......................................................... 313
Appendix E: Invitation Letter ........................................................................ 315
Appendix F: Participant Consent Form .......................................................... 316
Appendix G: Participant Information Sheet ................................................... 317
Appendix H: Access Letters .......................................................................... 319
Appendix I: Approval Letter from Human Research Ethics Committee ........... 321
Appendix J: Coding of WSU Participants ........................................................ 322
Appendix K: Coding of KFSC Participants ...................................................... 323
List of Tables

Table 3-1: Summary of Selected Literature Review ...................................................... 59
Table 3-2: Research Questions, Objectives and Methodology .................................... 72
Table 4-1: Demographic Characteristics of WSU Participants ................................... 98
Table 5-1: Demographic Characteristics of KFSC Participants ................................. 153
Table 8-1: Critical Success Factors of KM .................................................................. 311
Table 8-2: Coding of WSU Participants ..................................................................... 322
Table 8-3: Coding of KFSC Participants .................................................................... 323
List of Figures and Illustrations

Figure 1-1: Conceptual framework for the study...................................................... 10
Figure 2-1: Knowledge conversion in Nonaka’s model ............................................. 24
Figure 2-2: Conceptual framework of the empirical research study ....................... 76
Figure 3-1: Elements of a research paradigm ........................................................... 78
Figure 3-2: Research paradigm ................................................................................. 96
Figure 4-1: The influence of leadership................................................................. 99
Figure 4-2: The influence of organisational culture............................................... 105
Figure 4-3: The influence of organisational rules .................................................... 109
Figure 4-4: The influence of organisational structure............................................. 113
Figure 4-5: The influence of responsibility............................................................ 118
Figure 4-6: The influence of information technology infrastructure ...................... 121
Figure 4-7: The influence of measurements ........................................................... 123
Figure 4-8: The influence of training....................................................................... 126
Figure 4-9: The influence of employees’ involvement.......................................... 129
Figure 4-10: The influence of teamwork ............................................................. 132
Figure 4-11: The influence of employees’ empowerment.................................... 135
Figure 4-12: The influence of knowledge structure.............................................. 138
Figure 4-13: The influence of organisational strategies....................................... 141
Figure 4-14: The influence of building worthy relationships between employees .. 144
Figure 5-1: The influence of leadership................................................................. 154
Figure 5-2: The influence of organisational culture.............................................. 159
Figure 5-3: The influence of organisational rules.................................................. 163
Figure 5-4: The influence of organisational structure....................................... 167
Figure 5-5: The influence of responsibility........................................................... 172
Figure 5-6: The influence of information technology infrastructure ................. 176
Figure 5-7: The influence of measurements ........................................................... 179

Figure 5-8: The influence of training ...................................................................... 182

Figure 5-9: The influence of employees’ involvement ........................................... 185

Figure 5-10: The influence of teamwork .............................................................. 187

Figure 5-11: The influence of employees’ empowerment ...................................... 190

Figure 5-12: The influence of knowledge structure .............................................. 193

Figure 5-13: The influence of organisational strategies ........................................ 196

Figure 5-14: The influence of building worthy relationship between employees .. 199

Figure 7-1: Internal and external factors related to knowledge creation and sharing .................................................................................................................................. 257

Figure 8-1 (Figure A.1.): Western Sydney University Structure ......................... 308

Figure 8-2 (Figure B.1.): King Fahd Security College Structure ........................... 310

Figure 8-3: Knowledge conversion in Nonaka model ......................................... 312
## List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADPP</td>
<td>Academic Development Program Policy</td>
</tr>
<tr>
<td>CSFs</td>
<td>Critical Success Factors</td>
</tr>
<tr>
<td>HEIs</td>
<td>Higher Education Institutions</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>KC</td>
<td>Knowledge Creation</td>
</tr>
<tr>
<td>KCP</td>
<td>Knowledge Creation Process</td>
</tr>
<tr>
<td>KCS</td>
<td>Knowledge Creation and Sharing</td>
</tr>
<tr>
<td>KFSC</td>
<td>King Fahd Security College</td>
</tr>
<tr>
<td>KM</td>
<td>Knowledge Management</td>
</tr>
<tr>
<td>OJT</td>
<td>On the Job Training</td>
</tr>
<tr>
<td>SQC</td>
<td>Strategy and Quality Committee</td>
</tr>
<tr>
<td>SSSP</td>
<td>School of Social Science and Psychology</td>
</tr>
<tr>
<td>SS 2017-2020 SP</td>
<td>Securing Success 2017–2020 Strategic Plan</td>
</tr>
<tr>
<td>WSU</td>
<td>Western Sydney University</td>
</tr>
</tbody>
</table>
Abstract

Despite its role in the creation, development and communication of knowledge, knowledge management (KM) is poorly understood within higher education institutions (HEIs). There is a relative dearth of theory and research to inform the ways universities and other institutions in the advanced education sector define, cultivate, and exchange knowledge within and beyond their organisational contexts. This has important implications for their managers, academics and students. The study of KM in HEIs invites research scholars and professionals to identify the critical success factors (CSFs) required for sound KM within (and potentially beyond) universities. Specifically, this thesis aimed to identify the CSFs of KM in HEIs associated with Nonaka’s model through a comparative study of Western Sydney University (WSU) in Australia and King Fahd Security College (KFSC) in Saudi Arabia. It extended the seminal work of Nonaka and colleagues to incorporate CSFs into proper implementation of KM. This extension provided a robust practical and theoretical foundation for examining KM within university settings.

Qualitative case studies of two advanced education institutions in Australia and Saudi Arabia were conducted to achieve the study goals. A sample of 13 academic staff who taught policing and criminology at WSU and 25 participants at KFSC were purposefully selected to participate in semi-structured interviews. Each interview was digitally audio-recorded, and verbatim transcriptions were produced by the chief investigator for manual coding and thematic (deductive and inductive) analysis. Organisational documentation and archival records were used as secondary data sources.

The findings showed that proper implementation of KM practices and initiatives in both countries stems from a complex interplay of factors and behaviours related to the knowledge environment. Fourteen internal and six external factors were shown to contribute to the four modes of Nonaka’s knowledge conversion model (socialisation, externalisation, combination and internalisation) for proper management of knowledge. The internal factors were: leadership, organisational culture, organisational rules, organisational structure, employees’ responsibility, information technology infrastructure, measurement, training, teamwork, employees’
involvement, employees’ empowerment, knowledge structure, organisational strategy and worthy relationship between employees. The external factors were: socio-cultural factors, ethical consideration, political conditions, consequences and forces, financial considerations, complexity and uncertainty and inconsistencies in KM concepts.

This study revealed that knowledge production and distribution in the higher education context of both countries is not exclusively an explicit activity and does not take place within a single static framework; rather, it is predominantly contextual and changes over time. In addition to the previously identified CSFs of KM, other key factors were shown to influence the four modes of knowledge conversion. These were elements of the context that involved multiple rational, cognitive and intuitive processes and practices with different characteristics and dynamics that mutually informed the generation and distribution of knowledge.

While the findings were limited by a relatively small sample size, they nonetheless make an important contribution to the literature on institutional/organisational KM. They showed that Nonaka’s model of KM can - tentatively at least – be applied to the analysis of knowledge creation and sharing in HEIs and suggested ways in which HEIs can improve their KM implementation. An adaptive model of Knowledge Creation and Sharing (KCS) emerged from data analysis that can help to make sense of complex and varied KM practices in many contexts. It remains to be tested.
Chapter 1: Introduction

1.1. Introduction

Knowledge, not simply data or information, and the utilisation of knowledge are widely recognised as valuable assets for constant organisational development and the key to sustained competitive advantage (Alhussain 2011; Tikhomirova, Gritsenko & Pechenkin 2008), particularly in complex and uncertain situations (Harorimana Mr 2010; Mahdi, Almsafir & Yao 2011; Moghaddam, Mosakhani & Aalabeiki 2013). There is no doubt about the value of knowledge in improving organisational competence, and the importance of learning how to manage it within the ever-changing climate of increasing global competition (Allameh & Zare 2011; Mahdi, Almsafir & Yao 2011). It is no exaggeration to say that, in today's knowledge-intensive world, what people know, how they use what they know, and how quickly they can know something new provide sustainable business advantage (Abebe & Onyisi 2016a; Urbancova 2013).

Complex organisations are required to be adaptive and self-configurable in the development and use of intelligent knowledge management strategies that can ensure a smooth process of change and, thus, contribute to their success (Allameh & Zare 2011; Baghbianan, Torkfar & Baghbanian 2012). According to Ruggles (2009), all organisations need new knowledge to address change, both external and internal, because what they already know becomes obsolete and outdated. Where organisational change occurs rapidly or is undertaken more regularly, organisations cannot rely on existing and/or informal modes of gaining and transferring knowledge. They cannot possibly keep pace with the leading edge if they cannot identify what they need to know and how they should manage and act upon their knowledge.

There is no consensus with respect to the precise definition of knowledge. Many scholars, professionals and knowledge workers argue that knowledge is best defined
in context (Baghbanian, Torkfar & Baghbanian 2012) and that it is a multifaceted concept with different meanings for different people in different circumstances.

For some, knowledge may be defined as a justified true belief (Nonaka & Takeuchi 1995), while others conceptualise it as the experience obtained from performance that allows individuals to describe, arrange, shape and learn to solve a problem or improve a situation. Knowledge is also gained from experience through sensations (Boros, Ibaraki & Makino 1999; Love, Roper & Zhou 2016). Knowledge is situated on a continuum from explicit to tacit knowledge, each with its own characteristics (Nonaka & Von Krogh 2009; Polanyi 1997). Davenport and Prusak (2000) define knowledge as a fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating new experiences and information. According to Klein (2010), organisation knowledge involves information stored in devices and personnel who are subject matter experts. McAdam, Mason, & McCrory (2007) define explicit knowledge as formal knowledge that is written down and documented, whereas tacit knowledge is informal and resides in the minds of individuals as paradigms, mental modes, know-how and personal experience (McAdam, Mason & McCrory 2007).

Knowledge may appear tacitly and/or explicitly within specific circumstances (Baghbanian, Torkfar & Baghbanian 2012). Explicit knowledge is knowledge that is easily obtained and articulated, and is relatively easy to codify, communicate and store in a file. It is static know-how that eventually becomes a ‘snapshot’ of the tacit knowledge at that time. Tacit knowledge, on the other hand, is concerned with unarticulated know-how and experience that is not visible or expressible (Baghbanian, Torkfar & Baghbanian 2012). These authors argued that both tacit and explicit knowledge are interrelated; only a small part of an organisation’s knowledge, however, is captured as explicit knowledge and tacit knowledge may not disclose itself until a need arises. Appropriate processing and conversion of these two types of knowledge about a situation would allow for more accurate decision-making (Baghbanian 2010, 2011; Baghbanian, Torkfar & Baghbanian 2012).

Similarly, Thall (2005) differentiates between the two types of knowledge: explicit knowledge can be formalised, codified, routinised and communicated through systematic language, whereas tacit knowledge is personal, context-specific, and
resides in the minds of individuals, which makes it difficult to formalise and communicate. Yet despite their critical role in the creation, development and communication of knowledge, knowledge conversion and management practices are poorly understood in social settings, including higher education systems (Hameed & Badii 2012; Hoveida, Shams & Hooshmand 2008; Lyotard 1984; Ramachandran, Chong & Wong 2013).

Some researchers reported that knowledge is an asset that organisations can use in highly competitive environments and that knowledge management (KM) is the main element of quality improvement, efficiency and productivity (Bharadwaj 2000; Sabherwal & Sabherwal 2005). KM represents an important strategy for organisational change and development of higher education institutions (HEIs), including universities (Hossain, Ouedraogo & Rezania 2013; Ramachandran, Chong & Wong 2013; Sohail & Daud 2009). Effective management of knowledge creation and sharing (KCS) can promote learning and innovation, optimise the efficient use of limited time and budgetary resources, and contribute to organisational performance (Edwards, Collier & Shaw 2005; Wang, J et al. 2016).

To ensure the effective management of knowledge within higher education, there is a need for an adaptive yet standardised framework, process or program whereby intellectual capital and (available) knowledge can be appropriately created, captured, acquired, stored, used and re-used, disseminated and implemented in order to advance and support the organisational goals (Bhusry, Ranjan & Nagar 2011). Hung, Y-H, Chou and Tzeng (2011) argue that an institution with no common standardised framework, programs, procedures, or processes for knowledge creation and management will be unable to gain a competitive edge (Hung, W-H et al. 2012).

Knowledge is the core element in HEIs, and the management of its creation and dissemination is their key activity. Kidwell, Vander Linde, and Johnson (2000) argue that, when KM is applied to education institutions, it can promote learning processes, save time and enrich the educational and administrative services provided. Similarly, Hossain et al. (2013) showed that KM can enhance the performance of HEIs by improving knowledge construction and transmission. Despite the significant contribution of KM to the higher education industry, it is poorly or marginally
understood, applied and implemented, and is not always achieved (Hoveida, Shams & Hooshmand 2008; Ramachandran, Chong & Wong 2013).

There is evidence to suggest that KM is connected with diverse characteristics of an organisation and its management, such as structure, culture, quality and process, as well as some knowledge and learning processes that are significant enablers of leaning/knowledge in the education sector (Edwards, Collier & Shaw 2005; Paliszkiewicz, Goluchowski & Koohang 2015; Voronchuk & Starineca 2014). Edwards, Collier and Shaw (2005) assert that KM is about how individuals learn within the organisational context; and organisational learning is connected with how they acquire knowledge, assimilate it with their existing knowledge and unlearn redundant and laid-off knowledge. Many scholars agree that KM is concerned with a specific framework to capture, acquire, organise, communicate and disseminate all types of employees’ knowledge (mainly tacit and explicit knowledge) within an organisation so that other employees can utilise it effectively and change it to organisational knowledge, thereby improving their organisation’s competitive advantage (Alavi & Leidner 2001; Davenport, Thomas H., De Long & Beers 1998). Ramachandran, Chong and Wong (2013) argue that organisations must effectively and efficiently create, capture, organise, share and apply organisational knowledge and expertise to remain competitive.

This suggests that KM and organisational learning are not mutually exclusive: KM must enable organisational learning as it can provide a platform to lead, permit, encourage, foster and facilitate learning and innovation. On the other hand, it is only through organisational learning that knowledge-related practice and KM can ultimately be implemented within the day-to-day reality of organisational life (Edwards, Collier & Shaw 2005).

1.2. Problem Statement

KM practices are becoming increasingly prevalent in global organisations. It is commonly acknowledged that KM can significantly contribute to improved organisational performance, better education quality and effectiveness, reduced cost and improved productivity (Cebi, Aydin & Gozlu 2010; Songsangyos 2012). Many organisations seek to apply and implement different KM practices to achieve these or
similar benefits (Berraies, Chafer & Yahia 2014; Ramanigopal 2013; Shahbakhsh 2013). However, despite its widespread use in business and industry, KM has not been widely recognised or employed in HEIs, largely because its successful implementation relies on a diverse range of crucial factors within and outside the education environment (Huang & Lai 2014; Moghaddam, Mosakhani & Aalabeiki 2013). There is a relative dearth of research evidence and theory to inform the ways in which the higher education sector defines, cultivates and exchanges knowledge, within and beyond its organisational contexts. Only very limited international evidence is available to explore and compare best practice in KM implementation in HEIs, including the critical success factors (CSFs) that contribute to their successful implementation. Such a limitation has considerable implications for HEI managers, academics and students.

In practice, most higher education is not guided by appropriate KM in the ways advocated by knowledge workers. Even those institutions that use KM have not always adhered closely to available KM approaches, models, practices and theories. There are even fewer examples of successful KM implementation that has applied the ‘knowledge conversion’ model of Nonaka and his colleagues (Andreeva & Ikhilchik 2011).

Recent studies in the area of KM have identified a range of enabling factors (Akhavan, Hosnvi & Sanjaghi 2009; Akhavan & Zahedi 2014; Anggia et al. 2013; Bakri, Ingirige & Amaratunga 2009; Conley & Zheng 2009; Valmohammadi 2010), but these studies have used models or theories that have limited ability to manage, create and share knowledge within higher education. Although it is recognised that KM is multi-factorial, previous research has attempted to isolate single factors.

There is a rich body of research on KM implementation (Berraies, Chafer & Yahia 2014; Chumjot 2013; Dalkir 2013; Jeng & Dunk 2013; Ramachandran, Chong & Wong 2013). There is, however, no single model or theory about successful implementation of Knowledge Creation and Sharing (KCS) in HEIs. One of the most dominant theories in the field is the theory of organisational knowledge creation (KC) proposed by Nonaka and colleagues (1994) (Virtanen 2011). Their dynamic model of KC relies on the assumption that an individual’s knowledge is produced and shared through social interaction between tacit and explicit knowledge - what
they refer to as 'knowledge conversion' – through the dimensions of socialisation, externalisation, combination and internalisation (the SECI framework). The model is primarily based on the two types of knowledge (explicit and tacit), and proposes four ways in which these can be generated, combined, shared and converted to (re)create new knowledge. It identifies four modes of knowledge conversion: socialisation (tacit to tacit), externalisation (tacit to explicit), combination (explicit to explicit), and internalisation (explicit to tacit) (Nonaka 1994; Nonaka & Takeuchi 1995; Nonaka, Toyama & Konno 2000). Generally, both tacit and explicit knowledge appear between individuals in the organisation (Bollinger & Smith 2001; Constantinescu 2008; Murray & Peyrefitte 2007).

The extant literature mainly focuses on KM and CSFs and models in the context of business organisations and has neglected the domain of higher education. Similarly, knowledge conversion theory and Nonaka et al.’s SECI framework have been largely employed to investigate contexts other than educational institutions, although there has been some limited application to the higher education industry. It remains unclear how, or indeed whether, Nonaka et al.’s KC theory is applied within the context of higher education in Australia and Saudi Arabia. The study of KM in higher education is important and invites research scholars and policy-makers to reconsider both theory and practice.

This study documents the ways in which multiple CSFs influence proper implementation of Nonaka et al.’s KC theory within (and potentially beyond) two different higher education contexts - King Fahad Security College (KFSC) in Saudi Arabia and Western Sydney University (WSU) in Australia. Specifically, this empirical study demonstrates how the seminal work of Nonaka and colleagues can be extended to incorporate CSFs into organisational KM. This extension will provide a robust theoretical foundation for elucidating KM in university settings.

Four main strands of literature are relevant to the present inquiry. First, there are studies generally focusing on KM within industrial and business settings (Berraies, Chaher & Yahia 2014), whose findings might not be readily translatable to academic settings given the importance of context (Nonaka & Takeuchi 1995). Second are those studies with emphasis on Nonaka et al.’s KC theory within knowledge-creating companies (Ramirez & Kumpikaite, 2012; Sankowska, 2013), but whose authors
found it difficult to translate their findings into practice due to the contextual variation among organisations. A third group of studies have, in some ways, applied Nonaka et al.’s KC theory (1994) in higher education, but have not done so consistently enough to explore the factors enabling proper implementation of KM in practice. There has been no deep investigation of the four processes of KCS in higher education using this model. A few studies discussed the CSFs needed for successful implementation of KM in HEIs in Malaysia and Pakistan (Hameed & Badii 2012; Ramachandran, Chong & Wong 2013), but much more investigation is needed to provide a comprehensive analysis of the context in which knowledge is created.

Fourth, some studies have investigated CSFs in the proper implementation of KM. CSFs are elements that explain the success of a KM system. There is a substantial literature examining the success factors in KM, but little empirical evidence is available to reliably inform HEIs about the impact of CSFs on proper implementation of KCS in practice. The CSFs of KM have been widely investigated in non-educational contexts but more research is needed to explore this issue in advanced educational institutions. Alhussain (2011), for example, examined CSFs for and barriers to proper KM in Saudi Arabia and identified four critical barriers to KM: learning, leadership, technology and organisation. Similarly, Ramachandran et al. (2013) and Hameed and Badii (2012) investigated the CSFs of KM in HEIs, and provided strategic directions for the management of public universities to deal more effectively with KM practices and key strategic enablers.

The purpose of the present study was to explore the main success factors of KM in the higher education systems in Australia and Saudi Arabia. There might be other factors that influence the implementation of KM in the context of both these HEIs. While it has been recognised that implementing KM is multi-factorial, previous research into KM and its CSFs has attempted to isolate single factors. This research will investigate and compare CSFs associated with Nonaka et al.’s model for effective KM application in HEIs in Saudi Arabia and Australia.

1.3. Rationale

This study will examine the CSFs of KM and clarify KM practices in Saudi Arabia and Australia. The literature on KM and CSFs contains scant empirical information
about its implementation in HEIs. The findings have potential to fill this gap and suggest ways in which KFSC can improve its knowledge base and dissemination amongst important stakeholders and how WSU can further enhance its KM practices to improve the flow of knowledge to its stakeholders.

1.4. Significance of the Study

Educational institutions aim to generate knowledge and create innovations. An approach is required that integrates KM practices into the organisational mission and vision in order to properly create and share knowledge within the learning environment (Arntzen, Worasinchai & Ribiere 2009). To some extent, HEIs appear to have understood the value and significance of KM to their organisation and individuals within it, but its role has not been fully realised in the higher education context.

The present study is the first empirical and comparative investigation of the CSFs of KM practices in two higher education settings in Saudi Arabia and Australia. It aims to identify the factors that can promote effective KM in those universities.

KM is very important for higher education, especially in this highly competitive and complex world. Educational institutions need more than just human capital in order to distribute and use their employees' knowledge effectively. They need a platform from which they can actively create and share knowledge. Effective use and management of knowledge might be expensive, even though the knowledge itself might not be. Researchers who have investigated KM and its implementation in HEIs have demonstrated the importance of better understanding this field and have made recommendations for future studies. In their study of KM processes in Malaysian higher education, for instance, Ramachandran et al., (2009) highlighted the implications of HEIs as knowledge-intensive organisations and provided some initial guidelines for formulating strategies to help them properly implement and manage their KM processes. At the same time, they pointed out the need for further research involving larger samples size from different kinds of HEIs and in different countries.

The current study is unique in the sense that it will fill the gap in previous research by identifying the CSFs of KM that contribute to two different educational contexts
(Australia and Saudi Arabia). The similarities and differences in KM between KFSC in Saudi Arabia and WSU in Australia will be investigated. Preliminary scrutiny of both institutions’ websites showed that WSU provides more facilities than KFSC in terms of information and knowledge construction and dissemination among the different stakeholders of the organisation. Unlike KFSC, WSU provides a range of online and offline information and communication portals/platforms for students, researchers and teachers and the broader community, as well as giving access for students and teachers to portals where they can contribute to discussion forums, post notes and access the library. The Security College also lacks adequate information on its website for visitors. WSU, on the other hand, ensures that its website contains all basic information.

The study’s findings are expected to help participants identify and understand the CSFs of KM practices in both institutions. They also provide baseline data for future research on KM and its CSFs. That is, the study has potential to guide similar future work on CSFs of KM in HEIs.

1.5. Conceptual Framework

Building on the Nonaka et al. model (1994) of KM and principles of the SECI framework (i.e. conversion theory) (Nonaka 1994; Nonaka & Takeuchi 1995; Nonaka, Toyama & Konno 2000; Nonaka, Von Krogh & Voelpel 2006) and the work of other researchers (Hameed & Badii 2012; Ramachandran, Chong & Wong 2013), the conceptual framework for this study was designed to explain the relationships among some selected CSFs of KM identified by Saudi Arabian and Australian participants (Figure 1-1). The model is based on the premise that effective KM relies on a set of internal and external enabling/disabling factors related to KCS within the environment. The key factors were expected to include: leadership, organisational culture, rules, organisational structure, responsibility, information technology (IT) infrastructure, measurement, training, teamwork, employee involvement, employee empowerment, knowledge structure and organisational strategies.
1.6. Research Aim

This study aims to explore, identify and understand the main CSFs of KM in HEIs in Australia and Saudi Arabia. The findings are expected to add to the literature in the KM field by exploring the CSFs that contribute to effective creation and sharing of knowledge in the higher education sector.

1.7. Research Questions

The research questions are:

1. What KM processes, practices and/or strategies are dominant in HEIs in Australia and Saudi Arabia and how are they implemented?
2. What CSFs are applied for successful implementation of KM in HEIs in Australia and Saudi Arabia and how are they applied?
3. How different is the current KM implementation in HEIs in Australia and Saudi Arabia and what CSFs are most/least favoured? What factors may be missing from these contexts in relation to the creation and sharing of knowledge?
Questions one and two were mainly designed to identify the KM processes and CSFs employed within the Australian and Saudi Arabian HEIs whereas the third question aimed to compare the two contexts with respect to knowledge creation and sharing.

1.8. Organisation of the Thesis

This chapter introduced the study, outlined its background, stated the research problem, explained the significance of the study and its conceptual framework, and identified the research aim and questions.

Chapter 2 presents a detailed review of relevant literature. It draws on key concepts of KM and CSFs of KM, with particular attention to elaborating the KC theory of Nonaka and colleagues. It also discusses KM in higher education, identifies important knowledge gaps, presents the conceptual framework and model that guided the present study, and analyses the current status of KM in the Australian and Saudi Arabian higher education sectors.

Chapter 3 describes the methodology used in the study. It explains and justifies the theoretical background to the study design and describes the sampling procedure and methods of data collection and analysis. Chapters 4 and 5 present the main findings of the study.

Chapters 6 and 7 summarise and discuss the key findings in relation to the research questions and previously available literature, and identify the study’s contributions and limitations.

1.9. Summary

KM can significantly affect higher education productivity, performance and competitive advantage. Its successful implementation is largely dependent on a range of CSFs inside and/or outside the organisation. The purposes of this study were to ascertain what factors are employed in the Saudi Arabian and Australian higher education contexts in order to enhance KM implementation, what sort of enabling or disabling factors are most/least favoured in these two cases and the extent to which they apply those CSFs to successfully manage knowledge in practice.
The conceptual framework for this study was based on the KM model/theory of Nonaka et al. (1994). Higher education executives and knowledge workers in both countries can use the findings to develop strategies to guide effective management of KCS in the future.
Chapter 2: Literature Review

As explained in the previous chapter, this study aimed to better understand the influence of critical success factors (CSFs) on the knowledge creation process (KCP) via an international comparison of higher education institutions (HEIs). This chapter begins by defining the concepts and theories relevant to knowledge management (KM), with particular focus on the conversion theory of organisational knowledge creation developed by Nonaka and colleagues in 1994. This is followed by a discussion of the research literature on the CSFs of the KCS process in different contexts, including industry and information technology, and an examination of the significance of these CSFs of KM within HEIs. The chapter concludes by critically analysing the current literature, clarifying the research gap, and presenting the conceptual framework for the current study.

2.1. Concepts of Knowledge and Knowledge Management

Knowledge is widely acknowledged as an essential and reliable component of sustainable competitive advantage. Proper implementation of KM has been observed in many settings across the world, including Saudi Arabia and Australia (AL-Ghamdi 2013; Burford & Ferguson 2011; Burstein et al. 2010; Ullah et al. 2013). Over recent decades, organisations have sought to take full and timely advantage of their knowledge resources within the dynamic yet complex and uncertain contemporary environment. This has led to the development of a new concept known as KM. According to Peter (1990) and Senge (1996), an organisation’s possession of ‘knowledge’ and its ability to continue learning will be the major competitive advantage in future. Indeed, developing a learning-based organisation and knowledge work has become a necessity for success in many industries (Burstein et al. 2010; Garrick & Clegg 2000).

There has been increasing attention to organisational Knowledge Creation (KC) by academics and managers since the late 20th century (Nonaka, Von Krogh & Voelpel 2006; Omerzel, Biloslavo & Trnavcevic 2011; Wing Chu 2016; Yeh, YMC 2011). According to Wilson (2002), studies with the words KM in the title did not start to appear until 1997, even though the concept of KM was established in the mid-1980s.
Distinctions however, must be made between data, information and knowledge and the concept of KM *per se* (Liew 2007).

### 2.1.1. Concepts of Data, Information and Knowledge

There are important differences between knowledge, data and information. Nonaka (1994) argues that clear differences exist between knowledge and information, even though the terms are often used interchangeably. According to AL-Ghamdi (2013), knowledge and information are interchangeable concepts depending on how they are processed in individual minds or communicated; information becomes knowledge when it is processed through an individual’s mind, but it becomes information when it is communicated to others (AL-Ghamdi 2013).

From a KM perspective, data can be described as Davenport, Thomas H and Prusak (2000) ‘a set of discrete and objective facts about events’ (p. 2), while information refers to the processed data within context (Davenport, Thomas H & Prusak 2000). In this view, information is a message from a dispatcher to a recipient with the expectation of changing what the recipient believes about a certain issue.

The *Cambridge International Dictionary of English* defines knowledge as understanding of or information about a subject which has been effectively acquired by experience or study, and that is either in a person’s mind or possessed by people generally (Liew 2007; Nunes et al. 2005). In other words, data can exist in non-human form, such as the words in a book within a library. Information, on the other hand, exists only when it is communicated between human actors, for example when someone reads a book, or between non-human elements, for example when information is sent to a thermostat in a car to regulate the temperature. Knowledge, however, exists in human individuals or groups when information is employed in context and may appear tacitly and/or explicitly in the action.

No single definition of knowledge and its nature has achieved consensus among researchers (Baghbanian 2010). Hislop (2013) argues that this uncertainty reflects the complexity of the concept, while Baghbanian (2010) and Jaffé, Newell and Stavins (2002) propose that it relates to the high-level contextual nature of the knowledge that is required during the process of KM in organisations. Nonetheless, according to
Jaffe, Newell and Stavins (2002), while the concept of knowledge is equivocal and inherently ambiguous, there are common understandings among researchers from various disciplines about the terms information and data.

One of the most widely accepted hierarchical constructions of the relationships between data, information and knowledge has been developed by Davenport, Thomas H and Prusak (2000): knowledge is derived from information, information derives from data, and there is a need for human intervention to convert information to knowledge.

Knowledge is a mixture of values, experience, experts’ insight and contextual information which gives a system for the evaluation and incorporation of information and new experiences. It is originated and is effectively applied in the minds of people. Considering the organizations, knowledge is implemented in repositories as well as in documents, and also in organisation based processes, norms, routines and practices (2000, p.5).

In other words, human beings effectively apply their ability, experience, skills, culture and values, through some activity or transformation, to make changes to information and convert it into knowledge, which thereby becomes a major part of organisational knowledge. The ‘transformation’ of information to knowledge occurs through the so-called four Cs: consequences (what outcomes does the information have for actions and decisions?), comparison (how is this information compared with others?), connections (relation of the bits with others) and conversations (what different individuals consider about the provided information) (Davenport, Thomas H & Prusak 2000).

Other scholars identify clear differences between the three terms (Baghbanian 2011; Hislop 2013; Liew 2007):

- **Data** is defined as the set of raw images, numbers, sounds and words that are extracted from measurement or observation.
- **Information** refers to data that are rendered meaningful by the addition of some intellectual input.
• **Knowledge** refers to the analysis/understanding of information/data and beliefs about causality of events/actions causality, and provides a means of developing meaningful thought and action.

The concepts are interrelated, with information and data forming the building blocks of knowledge. Knowledge is also considered to be capable of developing data and information, suggesting that the bond between them is interactive as well as multidimensional and dynamic. According to Hislop (2013), information is a continuous flow of useful data and knowledge is developed and arranged through information flow, which is dependent on the beliefs and commitment of its holder; this indicates that an important aspect of knowledge is associated with human action.

Others argue that information is not simply knowledge but, rather, is basically different from knowledge. According to Wiig (2004), for example, the actual function of knowledge is action and, in the same way, the purpose of information is description. The actions, however, are initiated by people who hold good knowledge of the events and those who have the ability to make decisions and act accordingly through the use of different types of mental processes. Jaffe, Newell and Stavins (2002) and Snowden (2002) add that action and knowledge can be easily coupled through a method of sense-making. The authors (Wiig 2004) also make a distinction between passive and actionable knowledge: the former refers to knowledge that is present in systems, repositories, books, databases, procedures, documents, and other forms, while the latter refers to knowledge that leads to decisions taken and actions considered on those decisions.

While many scholars describe knowledge as ‘justified true belief’, their theories fail to establish a role for physical skills, experiences and insight (Gettier 1963; Nonaka, Von Krogh & Voelpel 2006). Most often, knowledge starts with subjective belief and it is humans who hold and justify those beliefs. Knowledge cannot exist without human subjectivities and the contexts that surround them. Further, ‘truth’ depends on who we are (our values) and our perspective (context). It is the differences in our values and contexts that create new knowledge (Nonaka & Toyama 2007). Baghbanian (2011) adds that knowledge is contextual and triggered by need, while Chan, A and Garrick (2003) points out that knowledge is power for some people and they may not share it.
Organisational KC theory defines knowledge in terms of three complementary elements. First, knowledge is reasonable true belief. Creatures justify the truthfulness of their beliefs based on their communication with the world. Second, knowledge is the experience obtained from performance and knowledge, allowing individuals to describe, arrange, shape and learn to solve a problem or improve a situation. Third, knowledge is situated on a continuum ranging from explicit to tacit knowledge (Nonaka & Von Krogh 2009). Klein, RL (2010) emphasises that organisational knowledge includes the knowledge of personnel (subject matter experts) and information stored in technological devices. A broader conceptualisation of knowledge includes aspects of explicit knowledge, such as language and documentation, and tacit knowledge, such as experience and skills (Nonaka 1991).

Tacit knowledge is a cornerstone of organisational KC theory. It refers to knowledge that is implicit and tied to the senses, motor skills, physical proficiencies, intuition and/or rules of thumb. Explicit knowledge, by contrast, is articulated and captured in representations and writing ((Nonaka & Von Krogh 2009). Knowledge can be freshly created, in the form of routines and know-how, conceptions, patents, technologies and designs referred to as knowledge assets. Knowledge assets result from knowledge-creating processes that occur during discussions and practices in workplaces and are a shared context in motion. They are intangible, joined to the firm, and often not easily managed (Nonaka, Von Krogh & Voelpel 2006).

Last but not least, Lyotard (1984) argued that knowledge is not the same as science and has distinguished between two types of ‘narrative’ and ‘scientific’ or ‘abstract’ knowledge.

Narrative knowledge is a kind of knowledge that is prevalent in ‘primitive’ or ‘traditional’ societies, meaning that it is an older type of knowledge that dates to the time when the human brain was developing its capacity for cultural communication. Narrative knowledge is based on story-telling, sometimes in the form of habit, music and dance. It has no recourse to legitimation - its legitimation is immediate within the narrative itself, in the ‘timelessness’ of the narrative as a long-term tradition - it is told by individuals who once heard it to listeners who will one day tell it themselves (Dow 2006; Lyotard 1984).
Scientific knowledge, on the other hand, is more recent and depends on writing and other more elaborate technologies for encoding cultural information outside of the human brain. Scientific knowledge is a kind of discourse that is legitimated by certain scientific criteria e.g. the repeatability of experiments. It always faces the question of legitimation (Lyotard 1984). The author argued that it is impossible to judge the existence or validity of narrative knowledge based on the scientific knowledge and vice versa as their criteria are different. Lyotard (1984) also highlighted the issue of 'mercantilisation of knowledge', meaning that knowledge is something that can be financially acquired and sold within the market; however, any excess of skill supply does not necessarily result in increasing returns but rather it may lead to a decline in the individual demand for education (Jakupec & Garrick 2000).

2.1.2. Origin and Definition of Knowledge Management

It has been suggested that KM as a concept was established in the mid-1980s and has been of interest to scholars since the 1990s. Yet, there is no consensus over a unified definition of KM. According to Davenport, Thomas H (1994)‘s influential definition, KM is the process of capturing, distributing and effectively using knowledge. KM as a discipline promotes a highly integrated approach to the identification, assessment, retrieval and sharing of all information assets of an enterprise. These assets include various kinds of databases, policies, documents and procedures as well as previously un-captured experience and expertise of individual workers. This involves a highly organised and systematic way of retrieving, organising and exchanging knowledge between employees in order to use that knowledge (Alavi & Leidner 1999; Duhon 1998).

KM involves the selective application of knowledge from previous decision-making experiences to current and future decision-making, with the aim of enhancing the effectiveness of the organisation (Jennex 2005). Knowledge should be managed in a structured way and be founded on previous experience in order to facilitate exchange and building of newer knowledge. KM is a process that entails the creation, allocation, acquisition, application and incorporation of knowledge in order to advance operational efficiency and organisational competitive advantage (Gichohi 2017; Lytras, Pouloudi & Poulymenakou 2002). It provides a systematic way of
administering a valuable resource through the promotion of an integrated approach to identifying, capturing, organising, structuring, sharing, retrieving, and evaluating the knowledge assets of a given enterprise (Kim, S-k, Lim & Mitchell 2004).

For some, KM refers to the methodical leveraging of information, data, and proficiency as well as diverse other resources and assets in a bid to improve organisational efficiency, innovation, reaction and capability (Mahdi, Almsafir & Yao 2011). It provides a representation of the highly significant aspects of an organisation’s procedures, via the use of technologies that are well-suited to connecting dissimilar knowledge assets. For Akhavan, Jafari and Fathian (2006), KM refers to a highly systematic and goal-oriented use of a company’s tangible and intangible knowledge assets with the aim of employing the firm’s knowledge to form newer knowledge, which has the capacity to generate organisational value. KM involves the acquisition, storage, diffusion and implementation of tacit knowledge, in addition to explicit knowledge, both within and outside the boundaries of the organisation, with the aim of meeting corporate objectives in a highly efficient manner (Magnier-Watanabe & Senoo 2008). According to Dalkir (2005), KM is the systematic process of enabling collective and individual knowledge resources to be identified, created, shared, stored, and then utilised to gain benefits.

In summary, KM can be defined as a process of effectively managing both tacit and explicit knowledge within an organisation in order to enhance organisational competitive advantage. Knowledge is not limited to documents in repositories but is also found in the minds of individuals and can be recognised through people’s behaviours and actions. Knowledge is a combination of values, expert insight, experience and contextual information that can be applied to meet the needs of organisation.

KM should be designed in a way that exploits an organisation’s knowledge assets to develop the organisation and meet its objectives. To this end, systems need to create and keep repositories of knowledge and facilitate and cultivate organisational learning and knowledge sharing (Toro & Joshi 2012). The ability to manage knowledge has become indispensable in today’s business world. In order to achieve competitiveness and long term sustainability, the effective creation and diffusion of knowledge is essential (Jeng & Dunk 2013). The more knowledge is present in an
organisation, the faster it will be converted and the more valuable it will be for the firm.

As just explained, KM has been defined as a process that includes both tacit and explicit knowledge (Easterby-Smith & Lyles 2011). The explicit element of knowledge is linked to strategy, policy and practice, whereas tacit knowledge includes intellectual assets that directly link to the explicit element and can yield positive business results. Hislop (2013), on the other hand, defines KM as the process through which knowledge is created in tacit form and is then converted into explicit form to help the business in the long term. This process help the business to discover, develop, utilise, deliver and absorb knowledge outside and inside of the organisation in order to meet the current and future needs of the entity. Through the KM process, business entities can systematically acquire, organise, sustain and then apply knowledge. Within this process, knowledge is developed and utilised in explicit form and is then converted into tacit knowledge, as others learn it. The main purpose of KM is to create value for the business in terms of performance. In a similar manner, Zheng, Yang and McLean (2010) argue that KM has helped organisations to find, select, organise, spread and transfer important information and expertise necessary for activities. With KM practices, an organisation is able to enhance its knowledge by continuously converting explicit into tacit knowledge.

Despite their differences, the various definitions of KM that have been proposed agree that it includes both explicit and tacit knowledge that can be converted through the creation and dissemination process. Both of these are important ingredients of KM practice. Tacit knowledge refers to the mental models of beliefs and perspectives and includes personal qualities that cannot be communicated, although it can be reflected through actions, involvement and commitment. According to Jennex and Olfman (2009), tacit knowledge refers to a skills base that cannot be shared or reflected. It is hard to formalise and, therefore, is difficult to communicate or translate since it is deeply rooted in individuals’ actions and experiences. According to Borghoff and Pareschi (1997), explicit knowledge refers to knowledge that can be transferred into more formal and systematic form. Aghdasi and Tehrani (2011) proposes that explicit knowledge reflects the part of knowledge that can be easily communicated and explained in words because others can see, learn and absorb it.
Since it can be easily expressed and formalised, it can be easily transformed and taught to others (Bashar, Ammar & Rakan 2012).

KM has also been conceptualised as a process in which explicit knowledge is transformed into tacit knowledge, a process that helps a business to enhance its knowledge base in ways that can eventually prove useful (Bratianu 2014). The dissemination of knowledge enables the organisation to provide individuals with the level of knowledge they need but currently lack. Knowledge is created when people actually transform information into their personal knowledge store and then create a new one. Thus KM is the process of creating knowledge from the conversion of tacit to explicit knowledge and vice versa in order to benefit the entire organisation (Easa 2011).

2.2. Nonaka’s Dynamic Theory of Organisational Knowledge Creation

This section discusses the history, process, significance and limitations of knowledge creation (KC) theory.

2.2.1. History of the Model

The organisational KC Model was first developed by Ikujiro Nonaka and his colleagues, notably Hirotaka Takeuchi, although it tends to be referred to as Nonaka’s model due to his association with KM concepts. For this reason, it is hereafter referred to as the Nonaka model. The history of this work can be traced to the early 1960s, when Nonaka initiated a management program at Fuji Electric after graduating in political science from Waseda University in Japan. He then moved to the United States to enrol in the University of California, where he obtained an MBA and then a PhD (in 1972). In 2008, the Wall Street Journal listed Nonaka as one of the most influential business thinkers and The Economist included him in its ‘Guide to Management Ideas and Gurus’ (Sarayreh, Mardawi & Dmour 2012). Nonaka model of KM is one of his best known and most widely discussed works in KM. It is premised on three assumptions:
Knowledge that is created at an individual level is the result of constant dialogue between explicit and tacit knowledge;

There are four fundamental knowledge conversion processes: socialisation, externalisation, combination and internalisation

Within organisational settings, KC is based on a spiral driving force and can be created from these four processes (Nonaka 1994);

It is argued that the success of Japanese businesses across the globe is mainly due to the Knowledge Creation Processes (KCPs) that are mainly driven by this model. Nonaka has become one of the most prominent thinkers in the discipline of KM as a result of his novel ideas (Nejatian et al. 2013). Nonaka’s model provided a new paradigm for the creation of knowledge in an organisational setting. It set the stage for KM and gave management a new way of thinking and acting to help businesses grow and sustain themselves in the long run.

The Nonaka model (1994) has been extensively used by Japanese business entities and it has become well-known throughout the world. A substantial body of literature has addressed this model and assessed its success in practice (Andreeva & Ikhilchik 2011). Modifications have been made to reflect changes and uncertainties in the business environment (Berraies, Chaher & Yahia 2014).

### 2.2.2. Processes of Nonaka’s Model (1994)

KM has always been critical to the success of any organisation, including entities that rely on human behaviour such as educational organisations (Ramayah, Yeap & Ignatius 2014; Rao 2005; Wing Chu 2016). In this context, KCP is particularly important because it presents different knowledge dimensions. Nonaka’s KCP model identifies four modes of knowledge conversion that create knowledge when tacit and explicit knowledge interacts. These are: socialisation (from individual tacit to group tacit knowledge); externalisation (from tacit to explicit knowledge); combination (from separate explicit to systemic explicit knowledge); and internalisation (from explicit to tacit knowledge) (Allal-Chérif & Makhlouf 2016). Together, these form the acronym SECI (Nonaka, Toyama & Konno 2000). The Nonaka model suggests that knowledge is continuously converted and created as users practise, reflect and learn.
This model is now widely accepted as the core of knowledge conversion theory. Previous research has investigated and compared the utility of all of the knowledge conversion dimensions to determine which dimension is the most significant for an organisation. It has been argued that the transfer from tacit to explicit knowledge is more important than any other dimension for learning purposes (Herschel, Nemati & Steiger 2001). In this process, the concepts, publications and images form a vital vision in which knowledge is crystallised, which enables easy sharing with others (Bratianu 2016). Such a process enables students to understand what has been taught in colleges and universities. Similarly, it provides an opportunity for teachers to demonstrate their skills and enhance students’ understanding of a particular topic. Without this dimension, it is claimed, educational institutions have no importance (Nonaka, Hirose & Takeda 2016).

There is also evidence to suggest that KCP based on the Nonaka model makes any organisation more dynamic. According to Qi and Chau (2016), for example, there is no point in choosing a particular dimension of the KC model and arguing that knowledge conversion is probably the most significant dimension of KM, since all dimensions have their respective importance and utility. The dimensions, however, are not isolated and all are necessary to complete the process of KC. This is because Nonaka’s KCP and these four dimensions add dynamicity to the KM of an organisation (Qi & Chau 2016). Another study has also suggested that models like Nonaka’s KCP have huge potential for organisations and that these models provide a dynamic framework for the process of KM in any organisation. The results of the study indicated that organisations in which this model was deployed were significantly better able to manage and create knowledge than those which did not have such a model. Research activities played a key role in guiding organisations to make the KM process smoother and more rapid (Ng, Leung & Lo 2017). Previous research has documented the relevance of KM to organisational success, especially in relation to Nonaka’s KCP. Figure 2-1 shows how different dimensions of Nonaka’s knowledge conversion model (1994) can move between different domains.
Nonaka’s KCP was initially developed on the basis of research in Japanese organisations, where employees and employers worked together. Arguably, this is one of the main reasons why the model has been criticised for its limited scope and lack of generalisability to other contexts (Zhang, Zhao & Wang 2016). The organisations that participated in the original research only followed tacit knowledge. Accordingly, the model has been criticised for lacking significant dimensions of KM. Yet a considerable body of research to date indicates that Nonaka’s model remains one of the best KM models and should not be ignored. According to Ahmad et al. (2016), organisations that use this model are significantly better able to manage and create knowledge than those which lack such a model. This claim, however, is contested.

Nonaka’s model has become the cornerstone of KM. Some researchers claim that it is particularly important for educational institutions, with benefits for both learners/students and teachers (Chumjit 2013; Lamont 2011; Rabbani & Moazzeni 2012; Songsangyos 2012; Syysnummi & Laihonen 2014). They believe that no other
significant model can guide effective KM in these institutions. The findings of a study that compared the relative utility of all dimensions for an organisation (Marín, Betancur & Aguilar 2016) suggested that educational institutions should seek to enhance the scope of tacit knowledge, since tacit knowledge is believed to be more important than explicit knowledge (Selamat & Choudrie 2004; Smith 2001).

This model has brought positive enhancements to organisations, including educational institutions, which in turn facilitate change (Hosseini 2011). Many organisations now acknowledge the usefulness of this model for creating and managing knowledge. Educational institutions that have adopted Nonaka’s KCP have more student participation and can effect change more easily (Bettis et al. 2016), which suggests that the entire process of change and KM is dependent on the students. The model introduced by Nonaka has facilitated knowledge transfer from teachers to students and has also made it easier to create knowledge using various tools and techniques (Elangovan 2013). Nonaka’s model has also enabled the conversion of tacit knowledge into explicit knowledge. This is considered highly beneficial for students as well as teachers and educational institutions.

From a different perspective, Nonaka’s model has been shown to bridge the gap between different levels of management. It is argued that the best management style is neither bottom-up nor top-down but ‘middle-up-down’, where middle managers bridge the gap between top and bottom levels (Capello 2013).

Nonaka’s model is not limited to knowledge transfer; it also emphasises the creation of new knowledge within the organisation. It explains in detail how Japanese firms continue to creatively generate new knowledge. Radha (1995) documented how Greek philosophy, Zen Buddhism, classical economists, modern management gurus, and theories of organisational KC have been used by various high profile firms (such as Canon, Honda, Matsushita and Nissan) to facilitate knowledge conversion.

Other research indicates that KCS is the key to gaining competitive advantage (Yao & Fan 2015). To achieve success, organisations need to adopt this model of knowledge creation. Because external environmental factors (political, social, economic, technological, etc.) change frequently, organisations need knowledge conversion to remain competitive. Knowledge quickly becomes out of date, so it is
vital for management to create new knowledge (Alkhuraiji et al. 2016). Educational institutions are no exception.

Knowledge that is useful today might not be useful tomorrow; therefore curricula need to change (Massingham & Massingham 2014). Universities and colleges that frequently adopt new courses are aware of changes in the external environment (Yousefi, Taherkhani & Ghardashkhani 2014). New approaches towards KCS are important for developing successful new services, systems and products. KM plays a vital role in business practices and, at the same time, enables organisations to use unique features to distinguish their services or products from those of their competitors. Every organisation has a knowledge powerhouse and this knowledge powerhouse has potential to help organisations achieve their goals and objectives (Ahmad et al. 2016).

KCS has a number of benefits for organisations and institutions that provide competitive advantages. Educational institutions that have employed Nonaka’s KCP have demonstrated higher rates of student participation in various events and activities (Aghdasi & Tehrani 2011; Hosseini 2011) and comparatively better student results. The claim is that Nonaka’s KCP enables more participation from students and this leads to more efficient KM (Tammets 2012). This is because more participation enables better sharing of knowledge among students. The entire process of KM is dependent on the students because KM is a two-way process. The KM process has been compared to the communication process (Zhang, Zhao & Wang 2016), since feedback is vital in both. Students will only give accurate answers when they understand the topic fully, and this is only possible when tacit knowledge prevails in the institution. This is the main characteristic of Nonaka’s KCP.

As previously mentioned, it has been argued that Nonaka’s KCP of KM enhances the dynamicity of any organisation ( Cannatelli et al. 2016). It involves four reciprocal dimensions, none of which is more important or useful than the others. Socialisation, it is suggested, only occurs when teachers and students interact face-to-face or brainstorm together - that is, in traditional organisational arrangements. Externalisation refers to the creation of new concepts, ideas and common goals through publishing and articulating knowledge (Cannatelli et al. 2016). Combination involves the conversion of explicit knowledge to explicit knowledge through
organising and integrating knowledge and the creative use of computerised communications and large-scale databases. Such knowledge can be collected from outside or inside the organisation and then combined and edited to create new knowledge. This knowledge is edited, processed or combined. The internalisation process denotes learning by doing. This refers to the process of receiving knowledge and reflecting on one’s ability (Chugh & Joshi 2016). The process of KC cannot be completed in the absence of any of these dimensions. KC has specific attributes that facilitate KM, and the smooth implementation of the KM process requires the use of a model like Nonaka’s. This model has been the basis of KM research for a long time. The four dimensions help to elucidate the significance of KM in the organisation and enhance the functioning of various aspects. This is particularly significant for educational institutions since they are totally based on KM (Alshahrani, Dadich & Klikauer 2016). In order to make learning effective, it is important that all stakeholders possess a sound understanding of KC activities and are enabled to create knowledge effectively.

2.2.3. Significance of Nonaka’s Model

Business entities rely on knowledge not only to enhance their innovative processes but also to meet long term business sustainability (Andreeva & Ikhilchik 2011; Hosseini 2011; Nonaka et al. 2014). Despite reliance on KM, however, the entire concept remained vague until Nonaka and colleagues articulated their KC theory. Thereafter it made rapid inroads in various industries, especially in Japanese organisations. Nonaka’s model enabled business entities to work with their knowledge structure and improve their competitive edge through innovative strategies and product designs, lower cost and better quality (Sarayreh, Mardawi & Dmour 2012). This is arguably because the Nonaka model enhances the ability of management to make the most out of the knowledge structure in their organisation to make various kinds of improvements. The model yields numerous benefits in the form of better knowledge creation, improvement in cost structures, workforce management and business sustainability. Nonaka’s model is clear and rigorous, allowing management to identify and remove anomalies in the business structure. Unlike other complex models, Nonaka’s model provides a coherent combination of effective modes of KC (Nejatian et al. 2013).
2.2.4. Shortcomings in Nonaka’s Model

Nonaka’s model has allowed businesses to achieve their goals but it has a number of shortcomings. It is a major undertaking for business entities to revolutionise their KM. The main limitation of the model is the fact that it does not actually describe the methods of KM, which may differ from case to case (Berraies, Chaher & Yahia 2014; Bratianu 2011; Gourlay 2006; Richter 2011). According to the model, knowledge is created within organisations through continuous interaction between tacit and explicit forms of knowledge; incorrect application of this process, however, can have negative consequences. The model also requires managerial support to ensure detailed compliance, since failing to follow the required sequence will result in an incomplete and inappropriate knowledge spiral.

Another criticism arises from the fact that the model is driven by Japanese cultural expectations. It has been highly successful in Japanese organisations (Toivonen, Norasakkunkit & Uchida 2011) but may not be able to achieve similar success in other contexts. KCS requires interaction and this depends on culture. In fact, application of this model in western organisations may depict actual results. Given these limitations, business entities should only consider the model as a source of guidelines rather than a prescription. Nonaka’s model incorporates intrinsic characteristics of KM, but its success depends on cultural factors (Kumar, Jain & Tiwary 2013).

2.3. Critical Success Factors of Knowledge Management

Globalisation has provided a range of opportunities for industries to grow and achieve success. This is evidenced by the emergence of diversification and internationalisation in industries. The higher education sector plays a major role in the development of individual potential, which in turn delivers the competitive attributes necessary for organisational success (Muller-Merbach 2008). The crucial element responsible for innovation, efficient management and significant communication is the integration of KM (Hoveida, Shams & Hooshmand 2008; William & Amin 2006). In higher education, the integration of KM contributes to effective organisational management, service efficiency at the domestic and international levels, and even in societal participation. It involves the initiation of a
carefully thought-out plan which drives the action necessary to achieve the best possible results. It is cost efficient and involves the least degree of effort in the management of time and budget, human input and technology (Jones & Sallis 2013).

It is widely accepted that KM is a crucial factor for all organisations. However, different CSFs influence the outcome of KM and the measurement of its effectiveness. The following discussion examines CSFs within the context of KM.

There is growing pressure in the professional world to achieve competitive advantage and sustain the organisation’s successful position in the market (Birasnav, Rangnekar & Dalpati 2011). KM is seen as a fundamental tool to achieve these outcomes. According to Urbancova (2013), the competitive environment presents a number of challenges to organisations, as the management of explicit knowledge becomes more difficult; in such an environment, the development of employee knowledge and skills is crucial. The formation of strategies and action plans at the organisational level contributes to the achievement of the fundamental objective of knowledge development and transfer. Overall, the presence of KM success factors enables organisations to enhance conditions under which individuals develop expertise in creating, sharing and disseminating knowledge (Berraies, Chaheer & Yahia 2014).

Considerable research on CSFs for KM has been conducted in social settings, including higher education. These studies have provided strategic directions for the management of public universities to follow in order to deal more effectively with KM practices and key strategic enablers, and have identified a number of CSFs in KM, including leadership, culture, rules, structure, responsibilities, information technology infrastructure, measurement, employee training, employee involvement, teamwork, employee empowerment, knowledge structure, and organisational strategies (Akhavan & Zahedi 2014; Allameh & Zare 2011; Alshahran 2016; Berraies, Chaheer & Yahia 2014; Hameed & Badii 2012; Nasiruzzaman, Qudaih & Dahlan 2013; Ramachandran, Chong & Wong 2013; Razmerita et al. 2016; Zwain, Lim & Othman 2014). Each of these is discussed in more detail below.
2.3.1. Leadership

Effective leadership plays a highly significant role in ensuring the success of an organisational initiative. Its effects on KM are particularly pronounced given the comparative newness of the discipline (Abebe & Onyisi 2016b; Fischer et al. 2015; Kumar, Jain & Tiwary 2013). In broad terms, nothing has a greater impact on organisations than leadership that models the behaviour that the organisation is seeking to promote (Berraies, Chahe & Yahia 2014). Leadership ensures there is a platform in the organisation that creates common ground between diverse employees so they can interact with each other in ways that lead to socialisation and, eventually, sharing of knowledge and information. Leaders act as role models when followers see that leaders are actively helping to create new knowledge and sharing it with others. Hence leaders play a critical role in socialisation, interaction and, eventually, KCS (Yeh, YMC 2011).

The function of leadership is to share fundamental knowledge among employees by initiating communication, encouraging flexibility, and displaying the transformational characteristics that contribute to success through effective decision-making and commitment (Noruzy et al. 2013). Effective leadership in higher education is essential for learning and understanding the constituents of successful KM. This can contribute to the transfer of strategic knowledge to supportive organisational leaders of the future (Martin & Marion 2005).

On a global level, KM refers to the engagement of multicultural forms of leadership (Voegtlin, Patzer & Scherer 2012). In the global context, leaders are encouraged to be aware of cultural appropriateness in relation to policies and procedures, management flexibility, training, and manipulation of knowledge. According to Alsereihy, Alyoubi and El-Emary (2012), the main barrier to implementing KM in Saudi Arabia is the lack of practical experience of sharing KM among leaders, since collaborative management is weakly developed and the necessary processes of sharing and transferring knowledge are unavailable. Australia is also said to lack leadership interest in KM, which has attracted little basic investment (Drysdale & Gurr 2011). Donate and de Pablo (2015) concluded that, globally, KM leadership is considered a success factor, as it supports the sharing of explicit knowledge,
generates deep commitments, and adopts strategic planning and decision making through the top to bottom ‘follow-me’ approach.

As a KM theory, Nonaka’s KCP recognises the necessity of effective leadership. KC and knowledge transfer or KM cannot produce the desired outcomes unless there is effective and efficient leadership supporting the entire process. The main function of leadership is to create a common ground and convey the message about the nature of the process that is being implemented (Kumar, Jain & Tiwary 2013). Employees and workers tend to look to the leader as a role model and follow his or her lead. As a result, leadership is essential for success in the Nonaka model (1994). As previously mentioned, the model identifies different phases of KM. Leadership is essential in all of these phases, especially in relation to the conversion of knowledge, since employees need to be aware of what is happening and what role they have to play in order to achieve the desired result. It is also necessary for the entire process to be monitored and controlled, and someone must initiate the process and take the next steps (Andreeva & Ikhilchik 2011). Leaders need to ensure that everyone is involved, there is team work, and everyone is contributing towards the achievement of the organisation’s long term objective. Leaders can motivate and encourage the workforce to participate and clear up any confusion (Hislop 2013).

To oversee human capital, organisations require a director who can interface with workers around a shared objective, especially within KCPs, persuading and engaging them in learning. Nonaka, Toyama and Konno (2000) recognised the importance of leaders taking the initiative to research and develop the organisational system. Nonaka and Toyama (2007) also emphasised the role of administration in actualising an attitude of sharing, communication and commitment to improving KCP. Similarly, Hafeez-Baig and Gururajan (2012b), (Garriga, Von Krogh & Spaeth 2013; Kumar, Jain & Tiwary 2013) identify initiative as a major factor affecting KCP. Migdadi (2009) and Elrehail et al. (2018) considered how transformational initiative can positively affect workers’ inspiration to undertake and share learning. Al-Hakim and Hassan (2012) also noted the significance of transformational authority in information administration in the Iraqi context.

The other critical factors for KC are derived from leadership. Leadership influences organisational culture, teamwork, dedication level, employee management practices
and policies. The influence of leaders helps to streamline the entire process of creating a knowledge-based culture (Kiessling et al. 2009).

2.3.2. Organisational Culture

The concept of culture suggests shared history, unwritten rules, social customs and expectations that shape the behaviours of individuals within an organisation (Ling 2011). Organisational culture can be defined as the set of underlying beliefs, which are rarely articulated directly but which nonetheless influence employees’ perceptions of communications and actions (Safa, Shakir & Boon 2006). The culture of an organisation helps to create the norms and values that prevail in the working environment. All of these factors are important for KM success (Al Saifi 2015; Chen, C-J, Huang & Hsiao 2010; Ling 2011). KM is not a one-off practice, but needs to be embedded within these values and norms (Sallis & Jones 2002). The importance of an effective and efficient KM culture cannot be over-stated (Allameh & Zare 2011; Sarayreh, Mardawi & Dmour 2012). A range of factors within organisational culture can influence the overall success of the KCS.

Mittal and Bhatia (2014) asserted that it is the fundamental responsibility of human resource managers to develop an organisational culture that supports KM. Some of the relevant factors are evident throughout Saudi Arabia, where lack of communication and other aspects of a supportive organisational culture have impacted on the sharing of KM in higher education and other professional institutions. Organisations also lack the training and development dynamics that contribute to the development of trust, which is necessary for the sharing of knowledge (Al-bahussin & El-Garaihy 2013).

In their review of strategic alliances and KM, (Genç & İyigün 2011) found that organisational culture is a valuable asset for KCS. Countries such as Australia, India, UK, Germany and the US have multicultural workforces, which significantly increases the efficiency of knowledge sharing by facilitating the implementation and acceptance of the organisational culture.

Cultural factors can affect KM initiatives in various ways often (Omerzel, Biloslavo & Trnavcevic 2011; Szymańska 2016). Such initiatives are not typically aimed at
encouraging the workers to work more, but to enhance the effectiveness of the work yield. The technologies, roles and processes that are designed to save time should not burden employees with more work. This can only be achieved when the work patterns of employees are taken into consideration when the KM initiatives are being planned and designed (Sallis & Jones 2002). It is obvious that KM practices should benefit the entire organisation. One of these benefits is time-saving. If the entire process does not save time for workers, there is something wrong with the process. If employees feel burdened, they may become de-motivated. Eventually, their performance may decline, affecting the entire organisational performance and negatively impacting on the success of the KM process (Nejatian et al. 2013).

Organisations must provide a balance between extrinsic and intrinsic rewards to encourage appropriate behaviour among employees (Berraies, Chaher & Yahia 2014). Extrinsic rewards should be used to encourage knowledge sharing from the beginning of the KM process. If attendees at meetings fail to receive respect and acceptance, or do not gain value from the information they get from the system, incentives will not help to sustain their participation. Individuals have a desire to share, and like seeing that their expertise is being used. At the same time, they wish to receive respect from their peers (Berraies, Chaher & Yahia 2014; Suryadi 2007). A reward system has many benefits for the entire organisation as well as for the KM process. If an effective and efficient reward system is in place, the workforce is motivated to do more, and tends to learn more. In this situation, leaders are involved to encourage employees to interact and socialise in order to produce a positive impact on KCS. When workers realise they are being rewarded for what they do, they feel motivated to do more. In the absence of such systems, they may lack such motivation. It is important to note that employees are one of the significant drivers in organisational development and growth. Without employees, it is impossible for an organisation to successfully implement and benefit from KM processes (Berraies, Chaher & Yahia 2014).

A mutual vision should inspire sharing. The individuals who are affected by the new technology or process must share such a vision as well as believe that it will work (Zack, McKeen & Singh 2009). As stated earlier, leaders are required to create a common ground where the vision and mission of the entire organisation can be
shared. The workforce should be aware of what is happening within the organisation so they can share the vision and mission. This generates inspiration and motivation. In order to pursue the vision and mission, employees from different departments need to interact and share knowledge about their work practices. Eventually, explicit knowledge can be converted into tacit knowledge to help workers in other departments and, hence, the entire organisation (Kumar, Jain & Tiwary 2013).

In both the design and implementation of various KM initiatives, measures must be put in place to ensure that workers, as well as customers, are aware of the changes that may occur within the organisation. It has been suggested that individuals need to hear such messages about three times before they fully register the information. Therefore, communication must be pervasive (Zivojinovic & Stanimirovic 2009).

Effective implementation of KM requires effective marketing. All individuals within the organisation need to be aware of the desired outcomes (Wen 2009). When an organisation already tends to share knowledge, this simplifies and smooths the path of new KCS initiatives. When an organisation harbours a culture in which knowledge is hoarded, individuals are reluctant to participate. Any negative consequences associated with sharing must be removed. Generally, individuals like sharing their knowledge and being seen as knowledgeable (Aljanabi 2007).

In summary, organisational culture controls various patterns, as well as the behaviour of individuals within the organisation. It can be used in KM implementation, particularly in relation to knowledge sharing (Chong, Siong Choy & Choi 2005; Razmerita et al. 2016).

At the same time, there are challenges associated with the role of organisational culture in KM. The development of a KM system to achieve specific objectives requires various activities to change to become knowledge-based, which has implications for organisational culture (Chong, Siong Choy 2006). Staff members also need to become knowledge-based workers, which involves the creation of a KM culture that supports sharing of knowledge, as well as the creation of value.

Lack of an effective corporate culture that encourages trust, learning, creativity and collaboration is one of the main obstacles to successful KM implementation within
HEIs. In order to create knowledge, organisations need to develop a learning culture (Sandhu, Jain & bte Ahmad 2011). This is achievable if there is collaboration between members of staff (Blomqvist & Levy 2006). Collaboration not only eases knowledge transfer, but also propels knowledge formation when it is founded on trust. There are certain prerequisites for collaboration. Open and clear communication within the institution encourages knowledge sharing. Yet organisational culture involves a complex mix of ideals, attitudes, behavioural models and symbols that develop over time. Further, the core beliefs and values of an institution are hardly ever challenged or even discussed, and are therefore difficult to alter. For this reason, culture can create important barriers to the implementation and effectiveness of KM (Ramachandran, Chong & Wong 2013).

Clearly, communication is not only essential for KM but also for the entire organisation. Effective communication reflects effective information sharing, which develops over time, and efficient decision-making (Blomqvist & Levy 2006; Chen, W et al. 2016). In relation to KM, communication means collaboration, interaction, and information sharing, leading to successful decision-making that drives development and growth. With effective communication channels in place, knowledge sharing becomes easy. Knowledge is for anyone who can utilise it to achieve desired outcomes. All of these elements are derived from the organisational culture. A corporate culture that lacks communication channels cannot motivate the workforce to trust each other and share learning activities. The absence of communication channels also makes it difficult for management itself (Blomqvist & Levy 2006; Murray & Peyrefitte 2007). The core of successful KM lies in interaction and socialisation so that information and knowledge can be shared through efficient communication channels (Andreeva & Ikhilchik 2011).

There is also evidence that culture contributes to Nonaka’s KCP. Organisational culture is an indispensable element in the success of Nonaka’s model (1994). Culture integrates multiple aspects of an organisation. Nonaka’s model proposes that the culture prevailing in an organisation should be based on collaboration, learning and trust (Ling 2011; Sankowska 2013). According to Hogan and Coote (2014), organisational culture involves shared values, assumptions and beliefs that guide employees’ behaviour in the workplace. According to Nica (2013), every
organisation maintains and develops a unique culture that includes boundaries and guidelines for the behaviour of its employees.

Organisational culture has been identified as a fundamental determinant of the success or failure of KM, and extensive research has identified those aspects of culture that promote KCS (Al-Adaileh & Al-Atawi 2011). The general consensus is that knowledge sharing flourishes in less formalised, more decentralised (Chen, C-J & Huang 2007) and entrepreneurial environments (Suppiah & Singh Sandhu 2011). There has been some comparative research on KM at a national level in different countries (Magnier-Watanabe & Senoo 2008).

Each organisation has its own unique values that collectively represent its culture. Ibrahim and Heng (2015) argued that effective socialisation is highly dependent on the organisational culture and the interaction among individuals and collective individuals such as corporations or a community. Nonaka (1994) identified socialisation as the first KM transfer method (i.e. exchange of tacit knowledge). Socialisation is the process of collecting tacit knowledge through shared values and experiences. The following section examines the four elements that represent organisational culture: trust, collaboration, learning and motivation.

In addition, culture can influence tacit knowledge sharing behaviour. Previous research indicated that organisational culture contributes to tacit knowledge sharing. For example, it has been noted that organisational culture types can have a positive impact of whether employees are willing to share their knowledge with each other regardless of the directives received from their superiors (Kucharska & Kowalczyk 2016; Suppiah & Singh Sandhu 2011). Yet, the theoretical contribution of this research study goes beyond the analysis of the positive and negative influence of culture on knowledge management.

2.3.2.1. Trust

Trust should exist among top management, lower management and workers. Trust is the key to effective and efficient knowledge sharing (Ling 2011; Sankowska 2013). Every member of the business should be able to trust others in a successful KM system (Nejatian et al. 2013). Trust in the organisation is important because it allows
managers and workers to confidently discuss organisational issues (Berraies, Chaher & Yahia 2014; Finley & Sathe 2013). According to Nica (2013), trust allows employees to voice their problems and input their opinions to improve the organisation.

2.3.2.2. Collaboration

In recent decades, the complex and dynamic business environment has encouraged the development of KCP through collaboration (Razi & Karim 2010). Trust is a prerequisite for creating a collaborative environment, which can generate useful knowledge (Abou-Gamila, Abdulla & Abdel-Razek 2015; Sankowska 2013). Berraies, Chaher and Yahia (2014) observed that building collaboration needs strong leadership, and is based on communication, trust, and shared purpose and vision. Collaboration is not a vague aspiration, but it may estimate the value which can be developed through training of employees and executives, practise and reflection across the organisation. Effective collaboration is about increasing the talent, time and tools to create organisational value (Finley & Sathe 2013).

2.3.2.3. Learning

A learning organisation is one that is always in the learning phase (Sarayreh, Mardawi & Dmour 2012). Leaning enhances understanding and increases knowledge sharing. According to Bratianu (2014), the Nonaka model proposes that an organisation should create knowledge continuously. This is possible by restructuring existing knowledge through the use of knowledge transformation processes. KC has an impact on the learning process, and it is believed that both organisational learning and KC can help to create a new way of ensuring continuous improvement and enhancement of organisational performance. KM has attracted considerable attention in the past few years. Organisations are implementing different models and theories to create, share and integrate knowledge to facilitate the learning processes (Oye & Salleh 2013; Yousefi, Taherkhani & Ghardashkhani 2014). As time passes, organisations face different types of challenges. To compete effectively, it is necessary to integrate learning processes, which can assist employees to learn new skills to perform their work. Razi and Karim (2010) concluded that a learning culture
enhances KCP in relation to all four elements (i.e. socialisation, externalisation, combination, and internalisation).

2.3.2.4. Incentives and Rewards

It is essential for organisations to provide an incentive and reward structure. A diligent workforce deserves to be rewarded in order to keep everyone motivated (Berraies, Chaher & Yahia 2014; Poonam & Jennifer 2017). The incentive and reward structure helps to keep employees motivated and encourages them to participate and perform efficiently. It is necessary to use performance management metrics and disseminate information about the reward policies and strategies. In the process of KM, people are required to participate and share knowledge with each other (Zhang, Zhao & Wang 2016). Through socialisation, people communicate and facilitate processes of learning and development. Jaleel and Verghis (2015) proposed that linking reward and incentive schemes to the process of KM positively impacts on employees’ motivation to learn and develop skills to share knowledge with others (Hafeez-Baig & Gururajan 2012a). Rewards, which may be tangible or intangible, play a major role in motivating staff to implement KCS approaches and processes (Berraies, Chaher & Yahia 2014). In any organisation, the incentive mechanism is considered to be a valuable situational moderator that has a long-term effect on the behaviour and activities of staff (Bratianu 2014).

2.3.3. Organisational Rules, Structure and Responsibilities

An organisation involves a number of departments, groups and committees with distinctive rules and responsibilities for managing the flow of information and knowledge (Fullwood, Rowley & Delbridge 2013). According to Dearing et al. (2011), however, best practice for governing organisational KM initiatives is the formation of a steering committee comprising top-level management. This central group of stewards is responsible for providing initial level support to project management, and for sharing knowledge within organisational departments. Mahmoudsalehi, Moradkhannejad and Safari (2012) commented that the collaboration between different levels of management results in the teaching and training of employees and sharing common goals and strategic principles of KM. The KM structure of the organisation has four main responsibilities: providing the
resources and environment that makes knowledge visible; growing and intensifying knowledge; infrastructure development; and development of a knowledge culture (Mahmoudsalehi, Moradkhannejad & Safari 2012).

According to Abokhodiar (2014), the main structural problem for KM in countries like Saudi Arabia is the dominance of centralised governance, which restricts the growth of knowledge. Australia, by contrast, has an international infrastructure that promotes the establishment and implementation of an appropriate structure for KM.

There are numerous ways in which organisations can structure governance of their KM initiatives. Several components have generally been found to be critical. These include a steering committee, a central KM support group, and owners or stewards throughout the firm who are responsible for KM. This can be achieved via a combination of decentralised and centralised approaches (Asoh, Belardo & Crnkovic 2007; Safavi & Håkanson 2018). Organisational structure provides the context for the failure or success of previously established KM (Chen, C-J, Huang & Hsiao 2010; Walczak 2005). Increased flexibility within the structure of the organisation enhances the creation of fresh knowledge.

The features of organisational structure have a critical impact on a firm’s innovation and productivity (Liao, S-h et al. 2004). Organisations have the capacity to execute, implement, and effectively coordinate diverse activities via a workflow operational mechanism. Key elements of organisational structure that relate to KM are formalisation, integration, and centralisation (Chen, C-J, Huang & Hsiao 2010; King 2008). Formalisation refers to the extent to which jobs in the organisation are standardised, as well as the degree to which the behaviour of employees is guided by procedures and rules. Standardisation ensures that employees engage in similar behaviours. In organisations with very low formalisation, job behaviours are comparatively unstructured and workers have greater freedom and democracy in handling the demands of various tasks (Nejatian et al. 2013). Both terms freedom (more individual) and democracy (more institutional), even though different, are interrelated. Democracy addresses how affairs will be conducted in the public sector. Freedom however is more concerned with the relationships among people in the private sector. Democracy is greater when individuals vote on the matters assigned to
the public sector (Schmidt & Pavel 2018). Centralisation refers to the existence of a focal point for decision-making and evaluation (Berraies, Chahe & Yahia 2014).

Organisational structure has also been identified as a key enabler of Nonaka’s KCS process. According to Jaleel and Verghis (2015), KM relies on the use of an organisational chart to determine the delegation of power, roles and responsibilities. This tool controls and coordinates the flow of information among different management levels.

Organisational structure can encourage KM implementation (Hopper 1990; Nejatian et al. 2013; Steiger, Hammou & Galib 2014; Tyulkova 2014; Willem & Buelens 2009). Jeng and Dunk (2013) noted that organisations are required to maintain consistency between their structures to put their knowledge to use. They have identified the key dimensions of the organisational structures i.e. formalisation, centralisation and integration, and the ways they can potentially be used to create knowledge. Organisations should be structured to create the foundation for KC and act in line with the KM system. It needs to be flexible to encourage KCS across organisational boundaries (Berraies, Chahe & Yahia 2014; Steiger, Hammou & Galib 2014; Willem & Buelens 2009; Yeh, Y-c, Huang & Yeh 2011).

2.3.3.1. Formalisation

Businesses with a highly formalised structure have explicit procedures and rules that can impede the flexibility and spontaneity required for internal innovation (Berraies, Chahe & Yahia 2014; Jeng & Dunk 2013). Standardisation is required to remove as far as possible the effects of differences in employees’ perspectives and behaviours based on their willingness to comply with the rules and policies that govern organisational decisions and working relationships (Lee, J-Y, Kozlenkova & Palmatier 2015). In a structure with low formalisation, job-related behaviours are comparatively unstructured and there is greater freedom to deal with task demands and to create and share new knowledge (Espinosa & Lindahl 2016; Jeng & Dunk 2013; Nejatian et al. 2013).
2.3.3.2. Centralisation

The structure of the organisation is based on an enduring task configuration and related activities. Centralisation refers to the extent to which decision-making power is focused on the top organisational levels (Islam, Jasimuddin & Hasan 2015). Ibrahim and Heng (2015) and Razi and Karim (2010) argued that a decentralised structure enhances the success of KCP, while high levels of centralisation can inhibit interaction between members of the organisation and decrease opportunities for individual growth and the imaginative resolution of different challenges. In a centralised organisational structure, the responsibilities for decision-making and the exercise of power are held by a few key leaders (Berraies, Chaher & Yahia 2014).

Organisational structure is considered to be as important as culture for KM success, and flat organisational structures with few hierarchical levels are generally found to promote more knowledge sharing since they enhance interaction and communication between employees (Claver-Cortes, Zaragoza-Saez & Pertusa-Ortega 2007).

2.3.4. Information Technology Infrastructure

The efficiency of the KM process depends on the availability of appropriate information technology infrastructure (IT) (Al-Kurdi, El-Haddadeh & Eldabi 2018; Alazmi & Zairi 2003; Mills & Smith 2011). Some countries currently face problems implementing KM because they lack the technology that enables knowledge sharing. This is the situation in Saudi Arabia, where lack of understanding of IT in HEIs has resulted in the low ranking of the country’s educational system (Alshwaier, Youssef & Emam 2012). In comparison, the Australian Government has made significant contributions to IT infrastructure development through programs such as ASHER and IAP (Industry Govt. AU, 2017).

Nevertheless, Sandhu, Jain and bte Ahmad (2011) argues that, for IT to become a success factor for KM, organisations should develop an approach and content that reflect the needs of their users. It is important to establish common portals for knowledge sharing, that databases contain sufficient details, and that the systems support future growth. Appropriate training is also vital to ensure that individuals know how to use the information and communication technology (ICT) correctly.
The practice of KM is almost exclusively related to information and communication technologies (Alazmi & Zairi 2003; Chong, Siong Choy & Choi 2005). This not only helps disseminate structural knowledge, but it also generates new knowledge. Therefore, institutions need to improve their technical infrastructure with regard to portal linkages into the intranet, knowledge repositories and document management systems. The availability of wireless networks provides learning institutions with the tools they need for successful KM (Davenport, Thomas H., De Long & Beers 1998).

It has been argued that ICT is the single most important factor in successful KM (Alazmi & Zairi 2003). It plays a pivotal role in the management and organisation of knowledge through various channels that can be used to acquire, store, share, disseminate, and categorise knowledge, and to reuse knowledge more rapidly. It also provides a convenient means of exchanging knowledge between and within organisations. It allows organisations to effectively exploit various forms of knowledge derived from the information and data that are collected and generated in the teaching and learning process (ZadJabbari, Wongthontham & Hussain 2010).

KM plays a major role in supporting the conduct of research, as well as outreach services. Additionally, ICT supports both knowledge processes and workers via easy access to organised information (Ardichvili 2002; Chong, Siong Choy & Choi 2005). It also enhances communication and interaction between knowledge workers, in groups and individually. Use of the Internet and the World Wide Web has expanded rapidly in higher education. A large number of web-based tools have impacted on the professional, academic and social lives of individuals due to their ability to support knowledge exchange, sharing and collaboration between different parts of the organisation. As a result, many HEIs have implemented various forms of information and communication technologies to enhance KM between and within institutions. These include global search registries like Yahoo, Microsoft and Google; digital libraries or knowledge repositories; academic exchanges and content; communities of practice; electronic academic publishing; individual knowledge networks; and social communities of interest (Oberhauser 2007).

IT involves more than merely processing data and information. It aids in communication between individuals though chat rooms, video conferencing and
email, among others. It also plays an increasingly important role in KM (Willem & Buelens 2009).

In the absence of a solid IT infrastructure, organisational workers are unable to share various kinds of information effectively (Ardichvili 2002; Gasson & Shelfer 2007). While some organisations fail to develop an appropriate infrastructure, others place great emphasis on IT. Generally, KM initiatives do not involve software applications that provide platforms for information sharing (Kebao & Junxun 2008).

A number of CSFs for proper implementation of KM are linked to IT. These include:

- **Approach.** The individuals who are involved with the implementation of KM are encouraged to take time to understand the various needs of their users. It is important to match the KM system to specific objectives (Kebao & Junxun 2008).

- **Content.** With similar focus on the needs of users, the development of good content entails putting in place processes aimed at acquiring, managing, validating and delivering relevant information when the information is required.

- **Joint platforms.** When there is a standard organisation-wide architecture, there is always sustainability and scalability of KM initiatives. By understanding the infrastructure of the organisation at very high levels, steering committees can guide the KM team to select appropriate technology. In some cases, institutions realise the need to completely overhaul their IT infrastructure before they can expect their workers to share their knowledge.

- **Simple technology.** When it takes more than three clicks to acquire knowledge within a given system, users tend to get frustrated. A common mistake made by firms in relation to the delivery of information is to emphasise explicit knowledge. Though the main use of technology is to deliver explicit knowledge, when there is too much emphasis on it, users lose the context of information sharing. This leads to misunderstandings about how information is supposed to be interpreted (Fugate, Stank & Mentzer 2009).
• **Enough training.** KM is generally enabled by sufficient technology together with individuals who are familiar with the way it is supposed to be used. Examples of best practice indicate that a major KM group ought to spend a large amount of its time guiding, teaching, and coaching users on how they can use the system to interact and communicate as well as share knowledge and information with each other (Kebao & Junxun 2008).

IT also plays a vital role in Nonaka’s KCS process. It is responsible for managing and sharing databases and all other forms of explicit knowledge (Alazmi & Zairi 2003). Databases, information centres and dissemination of the databases need to be effectively and efficiently supported to enhance KM and knowledge sharing within the business (Kumar, Jain & Tiwary 2013). This includes ensuring that all aspects of the business are integrated and that responsible personnel are linked with the knowledge they need. This is important for KC as well as knowledge sharing (Razi & Karim 2010).

The use of IT in supporting KM is demonstrated in the extent to which IT supports collaborative work, communication, searching, accessing, simulation, prediction, and systematic storing of information and data (Lee, H & Choi 2003). Many researchers have highlighted the importance of IT infrastructure in supporting KCP (Berraies, Chaher & Yahia 2014; Jeng & Dunk 2013; Prax 2003). IT makes available a range of tools - such as internet, intranet, groupware, workflow, datamining, and videoconferencing - to help organisations manage knowledge. It allows people to connect with reusable codified knowledge and provides a conduit between newly created knowledge (Berraies, Chaher & Yahia 2014; Kuo & Lee 2011).

These technologies have a catalytic influence on the development and systematisation of KM practices (Alshahrani 2016). Davenport, Thomas H., De Long and Beers (1998) argued that IT infrastructure enhances collaboration, knowledge discovery and rapid decision-making. With these technologies, organisations can absorb vast amounts of information, and share, apply and create knowledge (Gold, Malhotra & Segars 2001). Nejatian et al. (2013) provided evidence for the effect of IT infrastructure on knowledge generation, transfer, codification and storage. According to Lee, H and Choi (2003), IT support promotes KCP and is not restricted to transfer of codified knowledge. These conclusions, however – as the authors
themselves acknowledged – were derived from an empirical study that they conducted in Korea.

2.3.5. Measurement

Knowledge management can be evaluated using different models and measurement techniques. The KM process involves acquiring, converting, applying and protecting knowledge within a structural, cultural and technological infrastructure. These vital organisational capabilities have the potential to significantly and positively impact on the performance and effectiveness of organisations. Performance measurement is defined as the collection of data and information about the effectiveness and productivity of individuals, groups and organisations, suggesting its association with key areas such as expansion, innovation and productivity (Carneiro 2001).

Measurement provides indicators and benchmarks from which organisational goals, performance and improvements can be calculated. Developing measures for a defined set of criteria is imperative for a KM initiative, since this allows those involved in KM to estimate the impact of KM on the organisation’s most critical business processes and provide evidence of its value (Chong, Siong Choy & Choi 2005; Conley & Zheng 2009; Hariharan 2005). There is evidence to suggest a positive relationship between performance measurement and successful implementation of KM (Moffett, McAdam & Parkinson 2003). Use of a combination of quantitative (e.g. financial) and qualitative (intangible and non-financial) measures is recommended for this purpose (Wong 2005).

According to Suppiah and Singh Sandhu (2011), most organisations avoid measurement as they consider this to be an investigation of their income and returns on investment. Measures indicating the presence of knowledge flow, sharing or transformation indicate the efficiency of the current operations or strategies. AF Ragab and Arisha (2013) observed that the development of a link between KM strategies and core business outcomes increases the flow of knowledge. HEIs should critically evaluate the efficiency and innovative practices of KM at the global level rather than acting in isolation from the external environment. Saudi Arabia is a country that embraces both traditional and modern lifestyles, and religious rules set
certain limitations (Titi Amayah 2013). In the current circumstances the management of tacit and explicit knowledge remains difficult despite government efforts.

Some individuals worry about measurement because they associate it with return on investment. They are often unsure about how to connect KM efforts to return on investment (ROI) (Aljanabi 2007). The ultimate purpose of gauging the effectiveness of KM initiatives is to determine certain forms of ROI, and there are numerous intervening variables that can impact on outcomes. Hence it is important to correlate various KM activities with business outcomes.

KM implementation involves management efforts in acquiring, creating, storing, diffusing, sharing, developing, and deploying knowledge for use by various groups and individuals (Kebao & Junxun 2008). This includes compiling information on the effectiveness and productivity of individuals, groups and larger institutional units. Such information is essential for organisational development (Chong, Siong Choy & Choi 2005; Ramachandran, Chong & Wong 2013). While it is the least developed feature of KM, it is vital to measure performance outcome subsequent to implementing KM. The impact of KM can be measured by demonstrating the extent to which intellectual resources in an institution are being used and institutional knowledge is being converted into improved performance.

KM performance measurement programs enhance the detection, mapping, examination and dissemination of intangible assets, knowledge flow patterns, social networks, essential knowledge issues and best practices in an institution. They are crucial for control, assessment and enhancement of knowledge practices and to ensure that the KM remains on track (Ramachandran, Chong & Wong 2013). According to the Nonaka model, however, any practical analysis or assessment of spiral knowledge formation is an unattainable task (Bratianu 2014).

A KM value chain consists of four main activities: creation of knowledge, storage of knowledge, distribution of knowledge, and application of knowledge (Lee, C & Buckthorpe 2008). A knowledge chain model can also be described in relation to primary activities, such as selection, acquisition, internalisation, externalisation and generation, and secondary activities such as coordination, leadership, control and measurement.
2.3.6. Training

Appropriate training is essential for the successful implementation of KM in learning institutions. Every member of the organisation is required to manipulate certain aspects of KM - for instance, technical aspects of IT (Hameed & Badii 2012; Jeng & Dunk 2013; Nejatian et al. 2013; Tsui et al. 2009). Training also provides opportunity, through the introduction of commercial and non-commercial incentives, to reward excellent performance and innovative thinking. Rewards are an important way of encouraging creativity and sharing. Hence, everybody in the institution benefits from training (Ramachandran, Chong & Wong 2013). Training and development of employees have two interrelated impacts on the organisation - increasing the knowledge base of the workforce, and motivating the workforce. Motivation in learning can facilitate the process of KCS since explicit knowledge gained during training can be shared to make it tacit knowledge. Training and development are key influences on the overall development of knowledge based organisations (Hislop 2013).

Employees make significant contributions to achieving organisational objectives. The extent to which knowledge and information are shared by employees also plays a major role in delivering competitive rewards to the organisation. Most authors describe employee training as the CSF of KM, since employees’ unique knowledge and skills are critical resources for the achievement of competitive advantage (Lee, V-H et al. 2013; Pawlowski & Bick 2015). Wang, S, Noe and Wang (2014) argue that the involvement of employees is a means of engaging the knowledge flow and sharing information. Management is responsible for the regular provision and quality of employee training. This not only enhances their skills but also helps to coordinate diverse sets of information and knowledge that are useful for solving complex organisational problems. According to Talib, Rahman and Qureshi (2013), from the perspective of Total Quality Management, employee training is a potential problem-solving technique.

2.3.7. Employees and their Involvement

Employees’ involvement in organisational activities, where they are responsible for achieving a set of goals and objectives, is believed to motivate their efforts and lead
to further contributions (Wang, S, Noe & Wang 2014). Forcada et al. (2013) commented that encouragement and appreciation of employee involvement makes a social contribution within the organisation. In the context of globalisation, it is widely perceived that growing employee participation strengthens decision making within organisations and that the efficiency of the interactions diminishes the need for close supervision. There are, however, important cultural differences between countries, some of which do not encourage employee involvement. Alhussain (2011) observed that the centralisation characteristic of Saudi Arabian organisations restricts employee participation, since decision-making is confined to high level management and interaction and communication are highly hierarchical, which limits knowledge sharing and the efficient growth of employee creativity. In contrast, employees’ involvement is highly valued in decentralised Australian organisations, which encourage the sharing of knowledge (Guillaume et al. 2017; Wiewiora et al. 2013).

The execution of KM involves the participation of leaders as well as members of staff (Abou-Gamila, Abdulla & Abdel-Razek 2015; Chumjit 2013). For the practice to be successful, the principles have to be applied within the organisation’s hierarchy. The exchange of knowledge has to be distributed within the organisation from bottom to top. Every member of staff needs to be included and encouraged to actively participate. This is also critical since knowledge formation and collaboration should be accurately aligned and incorporated across the institution (Obeidat, Masa'deh & Abdallah 2014; Sedighi & Zand 2012).

Creation and sharing of knowledge cannot be achieved without employees’ involvement. The knowledge that is thus created and shared enhances the knowledge base of the workforce to the benefit of the organisation and employees’ own performance (Chong, Siong Choy 2006; Lee, H & Choi 2003). However, it is also necessary for the organisation to provide the necessary training and development to its workforce. When employees work in a team, they tend to be highly effective since teamwork balances out strengths and weaknesses and generates energy (Holsapple 2013).

Individuals are also pivotal to the success of Nonaka’s KCS process. They are at the centre of organisational knowledge creation (Eppler & Sukowski 2000; Gottschalk 2002; Scott 1998). There is a saying that KM is 10% technology and 90% people
(Scott 1998). Updated knowledge can be acquired by admitting new people with specific skills (Chumjit 2013; Nonaka & Takeuchi 1995). T-shaped skills embodied in employees are amongst the core capabilities in the KM field (Berraies, Chaher & Yahia 2014; Starbuck 1992; Stonehouse & Pemberton 1999). T-shaped skills refer to specialist capabilities that allow employees to have significant and synergistic conversations with one another (Hafeez-Baig & Gururajan 2012a; Swap, Leonard & Mimi Shields 2001).

T-shaped skills represent the depth of skills and expertise in a particular field. Such skills can be deployed in collaboration across different disciplines and areas of expertise. An organisation with T-shaped skills has a skilled workforce that is dedicated to the organisation and has a wealth of knowledge. When an organisation hires knowledgeable individuals, the knowledge base of the entire organisation increases and facilitates knowledge creation and sharing. Tacit and explicit knowledge can help the business to grow and develop an effective and efficient knowledge base (Andreeva & Ikhilchik 2011; Berraies, Chaher & Yahia 2014; Finley & Sathe 2013).

2.3.8. Teamwork

Teamwork is effective in initiating KM as the group brings employees with distinctive skills and knowledge together, thus enhancing the distribution of knowledge (Jiménez-Jiménez, Martínez-Costa & Sanz-Valle 2014). It has been suggested that the formation of teams within an organisation involves a process of skills diversification that can lead to the efficient handling of organisational processes and critical problem-solving (Chuang, Jackson & Jiang 2016). According to Calvo-Mora et al. (2016), corporates in the current era are highly engaged in future learning and development of their employees, via the provision of education programs or recruitment from universities (Alsaiai 2015; Arvin, Akbari & Moghimnejad 2014). On the other hand, bureaucratic organisation restricts the sharing of knowledge. Thus, the growth of KM has been limited in most Saudi Arabian organisations. In decentralised Western organisations, such as those in Australia, the formation of multicultural or otherwise diversified team structures enhances the effectiveness of KM (Bechtold 2014; McDonnell et al. 2014).
The best way to ensure that employees are involved in KM is through teamwork. This can be achieved through the development of team-building activities that require employees to function as a group (Chong, Siong Choy & Choi 2005). It also leads naturally to the sharing of knowledge. Teamwork can be employed during training and innovation programs. It is vital to create a friendly culture in which KM can be integrated, since the ability of workers to function as a team is crucial. Teamwork can also be used to improve the learning process (Kandel et al. 2000).

2.3.9. Employees’ Empowerment

According to most researchers, knowledge sharing is neither efficient nor effective without the empowerment of employees (Amah & Ahiauzu 2013). This is the motivational element that leads people to perceive themselves as self-efficacious in organisational activities such as decision making. Kianto et al. (2014) argued that employee empowerment strengthens the application of skills and knowledge since the individual feels focused, motivated and responsible for resolving complex situations. KM plays a significant role, as sharing enhances strategic innovations, aligns performances, and results in higher effectiveness (Gong, Zhou & Chang 2013). Cheruiyot and Maru (2013) observed that in both private and public sector HEIs, employee empowerment benefits organisational growth. For instance, greater commitment to responsibilities generates more interest in developing innovations through higher learning, and greater job satisfaction. It also increases the ability to interact, resulting in effective discussions. Devaluation of employees, by contrast, results in lack of communication, expertise is constrained by standardised rules, and organisational growth is limited.

A sense of entitlement or belonging encourages commitment and, thus, participation. It also creates a conductively work environment and ultimately leads to increased productivity. When the leaders of an organisation introduce KM, employees’ attitude toward the practices will determine their participation and the success of its implementation (Ramachandran, Chong & Wong 2013). In other words, they have to be empowered in order to own the KM practices. This can be achieved by having employees participate in decision making in matters that affect the entire organisation. Employees can also be given new tasks and provided with information to enable them to make the right choices. Empowered employees have the authority
to do their job as they see fit. Empowerment, however, must be preceded by appropriate training and development (Andreeva & Ikhilchik 2011). KM practices require the workforce to make independent yet correct decisions. As previously mentioned, a team environment is beneficial (Hislop 2013).

2.3.10. Knowledge Structure

Knowledge structures vary depending on the size, granularity and modelling paradigm of an organisation. Knowledge structure is established based on an understanding of its benefits and development and maintenance costs for the organisation (Kim, HW & Mun 2012; Wong 2005). For instance, the ability to reuse a structure can be economically feasible. A learning institution is centred on knowledge formation, acquisition and diffusion. The model has to incorporate socio-technical factors. This will foster effective teaching and learning (Chin Yi Lee & Nissen 2010).

2.3.11. Organisational Strategies

In the context of KM, universities have objectives and responsibilities, which may include the development and transfer of knowledge to individuals under strategic reforms (Akhavan, Hosnavi & Sanjaghi 2009). Organisational success is highly dependent on developed strategies, as they provide a vision and guidelines to employees. The efficiency of the strategies also supports sharing of the knowledge. Real, Roldán and Leal (2014) identified two types of KM-based organisational strategies: personalisation and codification. Codification refers to the storing of knowledge, its dissemination and re-use, while a personalisation strategy provides the facilities for individual-based KM, that is, the development of interactive networks through which the transfer and sharing of knowledge occur. Swift and Hwang (2013) and Chuang, Jackson and Jiang (2016) argued that knowledge-based organisational strategies are mainly for economic purposes, as they promote the individual’s efforts and contributions beyond short-term profitability maximisation. The significant contribution of KM strategies is that they reflect distinctiveness through allocation of resources (Becheikh et al. 2010). Hence, the deployment of knowledge-based organisational strategies is as one of the success factors of KM.
Appropriate implementation strategies and the necessary resources must be in place for KM practices to be successful (Alan 2006; Becheikh et al. 2010). The availability of information technology, uniform alignment with the institution’s framework and operational processes throughout the organisation are vital for effective KM (Gold, Malhotra & Segars 2001). A variety of organisational strategies can impact on the KM process. Strategies ranging from employee management to decision-making can all influence the entire process (Alan 2006; Bayyavarapu 2005). Organisational strategies define the working practices that derive from the organisational environment and, eventually, the entire organisational culture. Every element of the organisation should be aligned with the long-term objectives of the firm, which requires having a knowledge-based culture. Such organisations are always in a learning phase and are therefore called learning organisations; this means that they continuously gain more information, convert information into knowledge, and help members to absorb and utilise that knowledge. These multiple strategies facilitate collaboration, teamwork, socialisation and interaction, and streamline the entire process of KM (Sarayreh, Mardawi & Dmour 2012).

2.4. Knowledge Management in the Context of Higher Education

Numerous studies of KM have been conducted in HEIs. KM is significant in HEIs for a number of reasons. The way in which HEIs approach KM can result in significant improvement in the sharing of explicit and tacit knowledge. Research has identified the benefits of KM for the processes of HEIs such as research, curriculum development, alumni and student services, and administrative services. Elrehail et al. (2018) stated that innovation in HEIs is considered the ability to implement a new proactivity reinforced the organisational method, process and product which has a significant effect on the activities of HEIs and its stakeholders.

To build a thriving knowledge environment, HEIs need not only to consider past technology but also to develop a general culture of effectively accessing, managing and sharing knowledge (Kucharska & Kowalczyk 2016; Ranjan & Khalil 2007). The creation of a KM system within HEIs is vital in order to capture, identify, transform, evaluate, disseminate and consolidate institutional knowledge (Sedziuviene & Vveinhardt 2009). According to Bhusry, Ranjan and Nagar (2011), HEIs are
responsible for creating and supplying knowledge using different processes and activities. The number of HEIs around the world is growing as demand for higher education has increased. Hence it has become important for them to focus on implementing KM systems, techniques and approaches (Cranfield 2011). The growing number of institutions has resulted in increased levels of competition and pressure. These changes affect both academic and administrative processes, and the institutions face the challenge of effectively managing the process of knowledge sharing.

The implementation of a KM approach has helped HEIs to gain an integrated view of KM applications, which can be used to improve knowledge sharing processes (Omerzel, Biloslavo & Trnavcevic 2011). Management are utilising these systems to provide effective leadership and enhance their planning and decision-making processes (Elrehail et al. 2018). Research has shown that KM techniques and approaches play a vital role in enhancing the overall supply of education and knowledge. It improves the level of competence and knowledge shared by institutions (Suryadi 2007).

Some researchers have identified the need for HEIs to provide materials for familiarising people (teachers, students, researchers, and industry and external business entities) with advances in technology (Sunalai & Beyerlein 2015). They emphasise that HEIs should encourage strategies and innovative approaches that support different actors to manage, share and apply their knowledge. According to Menkhoff et al. (2015), KM can improve student retention and graduation rates. In the current complex knowledge environment, HEIs need to be constantly innovating, analysing, evolving, investigating responding to and predicting threats and opportunities. Most HEIs, however, do not access, store and deliver knowledge in this way (Masa’deh et al. 2017).

HEIs also need to avoid activities unrelated to knowledge, and their staff members need to identify and respond to their changing role in the current KM society. Siadat et al. (2015) proposed that universities should consciously and explicitly maintain the processes related to the creation of their knowledge assets, and identify the importance of their intellectual capital to society.
Two different dimensions of KM have been identified in HEIs. Academic knowledge results from the learning and teaching activities that are the core purpose of educational institutions. Institutional knowledge results from the knowledge of the entire institution, including its weaknesses, strengths, CSFs and links to research centres (Lin, P-C et al. 2013). Bhusry and Ranjan (2012) argued that KM practices can benefit institutional processes such as research, faculty development, student learning and teaching, curriculum development, recruitment and overall control of facilities such as the library and computer labs.

Nawaz and Gomes (2014) argued that KM is the core process for organisations in the present challenging and complex world. The main focus of the KM approach is to change tacit knowledge into explicit knowledge. According to Pircher and Pausits (2011), since codified knowledge is easy to use and share, the focus should be on knowledge that offers a competitive edge – that is, tacit knowledge. HEIs create knowledge through administrative and academic processes. Knowledge can be shaped as explicit knowledge in the form of procedures, experiences, documents and awareness that exist among individuals (Almudallal, Muktar & Bakri 2016). The current higher education context presents challenges to accessing tacit and explicit knowledge as a centralised resource, Siadat et al. (2015) observed that making and capturing the available institutional knowledge will ensure continuity and accelerate the development of new institutional knowledge.

The most difficult task faced by HEIs is integrating their organisational knowledge for effective sharing and improved decision making. Knowledge is shaped in different ways at different levels, and each level needs it in a particular form. One purpose of KM in HEIs is to integrate the information generated at different levels and use it to achieve institutional targets and goals. KM can also contribute to capacity development, operational quality and improved performance and productivity (Cranfield 2011).

A holistic KM framework, proposed by Delen and Al-Hawamdeh (2009), takes account of the rapid development of communication technologies and the huge quantity of digital information and resulting information overload (Delen & Al-Hawamdeh 2009). Also relevant are factors such as staff retirements and the need of the organisation to effectively use their intellectual capital in order to compete. The
highly integrated framework contains several interdependent modules that are
designed to perform various knowledge cycle activities such as creation, extraction,
storage, and use or reuse of knowledge. The growing interest in knowledge
discovery, management and transfer is the result of various factors, including
advances in technology. Knowledge loss, resulting from internal and external factors
such as resignations, lay-offs, restructuring, outsourcing, and retirements, can have a
negative impact on any kind of organisation.

With the huge quantity of information that is being added to various corporate
databases, as well as the daily input from the internet, efficient and effective
discovery of knowledge has become a common problem (Delen & Al-Hawamdeh
2009). The deployment of increasingly sophisticated technology, and the growing
availability of knowledge, means that KM has become a pressing issue for
institutions that have not attained the level of routinisation recommended by extant
research (Delen & Al-Hawamdeh 2009).

Several vital success factors for the implementation of KM in organisations have
been identified by Butler and Murphy (2007). Other researchers have identified the
benefits of KM practices to organisations and provided advice on the implementation
of KM in HEIs (Petrides 2004; Petrides & Nodine 2003; Rabbani & Moazzeni 2012).
Chen, F and Burstein (2006) and Aswath and Gupta (2009) identify three key
factors: people, policy/processes and technology. The people component refers to
technology experts, knowledge professionals, knowledge managers and students.
Technology covers all related technology, including hardware and software (Al-
Kurdi, El-Haddadeh & Eldabi 2018; Robertson & Caroline 2005).

HEIs are always engaged in ‘knowledge business’ because they are involved in the
creation and dissemination of knowledge, as well as learning (Ceeez-Kecmanovic
2000). HEIs perform a number of KM activities. These need to be recognised and
used as foundations for further development. HEIs and their staff must also respond
to their ever-changing roles within a society that is based on knowledge. At the same
time, HEIs should be explicitly and consciously managing the various processes that
are linked to the creation of knowledge assets (McCaffery 2013; Ramachandran,
Chong & Wong 2013).
HEIs are knowledge-intensive organisations. During their day-to-day educational activities, they have to acquire, store, utilise, generate and share knowledge (Martin & Marion 2005). In simple terms, they should have the ability to deal effectively with KM in order to train and educate students. As a considerable literature attests, many educational institutions are not prepared to effectively embrace KM and are not fully aware of the crucial significance of tacit knowledge (Toro & Joshi 2012). The present global economy poses huge challenges to the ability of institutions of higher education to meet their learners’ expectations (Chan, I & Chao 2008).

There has been some controversy over the application of KM theories in the higher education context (Alamri 2011; Moss et al. 2007; Sohail & Daud 2009; Steyn 2004; William & Amin 2006). Kidwell, Vander Linde and Johnson (2000), for example, raised concern about whether the concepts of KM can be effectively applied to colleges and universities. The philosophy and mission of most HEIs is primarily instruction and research, which includes KC and sharing. In this situation, the advanced education sector is expected to be well equipped with the capacity to actively grasp KM in order to improve their competitive advantage. Yet, although a few examples can be identified, they represent special cases. The authors recommend that trials of KM be initiated in some HEIs (Kidwell, Vander Linde & Johnson 2000). Leitner (2004) supported this idea, identifying problems with the application of KM in colleges, including its delayed consideration. Serban and Luan (2002) agreed that the implementation of KM in HEIs will facilitate learning, enhance operational productivity and adequacy and, ultimately, increase competitive advantage.

There is evidence to suggest that many HEIs lack a systematic information administration framework or fail to understand such a framework (Kidwell, Vander Linde & Johnson 2000). Cheng, Ho and Lau (2009) argued that gathering as well as sharing information should be a dominant feature of higher education. According to (Garrick 2014), in today’s globalised and competitive tertiary education market, both professional development and practice are required to expose the outdated and outmoded evaluation procedures of 1990s business models and human resources, and introduce enforceable regulations and greater critical reflection to improve KM.
A limited number of studies have examined the execution of KM in HEIs. For example, the contextual analysis of KM activities conducted by Basu and Sengupta (2007) in the Indian Business School showed that information activities were highly individualised and that objectives were mainly set at an individual level rather than from above. The study showed that the culture of KM sharing and learning was more casual and limited to gatherings of colleagues. Slater and Moreton (2007) reported on KM implementation in a UK Information Technology division and offered some rules for KM usage. Similarly, White (2004) conducted a contextual investigation of KM in a scholarly library at Oxford University, concluding that researchers need the insights of KM to help them function appropriately. The author further suggested that such understanding could intensify the need for KM.

It has been proposed that the higher education industry can enhance its intellectual capital by adopting a collectivist rather than individualist approach; such a culture is expected to empower learning creation and sharing within HEIs (Moss et al. 2007). Wright (2008) however argued that more consideration has been given to explicit knowledge within the educational programs of UK colleges, a tendency that may impair the application of implicit knowledge.

Leitner (2004) illustrated a model of learning creation that could be applied in all Austrian universities. The model comprised four fundamental components - objectives, scholarly capital, execution forms and effect. The results suggested that KM can be applied to HEIs, where it will improve the process of learning despite its delayed application.

Yet, very few cases of KM application have been documented, Rowley (2000) reported that the development of inconsequential learning-based exercises is not adequate, even though it is important. She suggested that colleges and their employees should perceive, react and adapt to information-based changes within the community, and that the higher education industry should adopt clear procedures related to the production of their knowledge resources in order to estimate scholarly cash-flow and other outcomes. Kidwell, Vander Linde and Johnson (2000) noted that the use of KM in HEIs has been very limited, despite its huge potential to create activities that provide information to accomplish business goals. Geng et al. (2005)
supported the view that KM can provide HEIs with the capacity to enhance viability in many crucial areas.

Despite its advantages, there is evidence to suggest that organisations lack familiarity with the implementation of KM initiatives (Oliver, R 2002). The author highlighted that the application of KM within the HEIs has not changed regularly and that an adjustment between KM processes and the objectives and procedures of higher education is required (Oliver, GR, Handzic & Van Toorn 2003). Similarly, Geng et al. (2005) stressed that the information needs of an advanced education centre or college do not match corporate needs; their efforts are directed towards sharing learning for the benefit of communities through their partnerships. The author argues that colleges are largely reliant on practices that may not be in line with market practices to create innovation and change within society, which suggests poor implementation of KM procedures. Furthermore, Veer Ramjeawon and Rowley (2017) stressed that dearth of policies and reward mechanisms, resources, data, funding and time for research, coupled with frequent leadership changes, a dearth of a knowledge-sharing culture and research repositories and weak industry–academia linkages make the implementation of KM challenging.

Although only limited examples of KM in HEIs are available, this review showed that KM has largely been used at an authoritative level to promote competitive advantage (Geng et al. 2005). Because of pressures in the higher education industry, HEIs are required to adapt positively to the ever-changing environment and incorporate more administrative apparatuses, particularly KM, to enhance their competitive advantage. They need to grasp learning-driven practices that can facilitate the learning process and enhance the implementation of KCS (Ranjan & Khalil 2007; Slater & Moreton 2007).

Nonetheless KM is being increasingly implemented in higher education and several researchers have reported on the supporting role played by KM in the business of HEIs (Chumjit 2013; Lamont 2011; McCaffery 2013; Songsangyos 2012). These authors noted that, for knowledge to be intensively and beneficially utilised in public and private institutions, employees need to focus on vision, mission and strategies of institutional KM.
A summary of selected literature used in this chapter has been added below for ease of reference.

Table (3-1) presents the summary of the most significant literature of KM in HEIs and CSFs of KM that was selected in this chapter:

<table>
<thead>
<tr>
<th>Author/citation</th>
<th>Title</th>
<th>Type of study</th>
<th>Data collection approach</th>
<th>Key findings/conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rowley (2000)</td>
<td>Is Higher Education Ready for Knowledge Management?</td>
<td>Literature review/Narrative</td>
<td>Analysis of the current literature</td>
<td>Though knowledge-based organisations might appear to have the most to gain through KM, effective KM may need significant change in culture and values, organisational structures and reward systems. Six key areas of leadership influence that emerged in this study; environment manager, network manager, policy manager, crisis manager, knowledge gap manager, and future leader preparation have tremendous control over the knowledge-processing environment and the role of leadership has broader impact than the resolution of knowledge gaps. The result of this study shows that 11 factors including: top management support and leadership, training, knowledge-friendly culture, removal of organisational constraints, team working, employee involvement, employee empowerment, performance measurement, knowledge structure, information systems infrastructure, benchmarking are significant of KM implementation.</td>
</tr>
<tr>
<td>Martin and Marion (2005)</td>
<td>Higher education leadership roles in knowledge processing</td>
<td>Qualitative research</td>
<td>Interview</td>
<td></td>
</tr>
<tr>
<td>Chong, Siong Choy (2006)</td>
<td>KM Critical Success Factors A Comparison of Perceived Importance Versus Implementation in Malaysian ICT Companies</td>
<td>Quantitative research</td>
<td>Questionnaire</td>
<td></td>
</tr>
</tbody>
</table>
| Butler and Murphy (2007)   | Implementing Knowledge Management Systems in Public Sector Organisations: A Case                                        | Action research, Interviews and case study | observation                | The study advocates the empirical reliability of the factors presented in the KMS framework. Yet notwithstanding the
Study of Critical Success Factors

Successful achievement of departmental specific CSFs (institutional factors, KM strategic factors, and organisational factors, regulative influences from the institutional environment, which lay outside the locus of control of the department, led to suboptimal consequences in the use of the KMS in the short-term.

Suryadi (2007)
Framework of Measuring Key Performance Indicators for Decision Support in Higher Education Institution
Analytic hierarchy process (AHP), a technique used in multi criteria decision making
Questionnaire and Delphi Forum

Wright (2008)
Tacit Knowledge and Pedagogy at UK Universities: Challenges for Effective Management
Literature/Narrative review
Analysis of the current literature

Delen and Al-Hawamdeh (2009)
A Holistic Framework for Knowledge Discovery and Management
Conceptual and descriptive
Analysis of the current literature

Sedziuviene and Vveinhardt (2009)
The Paradigm of Knowledge Management in Higher Educational Institutions
The analysis of scientific literature and the comparative analysis of separate informational resources
Literature search and review

It reflects upon what seems to be the predominant attention being paid to explicit knowledge in the curriculum and pedagogy of UK Universities which offer courses entitled KM, and that this may be at the expenditure of more tacit KM approaches. The knowledge extracted in the form of knowledge section is kept in the knowledge repository to be used by the knowledge utilisation subsystem. The codified knowledge is recognised by creating a KM environment by which the sources of valuable knowledge are identified and made available when required. The communication between the user and human professionals and retaining the knowledge minimises integrated knowledge loss and the associated cost.

It reflects upon what seems to be the predominant attention being paid to explicit knowledge in the curriculum and pedagogy of UK Universities which offer courses entitled KM, and that this may be at the expenditure of more tacit KM approaches. The knowledge extracted in the form of knowledge section is kept in the knowledge repository to be used by the knowledge utilisation subsystem. The codified knowledge is recognised by creating a KM environment by which the sources of valuable knowledge are identified and made available when required. The communication between the user and human professionals and retaining the knowledge minimises integrated knowledge loss and the associated cost.

HEIs vision should include KM strategy due to KM becomes a part of higher education philosophy.
Allameh and Zare (2011) Examining the Impact of KM Enablers on Knowledge Management Processes Quantitative research Questionnaire

Bhusry, Ranjan and Nagar (2011) Implementing Knowledge Management in Higher Educational Institutions in India: A Conceptual Framework Qualitative research and pilot study Structured Interview

Cranfield (2011) Knowledge Management and Higher Education: A UK Case Study Using Grounded Theory Sequential, quantitative-qualitative, mixed-methodology, multi-Site case study Questionnaire for quantitative phase and semi-structured interviews for qualitative phase

Lamont (2011) KM Supports the Business of Higher Education Commentary

Omerzel, Biloslavo and Trnavcevic (2011) Knowledge Management and Organisational Culture in Higher Education Institutions Quantitative study Questionnaire

Pircher and Pausits (2011) Information and Knowledge Management at Higher Education Institutions Case study A specific intellectual capital statement (ICS)
Bhusry and Ranjan (2012)
Enhancing the Teaching-Learning Process: A Knowledge Management Approach
Conceptual and descriptive Metadata

Hameed and Badii (2012)
Effectiveness of Knowledge Management Functions in Improving the Quality of Education in Higher Education Institutions
Quantitative study Questionnaire

Rabbani and Moazzeni (2012)
Higher Education and Knowledge Management
Argument Analysis of the current literature

Songsangyos (2012)
The Knowledge Management in Higher Education in Chiang Mai: A Comparative Review
Comparative study Analysis of the current literature

Chumjit (2013)
Knowledge Management in Higher Education in Thailand
Qualitative research In-depth interviews

Lin, P-C et al. (2013)
Analysing Knowledge Dimensions and Cognitive Process of a
Quantitative content analysis Questionnaire (QCA) and lag

The authors found that KM enhances the quality of teaching and learning in TEIs, and emphasise the need for trustworthy research into the benefits and challenges that the application of IT-based KM intervention will provide. Top management support and commitment, improvement technical infrastructure in HEIs, incentives and training on KM practices, a proper KM strategy, the existence of work processes for knowledge capture and use, the existence of KM infrastructure, organisational culture, and learning activities are significantly factors for KM application.

Knowledge is considered as culture or wisdom.

The results indicate that KM utilisation in public institutions is considered in moderate level while in private sector in high level. Also, organisation culture affects KM process in public and private institutes in moderate level. Consequently, the faculty members should focus on vision, mission and strategies of institutional KM if they aim to achieve benefits from the institution.

This study states that understanding KM meanings, the importance of leadership in KM, the community of practices, tools, incentives and recognition, training programs, learning from other’s experience, volunteers, and storytelling influence KM application.

The conclusion indicates that the most protuberant knowledge
Project-Based Online Discussion Instructional Activity Using Facebook in an Adult and Continuing Education Course

Nasiruzzaman, Qudaih and Dahlan (2013)  
Project Success and Knowledge Management (KM) Practices in Malaysian Institution of Higher Learning (IHL)  
Literature review  
analysed 45 selected articles in 2000–2013 as well as another amount of articles about the related era before 2000 literature review

equal cognitive knowledge, while the cognitive practice is primarily focused on understanding and comprehension.

This study proves that gaining proper knowledge and practices, willing and dedicated leadership, strong information and communication technology infrastructure and value based organisational culture influence project success in implementing KM practices in higher learning Institutions and other homogenous organisations.

Najatian et al. (2013)  
Critical Enablers for Knowledge Creation Process: Synthesizing the Literature  
Literature review  
gathering a great number of relevant papers from different academic databases, appropriate works are selected based on several criteria (importance, recentness, and relevance)

This article clarifies that collaboration, trust, and learning (variables of organisation culture enabler), T-shaped skills (variable of employees enabler), and information technology support (variable of technology enabler) have direct and positive effect on knowledge creation process, while centralisation and formalisation (variables of organisation structure enabler) have direct and negative effect on the knowledge creation process.

Ramachandran, Chong and Wong (2013)  
Knowledge Management Practices and Enablers in Public Universities: A Gap Analysis  
Quantitative research questionnaire  
The results from 191 responses of academics of public universities show that KM practices and key strategic enablers (leadership, culture, IT, and performance measurement) are very important but are not used as much

Akhavan and Zahedi (2014)  
Critical Success Factors in Knowledge Management among Project-based Organizations: A Multi-Case Analysis  
Qualitative research, exploratory multi-case study  
Gathering data from previous studies of academics papers by using grounded

This paper illustrates that construct suitable knowledge structure, knowledge strategies, organisation-wide culture, rewards and
theory analysis incentives, educational schemes, information technology, senior management support, Transparency, and good environment are necessary to success implementation of KM.

This study asserts that collaboration, trust, learning, incentives and rewards, decentralised and low formalised structure, T-shaped skills, information technology support and transformational leadership affect significantly knowledge creation process and innovation performance.

Emphasised on the role of KM at HEIs

This study affirmed that leadership commitment, strategic planning, continuous improvement; student focus, process focus, academic staff involvement, training and learning, rewards and recognition, and management by fact have positively effects organisational creation knowledge.

This study found that organisational culture has potential effects on the creation, sharing and application of knowledge. This paper illustrates that individual factors (trust, motivation, interest, attitude, and self-efficacy) shape knowledge sharing.

Tweeting assists students to monitor whether they have fully understood the content taught in class.

The technical factor (i.e. infrastructure) has an appropriate status while Three factors of
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Methodology/Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunalai and Beyerlein</td>
<td>Exploring Knowledge Management in Higher Education Institutions: Processes, Influences, and Outcomes</td>
<td>Integrative literature review approach, Reviews, critiques, and syntheses representative literature</td>
</tr>
<tr>
<td>(2015)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Almudallal, Muktar and Bakri (2016)</td>
<td>Knowledge Management in the Palestinian Higher Education: A Research Agenda</td>
<td>Qualitative, exploratory research, Interview</td>
</tr>
<tr>
<td>Razmerita et al. (2016)</td>
<td>What Factors Influence Knowledge Sharing in Organizations? A Social Dilemma Perspective of Social Media Communication</td>
<td>Quantitative-qualitative, mixed-methodology, Questionnaire for quantitative phase and semi-structured interviews for qualitative phase</td>
</tr>
<tr>
<td>Masa’deh et al. (2017)</td>
<td>The Impact of Knowledge Management on Job Performance in Higher Education</td>
<td>Quantitative study, using Structural equation, Questionnaire</td>
</tr>
</tbody>
</table>
This study states that barriers of KM includes a dearth of policies and reward mechanisms, resources, data, funding and time for research, coupled with frequent leadership changes, a dearth of a knowledge-sharing culture and research repositories and weak industry–academia linkages. On the other hand, enablers are qualified and experienced academic staff in public HEIs, information technology (IT) infrastructure and library/digital library and some incentives for knowledge creation and transfer. This article revealed that there are inadequate contributions in understanding knowledge sharing in HEIs when linked with other sectors. The review provides a number of avenues for future research including technological, cultural, organizational, and behavioral aspects at different levels.

### 2.5. Research Gap

Research scholars have observed that, in the conduct of any research, it is necessary to identify gaps by exploring the extant literature. Such a review helps researchers develop an understanding of what is not known about the research topic and where learning can occur (Akanji, Mordi & Ojo 2015). According to Reid et al. (2011), identifying the research gaps helps to guide the research and strengthens the research methods and approaches. The identification of research gaps contributes to the creation and sharing of new insights about the research problem, which in turn leads to the success of the study.
Despite the numerous research studies that have applied Nonaka’s KC model, very few report the CSFs that contribute to its proper implementation in higher education. The model has become very influential worldwide and is widely acknowledged within the KM community (Andreeva & Ikhilchik 2011), but there is little evidence of its application in higher education.

Previous research has explored the advantages and deficits of Nonaka’s model in the business sector (Bratianu 2014; Huang & Lai 2014; Nonaka et al. 2014). Its limited application in HEIs is due to several factors. First, the HEIs need to understand the organisational goals associated with the model and its application in practice. They need to understand and pass on the KCS procedure to their partners so that the procedures are communicated adequately. The proper implementation of Nonaka’s model requires understanding of some basic concepts, including cognitive processes of knowledge conversion (tacit/explicit to tacit/explicit knowledge), societal and organisational conditions and management or organisational tools that facilitate these cognitive processes and connect them to each other according to organisational goals (Andreeva & Ikhilchik 2011). The relationship between these elements, however, should be changed according to the prerequisites of the model, which are mainly rooted in culture. This is a significant factor that has been a matter of debate over the applicability of the model in different contexts (Andreeva & Ikhilchik 2011).

The success of Nonaka’s model is also subject to the link between knowledge workers (Hislop 2013). KCS cannot be accomplished without workers' participation. New insights are generated and shared when knowledge workers interact and communicate. It is, however, important to recognise that the workers’ participation requires its own particular information structure. Sometimes, the learning structure is open and flexible and everybody can enter into dialogue. At other times, the learning is too rigid to create and share new ideas. Holsapple (2013) argued that, in making information, it is essential that everybody is included in the learning process and has some information about the issue under investigation.

The current literature review was conducted with the aim of developing an understanding of how CSFs could enhance KCP in HEIs. There is a great body of research that has documented the application and implementation of KM in the
business and industry sectors, but very little research evidence about the implementation of KM in higher education.

The role and impact of KM systems have increased over time and technological advances have brought a number of changes to the education sector. There is a need to substantiate the great body of knowledge on KM application within the higher education context and explore ways of enhancing its implementation in HEIs. Researchers have examined the approaches, strategies and procedures of KM and their influence on HEIs, their curricula, courses, structure and procedures. Cranfield (2011), for example, suggested that KM practice has been the main factor in the development and sustainability of higher education in developed nations, suggesting that educational institutions need to focus continuously on enhancing the knowledge basis of their policies, standards, procedures and systems. This means that KM and higher education systems are interconnected in many ways. Few recent studies, however, have investigated the applicability of KM in HEIs, particularly in relation to identifying the CSFs (Andreeva & Ikhilchik 2011; Arvin, Akbari & Moghimmnejad 2014; Bashar, Ammar & Rakam 2012; Nejatian et al. 2013; Tammets 2012).

KM and its proper implementation has become one of the biggest challenges faced by academic institutions (Genzic, Grgic & Gujic 2014). The primary objective of higher education is to produce and disseminate knowledge to students. According to Nawaz and Gomes (2014), KM is one of the most important aspects of an organisation, assisting them to create value and achieve sustainable competitive advantage. Educational institutions also believe that KM is one of the tools that can help to achieve the organisation’s purpose of sharing knowledge and improving the level of understanding of students. Previous research has largely focused on how KM can support HEIs but has failed to provide any effective management or measurement tools for scrutinising the educational output. The literature shows that HEIs have integrated KM systems in their practices within the last decade in order to enhance their output and to achieve their strategic goals and objectives. The literature, however, has only focused on the technical aspects of KM without considering the value and importance of the human capital involved in the process (Almudallal, Muktar & Bakri 2016).
Previous studies have also mainly focused on the inputs and outputs of HEIs but have failed to provide information on how the level of KM can be measured and managed adequately and what factors contribute to the proper implementation of KM (Badah 2012; Baranova-Ciderova & Mayer 2010; Hameed & Badii 2012). The perspectives of education providers on KM are vague and subjective.

A review of literature shows that KM plays a key role in enhancing the overall performance of the education system (Bhusry, Ranjan & Nagar 2011; Moss et al. 2007). The literature, however, fails to provide evidence on the mismatch between the demands of education and the level of output of the higher education sector. While previous research emphasised the technical aspects of KM and its integration in the new system of education, many factors that can influence its implementation have been marginalised or ignored. For example, little is known about the impact of knowledge workers’ experience and their understanding of knowledge on KM (Sunalai & Beyerlein 2015).

Over time, HEIs have faced various types of challenges. In the 21st century, they are exposed to more economic and financial risks. The global economy is rapidly changing and evolving and the higher education sector is facing a more interconnected economy in which innovation, knowledge, creativity, and acceptance are the most important considerations (Alamri 2011; McCaffery 2013). As societies change, the demand for education has also evolved. The present era is commonly referred to as the age of knowledge, where knowledge is considered as a key strategic resource. HEIs today face different challenges to those they confronted in the past and will experience a range of intense internal and external pressures in the future (Biloslavo & Trnavčević 2007). Yet, the available literature has largely failed to address this research gap. The aim of the present study is to identify the CSFs that enhance the implementation of the KCS process in the context of higher education.

It is widely accepted that HEIs are the main instruments for social improvement. According to Yeh, YMC (2011), KM in education settings focuses on developing a connection between individuals, processes and technologies. HEIs promote practices and policies that help people share and manage knowledge together. The literature, however, is limited in its identification of the different types of knowledge (organisational knowledge and academic knowledge) that are involved in higher
education settings. Organisational knowledge is defined as deep understanding of the overall business of the institution. It includes understanding of strengths, weaknesses and the business market it serves. Organisational knowledge is based on understanding the CSFs of the business. Academic knowledge, on the other hand, constitutes the basic purpose and goal of HEIs, including colleges and universities (Cranfield 2011).

The focus of HEIs is on creating a culture of sharing knowledge and information. The primary goal is to make knowledge visible by building an effective knowledge-based infrastructure (Dhamdhere 2015). Within the academic framework, HEIs can take advantage of different strategies to develop KM ecologies. These include network, individual and institutional strategies. Yousefi, Taherkhani and Ghardashkhani (2014) observed that the knowledge process should focus on sharing knowledge from individuals to collectives such as teams and organisations. Once the academic knowledge process and system is integrated effectively, it moves up to the organisational level (Steiger, Hammou & Galib 2014).

A review of literature has also shown that the challenges and pressures faced by HEIs in both the public and private sectors have not been widely explored. The changing needs and demands of the education sector have forced institutions to effect changes in their structure, curriculum, management techniques, teaching approaches and strategies (Siadat et al. 2015). It is important to focus on integrating effective KM systems and strategies that can lead to enhancing the quality and performance of the institutions. The management of HEIs is also required to adopt new methods, models, frameworks and strategies that can promote excellence and deal with cutting edge competition. HEIs are continuously engaged in ensuring that their decisions and activities are knowledge-based, which implies the exchange of valuable information and knowledge among the various components of the organisation (Gupta 2015).

Previous literature has emphasised the role of KM systems and techniques in HEIs (Baranova-Ciderova & Mayer 2010; Sedziuviene & Vveinhardt 2009), but this has been limited to discussing how institutions of higher learning are best placed to create and share knowledge in a challenging environment. It is argued that HEIs should focus on creating and sharing knowledge by implementing different strategies and activities as they increase in number around the world.
While previous work has discussed different models, frameworks, perspectives and ideas related to KM, there has not been a focus on how HEIs can promote and facilitate the creation and sharing of knowledge (Fidalgo-Blanco, Sein-Echaluce & García-Peñalvo 2014). Different factors have been shown to negatively impact on the effectiveness of education provided in institutions. These factors include lack of innovative teaching and learning, absence of research groups, and lack of dedication and enthusiasm (Fidalgo-Blanco, Sein-Echaluce & García-Peñalvo 2014). HEIs may also fail to maintain consistency and standardisation of the knowledge shared by different knowledge workers, including teachers. The availability of technology and different types of KM systems has promoted the quality of education and knowledge provided to the students (Fidalgo-Blanco, Sein-Echaluce & García-Peñalvo 2014). Yet, more research is required to explore the CSFs that could contribute to the creation of knowledge in HEIs.

KM is a process that involves the transformation of individual knowledge into institutionalised knowledge (Al-Qarioti 2015). The management of HEIs has realised the importance of implementing management techniques and KM systems. It has become important for education institutions to focus on decision-making that can lead to enhanced flow of information and knowledge within the organisation. This involves the integration of different types of resources. Singh and Mishra (2015) presented a holistic approach related to the evaluation of KM practices in HEIs, arguing that it is the responsibility of executives and teachers to implement effective strategies that can facilitate the KCS process.

Despite these insights, current literature on KM has largely attempted to isolate single factors. In particular, socio-cultural features, politics, ethical considerations, financial issues and uncertainty and complexity have been neglected. Yet many internal and external factors can hinder or facilitate the KM process (Baghbanian et al. 2012; Baghbanian, Torkfar & Baghbanian 2012). The study of KM within the context of higher education is important and invites research scholars and policymakers to reconsider both theory and practice.

A review of studies on the importance of KM in professional and higher educational programs has shown that KM systems allow the institutions to acquire and share relevant information. It promotes the relationship between teachers and students and
allows them to carry out basic documentation functions in less time (Keishing & Renukadevi 2016). Through the implementation of efficient KM systems, institutions can make effective use of ICT, which leads to the development of innovative theories associated with education. In the field of higher education, KM plays a vital role. It facilitates teaching and research processes and also assists in the development of e-learning portals to empower students’ learning. Singh and Mishra (2015), for example, showed how online transformation at the university level enhanced the knowledge system.

Given the above research gap, knowledge creation challenges, and the potential importance of KM within the higher education context, the researcher deemed it important to gain an understanding of the current state of KM implementation in Saudi Arabia and Australia, and, once that overview was understood, further face-to-face interviews, at a select number of participants, would concentrate the research to establish explanations of some of the practices and perceptions of KM in those countries, and CSFs that facilitated or deterred its use. This research study therefore aimed to address the research objective(s) and questions illustrated below:

**Table 3-2: Research Questions, Objectives and Methodology**

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Research Objective(s)</th>
<th>Methodology: How to Achieve this Objective?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What KM processes, practices and/or strategies are dominant in HEIs in Australia and Saudi Arabia and how are they implemented?</td>
<td>Explore, identify and understand the main CSFs of KM in HEIs in Australia and Saudi Arabia</td>
<td>The research objective is achieved by two case studies, which include review of literature, interviews and documents study on Australia and Saudi Arabia’s higher education knowledge management.</td>
</tr>
<tr>
<td>2. What CSFs are applied for successful implementation of KM in HEIs in Australia and Saudi Arabia and how are they applied?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. How different is the current KM implementation in HEIs in Australia and Saudi Arabia and what CSFs are most/least favoured? What factors may be missing from these contexts in relation to the creation and sharing of knowledge?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.6. Research Model for the Study

The successful implementation of the KCS process in HEIs requires CSFs (Allameh & Zare 2011; Nooshinfard & Nemati-Anaraki 2014; Ullah et al. 2013). This research aims to explore the influence of CSFs on KCP in the context of HEIs. The literature review identified a number of CSFs that could enhance KM in general in HEIs. For example, an efficient leadership style and organisational culture have been shown to have considerable impact on KM and ensure successful achievement of organisational goals (Akhavan & Zahedi 2014; Berraies, Chafer & Yahia 2014; Kebao & Junxun 2008). At the same time, there are obstacles in the form of lack of time, unconnected remuneration systems, lack of effective communication, uncertainty, complexity of the situation and lack of common views (Berraies, Chafer & Yahia 2014; Sallis & Jones 2002).

Similarly, appropriate organisational rules, structures and responsibilities can lead to the development of new knowledge and facilitate the management of knowledge within HEIs (Hasanali 2002; Nejatian et al. 2013; Razi & Karim 2010). KM can also be enriched through the use of ICT. Indeed, the implementation of KM largely falls into the domain of information technology. ICTs not only help disseminate structural knowledge but also facilitate its acquisition and use. This improves communication among the institution’s members (Akhavan & Pezeshkan 2014; Moghaddam, Mosakhani & Aalabeiki 2013).

Measurement of performance and knowledge is also the key to successful implementation of KM in HEIs. Measurement is important because KM is a dynamic program that grows with the institution as it develops in the surrounding environment (Chong, Siong Choy & Choi 2005; Ramachandran, Chong & Wong 2013). Consequences and impacts must be continuously assessed to ensure that KM is always appraised in light of the current demands of the institution (Sedighi & Zand 2012). It is also vital to incorporate proper training and education on KM (Nahadi & Sarmast 2013). Every member of staff needs to be included and encouraged to actively participate (Farzin et al. 2014). KM requires a friendly culture that allows workers to function as a team. Teamwork can be used as a measure to improve the learning process (Mas-Machuca & Martínez Costa 2012).
Knowledge workers should be empowered in order to own the KM practices by participating in decision-making in matters that affect the entire organisation (Abebe & Onyisi 2016a). The knowledge structure plays a vital role in supporting and monitoring the implementation of KM (Hameed & Badii 2012). Finally, proper implementation strategies need to be in place for successful KM practice (Choi, B & Lee 2002; Mas-Machuca & Martínez Costa 2012).

Nonaka’s model of KM is based on four main processes. The first is the formation of knowledge at a personal level through constant dialogue between tacit and explicit knowledge. Second is the identification of the four knowledge conversion processes of socialisation, externalisation, combination and internalisation exist. Third, creation of knowledge at the individual level relies on these four conversion processes steered by a spiral driving force. Finally, there is a shared space for knowledge formulation. The application of this model assures an organisation of successful knowledge dynamics (Bratianu 2014). According to Nonaka (1994), organisations formulate knowledge by progressive reformation of the existing knowledge via these four processes. This involves the continuous interchange of tacit and explicit knowledge through internalisation and externalisation processes.

KM is basically used in the identification and presentation of new insights and ideas within an organisation (Elangovan 2013; Parent, MacDonald & Goulet 2014). Japanese firms developed dynamism and creativity by assessing the importance of knowledge models (Nonaka & Takeuchi 1995). Nonaka (1994) argued that knowledge can easily be converted into information and then disseminated in a manner that represents it. As such, the model combines tacit and explicit knowledge to ensure that firms can easily mine tacit knowledge. In addition, the model demonstrated that externalisation is centred on recognised elements in any organisational structure.

Some researchers, however, assert that external elements are not similar in all organisations (Bashar, Ammar & Rakan 2012). This is related to what the Nonaka Model attempts to prove. Therefore, identification is largely associated with a combination of factors external to the company. Generally, the combination phase differentiates organisations in the same sector (Nonaka 1991). Identification as well as combination of all these factors results in the competitive edge organisations
attempt during the internalisation phase. Nonaka’s model identifies four different ways of converting knowledge that shows the entire procedure involved in knowledge creation and sharing. On the other hand, the creation of organisational knowledge symbolises the intensification of a person’s knowledge and its conversion into public knowledge (Omerzel, Biloslavo & Trnavcevic 2011; Vijayan 2009).

The studies discussed above indicate that KM is important in HEIs. It helps curriculum development, research, alumni and student programs, administration and planning (Kidwell, Vander Linde & Johnson 2000). The way in which HEIs approach KM can lead to huge improvements in the transfer of both tacit and explicit knowledge. While KM is significant in all areas, its effectiveness in HEIs has not attracted a great deal of interest, arguably because they are mostly non-profit organisations. Even though HEIs tend not to focus on profit-making, improved student performance constitutes a significant component in education. Therefore, effective KM can enhance the performance of education institutions.

To create a robust and thriving KM environment, HEIs should look beyond technology (Ranjan & Khalil 2007). They should create a culture of effective assessment of knowledge management and transfer. KM initiatives that are based on information technology seem to be effective in HEIs. Research by William and Amin (2006) showed that effective use of KM involves the application of expertise that is easily accessible, understandable and retrievable. Sedziuviene and Vveinhardt (2009) indicated that the evolution of KM platforms in HEIs is vital, especially for capturing, assessing, transforming, sharing and consolidating the institutional knowledge base.

With the large amount of data that are regularly added to organisational databases and the internet, successful discovery of knowledge becomes more challenging. Previous studies demonstrated that the majority of HEIs are not yet ready to successfully implement KM (Toro & Joshi 2012). The present study makes a contribution by applying Nonaka’s model of knowledge conversion to HEIs and identifying the CSFs for KM in the higher education context. Figure 2-2 shows the research model for the study.
The preliminary conceptual model employed in this study consisted of various enabling and/or constraining components that were purposefully chosen to achieve certain goals. These components exist within the KM environment that forms the operational context. The model reflected the researcher’s current knowledge and assumptions about factors that contribute to Nonaka’s and colleagues’ SCEI framework around KCS. While it informed the organisation of data collection and analysis in the present study, it did not prescribe exactly what to examine or analyse. It was simply a working model that evolved as data were collected and analysed. The revised and refined conceptual model is presented and discussed in Chapter 7. Note, however, that it did not test the validity of the preliminary model. Further research is needed to test the validity of the revised model.

**Figure 2-2:** Conceptual framework of the empirical research study
Chapter 3: Research Design and Methodology

The previous chapter presented a critical review of the literature on critical success factors (CSFs) and the knowledge creation process (KCP) in organisations, particularly in higher education institutions (HEIs). The review suggested that better understanding of the relationship between CSFs and KCP within HEIs would contribute to the successful implementation of knowledge management (KM). The present study aims to explore this relationship in two institutions – Western Sydney University (WSU) in Australia and King Fahd Security College (KFSC) in Saudi Arabia – with a view to extending the application of Nonaka’s model (1994) globally.

This chapter describes and justifies the study’s research design, including epistemology, theoretical perspective, methodology, and methods of data collection and analysis. It also discusses research quality assessment and the ethical considerations involved in the study.

3.1. Philosophical Worldview and Research Paradigm

The philosophical worldview that underpins research has been defined in a variety of ways. According to Creswell (2013), for example, the term refers to ‘a basic set of beliefs that guide action’ (p. 6), while Greene (2007) described it as mental models that guide all researchers such as assumptions, understandings, predispositions, values and beliefs. The philosophical worldview is considered to be a general orientation towards the nature of research.

Each research project is based on a particular philosophical view of what kind of knowledge is possible and how it is most appropriately obtained. Researchers build their assumptions and questions on this knowledge and adopt a research paradigm and philosophy that is consistent with these assumptions and questions (Orlikowski & Baroudi 1991).

The choice of research paradigm is shaped by the discipline field of the researcher, the beliefs of consultants and supervisors, and the approach adopted by previous researchers (Cranfield 2011). A research paradigm can be conceptualised, following
Crotty (1998) and Levy (2006), as a framework that shapes the entire study. It consists of four elements: epistemology, theoretical perspective, methodology and methods, as shown in Figure 3.1. Each of these elements is discussed in detail below.

![Figure 3-1: Elements of a research paradigm](image)

(Adapted from Crotty 1998 and Creswell 2013)

### 3.1.1. Epistemology

Epistemology has been defined as ‘a way of knowing or how we know things about the world’ (Ezzy 2002, p. 20) or ‘a way of understanding and explaining how we know what we know’ (Crotty 1998, p. 3). According to Webster (2007), epistemology is a theory of the nature of knowledge, particularly with reference to its bounds and validity, while Green (2007 p. 52) described it as ‘the nature of social knowledge’. According to Maynard (1994), an epistemological philosophy is reflected in decisions about what kinds of knowledge are possible and how we can ensure that they are both adequate and legitimate. Crotty (1998) identified the three most common epistemologies as objectivism, constructionism and subjectivism.

Objectivist epistemology considers that meaningful reality exists apart from the operation of consciousness. Objectivists believe that phenomena exist as meaningful entities independently of consciousness and knowledge; that truth and meaning
reside in them as objects, and that research can establish objective reality and meaning (Crotty, 1998). Objectivism has been described as a systematised method that combines deductive logic with precise practical observations of individual behaviour to explore and confirm a set of probabilistic causal laws that can be utilised to forecast general forms of human action (Neuman 2013).

In the subjectivist view, by contrast, reality results from the interaction between the subject and the object to which it is attributed (Crotty 1998). The investigator imposes her/his values and interpretations on the object, and the interaction between investigator and object is dependent on the investigator’s subjective understandings of the object (Cranfield 2011).

Constructionism refutes the objectivist claim that there is an objective reality waiting for individuals to explore. Truth or meaning is not discovered but is constructed by individuals’ engagement with the world (Crotty 1998; Cranfield 2011). According to Levy (2006), constructionism enables the researcher to recognise that individuals can have different understandings of the same phenomenon or situation (see also Crotty 1998).

The present study sought a conceptual and contextual understanding of the influence of CSFs on the KCP within HEIs. The research questions acknowledge that participants will have different experiences and understandings of the phenomenon and construct its meaning differently. Constructivism is particularly appropriate for understanding people’s views in their natural social and institutional settings (Klein, HK & Myers 1999). Therefore, this study adopted the epistemology of constructivism.

3.1.2. Theoretical Perspective

Crotty (1998) defined the theoretical perspective as the philosophical stance that assists a researcher to select the appropriate methodology by stating the research assumptions and, hence, determining the logical method of achieving the desired outcome. According to Carfield (2011, p. 84): ‘It is the theoretical perspective and the philosophical stance informing the methodology that provides a context for the
process and grounds its logic and criteria’. The two most common theoretical perspectives are positivism and interpretivism (Levy 2006).

Positivism is closely associated with objectivist epistemology. It assumes that people have direct access to the real world (Carson et al. 2001). Positivist research seeks to increase the predictive understanding of a certain phenomenon by testing a theory (Hirschheim 1985; Myers 1997). As Crotty (1998) notes, positivism sees meaning as inherent in the objects being researched, that is, that objects in the real world have meaning prior to, and independently of, any consciousness of individuals. Positivism also presumes the existence of an unbiased and passive researcher who collects realities, but does not contribute to generating them (Charmaz 2006).

Interpretivism is more closely related to constructivism. In the interpretivist perspective, according to Levy (2006, p. 374) ‘individuals do not have access to the real world, suggesting that their knowledge of the perceived world (or worlds) is meaningful in its own terms and can be understood through careful use of interpretivist procedures’. Interpretive research seeks access to reality through social constructions such as language, consciousness and shared meanings (Myers 1997). Interpretive researchers endeavour to understand the researched phenomena through people’s interactions with each other and their world and the meanings that participants assign to them (Cranfield 2011).

The choice of interpretivism as the theoretical perspective for the present study can be justified in several ways. The investigation sought to understand the influence of CSFs on the KCP within the context of HEIs. It aimed to investigate the nature of reality of the two main phenomena - CSFs and KM - rather than to describe causal relationships using statistical analytic techniques. The primary instrument of data collection and analysis was the researcher, who aimed to generate theory rather than test hypotheses and to obtain participants’ views of the reality of this phenomenon. Therefore, interpretivism was the most appropriate theoretical perspective.

The study’s theoretical foundation was also informed by KCP theory (Nonaka 1994) and CSFs theory. It generated new theory that can extend the application of Nonaka’s model (1994) by identifying the CSFs within HEIs.
In broad terms, the positivist theoretical perspective is associated with the collection of quantitative data, whereas the interpretive theoretical perspective is linked to the collection of qualitative data (Lincoln & Guba 1985). These approaches are explained below.

The quantitative research approach originated in the natural sciences (Myers & Avison 2002) but has come to be widely used in social science research in the form of surveys, where structured data are collected via questionnaires and analysed statistically (Dawson 2007; Punch 2013). This approach produces knowledge by testing hypotheses and measuring variables and it requires a large sample size so the findings can be generalised (Bryman 2007).

The qualitative approach, by contrast, was developed within the social sciences (Denzin & Lincoln 2016). It seeks to develop contextual understanding of the phenomenon (Bryman 2007) using methods such as observation and in-depth interviews (Henn, Weinstein & Foard 2005). Qualitative research attempts to explore the attitudes, behaviour and experiences of participants within a particular setting (Dawson 2007).

The nature of the research question shapes the research approach (Creswell & Poth 2016; Mitchell & Jolley 2012). There were several reasons for the choice of a qualitative approach in the present study. First, qualitative data are most appropriate for addressing ‘how’ questions about the phenomenon under investigation (Albaqami 2015; Merriam 2009). Second, as Hunter (2004) has observed, ‘a central focus of qualitative researchers is to develop an understanding of the social actors in a particular context, in order to develop a deeper understanding of the research problems based on the words individuals assign to them’ (see also Creswell 2013). Since qualitative research attempts to capture people’s meanings, definitions, and descriptions of events (Miles & Huberman 1994), it was appropriate for the present study. Third, qualitative research is appropriate for investigating phenomena in their natural setting (Marshall & Rossman 2014) and provides an effective means of observing organisations (Naramore 2012).

Finally, the phenomenon under investigation – the KCP – is under-researched (Alhussain 2011; Cranfield 2011). According to Strauss and Corbin (1998, p. 11),
‘qualitative methods can be used to better understand any phenomenon about which little is yet known’. Similarly, Trauth (2001, p. 7) proposes that the ‘amount of uncertainty surrounding the phenomenon under study is another important factor in the choice of qualitative methods’. As Lincoln and Guba (1985) and Neuman (2013) point out, qualitative research is theory building rather than theory testing. The qualitative method is particularly compatible with research on the nature of KM because it is related to people’s thoughts, understanding and values in the context in which it emerges (Thall 2005).

3.1.3. Methodology

Research methodology has been defined as ‘the strategy, plan of action, process or design lying behind the choice of particular methods and linking the choice and use of methods to the desired outcomes’ (Crotty 1998, p. 3). According to Kothari (2004), it refers to the use of scientific methods to solve a research problem, while Sarantakos (2012) describes a methodology as a model that includes theoretical principles and procedures for conducting research in the framework of a particular paradigm.

Several methodologies are used in qualitative social scientific research to elicit understanding of the perspectives and experiences of participants in a natural context (Merriam 1998). Creswell & Poth (2016) identified five methodological traditions: biographical study, phenomenological study, grounded theory, ethnography, and case study. Myers (1997), on the other hand, suggested that the best-known qualitative methodologies are action research, case study research, and ethnography.

The present study adopted case study methodology. Miles and Huberman (1994) defined a case as ‘a phenomenon of some sort occurring in a bounded context’. A case study is ‘the investigation of a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident’ (Yin 1994). It aims to obtain multiple perceptions, and focuses on exploration and description rather than cause-and-effect relationships (Alsaiari 2015; Chorba 2011; Stake 2010). By providing a detailed analysis of a particular situation, it narrows down a broad area of research (Baxter & Jack 2008).
There are two main ways of classifying the case study approach. First, a case study can be exploratory, descriptive or explanatory (Yin 2011). An exploratory case study is used to determine the contemporary state of the phenomenon in the context of the case or cases (Albaqami 2015). A descriptive case study is a complete description of the phenomenon in the setting; it can be used to extend application of an existing theory about a phenomenon and a new model can be constructed from it (Yin 2009). An explanatory case study investigates process in organisations to explain how the phenomenon occurs (Albaqami 2015).

The other way of classifying case studies is in terms of the number of cases that are examined (Yin 2011). The single case study investigates the phenomenon in one context. Multiple case studies involve research in two or more contexts to better understand the phenomenon within each context and across contexts (Albaqami 2015).

Case study methodology enables a researcher to understand the phenomenon of interest in its real-life complexity (Noor 2008). Similarly, Simon (2009, p. 9), defines case study as ‘an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, program, or system in a real-life context’. This is directly relevant to the aim of the present investigation.

Case study is also a suitable methodology to develop existing theory (Albaqami 2015). According to Kohlbacher (2006), case studies greatly assist a researcher to incorporate strong theoretical propositions developed prior to data collection. The present study adopted this approach, using existing theories of KC and CSFs to develop an initial framework and seeking to extend the application of Nonaka’s model (1994), particularly in the context of HEIs.

Case study methodology enables the researcher to understand the phenomenon as much as possible from the perspective of participants in their natural surroundings (Kivunja 2006; Yin 2009). The present study sought such perspectives from academics in HEIs.

A descriptive case study is usually used when the research aims to investigate a contemporary phenomenon by asking “how” or “why” (Albaqami 2015; Yin 2009).
Multiple case studies allow the results to be generalised (Noor 2008), increase the robustness of the evidence and may generate emergent theory (Bartczak 2002). The present study used multiple case studies because it aimed to extend KC theory, particularly in the context of HE context.

Finally, multiple case studies are recommended to examine diversity because similarities and differences are not obtained easily by simply increasing sample sizes (Baxter & Jack 2008). Hence the present study compared HEIs in two different countries to explore the similarities and differences in the CSFs that influence the KCP.

In multiple-case studies, cases should be carefully chosen because similar results might be predicted (literal replication) or contrasting results might be produced for predictable reasons (theoretical replication) (Benbasat, Goldstein & Mead 1987; Yin 1994). Multiple case studies produce literal or theoretical replication and allow cross-case comparison (Darke, Shanks & Broadbent 1998).

The research sites in the present study were, therefore, selected according to a carefully designed set of criteria. HEIS were chosen because the HE context is the optimal setting for the creation and transfer of knowledge through research and teaching and should therefore contain numerous examples of institutions that proactively hold KM (Cranfield 2011).

Second, for the purposes of literal prediction, each case study site - the School of Social Science and Psychology (SSSP) at WSU in Australia and KFSC in Saudi Arabia - was a HEI that pursued the same specialisation (policing and criminology science) and was of approximately the same size (see Appendix A and B). Consequently, similar results could be predicted.

Third, for theoretical replication, each institution might be expected to adopt an approach to KM that reflected differences between western and Middle Eastern culture. These potentially contrasting results provide a solid foundation for theoretical replication.

Finally, the cases were selected from countries that give high priority to HE. In 2007, Australian universities were identified in the Times Higher Education Supplement as
the third strongest universities in the world after the United States and the United Kingdom (Marginson 2007). The Saudi Arabian government has spent around three and half billion dollars on the construction of several hundred projects to develop HEIs (Evosys 2015).

3.1.4. Methods

Research methods are the procedures or techniques that researchers use to gather and analyse data (Crotty 1998; Silverman 2006). The research philosophy and methodology guide the selection of appropriate methods (Crotty 1998). Case study methodology enables a researcher to use multiple methods in both data collection and data analysis, which enhances the trustworthiness of the research (Baxter & Jack 2008). The following two sections discuss the methods of data collection and analysis used in the present study.

3.2. Data Collection

A characteristic of case study research is the utilisation of multiple data sources (Patton 1990). These include, but are not limited to: interviews, focus groups, documentation, archival records, direct observations, and participant-observation (Baxter & Jack 2008; Chew 2008; Eisenhardt & Bourgeois 1988; Noor 2008). The present study used interviews as the primary data source and organisational documentation and archival records as secondary data sources.

Interviewing is a technique that is used to understand the perspectives, experiences and beliefs of a participant about a particular phenomenon (Albaqami 2015). Interviews yield data that provide in-depth understanding of a social phenomenon (Yin 2009) and are appropriate for examining phenomena that require detailed insights from participants (Strauss & Corbin 1998). Hence they are considered a valuable source of data in case studies. There are three different types of interview - structured, semi-structured, and unstructured (Norman & Zawacki 1991).

Structured interviews are designed to get particular information regarding an issue. Their administration requires relatively few skills and the resulting data provide a safe foundation for generalisation (Kothari 2004). Structured interviews, however,
limit the nature and amount of information participants can provide (Punch 2013) and do not allow in-depth analysis of a phenomenon (Albaqami 2015).

Unstructured interviews, by contrast, are not organised in any particular order and use non-standardised questions (Yin 2009). Hence they provide flexibility for the researcher to ask any question, change the sequence of questions and/or omit any question if the situation requires (Kothari 2004). This form of interviewing is therefore useful for exploratory purposes (Merriam 1998), but there are also disadvantages associated with its flexibility. For example, lack of comparability between one interview and another makes analysis much more difficult. To be effective, the technique can only be used by a highly knowledgeable and skilled researcher (Kothari 2004).

A semi-structured interview is based on a schedule of broad topic areas or questions but allows the participant to provide detailed responses (Albaqami 2015). In addition to yielding a great deal of information (Norman & Zawacki 1991), semi-structured interviews provide flexibility for the interview or interviewee to move easily from one aspect to another (Russel Bernard 1988). It is also considered an appropriate method for research dealing with sensitive issues (Creswell & Poth 2016).

In this study, semi-structured interviewing was considered suitable for several reasons. First, the majority of fieldwork in case study research involves the use of semi-structured interviews (Noor 2008). Second, it enables the researcher to collect more in-depth information than is possible with structured interviews, and also addresses the limitations of unstructured interviews by providing enough flexibility to approach respondents differently while still covering the same topics (Noor 2008). Finally, it allows a researcher to focus on a specific topic but to move on to another area if the situation requires.

### 3.2.1. Research Instrument

The interview questions were developed from a review of the literature on CSFs, KM in HEIs and the KCP. The question design was also guided by the form of questioning that is typically used in multiple case studies; for example, with a focus on ‘how’ and ‘why’ questions (Bryman & Bell 2011).
Instrumentation rigour and bias management present major challenges for qualitative researchers who employ interviewing as a data collection method (Chenail 2011). A pilot study helps to identify any problematic areas in the interview questions, and refine the proposed research design and procedure (Bartczak 2002; Noor 2008). A pilot study provides advance warning about where the main research project could fail, where research procedures may not be followed, or whether suggested methods or instruments are unsuitable or too complex (Van Teijlingen & Hundley 2002).

As a pilot study, I conducted interviews with five academics at KFSC in Saudi Arabia in June 2015. This site was selected for the pilot since only 13 academics from WSU had agreed to participate, as opposed to 30 at KFSC. The pilot study indicated that the language of the interview questions was clear but that participants found the research topic to be ambiguous. Accordingly, I wrote a few pages explaining KM, CSFs and the KCP and attached it to the email participants received prior to interview (Appendix C). The experience also facilitated efficient management of future interviews.

The final interview schedule comprised a series of sociodemographic items (academic qualifications, job title, experiences in HE, current university and current teaching level) followed by questions about participants’ views on CSFs in KC (Appendix D).

3.2.2. Sampling and Recruitment

Sample selection is a significant issue, particularly in qualitative research (Robinson 2002). There are two main types of sampling - probability and nonprobability sampling (Albaqami 2015; Feild et al. 2006). Probabilistic sampling is not appropriate for qualitative research because it aims to generalise the results rather than understand the phenomenon under investigation (Marshall 1996). Because generalisation of findings is not the ultimate goal of qualitative research (Merriam 1998), nonprobability sampling was used to select the participants in this study.

Purposeful sampling is a common type of nonprobability sampling strategy in qualitative research (Albaqami 2015; Suri 2011). The aim is to select participants who have the most useful information that can be collected via interviews (Patton
Purposeful sampling is ‘based on the assumption that the investigator wants to discover, understand, and gain insights and therefore must select a sample from which most can be learned’ (Merriam 2009, p. 77).

Accordingly, I decided to sample academics in both two sides because they have extensive experience in a wide variety of practices (teaching, administration, research and supervision) associated with KC. The selection of participants was based on the following criteria: their professional view and academic role, their interest and role in KM as well as their availability and willingness to be involved in the research project.

There is no ideal or minimum sample size in qualitative research. According to Marshall (1996), ‘an appropriate sample size for a qualitative study is one that adequately answers the research question’ (p. 523). In other words, the adequacy of the evidence for understanding a phenomenon is more significant than the number of participants (Marshall & Rossman 2014). One approach to sampling in qualitative research is to continue collecting data until no new categories, themes or explanations are emerging from the data; this known as achieving saturation (Marshall 1996). In the present study, saturation was attained following interviews with 13 participants at WSU and 25 at KFSC.

Invitations to participate were sent via email to 35 potential interviewees in the School of Social Science and Psychology (SSSP) at WSU and another 35 in KFSC (Appendix E). The email included three attachments - consent form (Appendix F), participant information sheet (Appendix G) and a summary information sheet about the KCP and CSFs (Appendix C). Positive responses were received from 13 academics at WSU and 30 academics at KFSC.

3.2.3. Procedure

The interviews were conducted between 15 September and 25 February in both sites. Of the 38 interviews in total, 13 were conducted in English at WSU and 25 in Arabic at KFSC. Each interview lasted around half to one hour. It was conducted as a face-to-face, one-to-one interview in the familiar and comfortable environment of the participant’s office. All interviews were recorded on audiotape, as recommended by
Bartczak (2002) and others to help the interview flow freely. The audiotaped interviews from WSU were transcribed in English and those from KFSC were transcribed in Arabic and then translated into English.

3.2.4. Organisational Documentation and Archival Records

Documents are considered secondary data sources that supplement and compensate for limitations in the primary sources (Noor 2008). Documentary evidence supports primary data by validating information collected from interviews because what people say may be different from what they do (Albaqami 2015). It can also provide guidelines for the researcher to follow during interviews (Noor 2008).

This study used organisational documentation and archival records as secondary data sources. The former included strategic documents, rules and policy documents, job description documents, university websites and other relevant institutional material. Archival records comprised maps and organisational charts of the university.

3.3. Data Analysis

Data analysis is a significant stage of research because the results depend on its processes (Kothari 2004). Data analysis refers to the use of specific tools to evaluate a set of research data. Statistical data analysis involves a quantitative approach, whereas qualitative data analysis aims to explore and understand the phenomenon under investigation (Alsaiari 2015). The type of analysis is determined by the epistemological stance, theoretical perspective and research methodology (Crotty 1998).

Qualitative data analysis was used in the present study because it adopted a constructivist epistemology, an interpretivist perspective and a descriptive, multiple case study methodology. According to Albaqami (2015), ‘data analysis in a qualitative, descriptive multiple-case study is a process that contains various elements to analyse data through careful training, understanding, and interpretation’ (p. 113).

The main purpose of qualitative data analysis is to explore the views and experiences of the participants (Levy 2006). In addition, qualitative analysis aims to move from
simple description to critical examination and understanding of the meaning of the spoken word, which can vary between participants – even those who speak the same language (Clissett 2008).

There is no single, universally accepted method of analysing qualitative data (Polit & Beck 2010). Of the various techniques that are available, the most widely used is thematic analysis (Aronson 1995; Braun & Clarke 2006). Thematic analysis is ‘a method for identifying, analysing and reporting patterns (themes) within data. It minimally organises and describes your data set in (rich) detail’ (Braun & Clarke 2006). Thematic analysis can be deductive or inductive (Alhojailan 2012). Deductive analysis means that a researcher derives the themes from a theory; this type of thematic analysis aims to present a detailed analysis of some aspect of the data. In contrast, inductive analysis generates themes from the data set.

Thematic analysis is considered as a foundation method of qualitative analysis (Boyatzis 1998; Braun & Clarke 2006) and can be used within constructionist paradigms (Vaismoradi, Turunen & Bondas 2013). It assists the search for and identification of common threads across a whole interview or set of interviews (DeSantis & Ugarriza 2000) and encourages the researcher to present her/his findings creatively, in the form of a story line, map, or model (Vaismoradi, Turunen & Bondas 2013). Thematic analysis can also be used to transform qualitative data into a quantitative form suitable for statistical analyses; here the unit of analysis tends to be more than a word or phrase, as is typically the case in content analysis (Boyatzis 1998).

A combination of deductive and inductive thematic analysis was employed to allow me to move from a broad reading of the data towards the discovery of specific patterns through six phases: familiarising myself with the research data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report (Braun & Clarke 2006).

Data analysis began with transcription of the first interview. All interviews were transcribed as word documents into my personal computer at both sites (SSSP at WSU and KFSC). I spent approximately two months transcribing the interviews and
checking the accuracy of the transcripts back against the original audio recordings, as recommended by Braun and Clarke (2006).

Next, the coding process began. As Braun and Clarke (2006) suggests, coding depends on the data, as to whether the themes are more data-driven or theory-driven. In the latter, a researcher can approach the data with particular questions in mind that s/he wishes to code around. Accordingly, I initially coded the data into the 14 CSFs (e.g. leadership, organisational culture, and training). Then the segments of text that related to aspects of Nonaka’s model (socialisation, externalisation, combination and internalisation) were identified and coded accordingly. Thus I relied both on the literature (deductive analysis) and on the data (inductive analysis) to identify the codes. Examples of deductive codes were: sharing experience, issuing useful reports, training programs, and high group commitment. Examples of inductive codes were: ‘experienced staff members’, ‘produce lectures’, ‘encouragement to put publications into the system’ and documenting retirees’ experiences’. The codes were matched with data excerpts to ensure that all the data were coded. This process was performed manually using Microsoft word to highlight sections of text related to various codes.

In the third phase, the codes were sorted into potential subthemes and all the relevant excerpts were collected within these subthemes. Then, similar codes were combined to form overarching subthemes, such as ‘building a team or field of interaction’, ‘encouraging staff to produce knowledge’ and ‘free access to outcomes and knowledge’. Finally, similar subthemes were linked to themes that represented the main aspects of the KCP - socialisation, externalisation, combination and internalisation.

In the fourth phase, the themes that were formed in the previous phase were reviewed and refined. First, the coded data extracts were reviewed by reading all the collated extracts for each theme to ensure that a coherent pattern was apparent. Second, the aim was to ensure that the candidate themes accurately reflected the meanings evident in the data as a whole. This process produced six versions of the codebook until I was satisfied that the thematic map worked.

In the fifth phase, the themes were clearly defined by verifying that they could be described in a couple of sentences. This step produced four themes - socialisation,
externalisation, combination and internalisation - each of which had a number of subthemes. Each subtheme included varying numbers of codes. In the final phase, the report of the analysis was written based on the thematic map that was produced to describe and explain the influence of CSFs on the KCP.

3.4. Assessing Research Quality

The criteria for evaluating the quality of research depend on the type of research paradigm, research approach and research aim (Fossey et al. 2002). Reliability and validity, for instance, are important measures of quality in studies that use positivist epistemology and a quantitative approach (Golafshani 2003). In contrast, there is no generally recognised set of guidelines for the evaluation of theory-building from case studies (Eisenhardt 1989) nor any universal criteria for judging the quality of studies using a qualitative approach (Flick 2014; Strauss & Corbin 1998).

According to Patton (2002), for instance, rigorous methods, credibility of the researcher, and philosophical belief in the value of qualitative inquiry are vital in assessing the quality of qualitative research. Lincoln and Guba (1985) identified four criteria to judge trustworthiness in qualitative research - credibility, transferability, dependability and confirmability. The application of each of these criteria in the present study is discussed in detail below.

3.4.1. Credibility

Credibility or internal validity is assessed by examining whether the findings obtained by the researcher match the personal constructions of the participants (Albaqami 2015; Silverman 2006). It means that one can have confidence in the qualitative data and in the processes that have been adopted to interpret the data (Johnson, Onwuegbuzie & Turner 2007). One way of establishing credibility in qualitative research is to employ respondent validation of their data or interviews (Harper & Cole 2012). This technique was adopted in the present study by sending each participant a copy of her/his transcribed interview and asking them to add any comments or corrections.
Credibility can also be achieved by logically adapting the research methods and audio recording the interviews (Hays & Singh 2011). In the present study, I familiarised myself thoroughly with the ‘real world’ contexts in which participants worked, and they were able to respond to the interview questions in their own words.

3.4.2. Transferability

This aspect of trustworthiness evaluates the external validity of research by generalising the findings of the study to another context (Bartczak 2002; Mohammed 2015). In qualitative research, the responsibility for transferring findings from the study to another context lies with those who will be using the findings, not with the researcher, since the original investigation could not be expected to cover all potentially relevant aspects in another setting (Graneheim & Lundman 2004; Saini & Shlonsky 2012).

Transferability or external validity can be achieved by using multiple case studies to replicate the same logic (Albaqami 2015). In the present study, there were two cases, both being HEIs involved in the KCP; this permitted the use of replication logic across the cases.

Purposeful sampling enhances transferability as it represents a variety of different situations, affords rich contextual data and increases the representation of individuals from the situation under examination (Mohammed 2015). I used purposeful sampling to increase the variety of academics with different experiences and roles in their institutions and from different cultural backgrounds.

3.4.3. Dependability

Dependability is enhanced by having multiple researchers independently code a set of data and then meet to achieve consensus on emerging codes and categories. Another strategy is double coding, whereby a set of data are coded and then, after a period of time, the researcher returns to code the same data set and compare the results (Baxter & Jack 2008). In the present study, I coded the data and received expert feedback from the supervisory panel, Dr. Thomas Klikauer and Dr. Ann
Dadich. Following extensive discussion, we agreed on the themes and their corresponding sub-themes.

3.4.4. Confirmability

This dimension of trustworthiness assesses whether study findings and conclusions reflect the data. Confirmability can be boosted by the use of triangulation of data sources and analytical perspectives (Miles & Huberman 1994; Patton 1990).

In the present study, I addressed confirmability by documenting the data collection and analysis processes in detail (Albaqami 2015). The study also employed triangulation of data sources interviews, documents and archival records and analytic techniques (deductive and inductive thematic analysis).

3.5. Ethical Considerations

Numerous ethical issues potentially emerge during the conduct of research, particularly in the relationship between researcher and participants (Albaqami 2015; Merriam 1998). Halai (2006) discussed research as a moral career in which the researcher is obliged to ensure that no harm comes to the participants.

First, permission was obtained from the two participating institutions to access staff for the purposes of data collection (Appendix H). Then approval to conduct the study was granted by the Human Research Ethics Committee of WSU (Protocol no. H11144, Appendix I). An invitation was sent to potential participants via email; this included the Participant Information Sheet (Appendix G) and Consent Form (Appendix F). All forms were written in English and Arabic. The email and letters explained the project’s purpose and method. It also informed the participants that only the researcher and his supervisors would have access to the information, participation was entirely voluntary, and they could withdraw at any time without giving a reason, in which case any information already provided would be destroyed. It further explained that the interview would be conducted confidentially, at a time and location convenient for them, that it would take approximately 60 minutes to complete, and would be recorded, with their consent.
The collected data were stored in the password-protected personal computer of the student researcher. Hardcopy files, including research data, were stored in a locked filing cabinet in the office of the student researcher at the School of Business at WSU, to which only he and his supervisors had access. These data will be destroyed in 2020 in accordance with the ethical guidelines covering research data storage.

In the data files and reports, participants were identified by a two part (site and participant) code (Tuckett 2005). The site codes were AUWSU and SAKFSC for WSU and KFSC, respectively. The second part contained one letter (P) and the participant number (Appendices J and K).

3.6. Summary

This research aimed to identify the influence of CSFs on the KCP in HEIs. This chapter has explained how Crotty's (1998) research framework guided the study design, which embraced constructivist epistemology and an interpretive theoretical perspective to understand academics’ perspectives on the phenomenon under investigation. This study adopted the methodology of descriptive multiple case studies and collected qualitative data via semi-structured interviews and documentary analysis. The chapter described the processes of data collection and analysis, how the quality of the research was evaluated, and discussed the ethical considerations involved.

The major research design decisions are displayed in Figure 3-2. The results of the analysis of data from the two case studies in Australia and Saudi Arabia are presented in the following chapters.
Figure 3-2: Research paradigm

- Epistemology: Constructivism
- Theoretical Perspective: Interpretivism
- Methodology: Multiple Case Studies
- Research Methods:
  1. Data Collection (Semi - structured interviews, Documents and Archival records).
  2. Data Analysis (Thematic analysis).
- Research sites:
  1. Western Sydney University in Australia
  2. King Fahd Security College in Saudi Arabia
- Sample: Academics in both institutions
Chapter 4: Case Study 1: School of Social Science and Psychology at Western Sydney University in Australia

The previous chapter discussed and justified the research methodology that was used to explore the influence of critical success factors (CSFs) on the knowledge creation process (KCP), as conceptualised in Nonaka’s 1994 model, by obtaining robust results from analysis of semi-structured interviews, organisational documents and archival records. This chapter presents the results of the case study of the School of Social Science and Psychology (SSSP) at Western Sydney University (WSU). It describes the socio-demographic characteristics of the participating academics and presents results of the analysis of semi-structured interviews and organisational documents.

4.1. Demographic Characteristics of Participants

The 13 participants in Case Study 1 held Bachelor, Master or PhD level qualifications. Their positions in the university were classified according to six categories: Professor, Associate Professor, Senior Lecturer, Lecturer, Assistant Lecturer and Tutor. Their work experience in HEIs and in that university was categorised as less than 10 years, 11-20 years, 21-30 years and more than 30 years. Academic teaching levels were identified as: Doctoral (supervision), Postgraduate and Undergraduate. As can be seen from Table 4-1, 12 of the 13 held doctoral level qualifications and most had 10 years or less experience in higher education in general and in this university in particular.
### Table 4-1: Demographic Characteristics of WSU Participants

<table>
<thead>
<tr>
<th>Highest Qualification</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD</td>
<td>12</td>
</tr>
<tr>
<td>Master Degree</td>
<td>0</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Job Title</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td>2</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>1</td>
</tr>
<tr>
<td>Senior Lecturer</td>
<td>3</td>
</tr>
<tr>
<td>Lecturer</td>
<td>6</td>
</tr>
<tr>
<td>Assistant Lecturer</td>
<td>0</td>
</tr>
<tr>
<td>Tutor</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Experience in HEIs</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 -10 Years</td>
<td>8</td>
</tr>
<tr>
<td>11 -20 Years</td>
<td>4</td>
</tr>
<tr>
<td>21 -30 Years</td>
<td>1</td>
</tr>
<tr>
<td>30+ Years</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Experience in Current University</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 -10 Years</td>
<td>10</td>
</tr>
<tr>
<td>11 -20 Years</td>
<td>2</td>
</tr>
<tr>
<td>21 -30 Years</td>
<td>1</td>
</tr>
<tr>
<td>30+ Years</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching Level</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate (UG)</td>
<td>4</td>
</tr>
<tr>
<td>Postgraduate (PG)</td>
<td>0</td>
</tr>
<tr>
<td>PhD – Supervisor</td>
<td>1</td>
</tr>
<tr>
<td>All of the above</td>
<td>6</td>
</tr>
<tr>
<td>UG and PG</td>
<td>1</td>
</tr>
<tr>
<td>UG and PhD – Supervisor</td>
<td>1</td>
</tr>
<tr>
<td>PG and PhD- Supervisor</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13</strong></td>
</tr>
</tbody>
</table>

### 4.2. Critical Success Factors of Nonaka’s Knowledge Creation Process

Analysis of the interview data generated 14 internal and six external factors related to the knowledge environment. Each category represented those CSFs that contributed to the process of knowledge creation (KC).

#### 4.2.1. Internal Factors

The 14 internal factors represented the CSFs that shaped KCP according to Nonaka’s (1994) model (socialisation, externalisation, combination and internalisation). In the following discussion, each CSF is examined with reference to the interview material. This analysis is complemented by documentary sources that illustrate how the CSFs were institutionalised in WSU and to identify instances of divergent processes. The
results were generated through both deductive and inductive thematic analysis of the data sources.

The 14 internal CSFs were: leadership, organisational culture, organisational rules, organisational structure, responsibility, information technology infrastructure, measurement, training, teamwork, employees’ involvement, employees’ empowerment, knowledge structure, organisational strategy, and building worthy relationship between employees. Each of these is discussed in detail below.

4.2.1.1. Leadership

Participants perceived that leadership influences all processes of KC, that is, socialisation, externalisation, combination and internalisation (see Figure 4-1). These perceptions were supported by documents and archival records.

**Figure 4-1: The influence of leadership**

**Influence on socialisation**

As can be seen in Figure 4-1, leaders shape socialisation in five different ways. First, leaders build a team or field of interaction in the workplace. Second, they support an individual to acquire tacit knowledge via on-the-job (OJT) training. Third, they allow employees to collaborate with people from outside the organisation. Fourth, they
direct subordinates through multiple levels of leaders. Finally, they support professional development training.

According to one-third of participants, leaders shape socialisation by building a team or field of interaction. The interaction between employees helps them to exchange their tacit knowledge and share their experiences. Leaders support this interaction by convening frequent formal and informal meetings.

*I would say that my manager would be the leader of our work group so the way in which we organise the things that we know or the things that we're interested in we share in knowledge would be firstly through our monthly work group meetings (AUWSUP1).*

*Okay, so the dean of the school - how do I get knowledge from the dean of the school? Through school meetings, which are very big meetings - probably meet once every two months (AUWSUP10).*

One participant indicated that leaders also supported individuals to acquire tacit knowledge via OJT. This helps an employee to gain new tacit knowledge from employees with experience in teaching, research or administration.

*I think in terms of the highest level of management probably the only direct contact I have with them is when we have our learning and development days, and so we have days that are devoted to I guess acquiring knowledge and learning knowledge about teaching practice in general (AUWSUP2).*

Two participants (AUWSUP2 and AUWSUP7) suggested that leaders shape socialisation by allowing employees to collaborate with people from outside the organisation to exchange ideas. This assists academics to share new knowledge and transfer it to WSU.

*We also are encouraged by manager to invite guest speakers into the school to share their knowledge with us so that there's a degree of conversation (AUWSUP7)*

Mentoring through multiple levels of leadership was also seen to support socialisation. This helps knowledge to flow up and down:
I think that's an important thing in regards to leadership. There are multiple levels that I have a relationship to (AUWSUP6).

One participant indicated that leaders affect socialisation by supporting professional development training. This allows employees to interact one other, thereby sharing tacit knowledge and experience.

Leaders also - and this is I think unique to this school - design a program of support for teaching (AUWSUP11).

Analysis of documents and archival records indicated that leadership in the School supported development programs to create new knowledge. The Professional Development Policy, for instance, states that ‘supervisors and Unit Heads are expected to consider staff access and equity issues and to apply the principle of assessing merit or achievement relative to opportunity in planning and determining professional and career development opportunities’ (Western Sydney University 2017a). Teamwork was also encouraged by the establishment of numerous committees such as Student Academic Committees and Human Research Ethics Teams (School of Social Sciences and Psychology 2017a).

Influence on externalisation

Leadership shapes externalisation in various ways: through individual meetings, by granting autonomy, and by encouraging and supporting employees to produce knowledge.

One participant reported that his manager convened individual meetings that enabled tacit knowledge to be converted into explicit knowledge.

If it was something the manager specifically wanted to discuss with myself - so I'm involved with a number of things that are at the broader school level but also at the university level, so I have roles that go beyond just our school - then she might want a specific individual meeting to discuss what's actually going on at that level (AUWSUP1).

Around one-third of participants described a decentralised management approach in which leaders gave their employees autonomy in their work practices, thereby allowing tacit knowledge to be converted into explicit knowledge. For example:
There has been a lot of autonomy that was given by leaders within each individual academic in terms of the way they manage their workload and the way they manage their subjects that they teach and so on (AUWSUP8).

A similar proportion reported that leaders encouraged staff to produce knowledge in the form of lectures and other teaching material.

Of course, there are all sorts of practical ways to do it. One of them of course has to do with the increased use of multimedia and increased use of online components in order to both create and share knowledge. I mean we are encouraged by leaders to produce lectures and produce teaching material which can be accessed by students at home rather than in their classroom (AUWSUP3).

Only two participants, however, indicated that leaders supported employees to develop new models or paradigms for teaching improvement and access to teaching-related knowledge.

Leaders support employees to produce reports about the quality of the teaching and how the teaching could be improved and they work with individual academics to help them to improve their teaching. So this is to my mind a very good example of KM within the school. It also helps with experienced teachers who can pass on their knowledge to inexperienced teachers so that knowledge about good teaching is generated and kept and used within the school (AUWSU11).

According to the documentary evidence, WSU leaders seek to establish strategies to encourage KC. For example, one source documents the institution’s ambition to become a vibrant research-led university with regional, national and global impact (School of Social Sciences and Psychology 2017b).

Influence on combination

Leadership has a significant effect on combination by enhancing social processes to combine different bodies of explicit knowledge, by supporting the use of information technology, and developing new concepts that combine the internal and external knowledge of team members.
Two participants (AUWSUP1 and AUWSUP10) reported that their leaders enhanced social processes to combine different bodies of explicit knowledge by convening meetings at which members shared their experience and knowledge.

Okay, so the dean of the school - how do I get knowledge from the dean of the school? There are also meetings at the academic grouping so various knowledge comes through that direction (AUWSUP10).

According to two others (AUWSUP11 and AUWSUP5), leaders encouraged employees to use information technology by, for example, putting courses and publications online for others to access.

Well in our school there's a lot of reward for - a lot of positive reinforcement for people who get their research in the media, so there's a lot of - to be in the public realm there's a lot of encouragement and workload assistance to put our courses online (AUWSUP5).

One participant observed that his manager supported team members to consolidate their teaching resources to provide access to knowledge for students and teachers.

The manager provides for a role above that of the teacher called the program delivery coordinator. The program delivery coordinator is responsible for ensuring that all teachers have all the resources available to them to be able to provide knowledge for the students and also to obtain knowledge for the teacher themselves (AUWSUP13).

On the WSU Portal under ‘Academic’, users can view scheduled seminars and workshops, published studies and abstracts and working papers, and look up information about the various colleges, departments, programs and their faculty and administrative and support staff (www.westernsydney.edu.au).

**Influence on internalisation**

Leaders influence internalisation by arranging meetings to explain the content of relevant reports and documents, by instituting policies that encourage intensive and frequent learning- by-doing, support the autonomy of employees, and give free access to information about outcomes and other knowledge.
One in four participants mentioned the role of leaders in facilitating the conversion of explicit knowledge into tacit knowledge via face-to-face meetings.

Leaders support a formal reading program where we share our work, our written work, with each other, comment on it, and get feedback from others within the school usually prior to publication (AUWSUP7).

One-third of participants referred to policies that encourage openness and autonomy.

I think my experience mostly both with my immediate managers and leaders and also the school leaders and so on, the deans and so on. They do emphasise openness. So usually the emphasis is on openness and a fairly free flow of knowledge and management (AUWSUP4).

Two participants (AUWSUP4 and AUWSUP13) suggested that leaders support internalisation by facilitating access to expert knowledge via training programs, seminars, meetings and databases.

I would say when it comes to knowledge and information to do with the teaching and learning and studying that is fairly open, free flowing and fairly easy access and management is based on respect. But I think there is a hierarchy of course when it comes to perhaps more the management of the institution as such. Yeah, that is what I would say, is my experience (AUWSUP4).

WSU’s strategies for success reflect the university’s aspiration to provide a unique learning experience that is innovative, flexible and responsive (School of Social Sciences and Psychology 2017b).

4.2.1.2. Organisational Culture

Almost all WSU participants reported that organisational culture, including socialisation, externalisation, combination and internalisation, influences KCP (Figure 4-2). This finding was supported by documentary evidence.
Organisational culture affects socialisation in various ways, as shown in Figure 4-2. A friendly culture supports team building and interaction; a democratic culture enhances communication between employees; and a learning culture enhances the acquisition of new tacit knowledge. A collaborative culture contributes to the smooth exchange of knowledge.

According to one-third of participants, a friendly culture enhances the interaction between employees and encourages teamwork, thus contributing to the sharing of tacit knowledge and experience.

*I'm part of the research team that studies that and so the other people who work on that I share my knowledge with them and they share their knowledge with me (AUWSUP11).*

A democratic culture promotes communication and the transfer of tacit knowledge.

*I feel like there is a bit of freedom in terms of I guess the creation of knowledge and the transfer of knowledge (AUWSUP2).*
One-quarter of participants reported a culture of learning and development reinforces the conversion of tacit knowledge and the development of new knowledge as employees share experience with and observe the work of experts.

Further, two participants (AUWSUP1 and AUWSU13) explained that a collaborative culture enhances socialisation because employees exchange ideas and knowledge with others in the institution. It also facilitates relationships with people outside the institution, such as partners and government representatives. This culture enriches knowledge exchange.

WSU describes itself as fostering a culture of inclusive decision-making and robust intellectual inquiry, within a framework of ethical behaviour. It aims to assist staff to keep abreast of modern learning practices through investment in cutting-edge technology and career development. This culture enhances team interaction and employee development (School of Social Sciences and Psychology 2017b).

**Influence on externalisation**

Organisational culture also influences externalisation. A democratic culture boosts knowledge creation. A culture of learning and employee development helps to convert tacit knowledge into explicit knowledge. A culture of encouragement enhances knowledge production.
One in four participants explained how a democratic culture allows space for academics to follow their areas of interest in research and teaching, which helps to create and transfer new knowledge.

*I feel like there is a bit of freedom in terms of I guess the creation of knowledge and the transfer of knowledge (AUWSUP2).*

*We’ve been able to have the freedom to research what we want to research and write about what we want to write about’ (AUWSUP8).*

Two participants (AUWSUP4 and AUWSUP9) indicated that a culture of learning and employee development is important in converting tacit knowledge into explicit knowledge. Regular team discussions are an important mechanism.

*We have regular meetings to discuss how we exchange knowledge with our students; new ways of exchanging knowledge various ways of teaching and learning (AUWSUP4).*

A culture of encouragement reinforces processes that produce new knowledge, such as the development of new teaching methods and incentives to pursue research:

*The incentive, the support system has been improved. Have been developed to always strengthen the research culture (AUWSUP12).*

The University’s Strategic Plan aims to ‘Foster a strong culture and track record of successful renewal and innovation, achieved through the determination, creativity and hard work of all staff’ (School of Social Sciences and Psychology 2017b). This statement reflects an organisational culture that encourages employees to create knowledge.

**Influence on combination**

A collaborative culture uses social processes to combine different bodies of explicit knowledge held by individuals. An IT culture supports the combination of different forms of explicit knowledge.
One-third of participants highlighted the importance of a collaborative culture in this context. The relevant social processes included telephone and face-to-face discussions:

*We have meetings every so often in this school amongst criminology and indeed sociology, where we discuss what we're doing, our research. It's a very nice open forum for critical discussion of certain people's research (AUWSUP9).*

Two participants (AUWSUP4 and AUWSUP5) specifically referred to the use of information technology. For example, employees circulate information and knowledge updates to all staff via emails, reports and bulletins, and academics convert hardcopy courses and research findings into online courses and databases:

*There's a push towards information that's digitally based, so researching online, teaching online, everything (AUWSUP5).*

There was documentary evidence that lecturers are encouraged to use information technology infrastructure to review data and access papers (www.westernsydney.edu.au).

**Influence on internalisation**

Organisational culture supports internalisation in three ways. First, a democratic environment supports employees to convert explicit knowledge into tacit knowledge by acquiring new knowledge. Openness enhances the learning process. A culture of IT use reinforces knowledge acquisition by academics and students.

One in four participants explained that they are free to research and publish in their areas of interest:

*We’ve been able to have the freedom to research what we want to research and write about what we want to write about (AUWSUP8).*

In an open culture, employees acquire new knowledge via regular forums for critical discussion:

*We have meetings every month so often in this school amongst criminology and indeed sociology, where we discuss*
what we're doing, and our research. It's a very nice open forum for critical discussion of certain people's research (AUWSUP9).

Two participants (AUWSUP4 and AUWSUP5) pointed out that all employees are expected to obtain much of their knowledge through the use of information technology.

There's a push towards information that's digitally based, so researching online, teaching online, everything (AUWSUP5).

Documentary analysis supports this result. The Strategic Plan aims to provide an innovative academic culture for both lecturers and students based on an environment that encourages and supports extensive research. Here, IT provides key research tools (School of Social Sciences and Psychology 2017b).

4.2.1.3. Organisational Rules

Participants described how organisational rules influence KCPs of socialisation, externalisation, combination and internalisation (Figure 4-3). Documentary analysis supported these perceptions.

Figure 4-3: The influence of organisational rules
Influence on socialisation

Organisational rules shape socialisation. Almost half the participants discussed this effect, which they identified as manifesting in four main ways: team building and field interaction; collaboration with people from outside the institution; mentoring; and encouragement for employees to acquire new knowledge.

One-quarter of participants identified rules that support team building and field interaction. Formal and informal meetings extend the boundary of team activities and increase the amount of knowledge thereby exchanged.

Rules support the idea of sharing knowledge, of sharing information so that people can experience what's actually happening (AUWSUP1).

Organisational rules also facilitate collaboration and knowledge exchange with people from outside the organisation such as partners and government representatives.

I think that is really good when the rules allow academics to work with other organisations in Australian society and they also do some international work (AUWSUP4)

Organisational rules and policies also enhance the mentoring process by creating formal leadership roles in teams where knowledge and experience are shared.

Within the school it's divided up into teams, policing is in one team, criminology is actually in a different team and there's psychology is a team, clinical practise is a team. So there are different teams from different team leaders and it depends on the team leader how much knowledge sharing goes on (AUWSUP11)

Other rules support OJT, whereby an individual can acquire tacit knowledge by sharing experience with and observing experienced staff. Seminars, workshops, training programs and personnel rotation across departments also make knowledge acquisition more effective.

My understanding is that the procedures organise monthly presentations for knowledge sharing that goes on around research that I know go on in the sociology team (AUWSUP11).
Documentary analysis indicated that the rules and policies of SSSP at WSU facilitate collaboration with people from outside to exchange knowledge. Hence, many academics are members of national and international professional associations (School of Social Sciences and Psychology 2017a).

**Influence on externalisation**

Organisational rules boost externalisation in three ways: by enhancing knowledge creation; encouraging employees to produce knowledge; and supporting knowledge sharing.

Participants mentioned that organisational rules encourage academics to pursue useful research that will add to the knowledge base.

> The way ethics committees operate these days for instance, I think they do much more than just looking at the ethical validity or how ethical your research project is. What they really do is sort of determine what's most useful; what sort of research they want to support (AUWSUP3).

Two participants (AUWSUP9 and AUWSUP10) discussed the role of policies that encourage academics to maximise their research and publication output:

> So it's the number of publications, plus the amount of research money you've got in front grants over the last three years, and then which band you're in is determined mainly by that. That's a controlling mechanism (AUWSUP10).

Participants also explained how organisational rules for regular meetings of colleagues contribute to the creation of new ideas.

> We have procedures that organise biannual meetings within criminology to help develop how our programs are going to be moving forwards in terms of administrative responsibilities (AUWSUP9).

WSU has documented rules under its Academic Development Program that support the formation of new knowledge. For example, academics are expected to ‘engage in individual or collaborative research or scholarship that will lead to the enhancement of the individual and the University's research profile and investigate and develop
innovative ways to enhance the quality of undergraduate and postgraduate teaching and student learning’ (Western Sydney University 2017a).

**Influence on combination**

Organisational rules influence the combination process, which is supported by the use of information technology to update staff knowledge.

> We have - there's a certain - communication plays a part in KM so through direct emails that are sent to staff about sharing information or new policies (AUWSUP5).

Documentary evidence supports this statement. As stated in SS 2017-2020 SP, the university will continue to ‘provide high-quality, inclusive, diverse and technology-enhanced learning environments. It will develop flexibility in the types and modes of delivery in on-campus, online and blended educational programs’. Other policies relate to the use of email, for example:

> Email provides a channel for members of the University community to interact with one another, business, government and students. It can be used effectively to further the vision, mission and goals of the University by sharing information and exchanging ideas. However, the same protocols, courtesies, lines of management and approvals apply to email as they do to hard copy communications (Western Sydney University 2017a).

**Influence on internalisation**

Organisational rules enhance internalisation. Half of participants supported this perception. They do so by encouraging transparency and openness, describing job duties, and enhancing the learning process.

Transparency and openness facilitate sharing of knowledge and experiences because there are no boundaries between employees. Hence, they can express their opinions freely.

> Many things such as workload and all those sort of issues can be talked very openly and transparently (AUWSUP1).
Two participants (AUWSUP3 and AUWSUP7) referred to the organisational rules that describe their job duties. This means that employees understand their job so they can acquire relevant knowledge and experience.

*We have particular rules for how you can obtain funding, how much research you're allowed to do and how much research you get support for (AUWSUP3).*

One-quarter of participants expressed the view that rules enhance the learning process via access to specialist knowledge:

*Sometimes when you're doing something, you need to consult with two or three different supervisors at the same time (AUWSUP6).*

This perception was supported by documentary and archival evidence. There is a policy that encourages development of scholarly communities to facilitate interdisciplinary and cross-campus opportunities for knowledge sharing. This policy supports the learning process (School of Social Sciences and Psychology 2017b).

### 4.2.1.4. Organisational Structure

The majority of participants agreed that organisational structure supports the KCP in relation to socialisation, externalisation, combination and internalisation (Figure 4-4). It is clear that organisational structure is a success factor in KC at WSU.

---

**Figure 4-4:** The influence of organisational structure
Influence on socialisation

Organisational structure boosts socialisation in three ways: low levels of formalisation contribute to knowledge dissemination; multiple levels of leadership enhance mentoring opportunities; and a decentralised structure supports the conversion of tacit knowledge into tacit knowledge.

According to half of the participants, low levels of formalisation enhance knowledge exchange through employee involvement in activities without boundaries. Low formalisation means that team interaction is fluid, that formal and informal meetings can be easily convened, and that collaboration lines between departments are effective and efficient.

To actually go face to face to the different campuses so that we can have that face to face interaction (AUWSUP1).

One-quarter of participants noted that organisational structure enhances knowledge conversion by formalising multiple levels of leadership. These positions are occupied by experienced staff, who can transfer knowledge up and down.

It's divided into teams, that's part of the structure and it depends on the team leader around research how much is shared (AUWSUP11)

Two participants (AUWSUP7 and AUWSUP11) stated that a decentralised structure enhances the communications among employees and between employees and leaders. This facilitates effective conversion of tacit knowledge into tacit knowledge:

I think that the lines of communication are fairly open so I think that that's quite privilege to sharing knowledge (AUWSUP7).

The organisational structure was clearly depicted in university documentation, which explains roles and responsibilities in relation to KM. The structure of the university and of the school supports the mentoring process (see Figure A.1 in Appendix A).
Influence on externalisation

According to two-thirds of participants, organisational structure influenced externalisation. It supports the creation of regular discussions between employees. The decentralised structure reinforces the conversion of tacit knowledge into explicit knowledge, while low formalisation reduces organisational restrictions and increases dissemination of knowledge.

One-third of participants described how formal team meetings help to convert tacit knowledge into explicit knowledge as employees express their views and share their knowledge with each other.

So we would then also come together in those face to face meetings, discuss what the issues are and take it back not only to our work group but also to our school to discuss that information (AUWSUP1).

Almost one-quarter of participants commented that a decentralised structure gives employees at all levels autonomy and freedom to create knowledge.

I feel like we work very independently (AUWSUP2).

One participant suggested that a flexible (organisational) structure enhances effective knowledge dissemination among employees.

Knowledge acquisition and knowledge dissemination is enhanced if the leaders of department could promote a more flexible and more informal exchange of knowledge (AUWSUP13).

Decentralisation of the formal structure of the school leads to more interaction and reduces the constraints on information exchange among employees. Online communications are also supported by low formalisation via a university platform that encourages sharing and professional collaboration outside the university (School of Social Sciences and Psychology 2017b).

Influence on combination

Organisational structure shapes combination in two ways. It enhances the social processes that support the combination of different bodies of explicit knowledge. As
well, the Information Technology Department supports employees to transfer explicit knowledge.

One-quarter of participants described how the organisational structure facilitates social processes (meetings) where different bodies of explicit knowledge are combined and converted into new knowledge.

_We're an academic group and so within the school everybody sits within an academic group and we all meet regularly. In those meetings we discuss things that are going on in the school, things that we have to do, our teaching, our research, and at other times we are set research tasks or reading tasks that we meet and talk about. The manager came and met them and there were negative aspects in the training which we discussed and the manager amended them (AUWSUP5)._

One participant referred to the role of the Information Technology Department in this context. It supports circulation of explicit knowledge among all academics via email and enables academics to put courses online.

_So you need to work with this group on this thing, go and do that, you know, through the email system (AUWSUP1)._ 

Documentation of the organisational structure identified a department known as Information Technology & Digital Services. This department encourages the uploading of files and data along with research (Figure A.1 in Appendix A).

**Influence on internalisation**

Almost all participants agreed that organisational structure boosts internalisation. A decentralised structure supports the conversion of explicit knowledge into tacit knowledge. A hierarchical structure helps to manage knowledge effectively and efficiently. Low formalisation reduces organisational constraints and improves distribution of knowledge.

One-quarter of participants reported that a decentralised structure supports employee autonomy. This gives them freedom to learn and develop new ways of doing their job.
In order to solve problems - it depends on how much autonomy they perceive they have (AUWSUP10).

One-quarter of participants also observed that a hierarchical structure facilitates the smooth dissemination of knowledge between different levels and identifies the knowledge required in each position.

We work in a very hierarchical structure as well right so everyone knows their place in it so to speak and we know who to listen to and who to answer to and who to report to and so forth. Obviously, that fosters a very particular power relationship right and certainly is very instrumental in how we manage knowledge and how we produce it and so forth (AUWSUP3).

One-quarter of participants emphasised that low formalisation influences acquisition of explicit knowledge and its conversion into tacit knowledge. It supports the learning process by promoting flexible, informal exchanges of knowledge.

We're an academic group and so within the school everybody sits within an academic group and we all meet regularly. In those meetings we discuss things that are going on in the school, things that we have to do, our teaching, our research, and at other times we are set research tasks or reading tasks that we meet and talk about (AUWSUP5).

Analysis of the university’s and school’s structure revealed its importance for knowledge exchange, and showed that the span of the university departments could directly influence the creation and sharing of information and knowledge. The University’s structure also allows line managers to motivate their staff to share and integrate knowledge (Figure A.1 in Appendix A).

4.2.1.5. Responsibility

Almost all participants agreed that employee responsibilities affect socialisation, externalisation, combination and internalisation in various ways (Figure 4-5). WSU’s documentary and archival records support this view of the impact on KCP.
Influence on socialisation

Nearly half of participants suggested that responsibilities enhance socialisation in various ways. Collaboration responsibilities encourage knowledge exchange with partners and others outside the organisation, while team responsibilities support interactions between members and the exchange of tacit knowledge.

One participant commented on the role of collaboration responsibilities in enhancing socialisation:

_We do have communication with police recruitment and we do have communication with different organisations that will help our students (AUWSUP2)._  

One-quarter of participants indicated that team responsibilities support interaction between employees and tacit knowledge exchange:

_As individual academics are doing our jobs and as members of the academic group are talking with each other about that and sharing knowledge and information (AUWSUP5)._  

These views were supported by documentary evidence. For example, WSU’s Charter identifies an Australia-China Institute for Arts and Culture that has responsibilities for collaboration in knowledge exchange (Figure A.1 in Appendix A). Academic Development Program Policy (ADPP) identifies employees’ collaboration
responsibilities with people inside and outside the university to build knowledge; for example, they are expected to ‘work collaboratively with industry and government bodies for the purpose of developing ongoing partnerships that will benefit the University’ (Western Sydney University 2017a).

**Influence on externalisation**

Almost half of participants thought that democracy and freedom affect externalisation because they give employees more responsibilities. Knowledge creation responsibilities are important in the conversion of tacit knowledge into explicit knowledge.

Two participants (AUWSUP1 and AUWSUP10) emphasised the importance of autonomy for academic creativity:

> If they perceive they have autonomy and also commitment to the role, then that would be very different than in a situation where there isn't commitment to the role, like normative commitment to the role, and they don't have very much autonomy (AUWSUP10).

One-quarter of participants supported the idea that knowledge creation responsibilities lead to the publication of useful research. This is particularly important for educational institutions, which are expected to produce new knowledge. This means that tacit knowledge will be widely available as explicit knowledge.

> We are meant to publish as much as possible and as widely read as possible, right. That is seen as the responsibility (AUWSUP3).

According to WSU policy, employees are expected to ‘undertake a major body of work on a research project (new or existing)’ (Western Sydney University 2017a).

**Influence on combination**

Employees’ responsibility influenced the combination process of knowledge creation and sharing through social interactions e.g. organisational meetings. The employees
are responsible for combining different bodies of explicit knowledge that each employee has.

We wanted to make some changes and I had to talk to my academic supervisor and made sure that they were involved in the conversation. Then they gave me some very valuable advice because they've went to the committee many times (AUWSUP6).

This was supported by documentary analysis. The policy expectation is that ADPP will work with colleagues at other institutions, either overseas or within Australia (Western Sydney University 2017a).

**Influence on internalisation**

One-quarter of participants agreed that employees’ responsibilities shape the internalisation process in two ways. First, democracy and freedom give academics more responsibilities and autonomy to learn and acquire knowledge. Second, an hierarchical structure supports internalisation.

Two participants (AUWSUP1 and AUWSUP10) indicated the role of autonomy and responsibilities in the acquisition of new knowledge and the conversion of explicit knowledge into tacit knowledge.

If that's our responsibility we'd go and find out all we can about that information and apply it in practice. What they suggest improvements could possibly be and then share that information up the line in all our networks (AUWSUP1).

Employees’ responsibilities are determined by the hierarchical organisation. This governs what information they need to perform their roles and contributes to the conversion of explicit knowledge into tacit knowledge.

According to we do have hierarchies in the school; they should learn to do our responsibilities (AUWSUP9).

Documentary analysis showed that ADPP gives employees freedom to learn new knowledge. Specifically, they are expected to ‘acquire new skills and knowledge that can be applied to his/her teaching and/or research’ (Western Sydney University 2017a).
4.2.1.6. Information Technology Infrastructure

The majority of participants reported that information technology infrastructure affects socialisation, internalisation and, particularly, combination, but none identified an influence on the externalisation process (Figure 4-6). Documentary analysis supported the view that information technology has a vital impact on KCP.

![Diagram showing the influence of information technology infrastructure]

**Figure 4-6:** The influence of information technology infrastructure

**Influence on socialisation**

One-quarter of participants indicated that information technology infrastructure supports the socialisation process by facilitating team interaction and sharing of knowledge and experience among employees.

*However the exchange of information with the technologies that we have available to us now is critical for the adoption of KM (AUWSUP13).*

WSU supports teams’ interaction via communication channels such as Blackboard and email. Information Technology & Digital Services also facilitates networking and knowledge exchange with other universities and government agencies. University documentation notes, for example, that the School is committed to
creating ‘personalised and collaborative learning environments rich in technology. It will use its extensive network of partnerships to promote work-integrated learning and other forms of overall life-work paths and wellbeing’ (School of Social Sciences and Psychology 2017b).

Influence on combination

Most participants were of the view that information technology infrastructure enhances combination of knowledge. It supports knowledge preservation and accumulation and strengthens relevant social processes to combine employees’ explicit knowledge.

Almost all participants highlighted ways in which IT infrastructure helps to preserve and accumulate institutional knowledge in the form of publications, course details and annual objectives.

I'd use storage. So Dropbox, iCloud, all those things to store all the information that we use to build up our knowledge base (AUWSUP1)

One participant commented on how IT infrastructure enriches the social processes that allow employees to combine explicit knowledge through various dissemination channels.

So email is just so important. That's how most of those sorts of communications happen (AUWSUP6).

The university website provides relevant links and channels such as staff and student email facilities, staff directories and researchdirect (www.westernsydney.edu.au).

Influence on internalisation

Nearly half of the participants described how IT infrastructure influences learning processes be facilitating free access to databases and other forms of knowledge.

Publications now, are online publications. You access anything, new knowledge, just in seconds. So this is the market place, and they're very important ‘For example: library, database in the library enhances the faculties and students to find any resource they want (AUWSUP12).
WSU’s website supports a range of educational programs and access to high quality resources for teaching, learning and research (School of Social Sciences and Psychology 2017b).

4.2.1.7. Management Measurements

Almost all participants emphasised that management measurements motivate KCP, particularly externalisation (Figure 4-7). Documents supported this perspective.

![Figure 4-7: The influence of measurements](image)

**Influence on socialisation**

Half the participants reported that management measurements affect the socialisation process in two ways. First, mentoring by leaders and experienced staff members at different levels helps to refine and exchange knowledge. Second, interactions at formal and informal meetings enhance knowledge transfer.

One-third of participants commented on the role of leaders and experienced academics in facilitating the knowledge flow between employees at different levels.

*A mentoring program for academics, which is very light touch, and where there are about - I think there are about 100 academics in the school, and in the mentoring program there are about 40 academics involved in that. About a third of them are mentors and about two-thirds of them are the people being mentored - or mentees (AUWSUP10).*

123
Two participants (AUWSUP6 and AUWSUP9) noted that performance measures and other management interventions are addressed in formal and informal meetings that allow employees to receive feedback.

*We have quality indicators. We have assessments by students. We’ll go over those as a group at the end of the year and did discuss student feedback at the last meeting (AUWSUP9).*

WSU has an office that oversees the timely and accurate flow of knowledge. Mechanisms include a systematic review of curriculum and program delivery. The Office and Quality Performance Department (OQP) also ensures the university’s compliance with relevant frameworks and legislation (Figure A.1 in Appendix A). This can be seen as a mentoring procedure. Criteria for measuring team interaction include ‘extent of student engagement in consultation with and participation on decision-making bodies across the University’, ‘level of reporting and communication of research impact across the University’, ‘feedback from Western My Voice Staff Engagement surveys’ and ‘participation rate of staff in professional development activities’ (School of Social Sciences and Psychology 2017b).

**Influence on externalisation**

Two-thirds of participants identified ways in which management measures influence the externalisation process. They help to create successive rounds of dialogue, review institutional knowledge and measure knowledge production.

One-third of participants identified regular team discussions as important mechanisms for review and conversion of knowledge from tacit to explicit.

*Usually in a two-hour session we have one academic taking the first hour, and then another academic taking the second hour, and everybody will have read their work beforehand, and there’ll be a discussion about that work for two hours (AUWSUP10).*

One-quarter of participants noted the importance of evaluation of knowledge in this context. This can be seen as a form of knowledge measurement that generates new models via expert advice, publishing useful reports and documenting the findings of meetings, seminars, workshops and training programs.
I guess the other thing is kind of reviewing the material that we have taught at the end of semester and making changes as a team and making sure that the subject leader makes those changes and amends those changes for next semester (AUWSUP2).

Two participants (AUWSUP3 and AUWSUP11) noted how management measures of knowledge production contribute to the creation of new knowledge. For example, the Research Office evaluates academics’ research plans for the next three years. This process provides structural incentives for them to apply for grants and, thus, generate new knowledge.

As an early career researcher, I deal with the research office who asks me to sort of outline what my research plans are for the next three years. They provide structural incentives for us to plan to apply for grants outside (AUWSUP3).

Documentary analysis shows that the university adopts a number of procedures to measure knowledge production. These include ‘metrics on program and process innovation’, ‘alignment of research outcomes and impact with Western research themes’ and ‘extent of diversity of research outputs’ (School of Social Sciences and Psychology 2017b).

Influence on combination

Management measures and interventions support the combination process. Interventions, such as meetings to review academics’ work, combine different bodies of explicit knowledge.

We meet on a monthly schedule as well and have meetings about how we’re going and stuff (AUWSUP6).

Documentary analysis revealed a variety of reporting and communication procedures to assess research impact across the University (School of Social Sciences and Psychology 2017b). A policy of performance review is implemented by the Strategy and Quality Committee (SQC) in conjunction with relevant University committees (Western Sydney University 2017a).
Influence on internalisation

Assessment of knowledge and outcomes affects the internalisation process. This helps to convert explicit knowledge into tacit knowledge. Employees who attend assessment meetings to evaluate the outcomes and receive student feedback acquire new knowledge during this process.

*We have quality indicators. We have assessments by students. We go over those as a group at the end of the year and did discuss student feedback at the last meeting (AUWSUP9).*

Documentary analysis indicated that some measurement procedures enhance conversion of explicit knowledge to tacit knowledge. These include ‘National measures of student satisfaction with teaching, courses, facilities and overall experience’ (School of Social Sciences and Psychology 2017b).

4.2.1.8. Training

Almost all participants reported that training promotes socialisation and internalisation processes but did not indicate any effect on externalisation and combination processes (Figure 4-8). Documentary analysis supported these perceptions.

Figure 4-8: The influence of training
Influence on socialisation

Almost all the participants perceived that training influences socialisation in various ways. OJT enables an individual to acquire tacit knowledge. In addition, training promotes team interaction. Formalised professional development also supports knowledge acquisition. Finally, training through mentoring is significant for converting tacit knowledge between different levels.

Half of the participants commented on the role of OJT in acquiring tacit knowledge.

For us here at this college we have staff development opportunities every 13 weeks where all sessional or casual teachers can come together and learn about what's to be taught. Information is given both on how to teach and also what to teach (AUWSUP13).

One participant suggested that training enhances team interaction and, hence, knowledge sharing.

Whereas I have colleagues that come in new to the university and they might be new to academia or they might be just new to the university and it's that sharing of knowledge that really helps people coming new into the organisation (AUWSUP1).

Two-thirds of participants observed that formalised professional development influences the socialisation process. Training programs and workshops, for instance, contribute to sharing tacit knowledge and experience.

You get a lot of offers of free workshops to learn how to do this and learn how to do that. I think that's a, yeah, certainly a very common way where you can gain new skills (AUWSUP3).

Two participants (AUWSUP11 and AUWSUP12) commented that training via mentoring reinforces the flow of tacit knowledge from the top levels down. For example, supervisors at different levels teach and guide younger academics, thus transferring tacit knowledge.

A new academic comes and they become part of a team then their team leader might help them with KM and accessing existing knowledge (AUWSUP11).
This view was supported by documentary evidence. There are a number of formal programs for staff to enhance their teaching, assessment, curriculum design skills and knowledge, and to enable them to carry out this work in different teaching environments, including online (Western Sydney University 2017a).

**Influence on internalisation**

The majority of participants observed that training boosts the learning process through activities such as workshops and seminars or by encouraging experimentation.

Two-thirds of participants noted the role of formal training programs in this context.

> There’s an employee training day at the end of each semester where you get to speak to all the other teachers and management and also I guess acquire that administrative knowledge that you may not have had (AUWSUP3).

Only one participant referred to knowledge acquisition as a process of learning by doing.

> We really just learn by doing what we've been doing rather than it is incorporated into general training that we have (AUWSUP5).

WSU provides career development training programs that allow its staff to broaden their professional capabilities in relation to their role and responsibilities. Professional development activities build on the collective knowledge and experience of employees and provide employees with opportunities to acquire, practise and adopt new knowledge, thereby enhancing individual, group and organisational learning and capabilities (School of Social Sciences and Psychology 2017b). Casual staff are also given the opportunity to participate in professional staff development programs linked to teaching and learning and assessment (Western Sydney University 2017a).
4.2.1.9. Employees’ Involvement

The majority of participants acknowledged the role of employees’ involvement in shaping the KCP, particularly in relation to the externalisation process (Figure 4-9). This view was supported by WSU documentation.

![Diagram of Employees' Involvement Influence]

**Figure 4-9:** The influence of employees’ involvement

**Influence on socialisation**

Nearly one-third of participants asserted that employees’ participation influenced the socialisation process. It supports team interactions in many ways and encourages them to share their experiences and perspectives, thereby conveying tacit knowledge.

> *Whatever particular beliefs and values a person has their experiences and what they're incorporating would definitely be involved in influencing other people's knowledge (AUWSUP1).*

Documents identified a strategy for promoting student involvement in the University’s governance structures (School of Social Sciences and Psychology 2017b). Employees also participate in annual performance planning and evaluate procedures and identify development activities that support their performance objectives and their professional and career development (Western Sydney University 2017a).
**Influence on externalisation**

Approximately two-thirds of participants reported that employees’ involvement enhances externalisation, in different ways. It increases knowledge production and promotes successive rounds of meaningful dialogue. All these processes convert tacit knowledge into explicit knowledge.

One-third of participants commented that employees’ involvement leads to the production of new knowledge. It enables them to participate in all processes of the institution so they can share their experiences and perspectives with decision-makers. This knowledge empowers the institution to be more competitive.

> *I get surveyed quite regularly. So I know - earlier in the year, the university surveyed all the academic staff and asked what we thought about certain things. It was called the My Voice survey and they published the results of that. This is what our employees think (AUWSUP6).*

One-third of participants proposed that employees’ involvement has a vital role in externalisation by enhancing successive rounds of meaningful dialogue. Examples of employee involvement that generate new knowledge included open dialogue between employees and with managers, published research and reports, and team discussions.

> *I guess in our group if we're not happy with something or we think that something needs to be changed we would ask our group leader, our director, to report that to the next level up and have a discussion so it be discussed by the executive (AUWSUP5).*

University documents showed that employees participate in annual performance reviews that involve planning and identification of appropriate development activities to enhance their career pathways. These can be seen as mechanisms to convert tacit knowledge into explicit knowledge (Western Sydney University 2017a).

**Influence on combination**

One-quarter of participants believed that employees’ involvement enhances social processes that support the combination of different bodies of explicit knowledge.
A Vice Chancellor meets with members of staff across the university. There is this thing called Yammer that I've never actually used, I should do, it's a virtual conversation. There seems to be a policy actually all the way through the management of transparency as to what they are doing and collaborative meetings before decisions are made (AUWSUP9).

Documentary analysis supported this perception. For example, employees are required to participate in internal or external committees or in University governance. This participation boosts the combination of knowledge that employees have (Western Sydney University 2017a).

**Influence on internalisation**

Meetings between employees and their supervisor promote employees’ involvement and learning of new knowledge.

> Obviously, there's the formal way, where they - my supervisor will meet with me. My supervisor met with me a few months ago and we did my six month review. That was an opportunity for me to provide feedback to them as well (AUWSUP6).

WSU documentation showed that employees have the opportunity to develop a career plan and participate in career development activities that extend and enhance their capabilities and capacity for advancement within the University (Western Sydney University 2017a).

**4.2.1.10. Teamwork**

The majority of participants stated that teamwork is significant for KCP, particularly the socialisation process (Figure 4-10). Documentary analysis confirmed the importance of teamwork for KCP.
Influence on socialisation

Most of the participants suggested that teamwork is crucial for the socialisation process, in two ways. It enhances team interaction and supports the mentoring process.

Two-thirds of participants emphasised how teamwork enhances interactions between employees, who can collaborate and share their perspectives and experience through formal and informal meetings, thereby converting tacit knowledge.

*I think teamwork is probably the best way it affects KM employment. In terms of just conversations that we have about the material when we sit around and somebody says, well, I'm going to use this material in class and then somebody says, that's really good, I'm going to adopt that as well (AUWSUP2).*

Apart from teamwork, one participant referred to the mentoring process as a factor impacting on socialisation and the conversion of tacit knowledge to tacit knowledge.

*If you are the junior academic, you co-author your paper with the senior one, so the senior one can help you, can mentor you so you can learn. Then you learn how to publish, how to write a good paper. Then you are becoming more senior and then you try to help your younger ones. So this process has been made (AUWSUP12).*
The university’s and School’s policy and strategy documents showed that cross-functional teams have privileged communication channels to external communities of practice, such as the Academic Promotions Committee, where knowledge is created and transferred (Western Sydney University 2017a).

**Influence on externalisation**

One-quarter of participants stressed that teamwork plays a vital role in the externalisation process by supporting successive rounds of meaningful dialogue. For example:

> Teamwork is important in I think for example in our [TAR] groups. When we have those reading groups it's really important that everyone listens to each other and is open to hearing about each other's ideas or it's not going to be an effective meeting of sharing knowledge (AUWSUP7)

Documentary evidence supported the point that team working and collaboration between different departments inside or outside the university would support the creation and exchange of the knowledge among academics Committee (Western Sydney University 2017a).

**Influence on combination**

Teamwork influences the combination process by enhancing social processes between employees, enabling them to combine different bodies of explicit knowledge.

> I think teamwork is probably the best way it affects KM employment. In terms of just conversations that we have about the material when we sit around and somebody says, well, I'm going to use this material in class and then somebody says, that's really good, I'm going to adopt that as well (AUWSUP2).

The Research Studies Sub-committee of the Research Committee comprises academics who discuss and combine their knowledge related to research undertaken by academics and higher degree candidates of the University. They also provide advice to Senate (Western Sydney University 2017b).
Influence on internalisation

Two participants (AUWSUP6 and AUWSUP12) talked about how teamwork shapes the internalisation process. One perception was that individual team members can obtain knowledge via formal and informal meetings. The other perception was that teamwork promotes learning by enabling members to acquire knowledge from specialist academics.

"The formal meetings - every month, our workgroup gets together and we meet for two hours. There's an agenda that's usually generated by my colleagues and we talk about whatever issues we're having in regards to our task but also any ideas that have come from the dean (AUWSUP6)."

The Research Committee convenes at least five meetings each calendar year. It includes two early or mid-career researchers, nominated by the Deputy Vice Chancellor and Vice-President of Research and Development. These members will acquire new knowledge from other experienced members of the Committee (Western Sydney University 2017b).

4.2.1.11. Employees’ Empowerment

Almost all participants agreed that employees’ empowerment supports socialisation, externalisation and internalisation; combination was not mentioned in this context (Figure 4-11). Documentary analysis supported these perceptions.
**Employees’ Empowerment**

1. Employees’ empowerment enhances knowledge production.
2. Employees’ empowerment supports successive rounds of meaningful dialogue.
3. Employees’ empowerment supports democracy and freedom.

**Socialisation**

1. Employees’ empowerment supports team interactions.
2. Employees’ empowerment supports democracy and freedom.

**Internalisation**

1. Employees’ empowerment supports democracy and freedom.

**Externalisation**

1. Employees’ empowerment enhances knowledge production.
2. Employees’ empowerment supports successive rounds of meaningful dialogue.
3. Employees’ empowerment supports democracy and freedom.

**Combination**

There is no influence.

---

**Figure 4-11:** The influence of employees’ empowerment

**Influence on socialisation**

One-third of participants discussed this influence in some way. Two main themes emerged: empowerment supports team interactions to share knowledge and experiences; and democracy and freedom enhance employees’ ability to communicate and transfer knowledge.

One-third of participants supported the idea that empowerment assists employees to collaborate with each other, thereby effectively sharing their experiences and knowledge. They are encouraged to participate in improving their institution, to play a more active role and share what they know.

*Empowerment is the key in the collaborations. The senior one will have to empower the junior one, not to exploit. So empowerment is important, yeah, and you have mutual benefit, if you get publications (AUWSUP12).*

Another perspective was that employees’ empowerment enhances democracy and freedom, facilitating communication and knowledge sharing and the transfer of tacit knowledge.
There seems to be the idea of, here the task we want you to do. We want you to do teach this unit. How do you want to do it? So as an academic, there’s a lot of freedom (AUWSUP6).

Policy documents WSU acknowledged the contributions made by academic staff within the University and the wider community. A high level of commitment from the staff is integral to achieving the University mission. This commitment is reflected in the empowering of employees in their work practices (Western Sydney University 2017a).

**Influence on externalisation**

Two-thirds of participants agreed that employee empowerment promotes externalisation, in three different ways. It enhances knowledge production, supports successive rounds of meaningful dialogue, and encourages employees to be more creative.

One-quarter of participants observed that empowerment helps employees to produce new knowledge. For example, they can contribute their views to internal surveys (such as the My Voice Survey), which enables the university to convert their tacit knowledge into explicit knowledge. Empowered academics are also more proactive in creating new knowledge.

*Academics are a little bit more empowered to develop strategies and I think that would be probably a more efficient university in the sense of creating more knowledge or being more creative and being more radical and being more proactive in developing new ideas than we are now (AUWSUP3).*

Employees’ empowerment was also seen to support knowledge creation via successive rounds of meaningful dialogue.

*There is a sense of empowerment. Yeah, I think in terms of the creation and the sharing of knowledge I think it does make people feel like they can share their knowledge and they can kind of collectively create new knowledge as well. So yeah, I do feel like we are encouraged to do that (AUWSUP2).*
One-third of participants indicated that autonomy was important to help them create knowledge in the form of new courses or research.

It is true that if they have autonomy they have the duty and the degree of autonomy to create a new unit. They would also feel a degree of autonomy and duty to create a good course - a good unit. Empowered people feel motivated, feel happy, and feel quite happy to do the extra work, feel quite and highly motivated to seek new information (AUWSUP10).

From documents and archival records, it was clear that WSU supports creativity among its staff to achieve its vision and strategic objectives of leading innovation in Australian higher education. The university gives its academics autonomy to conduct research (Western Sydney University 2017b).

**Influence on internalisation**

Two participants (AUWSUP6 and AUWSUP9) suggested that employees’ empowerment reinforces the internalisation process by encouraging them to learn and acquire new knowledge.

If employees are empowered, and in my case if I feel that empowerment, I want to participate more readily, I want to play a more active role, I want - first of all I want to share what I know. I want to learn more rather than isolate myself, because autonomy is one thing but isolation is something else (AUWSUP9).

University documentation indicated that staff are free to teach and research and to acquire new skills and knowledge to support the development of their teaching and/or research (Western Sydney University 2017a).

**4.2.1.12. Knowledge Structure**

Two-thirds of participants asserted that the knowledge structure plays a significant role in socialisation, externalisation and internalisation; there was no mention of combination in this context (Figure 4-12). Documents and archival records supported this perception.
Knowledge Structure

Influence

1. Providing funding for employees to produce knowledge

Externalisation

1. Designing communication channels to collaborate with people from outside the organisation
2. Applying mentoring technique

Socialisation

1. Decentralist structure
2. Free access for outcomes and knowledge
3. Information technology channels

Internalisation

1. Decentralist structure
2. Designing communication channels to collaborate with people from outside the organisation
3. Applying mentoring technique

Combination

There is no influence

Figure 4-12: The influence of knowledge structure

Influence on socialisation

Almost two-thirds of participants suggested that knowledge structure influences socialisation in one of three ways. First, a decentralised structure allows employees to share knowledge and experiences. Second, channels of communication with partners or government representatives enhance acquisition of knowledge. Finally, mentoring transfers tacit knowledge between employees at different levels.

One participant commented on the role of a decentralised structure in supporting the sharing of tacit knowledge and experience between academics at different levels.

If you're looking for that information that if you've never done it before you can find out through the staff online that is actually responsible for particular areas and start fielding for who you need to link up with (AUWSUP1).

Others commented on the importance of effective communication channels for knowledge exchange in relation, for instance, is to research procedures and funding.

They facilitate particular processes such are applying for external funding from the Australian Research Council for instance (AUWSUP3).
One-third of participants agreed that mentoring promotes the transfer of tacit knowledge through different levels of the institution. Experienced employees who work as leaders support the vertical and horizontal flow of tacit knowledge.

There should be a person or position available within the school for that person to operate and to promote all the things that we've discussed; to ensure and do the checking and to do the auditing of the performance of structures and systems and processes and the removal of red tape (AUWSUP13).

Knowledge accessibility and flow is an important requirement of KC. Employees must have easy access to corporate information (including databases) via information technology. The School of Social Science and Psychology builds productive and cooperative research relationships with University research centres, industry and government. The School is a member of the Council for the Humanities, Arts and Social Sciences (CHASS), International Association of the Schools of Social Work (IASSW), Planning Institute of Australia (PIA), the Council for Australian University Tourism and Hospitality Education (CAUTHE), and Australian Council for International Development. In addition, individual staff belongs to a number of significant national and international professional associations. In this way, WSU and the School support the development of internal and external channels of communication to enhance knowledge acquisition (School of Social Sciences and Psychology 2016, 2017a).

**Influence on externalisation**

The knowledge structure enhances externalisation by providing funding that supports academics to produce knowledge from research, which is one of the main aims of educational institutions.

*They facilitate particular processes such as applying for external funding from the Australian Research Council for instance (AUWSUP3).*

WSU itself funds academic research. For example:

*the Deputy Vice-Chancellor and Vice-President, Research and Development will call for nominations each year for*
awards to university staff whose outstanding dedication, creativity and excellence in research performance and service have had, or are having a significant impact on the University's progress towards the achievement of its mission.

Influence on internalisation

One-quarter of participants agreed that the knowledge structure enhances internalisation, in two different ways. First, free access to knowledge via databases and specialists facilitates knowledge acquisition. Second, the IT system enhances the learning process and captures knowledge.

Two participants (AUWSUP1 and AUWSUP6) noted the importance of supporting employees to access knowledge from all sources. The role of specialist research officers was mentioned in this context.

We have research officers that are able to pull together the information and the knowledge they have because they're specialists in their field so we have access to those people. We can draw on their knowledge to support specific information that we want (AUWSUP1).

Information technology allows employees to access and store knowledge in a timely and efficient manner.

If you're looking for that information that if you've never done it before you can find out through the staff online that is actually responsible for particular areas and start fielding for who you need to link up with (AUWSUP1).

WSU’s website enables academics to search different databases that are supported by the Library website. Technology also enables the upload of new data. This in turn impacts on the transfer of data. Upgrading of the technology platform helps employees to explore untapped resources through knowledge sharing and transfer of important information regarding university policies, rules and procedures (www.westernsydney.edu.au).

4.2.1.13. Organisational Strategies

Half of the participants identified various ways in which organisational strategies shape socialisation, externalisation and internalisation; no influence on combination
was mentioned (Figure 4-13). The organisational strategy of WSU confirmed these perceptions.

Figure 4-13: The influence of organisational strategies

**Influence on socialisation**

One-third of participants agreed that organisational strategies affect socialisation, in three different ways. The mentoring strategy enhances tacit knowledge conversion between different levels. The strategy of cooperation with external partners supports the transfer of tacit knowledge. Other strategies reinforce team interaction and, therefore, knowledge exchange.

Two participants (AUWSUP1 and AUWSUP11) noted that receiving guidance from experienced academics helped them to achieve their objectives and share knowledge.

*One of the organisational strategies is to look at what is actually needed at - not so much at that individual level so also looking at mentoring programs, yeah, so skill development, mentoring with more experienced staff members and at that organisational level (AUWSUP1).*

141
Collaboration with external agencies and partners was seen as an efficient strategy for knowledge exchange.

We already have some strong links to organisations outside the university in AU but that is also something which is starting to build on more international levels between policing and some of our staff here and students here. So I think these strategies when it comes to student exchange, hooking up with other institutions, which I think is very much on the agenda of the university, one of its highest aims now (AUWSUP4).

Organisational strategies that enhance team building and interaction were seen as a means of improving the sharing of tacit knowledge.

From my level as a teacher at the college, there could be more information, there could be more openness, there could be more flexibility and exchange of ideas of many people and have they involved in the strategic approach (AUWSUP13).

A number of WSU strategies support socialisation. For example, the Australia-China Institute for Arts and Culture is part of a cooperative strategy for knowledge exchange (Figure A.1 in Appendix A). Other strategies are designed to enhance cooperation and team interaction. For example:

The underlying principle of an academic development program is to allow academic employees to have an extended period of time away from day-to-day work duties to concentrate on research, scholarship, collaboration and knowledge-building. ADP will generally involve working with colleagues at other institutions, either overseas or within AU (Western Sydney University 2017a).

Influence on externalisation

One-third of participants agreed that organisational strategies are significant for externalisation. Individual discussions enhance the knowledge creation process, as does encouragement. Low formalisation supports flexibility and allows employees at all levels to have an input into decision-making.

Two participants (AUWSUP2 and AUWSUP5) stated that humanistic strategies lead to successive rounds of meaningful dialogue via individual and team discussions.
These strategies play an important role in converting tacit knowledge into explicit knowledge.

*It’s an informal strategy where it goes to the subject leader, who is kind of beneath the curriculum coordinator and so it’s kind of a discussion with the subject leader and then the subject leader may add to the online platform with that knowledge that you’ve created (AUWSUP2).*

Two participants (AUWSUP7 and AUWSUP11) indicated that an incentives strategy was necessary for KC. For example, policies that encourage publication and course review lead to greater academic creativity.

*Then when the university decides it will take on various initiatives or it says this funding is more important than that funding then the school encourages us to go in those directions, which has an immediate impact on the kind of knowledge we generate and how we share it (AUWSUP7).*

One participant suggested that low formalisation encourages employees to express their views, thus making their tacit knowledge available to the institution.

*From my level as a teacher at the college, there could be more information, there could be more openness, there could be more flexibility and exchange of ideas of many people and have they involved in the strategic approach (AUWSUP13).*

WSU has established various incentives for those who undertake research. This strategy was adopted by the university to promote research that will further enhance KC. In addition, the Academic Development Program supports academics in such activities as writing for publication, or preparing for an exhibition or performance. These activities reinforce knowledge production. The University also encourages dialogue and exchange of views via academic meetings (Western Sydney University 2017a).

**Influence on internalisation**

Openness and flexibility enhance knowledge acquisition because employees can learn from each other.
From my level as a teacher at the college, there could be more information, there could be more openness, there could be more flexibility and exchange of ideas of many people and have they involved in the strategic approach (AUWSUP13).

The Academic Development Program supports academics to gain new skills and knowledge that can be used in teaching and/or research. Another strategy encourages individual engagement in research or scholarship to enhance the research profile of the employee and the institution. In these ways, organisational strategy supports the internalisation process (Western Sydney University 2017a).

4.2.1.14. Worthy Relationships between Employees

One-third of participants identified various ways in which worthy relationships between employees enhanced socialisation, externalisation and internalisation; no influence on the combination process was mentioned (Figure 4-14). Documentation supported this point.

Figure 4-14: The influence of building worthy relationships between employees

Influence on socialisation

One-quarter of participants reported that worthy relationships affect socialisation, in two different ways Mutual trust supports tacit knowledge exchange between employees, while transparency enhances the knowledge sharing process.
So they're having things that are focused on getting people together and sharing just a fun activity so that builds that wellbeing so also doing things like university supports are doing healthy activities. So they do a thing where they invite people to build teams at work to go walking (AUWSUP1).

**Influence on externalisation**

Building worthy relationships between employees supports externalisation. It enriches documentation of the informal system, thus making tacit knowledge available as explicit knowledge in institutional documents.

*I sometimes wonder if that informal system could be formalised made part of the processes because the informal system sometimes doesn't work, in that - especially with academics. If an academic doesn't like another academic, they may not give them that information, if it's informal. Therefore, building worthy relationships between employees supports this process (AUWSUP6).*

WSU seeks to develop strong relationships between academics and students so that they share a sense of purpose, mutual respect and intellectual endeavour.

**Influence on internalisation**

One-quarter of participants mentioned the importance of mutual trust and/or transparency in enhancing knowledge acquisition.

*I think transparency when it comes to organisational knowledge is important. It is important for successful institutions. It's important for a true institution that when people are comfortable when they know or believe what they know is true that are learning, studying and exchange and so on (AUWSUP4).*

WSU’s strategic plan includes the aim of building ‘relationships and advancing existing ones with international agencies, education providers and industries. These relationships will be critical to developing mutually-beneficial research and educational partnerships and promoting effective inbound and outbound student pathways’ (School of Social Sciences and Psychology 2017b).
4.2.2. External Factors Related to the Knowledge Environment

In addition to the internal factors explored above, participants identified six external factors that could reinforce or hinder the creation of knowledge.

4.2.2.1. Socio-Cultural Factors

Two participants (AUWSUP3 and AUWSUP6) identified social and cultural factors as potential direct or indirect influences on KC.

delivering knowledge if you want, or delivering degrees or delivering a product is increasingly the new jargon right, to students, or delivering to students what they want, and basically how that is framed by the university at large is yet again I think a big - a part of a much larger neo-liberal social process or dominant culture that's going outside the boundaries of university as well (AUWSUP6).

4.2.2.2. Ethical Considerations

The point was also made that the production and dissemination of knowledge are always bound by ethical considerations.

I mean the same thing if you - as many people in many organisations will have stories about how ethics committees can be enormously effective in impeding or enhancing a good research to have happening. Sometimes, a research proposal is simply prevented to be conducted due to ethical considerations (AUWSUP3).

4.2.2.3. Political Conditions, Consequences and Forces

Participants noted that party politics can affect KM implementation and, hence, the creation and sharing of knowledge.

Sometimes ethics committees may be biased due to outside pressure beyond their control. I certainly think ethics committees in a way is utilised or at least serve a particular function in some universities where they stop research which can be too troublesome and too - for many reasons, often ideological reasons, the institutions do not want to happen and the ethics committee becomes the way to make sure it won’t happen, or certainly can delay research so long that
many researchers rethink their plans or come up with other plans (AUWSUP4).

4.2.2.4. Financial Considerations

Two participants (AUWSUP1 and AUWSUP3) stated that it was hard to implement knowledge initiatives without sufficient financial resources. They noted that successful implementation of KM practices is sometimes challenging.

It's harder to find pools of money to do those sorts of things. But I never seem to have access to any finance so I also work around those constraints. So if there's - like I was talking about that the research in the analytics, I wasn't successful in - I did apply for funding to do that particular research and wasn't successful so I did the research anyway (AUWSUP1).

4.2.2.5. Complexity and Uncertainty

One-quarter of participants reported that complexity and uncertainty can negatively affect the implementation of KC and sharing. They noted that there are situations in which knowledge can be misused or is not available.

On top of that of course, I also think of the whole system, right, determining what a good research is and what a useful research is and what a good academic performance looks like in terms of accounting publications or quantifying what good teaching is by student feedback is complex due to lack of knowledge. All those things I think helps shape the academic to behave in a particular way which sometimes can impede good research and good academic practices rather than facilitate them (AUWSUP3).

4.2.2.6. Inconsistencies in KM Concepts

One-quarter of participants believed that there was some consensus about the various concepts used in relation to KM, but their views on the implementation of KM differed. For example, AUWSUP11 believed that knowledge that is only delivered via conference papers can be dismissed or lost.

A lot of my knowledge from conference papers tends to be lost and that's about the way that things are recorded and the
way things are valued. So in fact some of my best insights might be in my conference papers but that gets lost because it's not valued (AUWSUP11).

4.3. Summary

This chapter has presented the results of analysis of qualitative data from semi-structured interviews and institutional documentation. The main sources of data about the latter were information on the WSU website, documents on strategy, rules and policy, job descriptions, charts and maps.

The analysis identified 14 internal and 6 external CSFs that have an influence on the KCP. The internal factors were leadership, organisational culture, organisational rules, organisational structure, members’ responsibilities, information technology infrastructure, measures and interventions, training, teamwork, involvement of employees, empowerment of employees, knowledge structure, organisational strategy, and worthy relationships between employees. External factors were socio-cultural factors, ethical considerations, political conditions, consequences and forces, financial considerations, complexity and uncertainty, and inconsistencies in KM concepts.

The first process of KCP is socialisation. This was seen to be influenced in by the 14 CSFs in various ways. Leadership was important because leaders help to shape socialisation by building a team or field of interaction, supporting individuals to acquire tacit knowledge, allowing employees to collaborate with people from outside the organisation, providing mentoring at different levels, and supporting professional development training. Organisational culture affects socialisation by supporting a friendly environment for building teams and fields of interaction, reinforcing freedom and democracy, enhancing employees’ learning and development, and encouraging collaboration with individuals and agencies outside the organisation. Socialisation relies on organisational rules that support team building, facilitate external collaboration, encourage mentoring and assist individuals to acquire tacit knowledge. Organisational structure enhances socialisation though low formalisation, multiple levels of leaders to support mentoring, and democracy and freedom. Responsibility strengthens collaboration and teamwork to make tacit knowledge exchange more efficient. Information technology infrastructure enhances
teams’ interaction. Measures and interventions shape socialisation by supporting the mentoring process at different levels and measuring organisational knowledge via team interaction. Training helps employees gain tacit knowledge through various means, such as OJT, trainees’ interactions, mentoring and formal professional development programs. Employees’ involvement enhances socialisation through interaction and teamwork that encourages information exchange. Teamwork influences KCP through interaction and mentoring. Employees’ empowerment supports team interactions and democracy, which enable employees to learn new knowledge. Knowledge structure maintains the KCP via a decentralised structure, communication channels with individuals and groups outside the organisation, and mentoring. Organisational strategy shapes socialisation via mentoring, collaboration to improve information exchange, and team interaction. Worthy relationships influence socialisation through mutual trust and transparency.

The externalisation process of KP was found to be influenced by 12 CSFs. Leadership enhances externalisation by creating successive rounds of meaningful dialogue, and encouraging employees to produce knowledge and new models. Organisational culture shapes externalisation through democracy and freedom, support for learning and development, and motivation for staff to produce knowledge. Rules influence externalisation by establishing policies that enhance knowledge creation, policies that support staff to produce knowledge, and policies that promote creation of successive rounds of meaningful dialogue. Organisational structure plays a role in the externalisation process via decentralisation and low formalisation that encourage successive rounds of meaningful dialogue between employees. Responsibility influences externalisation by supporting freedom and democracy and enhancing the conversion of tacit knowledge to explicit knowledge. Measures and interventions influence externalisation by creating meaningful dialogue between employees and reviewing and measuring the production of knowledge. Employees’ involvement affects externalisation by enhancing knowledge production and the creation of successful processes of dialogue. Teamwork reinforces externalisation by facilitating discussion between employees. Employees’ empowerment influences externalisation by creating successive rounds of discussion, supporting employees to produce new knowledge and giving employees freedom and democracy. Knowledge structure enhances externalisation by providing funding for
employees to create new knowledge. Organisational strategy has a positive influence on externalisation through a humanistic approach, encouragement and low formalisation, all of which foster KC. Building worthy relationships enhances externalisation by supporting informal system documentation.

The combination process was seen to be shaped by 9 CSFs. Leadership influences combination by enhancing social processes to combine different bodies of explicit knowledge, supporting the use of information technology and facilitating teams to develop new concepts from existing data and external knowledge. Organisational culture enhances combination through collaboration and use of information technology. Organisational rules enhance combination through the use of information technology to bring different bodies of explicit knowledge together. Organisational structure enhances social processes to combine different bodies of explicit knowledge possessed by individuals; the role of the Information Technology Department is important here. Social processes such as interactions between the staff members would support combination process. Information technology infrastructure influences combination by boosting knowledge accumulation and enhancing social processes to combine explicit knowledge. Measurement, employees’ involvement and teamwork affect combination by reinforcing social processes to combine different bodies of explicit knowledge held by individuals.

The internalisation process of KC was found to be influenced by 14 CSFs. Leadership enhances internalisation via meetings to explain the content of reports and other documents, policies that allow frequent learning by doing, free access to information on outcomes and supporting employee autonomy. Organisational culture influences internalisation by supporting freedom and democracy, openness and use of information technology. Organisational rules shape internalisation via requirements for frequent learning by doing, descriptions of job duties and learning support. Organisational structure motivates internalisation through decentralisation, formal hierarchical arrangements and low formalisation. Responsibility enhances democracy for employees and a hierarchical structure clarifies employees’ responsibilities. Information technology infrastructure supports the learning process. Measurement influences internalisation by reviewing knowledge and outcomes. Training enhances internalisation through formalised professional development and
experimentation that support the learning process. *Employees’ involvement* promotes internalisation by allowing employees access to information about outcomes and other knowledge. *Teamwork* has a vital role in internalisation because it allows employees to access information about outcomes and other knowledge and promotes the learning process. *Employees’ empowerment* affects internalisation by enhancing democracy and freedom. *Knowledge structure* supports free access to information about outcomes and other knowledge and provides information technology channels to share knowledge. *Low formalisation* strengthens knowledge acquisition. *Employees’ relationship* influences internalisation by supporting mutual trust and enhancing transparency.

In addition to these internal factors, some broad external factors that shape the implementation of KC processes were also identified. These were socio-cultural factors, ethical considerations, political conditions, consequences and forces, financial considerations, complexity and uncertainty and inconsistencies in KM concepts.

The following chapter presents the results of Case Study 2, KFSC in Saudi Arabia. It describes the characteristics of the academic participants, and presents the results of analysis of the semi-structured interviews and organisational documents.
Chapter 5: Case Study 2: King Fahd Security College in Saudi Arabia

This chapter presents the results of Case Study 2, King Fahad Security College (KFSC) in Saudi Arabia. It describes the socio-demographic characteristics of the participating academics and presents the results of critical success factors (CSFs) for knowledge creation process (KCP) based on analysis of semi-structured interviews and organisational documents.

5.1. Demographic Characteristics of Participants

The 25 participants in Case Study 2 held Bachelor, Master or PhD level qualifications. Their positions in the university were classified according to six categories: Professor, Associate Professor, Senior Lecturer, Lecturer, Assistant Lecturer and Tutor. Their work experience in HEIs and in that university was categorised as: less than 10 years, 11-20 years, 21-30 years and more than 30 years. Academic teaching levels were identified as: Doctoral (supervision), Postgraduate and Undergraduate. As can be seen from Table 5.1, the majority held doctoral level qualifications and most had at least 11-22 years’ experience in higher education in general and in this university in particular.
Table 5-1: Demographic Characteristics of KFSC Participants

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>KFSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest Qualification</td>
<td>Frequency</td>
</tr>
<tr>
<td>PhD Degree</td>
<td>20</td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>4</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
</tr>
<tr>
<td>Job Title</td>
<td>Frequency</td>
</tr>
<tr>
<td>Professor</td>
<td>1</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>1</td>
</tr>
<tr>
<td>Senior Lecturer</td>
<td>0</td>
</tr>
<tr>
<td>Lecturer</td>
<td>0</td>
</tr>
<tr>
<td>Assistant Lecturer</td>
<td>18</td>
</tr>
<tr>
<td>Tutor</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
</tr>
<tr>
<td>Experience in HEIs</td>
<td>Frequency</td>
</tr>
<tr>
<td>1 to 10 Years</td>
<td>0</td>
</tr>
<tr>
<td>11 to 22 Years</td>
<td>8</td>
</tr>
<tr>
<td>21 to 30 Years</td>
<td>11</td>
</tr>
<tr>
<td>More than 30 Years</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
</tr>
<tr>
<td>Experience in Current University</td>
<td>Frequency</td>
</tr>
<tr>
<td>1 to 10 Years</td>
<td>0</td>
</tr>
<tr>
<td>11 to 20 Years</td>
<td>8</td>
</tr>
<tr>
<td>21 to 30 Years</td>
<td>11</td>
</tr>
<tr>
<td>More than 30 Years</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
</tr>
<tr>
<td>Teaching Level</td>
<td>Frequency</td>
</tr>
<tr>
<td>Undergraduate (UG)</td>
<td>6</td>
</tr>
<tr>
<td>Postgraduate (PG)</td>
<td>3</td>
</tr>
<tr>
<td>PhD – Supervisor</td>
<td>1</td>
</tr>
<tr>
<td>All of the Above</td>
<td>7</td>
</tr>
<tr>
<td>UG and PG</td>
<td>3</td>
</tr>
<tr>
<td>UG and PhD – Supervisor</td>
<td>0</td>
</tr>
<tr>
<td>PG and PhD- Supervisor</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
</tr>
</tbody>
</table>

5.2. Critical Success Factors of Nonaka’s Knowledge Creation Process

Analysis of the interview data generated a number of codes and categories relevant to knowledge management (KM). Each category included several factors that significantly influenced the implementation of knowledge creation and sharing (KCS). Thematic deductive and inductive analysis identified two main categories of factors related to the knowledge environment. These categories comprised internal and external CSFs that contributed to KCP.

5.2.1. Internal Factors related to the Knowledge Environment

Fourteen internal CSFs were identified. Each is examined below primarily with reference to the interview material. Documentary sources are mainly used to understand the ways in which the CSFs were institutionalised in KFSC and to identify
instances of divergence from the processes. The 14 CSFs that influenced KCP in relation to socialisation, externalisation, combination and internalisation were: leadership, organisational culture, organisational rules, organisational structure, responsibility, information technology infrastructure, measurement, training, teamwork, employees’ involvement, employees’ empowerment, knowledge structure, organisational strategy and building worthy relationships between employees.

5.2.1.1. Leadership

According to participants, leadership influenced all processes of KC including socialisation, externalisation, combination and internalisation (Figure 5-1). This perception was supported by documents and archival records.

![Figure 5-1: The influence of leadership](image)

**Influence on socialisation**

Leaders were seen to affect socialisation in five different ways. First, leaders build a team or field of interaction in the workplace. Second, they support individuals to acquire tacit knowledge via OJT. Third, they allow employees to collaborate with people from outside the organisation. Fourth, they direct through multiple levels of leaders. Finally, they support professional development training.
Almost one-third of participants reported that leaders shape socialisation by building a team or field of interaction. The interaction between employees contributes to the exchange of tacit knowledge and sharing of their experiences. Leaders support this interaction by convening frequent formal and informal meetings.

He makes meetings with us continuously before any task and during the tasks, and he tries to give us the information from the reality of experience and the reality of workers to get benefit of these in task performance (SAKFSCP4).

A fifth of participants reported that leaders promoted OJT. This helps employees to gain new tacit knowledge through interaction with colleagues who have experience in teaching, research or administrative processes.

I stayed with my previous colleagues to get benefit of their experiences and experiments (SAKFSCP19).

Two participants (SAKFSCP4 and SAKFSCP11) indicated that leaders influence socialisation by supporting professional development training through which employees interact with each other, thus sharing tacit knowledge and experiences.

The physical role is his ability to harness the capabilities that help the creativity of knowledge transfer and delegation of powers related to training, rehabilitation (SAKFSCP11).

Mentoring from leaders at different levels was also seen to support socialisation. This helps knowledge to flow up and down.

There is no doubt that former directors and leaders provided us with some experiences through patient monitoring of our actions (SAKFSCP5).

Leaders were also seen to shape socialisation by allowing employees to collaborate with people from outside the organisation to exchange ideas. This helps academics to acquire new knowledge and transfer it to their university.

Adopt project that facilitates exchange the knowledge with experts outside the organisation (SAKFSCP14).

KFSC documentation supported this perception. The College’s strategic plan included professional development training. The leadership had also established relationships with institutions inside and outside the country, such as New Haven
University in the United States. Employee interaction and teamwork were supported via numerous committees, such as the College Council and the Scientific Council (King Fahad Security College 2017b). Furthermore, they developed mentoring interventions and programs to assist flow of knowledge (Figure B.1 in Appendix B).

Influence on externalisation

Leadership shaped externalisation in various ways. Leaders created successive rounds of meaningful dialogue, adopted a decentralised style and encouraged and supported employees to produce new knowledge.

One in five participants reported that leaders supported externalisation by convening meetings and holding discussions among employees and between employees and managers. This process helps to convert tacit knowledge into explicit knowledge.

I find managers sometimes speak in terms of the subject of a specific destination and be an openness dialogue to all that is special so we would have a problem that we want all of us to contribute to solve (SAKFSCP1).

A similar number of participants emphasised that leaders play a significant role in externalisation by encouraging staff to produce knowledge via teaching material and research. These processes help to convert tacit knowledge into explicit knowledge.

A leader may use the way of motivation sometimes and therefore make his employees always looking for creativity (SAKFSCP6).

According to around one-fifth of the participants, leaders played a vital role in externalisation by supporting employees to develop new models or paradigms by documenting the outcomes of meetings, seminars, workshops and training programs; recording retirees’ experiences and writing useful reports. These documents and reports contributed to the production of new models and procedures.

We have morning meetings before colleagues work in their offices and the purpose of this morning's meetings to relay experiences and transfer of knowledge or tacit skills to explicit skills (SAKFSCP12).
A similar proportion commented that decentralised leadership supports externalisation by giving employees autonomy to express their views and convert experiential knowledge into explicit knowledge.

*Also the democracy method of the director plays an effective role in dealing with his subordinates and may help increasing the knowledge between the employees (SAKFSCP18).*

Documents supported this perception. As noted above, the leadership had set up a number of committees, including the College Council and Scientific Council (King Fahad Security College 2017b), which held Monthly meetings at which knowledge was exchanged around the strategic direction of the College. As well, a Studies and Research Centre was established to encourage KC (Figure B.1 in Appendix B).

**Influence on combination**

Leadership had a significant effect on combination by promoting social processes to combine different bodies of explicit knowledge, strengthening the use of information technology and supporting collaborative teamwork.

Three participants (SAKFSCP1, SAKFSCP5 and SAKFSCP10) reported that leaders enhance social processes through which different bodies of explicit knowledge are combined. When leaders convene meetings, for instance, each member brings his or her own experience and knowledge to the discussion.

*There is no doubt that former directors and leaders provided us with some experiences through consultation and direct meetings (SAKFSCP5).*

According to two participants (SAKFSCP1 and SAKFSCP4), leaders reinforce combination by supporting the use of information technology to combine different knowledge sets. For example, they encourage academics to put courses and publications into the system.

*He is also the manager who encourages the use of technology and should help in the construction of knowledge in the process of creating computer programs (SAKFSCP1).*
Only one participant mentioned how leaders influence the combination process of knowledge creation and transfer by coordinating the input of team members. For instance, leaders support the collection of data obtained from the consultations with internal and external specialists for their decisions making.

_The manager has specific techniques through meetings, through consultation (SAKSCP15)._  

This result is supported by documentary evidence. The leadership established the Military Scientific Council whose members are academic experts on policing. They seek through this council to improve both the practical and academic aspects of policing. Members of council convert and combine their knowledge to enhance efficiency (King Fahad Security College 2017b). The College also enhanced the use of information technology by establishing the Educational Technologies Centre to facilitate the use of IT in teaching (King Fahad Security College 2017b).

**Influence on internalisation**

Leadership influences internalisation by arranging meetings to explain the content of relevant reports and documents, supporting employee autonomy and providing free access to information and knowledge.

Two participants (SAKSCP4 and SAKSCP5) commented that meetings convened to explain relevant documents help to convert explicit knowledge into tacit knowledge as employees transfer their knowledge to others.

_He makes meetings with us continuously before any task and during the tasks, and he tries to give us the information from the reality of experience and the reality of workers to get benefit of these in task performance (SAKSCP4)._  

Nearly one-fifth of participants emphasised the role of leaders in supporting employee autonomy in the context of internalisation. The Dean of the School, for example, encourages institutional openness and autonomy, thus allowing employees to search out new knowledge.

_We can see that in freedom and creation which was allowed and transferring them to your administration or other administrations (SAKSCP13)._
Leaders were also seen to support internalisation by providing free access to sources of knowledge such as other employees with particular expertise, training programs, seminars, meetings and databases.

*I went back to my previous colleagues to get benefit of their experiences and experiments (SAKFSCP19).*

Documents supported these perceptions. There are frequent meetings at which new reports are explained, and documents related to KFSC are available on the intranet.

### 5.2.1.2. Organisational Culture

Nearly two-thirds of participants acknowledged ways in which organisational culture influences socialisation, externalisation, combination and internalisation in the context of KCP (Figure 5-2). This perception was supported by archival evidence.

**Figure 5-2: The influence of organisational culture**

**Influence on socialisation**

Organisational culture was seen to affect socialisation in various ways. A friendly culture supports team building, and a culture of employee learning and development reinforces acquisition of tacit knowledge. A culture of freedom and democracy
enhances communication between employees, and a collaborative culture contributes to the smooth exchange of knowledge.

One-third of participants affirmed that a friendly culture enhances the interaction between employees and contributes to the sharing of tacit knowledge via formal and informal meetings.

You will find the most of our work is through forming committees for it and if we take the positive side of the committees which is the exchange of experiences, the exchange of views, the exchange of viewpoints may contribute to the enrichment of cognitive side or affecting the adoption of creativity aspects (SAKFSCP11).

Similarly, a learning and development culture was seen to enhance the sharing of tacit knowledge between experienced and newer employees.

They see themselves responsible for transferring their expertise and their experiences to the newest, avoiding their notes about the newest in the workplace (SAKFSCP10).

Participants commented on how a culture of freedom and democracy encouraged effective communication between employees in different positions, thereby facilitating the transfer of tacit knowledge.

We need at the college to be than more a communication process with specific people based on their job positions (SAKFSCP17).

Finally, a collaborative culture enhances socialisation because workers exchange ideas and tacit knowledge with people inside and outside the institution, such as partners and government representatives. Such a culture enhances the knowledge exchange process.

The scientific openness which results in contacting with all educational institutions and research authorities and centres all over the world and also will contribute in convene the seminars, conferences and workshops and hosting many experts and executing the scientific exchange (SAKFSCP18).

Learning and employee development were supported by the availability of intensive training programs and scholarships for all employees. New employees are keen to
avail themselves of these opportunities. One stated objective of the Studies and Research Centre is to disseminate a culture of collaboration and knowledge exchange (King Fahad Security College 2017b).

**Influence on externalisation**

A culture of democracy and freedom enhances knowledge creation. A culture of learning and development helps to convert tacit knowledge into explicit knowledge. A culture of documentation enhances the conversion of knowledge from tacit to explicit.

Some participants commented that a culture of democracy and freedom allows them to research, write and teach the subjects of their choice. This helps to create and transfer new knowledge and models.

_The culture of the other organisations in giving them space to express their opinions is encouraged through knowledge which they have (SAKFSCP6)._ 

Two participants (SAKFSCP10 and SAKFSCP14) pointed out that a culture of learning and development plays an important role in converting tacit knowledge into explicit knowledge. For example, successive rounds of meaningful dialogue help academics to create knowledge through team discussion.

_I note that College leaders and colleagues are working by team spirit code, discussing, they are want to debate (SAKFSCP10)._ 

Another perception was that a culture of documentation significantly helped to convert tacit knowledge into explicit knowledge.

_Through committees and listening to the views of scientific departments, we issued an organisational procedures guideline of these departments (SAKFSCP15)._ 

Documentary analysis showed that KFSC practises a culture of disseminating via documentation. The Documentation and Archive Centre, for instance, holds copies of all College reports (Figure B.1 in Appendix B).
Influence on combination

A collaborative culture helps teams to combine their available information with external knowledge to produce consultative decision making. An IT culture supports the combination of different forms of explicit knowledge. For example, employees circulate reports and bulletins to all staff via email, and academics convert hard copies of their courses and research into online format for storage in databases.

*The decision is based on consultation and exchange of information through real or virtual listening. Also, the use of technology and circulation or in terms of organisation and documentation of information is important in combination process (SAKFSCP1).*

Documentary evidence supports this suggestion. At fortnightly meetings of the Scientific Council, academics combine their knowledge to improve curricula (King Fahad Security College 2017b). The Educational Technologies Department supports the conversion of hardcopy resources into online databases (King Fahad Security College 2017c).

Influence on internalisation

Organisational culture supports internalisation in three ways: a culture of openness enhances the learning process; freedom and democracy allow employees to convert explicit knowledge into tacit knowledge by acquiring new knowledge through their teaching and research; an experimentation culture reinforces acquisition of new knowledge.

A culture of openness encourages learning by doing. For example, new staff can acquire knowledge through discussion with experienced colleagues.

*They aren't feeling any difficulty to ask the oldest among them, the most knowledgeable among them about his experiences and expertise (SAKFSCP10).*

Freedom and democracy allow employees to perform their roles as they see fit. In this way, explicit knowledge is converted into tacit knowledge and employees acquire new knowledge.
Academic sector enjoys a great deal of flexibility, and flexibility is contributing to increase the dissemination of knowledge between employees and generating, transmission and creativity in them (SAKFSCP12).

Finally, participants commented that an experimentation culture provides opportunities for them to gain new knowledge by trying different things.

There is experience exchange and nowadays there are experiments in the battalions which are considered a supporter in the knowledge aspects? (SAKFSCP25).

Documentary evidence showed that the laboratories in scientific units provide the facilities and materials for experimentation (King Fahad Security College 2017b).

5.2.1.3. Organisational Rules

Almost two-thirds of participants affirmed that organisational rules influence socialisation, externalisation, combination and internalisation (Figure 5-3). Documents and archival records supported this result.

![Organisational Rules Influence Diagram](image)

**Figure 5-3:** The influence of organisational rules
Influence on socialisation

One-third of participants suggested that organisational rules influence socialisation in three ways: they encourage the acquisition of new knowledge through OJT; they support team building and field interaction; and they facilitate collaboration for knowledge exchange with people outside the institution.

Some participants noted that organisational rules support OJT by, for example, requiring personnel to rotate across departments, thereby facilitating observation of experienced staff and knowledge sharing.

*The system depends on teaching and training and this leads to build the system of knowledge, the existent laws and regulations serve the system of knowledge (SAKFSCP4).*

Rules were also seen to support team building and field interaction via formal and informal meetings. These extend the boundary of team activities, increasing interaction and knowledge exchange.

*College established a team that tried to write the standards and laws of how to take advantage of the knowledge of current experiences (SAKFSCP19).*

Two participants (SAKFSCP17 and SAKFSCP18) suggested that organisational rules facilitate collaboration with people from outside the organisation (such as partners and government personnel) to exchange knowledge.

*Regulations of college allow to contacts with the other educational institutions whether inside or outside the kingdom (SAKFSCP18).*

The documented rules of KFSC support this view. For example, regulations require new academics to receive six months on the job training (King Fahad Security College 2006). Other regulations relate to external collaboration, for instance, with expert guest lecturers from outside the College (King Fahad Security College 2003).

Influence on externalisation

Organisational rules were seen to influence externalisation by: enhancing KC; supporting low formalisation; supporting successive rounds of meaningful dialogue;
encouraging employees to produce knowledge; and supporting freedom and democracy.

Organisational rules supported KC by requiring academics to conduct research and publish reports, thus growing the knowledge base.

_We should write the final reports when we participate in a specific mission such as hajj or during the term or the school year (SAKFSCP6)._ 

Another perception was that flexibility via low formalisation allows academics to connect with employees at different levels and express their opinions freely, thus converting tacit knowledge into explicit knowledge.

_Laws should be flexible and give an opportunity for employees to express opinions to build a new knowledge (SAKFSCP23)._ 

Rules also supported the creation of successive rounds of dialogue, for instance via team discussions that contribute to knowledge creation.

_Every week we have a session to discuss the procedures and read the evidence and transfer of expertise from the privileged employee who explains to his colleagues (SAKFSCP22)._ 

Some policies encourage and motivate academics to produce knowledge, for instance through research and publication.

_There is a motivation from the college's general manager to save the publications of representatives (SAKFSCP14)._ 

Participants also observed that rules should support democracy so that academics and other employees can express their views freely, thereby converting their tacit knowledge into explicit knowledge.

_The committees’ laws provide each member with the freedom to innovate and to express his opinions away from the restrictions of the administrative system (SAKFSCP21)._ 

There was documentary evidence of rules that support the externalisation process. Some regulations organise horizontal communications between departments and
support low formalisation (King Fahad Security College 2005). The guidelines of the *Security Sciences Journal* that is published by the Studies and Research Centre increase KC (King Fahad Security College 2017b). Other policies encourage the production of knowledge, such as financial rewards for publishing an article in the *Security Sciences Journal* (King Fahad Security College 2017b).

**Influence on combination**

Organisational rules influence the combination process by supporting the use of information technology to circulate updated knowledge to all staff via email.

*The use of technology and making it something that is mandatory and working models and process documentation in information has a role of KM (SAKFSCP1).*

There are rules that organise how employees use information technology to facilitate communication between them and transfer knowledge through it (King Fahad Security College 2017b).

**Influence on internalisation**

One-quarter of participants reported that organisational rules enhance internalisation by supporting low formalisation, enhancing the learning process, and facilitating learning by doing.

Some participants suggested that flexibility and low formalisation allow employees freedom to perform their work and acquire knowledge efficiently.

*The knowledge transports only through a real learning environment, experience clear, experiments and other practices find it flexible (SAKFSCP3).*

Another perception was that rules enhance the acquisition of knowledge via seminars and training programs.

*Convening annual conferences and society seminars or the security and society seminars are considered as regulation every year (SAKFSCP18).*
Rules about strategic rotation of employees increase the amount of new knowledge and the frequency with which it is acquired.

*Rotate working at the side of this in order for the employee be oriented in his work (SAKFSCP22).*

Documents and archival records supported this result. Regulations covering horizontal communications between departments support low formalisation (King Fahad Security College 2005) while training requirements (e.g. participation in seminars) enhance knowledge acquisition (King Fahad Security College 2003).

### 5.2.1.4. Organisational Structure

Almost half of the participants reported that organisational structure supports the KCP in relation to socialisation, externalisation, combination and internalisation (Figure 5-4). Documents and archival records confirmed this perception.

![Figure 5-4: The influence of organisational structure](image)

*Influence on socialisation*

According to one-third of participants, organisational structure boosts socialisation in five ways: a decentralised structure reinforces the conversion of tacit knowledge into...
tacit knowledge; multiple levels of leadership enhance employee mentoring; employees are supported to develop their skills; low formalisation contributes to knowledge dissemination; and communication channels are available for knowledge exchange with people from outside the organisation.

Some participants observed that a decentralised structure enhances communications among employees and between them and their leaders. This contributes to the effective conversion of tacit knowledge into tacit knowledge.

Really it enhances positively through the ease of communication from bottom of administrative structure to the top of organisational structure. The communication is open with the general manager (SAKFSCP25).

Another perception was that organisational structure enhances knowledge conversion by formalising multiple levels of leaders. These positions are occupied by experienced staff so knowledge is smoothly transferred up and down the hierarchy.

We look at the technical deal that has come from central command and central administration have contact with senior management and have a contact at the lower management through this middle management knowledge (SAKFSCP3).

An additional effect of organisational structure on socialisation comes via overlap of functions that are enhanced by OJT via personnel rotation across departments. Job descriptions also facilitate sharing experience, observation and imitation.

The functional formation and the rotation are necessary in organisational structure to transfer knowledge (SAKFSCP10).

According to three participants (SAKFSCP10, SAKFSCP18 and SAKFSCP23), low formalisation enhances knowledge exchange between employees through the absence of boundaries around many activities. For example, interaction can lead to the expansion of team activities, formal and informal meetings are easily convened, and effective and efficient lines of collaboration between departments are established.
There’s nothing can stop anyone of us to hold meetings and exchange knowledge (SAKFSCP10).

Finally, participants noted that well-established communication channels facilitate collaboration with external institutions.

*We seek to connect the administrations and departments with each other to facilitate the coordination process and with the external institutions too (SAKFSCP18).*

Documents and archival records supported this result. The organisational chart of KFSC depicts three levels in what is considered to be a horizontal structure. Three levels of leaders enhance knowledge flow from top to bottom and vice versa. There is also an International Academic Department that was established to support collaboration and knowledge exchange with government and other outside agencies (Figure B.1 in Appendix B). Further, employees can occupy more than one position in the structure; for example, academics perform administrative functions in addition to their academic duties (King Fahad Security College 2006), thereby acquiring new knowledge.

**Influence on externalisation**

One-quarter of participants identified three ways in which organisational structure influences externalisation: low formalisation reduces organisational restrictions and increases dissemination of knowledge; a decentralised structure reinforces conversion of tacit knowledge into explicit knowledge; and it supports successive rounds of meaningful dialogue between employees.

Some participants noted that a flexible structure enhances knowledge dissemination.

*The Organisational structure is flexible; always let the leader connect to the newest, give reason for all to transfer knowledge (SAKFSCP10).*

Another perception was that a decentralised structure gives employees at all levels autonomy and freedom to create knowledge.

*The presence of some of the powers and openness rather than being vertical which allowed big chance for the employee to involved in or access to information (SAKFSCP22).*
Formalisation of team discussions was seen to assist the process of converting tacit knowledge into explicit knowledge.

*The manager came and met them and there were negative aspects in the training which we discussed and the manager amended them (SAKFSCP25).*

The organisational chart of KFSC shows a division into three levels. Such a horizontal structure supports knowledge dissemination, and having only three levels of leaders makes the organisation more flexible. Hence, employees are able to express their views. The chart also depicts the College’s numerous committees, which facilitate teamwork discussion and, hence, knowledge conversion (Figure B.1 in Appendix B).

**Influence on combination**

In this context, participants observed that the Information Technology Department supports employees to transfer explicit knowledge; that organisational structure enhances knowledge preservation; and that it promotes social processes that help to combine different bodies of explicit knowledge.

The Information Technology Department supports the dissemination of updated explicit knowledge via email and enables academics to put courses online.

*The technology that is found now served the side of transferring knowledge from the top of the organisation to the lowest level (SAKFSCP22).*

Mention was also made of the establishment of the Documents and Archives Centre, which enriches the combination process by preserving existing information and knowledge.

*Documents and Archives Centre was established to preserve the knowledge (SAKFSCP15).*

Organisational structure also facilitates social processes, such as meetings, that allow employees to combine different bodies of explicit knowledge and convert them into new knowledge.
The manager came and met them and there were negative aspects in the training which we discussed and the manager amended them (SAKFSCP25).

Documentation showed that the purpose of the Information Technology Department was to transfer and preserve organisational knowledge (Figure B.1 in Appendix B).

**Influence on internalisation**

Almost one-third of participants identified ways in which organisational structure boosts internalisation: low formalisation reduces organisational constraints and improves the distribution of knowledge; an hierarchical structure helps to manage knowledge effectively and efficiently; and a decentralised structure supports the process of converting explicit knowledge into tacit knowledge.

One-third of participants noted that low formalisation influences explicit knowledge acquisition and its conversion into tacit knowledge. It supports the learning process by promoting flexible and informal exchange of knowledge.

*We seek to connect and communicate with the specialists in order to benefit from their experiences (SAKFSCP18).*

The hierarchical structure was seen to be important for converting explicit knowledge into tacit knowledge. It facilitates the smooth transfer of knowledge between levels and identifies the knowledge that is required in each position.

*By the organisational structure, the management will have the power to identify the job description for every person in the College (SAKFSCP18).*

A decentralised structure was seen to support autonomy and give employees freedom to gain new knowledge and develop ways of doing their job.

*The presence of some of the powers and openness rather than being vertical which allowed big chance for the employee to involved in or access to information (SAKFSCP22).*

Archival records supported the view that structure enhances internalisation. As previously noted, KFSC’s organisational chart shows it as a horizontal structure with three main divisions. Hence it supports effective knowledge acquisition and is
flexible (Figure B.1 in Appendix B). Employees have opportunities for learning and there are clear job descriptions (King Fahad Security College 2006).

5.2.1.5. Responsibilities

Approximately two-thirds of participants reported that employees’ responsibilities affect socialisation, externalisation, combination and internalisation in various ways (Figure 5-5). This perception was supported by documents and archival records.

![Figure 5-5: The influence of responsibility](image)

**Influence on socialisation**

Nearly one-quarter of participants believed that responsibilities enhance socialisation in various ways: employees are responsible for developing their own skills; team responsibilities support interactions and tacit knowledge exchange between members; and collaboration responsibilities assist knowledge exchange with people from outside the organisation.

Employees are required to improve their skills and knowledge. Knowledge acquisition is enhanced through, for example, personnel rotation across departments and training programs.
The responsible persons should be efficient and has been trained and developed during the work which will help in building the knowledge in the college (SAKFSCP18).

Some participants indicated that team responsibilities support interactions between employees that encourage exchange of tacit knowledge and motivate collaboration.

All of them should know that they are responsible for colleagues under their management. They must tell them about experiences, knowledge and strategy on facing or solving problems (SAKFSCP10).

One participant suggested that collaboration responsibilities enhance socialisation by supporting external connections that help employees to acquire tacit knowledge.

The most of college's representatives get benefit of the colleagues' experiences; they have external lectures, external visits and seeing governmental authorities (SAKFSCP19).

These perspectives were supported from documents and archival records in several ways. First, each employee completes a training pathway for his position whereby he or she acquires tacit knowledge and sits on representative committees that support knowledge exchange between team members (King Fahad Security College 2006). Second, some departments, such as the Department of Supervision Programs and Technology Collaboration and the Retirees Affairs Department, have responsibilities for collaborating with other individuals or institutions (Figure B.1 in Appendix B).

**Influence on externalisation**

Almost one-half of participants thought that responsibilities affect the externalisation process, in two ways: they help to convert tacit knowledge into explicit knowledge, and democracy and freedom give employees more responsibilities.

Some participants supported the idea that responsibilities for knowledge creation lead to the publication of useful research and reports, the use of expert advice to generate new knowledge, and documentation of the outcomes of meetings, seminars, workshops and training programs. This is particularly important for education institutions, which are expected to produce new knowledge. This means tacit knowledge will be available to others in the form of explicit knowledge.
expert say his opinion and say it in a specific way that makes the studies director or the learning director sees it as a good idea, and that is a good thing that they generalised it and it became a visible procedure and used as an organisational procedure (SAKFSCP6).

One-third of participants observed that democracy and freedom provide autonomy for academics. This makes them more creative because they are responsible for their work. As a result, tacit knowledge can effectively be converted into explicit knowledge.

It is supposed that the employee who has responsibility receives the opportunity to be creative and to provoke his energy in KM (AUWSUP21).

KFSC’s documents show that many of the College’s career pathways carry responsibilities for knowledge creation. For example, unit coordinators are responsible for improving their units. Academics within the Higher Institute of Security Studies are responsible for designing diploma programs to improve the skills of employees in the Interior Ministry (King Fahad Security College 2006).

**Influence on combination**

Coordination responsibilities support the combination process as teams form new concepts by combining existing data and external knowledge. For example:

We have in terms of sending it to the specialists in their respective fields, and we receive reports, and we are working on the drafting of the report and combine it with some occasionally arbitrator is what gives the book its right either positively or negatively (SAKFSCP1).

Social responsibilities help employees to combine different bodies of explicit knowledge through, for example, overlap of functional responsibilities.

* I am director of management in certain place and member in several committees, each committee has its own topics and procedures and the committee wants preparations of these procedures, and also member teaching staff in other topics in events of the College such as the celebrations, seminars and the other events within other subcommittees (SAKFSCP13).
Job Description documentation illustrates these processes. For instance, employees in the Studies and Research Centre are responsible for combining different forms of explicit knowledge in a particular area by seeking out and combining specialist advice to create knowledge (King Fahad Security College 2006).

**Influence on internalisation**

One-half of participants agreed that employees’ responsibility shapes the internalisation process, in three ways: employees are responsible for self-development, which requires knowledge acquisition; democracy and freedom give academics more responsibilities and the autonomy to acquire new knowledge; and job descriptions encourage individuals to learn their duties.

Two participants (SAKFSCP1 and SAKFSCP18) asserted that responsibilities for self-development lead employees to acquire new knowledge through, for example, strategic rotation and training in different positions.

*The responsible persons should be efficient and has been trained and developed during the work which will help in building the knowledge in the college (SAKFSCP18).*

One-third of participants agreed that autonomy gives academics more responsibilities in their work, which requires learning and the conversion of explicit knowledge into tacit knowledge.

*Value-added aspects only in certain departments at the College which is found in bodies such as the Research Centre at certain points of these areas which have greater movement give more space for creativity (SAKFSCP12).*

Job descriptions clarified employees’ responsibilities and, therefore, the skills and knowledge they need to learn.

*I am here in college reformers job description which means sense of bright meaning or foreseeable bright but beautiful thing determines the terms of reference and prevent overlapping of roles (SAKFSCP12).*

KFSC records document the responsibilities that enhance internalisation. Each position in the College has a training pathway, involving new knowledge, which
each employee is responsible for undertaking. Job descriptions clearly explain all the responsibilities associated with each position (King Fahad Security College 2006).

5.2.1.6. Information Technology Infrastructure

Almost two-thirds of participants agreed that information technology infrastructure affects socialisation, externalisation, internalisation and, particularly, combination, in various ways (Figure 5-6). These perceptions were supported by documentation.

![Diagram showing the influence of information technology infrastructure on socialisation, externalisation, internalisation, and combination.](image)

**Figure 5-6: The influence of information technology infrastructure**

*Influence on socialisation*

Information technology infrastructure was seen to support the socialisation process in two ways: it facilitates team interaction, and enhances collaboration for exchange knowledge with people from outside the organisation.

Two participants (SAKFSCP6 and SAKFSCP15) emphasised the role of information technology in supporting team interaction, which is a critical channel for sharing knowledge, opinions and experience between employees.

*Technology makes communication between them inside the college speedily, thus sometimes a specific opinion opens a*
field to give opinions as the members of the teaching staff (SAKFSCP6).

Information technology was also seen to enhance external collaborations through which tacit knowledge is exchanged about, for instance, dealing with partners and government representatives or with students and the public.

We have visited many electronic universities which are specialised in this matter and we dealt with them in order to execute a program for us (SAKFSCP18).

KFSC’s website identifies channels that support team interactions, such as Blackboard and email. The Information Technology Department and the Department of Supervision Programs and Technology Collaboration develop networks for knowledge exchange with universities and government agencies inside and outside the Kingdom of Saudi Arabia; technology cooperation with the National Information Centre is one example (Figure B.1 in Appendix B).

**Influence on externalisation**

Only one participant commented on the role of information technology infrastructure in externalisation via the codification process which converts tacit program knowledge into explicit knowledge.

The second aspect is to work on KM and codified in the programs (SAKFSCP1).

The Information Technology Centre has designed many programs that assist academics to upload their research and course information. The Education Technologies Department supports academics to digitalise hard copies of lectures, seminars and films (King Fahad Security College 2017b).

**Influence on combination**

Almost half of participants agreed that information technology infrastructure enhances combination of knowledge: it enhances configuration of existing information; it supports knowledge preservation and accumulation; and it reinforces social processes that help to combine explicit knowledge among employees.
Information technology enhances configuration of existing information as explicit knowledge (e.g. databases) is updated by the addition of new instructions and reports.

*Work in the designation of programs and exchange of information and feeding programs out have a great role in the KM process (SAKFSCP1).*

Almost one-quarter of participants agreed that information technology infrastructure helps the institution to preserve and accumulate its knowledge by allowing employees to save their publications, course information and annual objectives.

*Technology now is more effective. You can at these days document knowledge, any lecture is documented, any conference is documented, any scientific meeting is documented (SAKFSCP10).*

Nearly one-quarter of participants suggested that information technology infrastructure enriches social processes by combining explicit knowledge. Employees can disseminate knowledge (e.g. reports) to all staff via channels such as email.

*We have e-mail via outlook and I can email all of members of teaching staff and can get their opinions about any issue (SAKFSCP15).*

KFSC’s website includes many accumulated knowledge files. For example, King Salman Library holds a great many reports of research in different fields, particularly policing and criminology, as well as electronic files such as the Administrative Procedures Directory, Sustainable Orders and Instructions Directory and Educational Films (http://www.kfsc.edu.sa/Pages/default.aspx).

**Influence on internalisation**

Nearly one-third of participants agreed that information technology infrastructure influences the learning process by providing free and easy access to information and knowledge, such as databases.

*For example: library, database in the library enhances the faculties and students to find any source they want (SAKFSCP23).*
King Salman Library’s holdings can be readily accessed by researchers from inside or outside the College. Students can access knowledge via Blackboard, which is supported on the College Website.

5.2.1.7. Management Measurements

Almost half of participants suggested that management measurements motivate the KCP, particularly externalisation, in different ways. None, however, identified an influence on the combination process (Figure 5-7).

**Figure 5-7: The influence of measurements**

**Influence on socialisation**

Management measurements were seen to affect the socialisation process in two ways: mentoring by experienced staff members at different levels supports knowledge exchange; and team interactions in formal and informal meetings enhance knowledge transfer.

First, mentoring encourages knowledge flow up and down the various levels of management.
A specialist man who works through the scientific basis downright comes will have a role in college guide and departments through the creation of specific standards for KM (SAKFSCP1).

Management measurements were also seen to enhance the conversion of tacit knowledge into tacit knowledge via formal and informal meetings. For example, meetings convened to discuss the quality indicators for team activities provide feedback from colleagues.

Teacher will meet the members of teaching staff and offer a detailed report about the subject and its vocabularies, how the exams have been done in the light of the department's criteria to show the pros and cons (SAKFSCP15).

KFSC’s organisational chart identifies three levels of leaders who participate in the mentoring process. The Academic Measurement and Evaluation Department was established to review and improve educational processes (Figure B.1 in Appendix B). Academics on Scientific Councils assess the knowledge content of courses at monthly meetings (King Fahad Security College 2006).

**Influence on externalisation**

One-half of participants agreed that management measurements influence the externalisation process (Figure 5-7). Reviews and evaluations of knowledge production are important for converting tacit knowledge into explicit knowledge. Such assessment, which can be considered a method of knowledge measurement, produces new models via integration of expert advice, publication of useful reports and documenting the outcomes of meetings, seminars, workshops and training programs.

Academic Security Program is based on two tests, a test of the mental abilities of the students before and after the program and a test of the personal traits and then the test is administered once again to find out that there is a difference between the two personalities when joining the program and after graduating (SAKFSCP5).

The Administrative Procedures Directory of KFSC describes the procedures followed by the Security Sciences Journal (King Fahad Security College 2006).
**Influence on internalisation**

Measurements affect the internalisation process by contributing to the conversion of explicit knowledge into tacit knowledge. Employees who attend assessment meetings to evaluate the outcomes and see students’ feedback acquire new knowledge during this process.

*When you want to measure the result, it can be measured by a student, a director, lecturer or teacher who provides this knowledge. Of course in this meeting, the process of assessment provided by the same scientific article provides scientific material held by the student and the output of the lecture. Hence, I am assessing student, lecturer and scientific material presented to knowledge building. This evaluation work questionnaires put through technology Blackboard operates momentary assessed by evaluate the lecture (SAKFSCP3).*

KFSC documents the operational plans of all departments of the College. Performance against goals and objectives is measured to identify challenges and solutions (2017d).

**5.2.1.8. Training**

Almost two-thirds of participants agreed that training promotes socialisation, externalisation and internalisation processes, in different ways, but no effect on combination processes was identified (Figure 5-8). Documentary evidence supported this view.
Influence on socialisation

Almost two-thirds of participants reported that training influences socialisation, in four ways: formalised professional development supports knowledge sharing; training promotes team interactions; collaborative training with partners contributes to tacit knowledge exchange; and OJT enables individuals to acquire new tacit knowledge.

Two-thirds of participants agreed that formalised professional development influences the socialisation process. For instance, training programs and workshops contribute to sharing tacit knowledge and experience, and the availability of scholarships for employees to study in developed countries supports knowledge acquisition.

*When the colleagues go to train whether preparing courses, private courses, specialised courses, developed courses or graduate studies of master and doctorate, all of those persons gained specific experiences and give you specific knowledge to get benefit of it in the process of development (SAKFSCP15).*

182
Training was also seen to enhance team interactions that promote sharing of knowledge and experiences. For example, trainees work in groups and exchange tacit knowledge.

_I noticed a time passed on us on the college there were short term courses about a week or two weeks, all were good in the process of getting from the trainees all the knowledge they have and knowing the extent of their participation by working in groups and benefiting from what they learn in these courses (SAKFSCP6)._ 

Collaborative training with partners and government agencies was also seen to enhance knowledge exchange between institutions and help employees gain tacit knowledge.

_There is cooperation between the college and its counterparts in the other countries (SAKFSCP15)._

OJT was seen to enable individuals to acquire tacit knowledge through observation, practice and imitation.

_Actually we can't ignore training during the work which is very important for the self-development (SAKFSCP18)._ 

The Higher Institute of Security Studies and the Security Training Institute have developed 12 diplomas and 25 formalised training programs through which trainees share knowledge (King Fahad Security College 2017b). There is also collaboration with experts in policing and criminology, who teach students at the College. OJT supports individuals to acquire new knowledge (King Fahad Security College 2003).

**Influence on externalisation**

Two participants (SAKFSCP1 and SAKFSCP2) identified the role of training programs in the externalisation process. Training involves documentation of meetings, seminars, workshops and programs. Experts provide input to course content. In this way, tacit knowledge becomes explicit knowledge.

_The most important things that help KM are reports that are written by the trainee at the end of the session (SAKFSCP1)._
The Planning and Development Department provides forms for trainees to use in documenting the knowledge that they acquire from training programs.

**Influence on internalisation**

Almost two-thirds of participants agreed that training boosts learning through activities such as designing training programs, workshops and seminars.

*Faculty relied on all its programs in the Ministry of Civil Service and held multiple and many sessions with organisational behaviour and functional behaviour in the development of skills in various disciplines in Computer (SAKFSCP22).*

Many training programs inside and outside KFSC are provided by the Planning and Development Department to improve employees’ skills and help them acquire new knowledge (Department of Planning and Development 2017).

**5.2.1.9. Employees’ Involvement**

The majority of participants agreed that employees’ involvement shapes KC, particularly socialisation and externalisation. No influence on combination was identified (Figure 5-9). Documentary evidence supported the role of employees’ involvement in socialisation, externalisation and internalisation.
Influence on socialisation

Employees’ involvement affects the socialisation process in two ways: it supports team interactions and enhances the mentoring process. Nearly two-thirds of participants agreed with this perception.

Half of participants reported that employees’ involvement reinforces team interactions. It increases employee commitment and encourages them to share their experiences and perspectives. In this way, tacit knowledge is transferred to other employees.

*the faculty is keen for their support as it took the instructors and the workers in education and working techniques in the Department of Education that they are part of the system so that they have the conviction and belief in the importance of the work that offers that familiar with what will be presented, to be part of the change process and construction knowledge (SAKFSCP3).*

Employees’ involvement was also seen to support the mentoring process: the greater the number of leaders at different levels, the greater the number of employees who are involved in the mentoring process, and the more effective is the flow of knowledge up and down the organisation.

*The middle administration has a kind of concentration to develop and managing knowledge in a way or another to achieve missions and goals and the organisation charts and the knowledge organisation between the leadership and the actual founders to the minimum of the employees (SAKFSCP20).*

Documentary analysis confirmed this perception. Most Councils and committees (such as the Scientific Councils and Development Committees) include personnel at different levels who interact and participate in joint decision-making, thus sharing knowledge (King Fahad Security College 2017b).
**Influence on externalisation**

Approximately one-half of participants agreed that employees’ involvement enhances externalisation, in different ways: it promotes successive rounds of meaningful dialogue and supports freedom and democracy. All these processes convert tacit knowledge into explicit knowledge.

One-half of participants reported that employees’ involvement enhances successive rounds of meaningful dialogue that help to create new knowledge. Examples include: team discussions, individual discussions, collaborations to create a new concept, high group commitment, dialogue among employees and with managers, and publishing useful research and reports.

*There may be an employee who has a certain vision and ability to explain certain something useful in the process of knowledge building and sometimes discussion with him may be useful in promoting new ideas (SAKFSCP2).*

Employees’ involvement was also seen to support freedom and democracy, allowing employees to express their perspectives on any subject, thereby producing new knowledge.

*For example, if he opens the way for the employees to participate and give their opinions about the work in the organisation, be sure that they will add a lot of benefits (SAKFASCP6).*

The majority of Scientific Councils and Development Committees work as teams. Therefore, employees from different levels can engage in free discussion with their colleagues (King Fahad Security College 2017b). As previously mentioned, having only three levels of management enhances employees’ freedom to create new knowledge.

**Influence on internalisation**

Employees’ involvement enhances the learning process via their participation in meetings where the content of relevant reports and other documents is explained.
Employees who participate in Scientific Councils and Development Committees acquire new knowledge through discussion with their colleagues (King Fahad Security College 2017b).

5.2.1.10. Teamwork

Two-thirds of participants agreed that teamwork is significant for KCP, particularly the socialisation process, but there was no mention of the combination process (Figure 5-10). KFSC’s records confirmed that teamwork reinforces socialisation, externalisation and internalisation.

![Diagram of Teamwork Influence](image)

**Figure 5-10:** The influence of teamwork

**Influence on socialisation**

Two-thirds of participants identified teamwork as a crucial factor in the socialisation process - it enhances team interaction and supports low formalisation.

Two-thirds of participants agreed that teamwork enhances interaction between employees, allowing them to collaborate and share their perspectives and experiences.
in formal and informal team meetings. A high commitment to teamwork also means that tacit knowledge is effectively shared through these activities.

*The team is composed of various experiences and each one of them has different experiences, information and practices. There is an opportunity for participation to exchange experiences, knowledge and cultures, and this will make the team stronger and at least this will lead to the best result (SAKFSCP4).*

Teamwork was also seen to support low formalisation, which allows employees to work with more freedom and exchange tacit knowledge

*The nature of the personal team leader and his own way and style, is he an open person and acceptable and give all people the chance to give suggestions. If the head of the team is an openness person then the benefit will be achieved (SAKFSCP12).*

Records showed that many committees work as teams, including the Scientific Councils and the Military Council (King Fahad Security College 2017b). The Dean of Civil Studies convenes monthly meetings with the Heads of Scientific Departments to improve scientific units (King Fahad Security College 2006). These duties help teams to interact effectively; they reflect the low formalisation that allows employees from various levels to share their knowledge.

**Influence on externalisation**

Some participants identified teamwork as a vital factor in the externalisation process. It supports successive rounds of meaningful dialogue whereby members discuss an issue, collaborate and create a new concept.

*If you collected the people and let them to discuss and then you get the results, these results are described as knowledge, if this knowledge transferred to be a decisions then you have reached the top of your efforts (SAKFSCP9).*

Teamwork was also seen to enhance low formalisation. Hence employees feel free to create new knowledge through discussion and the production of reports.

*The nature of the personal team leader and his own way and style, Is he an open person and acceptable and give all*
people the chance to give suggestions. If the head of the team is an openness person then the benefit will be achieved (SAKFSCP12).

The Job Description Directory supports this result. The Military Scientific Councils perform numerous roles, including monitoring the development of each unit and receiving teachers reports about their units. (King Fahad Security College 2006).

**Influence on internalisation**

Some participants reported that teamwork enhances internalisation by giving individuals freedom to exchange their perspectives and acquire new knowledge from others in return.

The nature of the personal team leader and his own way and style, is he an open person and acceptable and give all people the chance to give suggestions. If the head of the team is an openness person then the benefit will be achieved (SAKFSCP12).

The Job Description Directory shows that the Civil Scientific Councils have at least monthly meetings. Members of these Councils have the freedom to express their views and hear the views of others (King Fahad Security College 2006).

**5.2.1.11. Employees’ Empowerment**

Approximately two-thirds of participants agreed that employees’ empowerment supports socialisation, externalisation, combination and internalisation, in various ways. There are some evidences that support this result even though the results cannot be generalised to all other situations.
Almost one-quarter of participants reported that employee empowerment influences socialisation, in different ways: it enhances freedom and democracy for employees; it strengthens a decentralised institutional structure; and it encourages team interactions to share knowledge and experiences.

Democracy and freedom were seen to empower employees to communicate and share knowledge so that tacit knowledge is transferred between them.

*The main element is giving the employees a space for information exchange and he can practice his powers and empowering the employee from the first stage of education, when the employee is empowered, the opportunity of information transfer and exchange will increase (SAKFSCP4).*

Employees’ empowerment was also related to a decentralised structure that facilitates communication and knowledge exchange between employees.

*The current vertical communication is good so that the division manager can communicate with the department director, the department director can communicate with the*
Empowered employees are also highly committed to their institution. As a result, they are likely to be active participants in improving the organisation and sharing what they know.

When you give the powers, and give a space from the field in the decision making is reflected on the confidence of workers themselves, the employee feels as part of the organisation and thus will help to transfer of knowledge to his colleagues through his successful experiences, expressing an opinion in the field which need to be corrected developed undoubtedly (SAKFSCP11).

Document analysis identified a number of officially designated teams in the College, such as Unit teams, Scientific Department Councils, College Councils, Academic Development team, Organisational Development team, Continuing Education Development team and Research Development Team. All these committees are empowered by management to make decisions that affect many aspects of the College’s work. Employees who are involved in these committees have freedom to interact and share their knowledge (King Fahd Security College 2015).

**Influence on externalisation**

One-third of participants agreed that employees’ empowerment promotes externalisation in two ways – by enhancing democracy and freedom and supporting successive rounds of meaningful dialogue.

One-third of participants commented that employees are empowered to make decisions independently, which enhances KC.

The aim of empowerment of employees is that how to elicit our employee’s abilities by giving him space to get his opinion about problems (SAKFSCP6).

Employees’ empowerment was also seen to increase academics’ commitment to their institution. This helps to create successive rounds of meaningful dialogue as individuals collaborate with their colleagues to create new ideas.
When you give the powers, and give a space from the field in the decision making is reflected on the confidence of workers themselves, the employee feels as part of the organisation and thus will help to transfer of knowledge to his colleagues through his successful experiences, expressing an opinion in the field which need to be corrected developed undoubtedly (SAKFSCP1).

KFSC’s records showed that certain organisational roles in the College support employee empowerment by, for instance, giving unit coordinators the authority to improve their units by engaging in successive rounds of discussion with members of the unit team. Academics in the Higher Institute of Security Studies have the power to design formal skills development programs for employees of the Interior Ministry. Some low level positions are also authorised to create knowledge (King Fahad Security College 2006).

**Influence on combination**

Employees’ empowerment shapes combination by encouraging consultation and discussion that adds to existing knowledge and contributes to effective decision-making.

*Decisions which build on the consultation encourage the construction of knowledge (SAKFSCP1).*

Document analysis showed that the combination of ideas and concepts formed by team members would enhance the conversion of knowledge. He convenes meetings at least once monthly with Heads of Scientific Departments to evaluate current units and update their content (King Fahad Security College 2006).

**Influence on internalisation**

Almost one-quarter of participants agreed that employee empowerment reinforces internalisation, in two different ways – by providing freedom for employees and affording them frequent opportunities for learning by doing.

Autonomy and freedom for employees means that they are motivated to learn and acquire new knowledge.
This means that you give them a chance and autonomy to innovate or manage or earn which mean acquiring new knowledge in addition to basic functions (SAKFSCP22).

Openness and learning by doing empower employees to gain new work-related knowledge and experience.

Employee’s empowerment will contribute to building expertise because when man exposes to more experience, he get more knowledge building and this is their right (SAKFSCP12).

College documents show that unit coordinators have the freedom to improve their units and these developments can be used by other academics (King Fahad Security College 2006).

5.2.1.12. Knowledge Structure

Nearly half of the participants agreed that knowledge structure plays a significant role in socialisation, externalisation, combination and internalisation (Figure 5-12). Documentary analysis confirmed that knowledge structure promotes KCP in the institution.

![Figure 5-12: The influence of knowledge structure](image-url)
Influence on socialisation

Almost one-quarter of participants reported that knowledge structure influences socialisation, in two ways: formalised professional development of KM increases employees’ awareness of KM; and channels of communication with external partners or government agencies enhance knowledge acquisition.

Formalised professional development of KM increases employees’ awareness of the importance of sharing tacit knowledge and improves their knowledge sharing skills.

Management has a role by holding seminars and workshops within the organisation to raise awareness of the terms and the concepts of KM in order to learn how employees share knowledge (SAKFSCP5).

The availability of external channels of communication enhances knowledge exchange, as well as strengthening knowledge sharing inside the institution.

The national centre for studies and researches will be at the kingdom level and represent all the security sectors and not the king Fahd College alone and there will be communications and contact with the Arab, Islamic and western universities in this matter (SAKFSCP18).

Records showed that KFSC established the pioneering International Programs Department to build relationships with other universities, colleges and institutions inside and outside Saudi Arabia. The Department encourages knowledge exchange between these organisations and the College (King Fahad Security College 2017a).

Influence on externalisation

Knowledge structure enhances externalisation by establishing departments to capture knowledge by documenting tacit knowledge to make it explicit and available to users.

KM department is very significant to document and save the administrative experiences or academic experiences so this knowledge helps the other employees (SAKFSCP15).

Although no specific department has been established to capture KM in the College, some departments are tasked with preserving some forms of knowledge. For
example, King Salman Security Library holds research related to policing, criminology and security, and the Documentation and Archive Centre categorises, codes and saves all College documentation (King Fahad Security College 2017d).

**Influence on combination**

Knowledge structure supports combination by establishing a centre to configure existing knowledge. This centre collects research data and other security-related information, which it stores in templates. This kind of organisation allows employees to access relevant knowledge easily.

*Here the College is working on establishing the National Centre for Researches and Studies which are related to security information and collecting and putting them in templates to be ready for any use (SAKFSCP18).*

Documents showed that King Salman Security Library is an important archive for research related to policing, criminology and security (King Fahad Security College 2017d).

**Influence on internalisation**

Participants identified two ways in which knowledge structure enhances internalisation of knowledge. First, a department of KM enables employees to acquire and learn new knowledge. Second, low formalisation in the institution enhances the learning process and knowledge capture.

The existing department of KM makes knowledge, such as a database on security research, available to all employees.

*KM department helped me in my new position with what they have of previous employees and previous managers and what knowledge and systems they gave to you from specific matters, which might help in the department (SAKFSCP6).*

Low formalisation means that employees can be in contact with, and learn from, many people in different positions.
It really helped in a lot of things and I'm sure of its help in the scientific way such as flexibility and doing service, easiness and trusted between employees (SAKFSCP20).

KFSC’s organisational chart shows that no single department specialises in KM, but King Salman Security Library maintains a database on security, policing and criminology research. In addition, several Councils work as a team. This low formalisation enhances knowledge acquisition (King Fahad Security College 2017c).

5.2.1.13. Organisational Strategies

Almost half of the participants identified ways in which organisational strategies shape socialisation, externalisation and internalisation, but none described an influence on combination (Figure 5-13). These perceptions were supported by documentary analysis.

**Figure 5-13:** The influence of organisational strategies

**Influence on socialisation**

One-third of participants agreed that organisational strategies affect socialisation, in four ways: formalised professional development facilitates knowledge sharing between trainees; mentoring strategy enhances tacit knowledge conversion between
different levels; cooperation with external partners and agencies supports the transfer of tacit knowledge; and team interactions support knowledge exchange.

Training strategies were seen to support tacit knowledge sharing inside and outside the institution via transfer of tacit knowledge between employees.

Also, we have a scholarship for faculty members and military managers and staff now for all countries of the world for all university (SAKFSCP10).

External collaboration strategies facilitate knowledge exchange.

The new strategy seeks to develop this college through cooperating with developed universities. This will contributes to apply the concepts and ideas of KM (SAKFSCP11).

The strategy of putting experienced academics into leader positions helps to guide academics to achieve their objectives and share knowledge.

I see the strategies now are real efforts to knowledge transfer through getting benefit of specialists, experts and external co-operators (SAKFSCP8).

An organisational strategy should include policies that enhance team building and interaction that facilitates sharing tacit knowledge

Find that my colleagues want to work together and assist in the implementation of any ideas in the development of the education system (SAKFSCP23).

Documentary analysis showed the KFSC’s main strategy is to design and implement specialised training programs that meet identified needs (King Fahad Security College 2017b). Many other strategies emphasise collaboration with entities inside or outside the country, such as the initiative of twinning with New Haven University in the United States (King Fahd Security College 2015). The KFSC organisational chart also shows the existence of middle level leaders who support a two-way flow of knowledge through different levels (King Fahad Security College 2017c). Finally, numerous committees enhance team interaction (King Fahad Security College 2017b).
Influence on externalisation

Organisational strategies were seen by some participants as significant for externalisation. Strategies such as seeking expert input into the design of training programs and the publication of research and reports by academics enhance knowledge creation and play an important role in converting tacit knowledge into explicit knowledge.

*It has a strategy and within this strategy to reach that knowledge and extract it from people minds and turning it into a reality on papers (SAKFSCP9).*

Documentary analysis supported this perception. One of the main strategies of KFSC is to support, encourage and publish security-related scientific research that contributes to social service (King Fahad Security College 2017b).

Influence on internalisation

Organisational strategies were seen to affect internalisation in two ways – by supporting formalised professional development through which employees share knowledge, and by providing free access to information and knowledge.

During professional development training, employees can learn new knowledge and convert it from explicit to tacit.

*Its strategies talk or verify of objectives achievement and its objectives at most is knowledge transfer such as setting up courses for the working officers at the department of security sectors, researches procedures and scientific courses (SAKFSCP4).*

Free access to databases and experienced academics facilitates knowledge acquisition by employees.

*I see the strategies now are real efforts to knowledge transfer through getting benefit of specialists, experts and external co-operators (SAKFSCP8).*

The main documented strategy of KFSC is to design and implement specialised training programs that meet identified needs. Hence, trainees can share knowledge
5.2.1.14. Worthy Relationships between Employees

Some participants identified various ways in which worthy relationships between employees boost socialisation and internalisation but made no mention of their influence on externalisation and combination (Figure 5-14). Some policies support the efficient development of worthy relationships between employees.

![Figure 5-14: The influence of building worthy relationship between employees](image)

**Influence on socialisation**

Worthy relationships were seen to affect socialisation in two ways: mutual trust amongst members supports tacit knowledge exchange between them; and transparency enhances knowledge sharing.

*The point which we preferred is the transparency amongst employees. This leads to best interaction between them (SAKFSCP25).*
**Influence on internalisation**

Worthy relationships were seen to affect internalisation in two ways: mutual trust among members supports new knowledge learning; and transparency enhances the knowledge acquisition process.

*The existence of good relations between workers helps exchange of knowledge (SAKFSCP1).*

No documented policies directly support mutual trust and transparency. Some departments, however, can be seen to enhance relationships between employees. For example, the Relationship and Media Department aims to support the relationship between departments and employees in the College and also between the College and government agencies. It organises social programs for all College employees, as well as visits to sick employees and parties on official occasions for all employees. These activities reinforce worthy relationships between employees and, hence, increase the trust and transparency between them (King Fahad Security College 2017a, 2017d).

### 5.2.2. External Factors related to the Knowledge Environment

As in Case Study 1, participants from KFSC identified a number of external factors that significantly contributed to the implementation of KCS. In particular, these participants identified four key external factors that could reinforce or hinder the creation of knowledge. Each of these is discussed in more detail below.

#### 5.2.2.1. Socio-Cultural Factors

Almost one-quarter of participants agreed that social and cultural community attributes could influence the implementation of knowledge creation and exchange directly or indirectly.

*A significant obstacle is the language barrier between the one who has the knowledge and the one who makes the decision. There is a missed link/connection between who has the knowledge and who make the decision which I believe at times it is culturally related (SAKFSCP9).*
5.2.2.2. Ethical Considerations

Participants observed that the production and dissemination of knowledge is ethically bounded and that these issues should be addressed before any knowledge is produced or shared.

Someone does not want to be a part of knowledge construction because of the ethical issues. For example, the research may involve human interventions and people may not be interested in this (SAKFSCP3).

5.2.2.3. Political Conditions, Consequences and Forces

Nearly one-fifth of participants were of the view that party political power could influence the creation and sharing of knowledge.

When the college invite experts from America or Britain or any country to attend a conference in Saudi Arabia, their visas will be delayed until the conference ends and the persons cannot attend the conference because s/he don’t get the visa on time (SAKFSCP17).

5.2.2.4. Financial Considerations

Participants commented that it was hard to implement knowledge initiatives without sufficient financial support. Successful implementation of KM practices was a challenge for them if economic resources were lacking.

One of the obstacles is the poor financial support. We don’t receive enough support to conduct some kinds of research and this may be an obstacle in KC (SAKFSCP17).

5.2.2.5. Complexity and Uncertainty

Two participants (SAKFSCP14 and SAKFSCP15) reported that complexity and uncertainty can negatively affect the implementation of KCS. They noted that there are situations where knowledge can be used, misused or is simply unavailable.

The association between what the student has studied and the field work is sometimes blurry. You don’t know what factors facilitate the students’ learning or postpone it (SAKFSCP15).
5.2.2.6. Inconsistencies in KM Concepts

Almost one-fifth of participants observed that there was a general consensus about various concepts applied within the KM context, but their views about the implementation of KM differed.

*I may actually know KM concepts but another one may not be familiar with these and therefore we do not apply it appropriately therefore the one, who miss something, can't give it or share it with another one, these are individual obstacles and it requires the training on the individual level to be able to manage knowledge (SAKFSCP11).*

5.2.3. Summary

Analysis of data from Case Study 2 identified 14 internal and 6 external CSFs that have an influence on the KCP. The internal factors were: leadership, organisational culture, rules, organisational structure, employees’ responsibility, information technology infrastructure, measurement, training, involvement of employees, teamwork, employees’ empowerment, knowledge structure, organisational strategy and worthy relationships among employees. The external factors were: socio-cultural factors, ethical considerations, political conditions, consequences and forces, financial considerations, complexity and uncertainty and inconsistencies in KM concepts.

The socialisation process of KC is influenced by 14 CSFs in different ways. Leadership enhances socialisation by building a team or field of interaction, supporting individuals to acquire tacit knowledge, supporting professional development training, mentoring through multiple levels of leaders and allowing employees to collaborate with people from outside the organisation. Organisational culture shapes socialisation by promoting friendly relations for team interaction, supporting freedom and democracy, fostering employee learning and development and enhancing external collaboration. Rules influence socialisation in three ways: They support individuals to acquire tacit knowledge, help to build a team or field of interaction, and facilitate external collaboration. Organisational structure affects socialisation in a variety of ways. A decentralised structure leads to exchange of tacit knowledge; multiple levels of leaders support the mentoring process and OJT; and
communication channels allow employees to exchange ideas with people outside the organisation. Low formalisation helps employees to share knowledge. Responsibilities require employees to develop relevant knowledge and skills, encourage interaction based on team responsibilities, and foster collaborative external relationships and knowledge exchange. Information technology infrastructure influences socialisation via enhancement of team interaction and support for collaboration to exchange knowledge with organisational partners. Measurements affect socialisation through different levels of leaders and through interactions with team members. Training enhances knowledge acquisition via formalised professional development, team interaction, OJT and collaborative training. Employees’ involvement shapes socialisation by enhancing team interactions and motivating mentoring processes. Teamwork supports team interaction and leads to low formalisation. Employees’ empowerment promotes socialisation by reinforcing democracy and freedom, boosting the decentralised structure and supporting team interaction. Knowledge structure enhances socialisation by developing formalised professional development programs and external communication channels for collaboration. Organisational strategies influence socialisation through external collaborations, team interactions, mentoring and employees’ development. Worthy relationships between employees support transparency and trust and, hence, effective knowledge exchange.

Externalisation of KC was found to be influenced by 13 factors. Leadership enhances externalisation by creating successive rounds of meaningful dialogue, encouraging employees to produce knowledge and new models; decentralised leadership also promotes externalisation. Organisational culture shapes externalisation through democracy and freedom, learning and development and documentation. Rules influence externalisation by establishing policies that enhance knowledge creation, support staff to produce knowledge, promote the creation of successive rounds of meaningful dialogue, and encourage democracy, freedom and low formalisation. Organisational structure plays a role in externalisation via decentralisation and low formalisation, which increase successive rounds of meaningful dialogue between employees. Responsibilities influence externalisation by supporting freedom and democracy; responsibilities for knowledge creation enhance the conversion of tacit knowledge into explicit knowledge. Information
technology supports externalisation through various contributions to KC. 
Measurements influence externalisation via review and measurement of knowledge production. Training shapes externalisation by contributing to KC. Employees’ involvement affects externalisation through the creation of successful dialogue processes and enhancement of freedom and democracy. Teamwork reinforces externalisation by facilitating discussion between employees and supporting low formalisation. Employees’ empowerment creates successive rounds of discussion and gives employees autonomy. Knowledge structure also enhances externalisation by establishing a department of KM to capture knowledge. Organisational strategy has a positive influence on externalisation through adapting other strategies that fosters KC.

The combination process was seen to be shaped by 8 factors. Leadership influences combination by enhancing social processes to combine different bodies of explicit knowledge, supporting the use of information technology and facilitating the development of new concepts by teams using existing information and external knowledge. Organisational culture boosts combination through collaboration and use of information technology. Organisational rules enhance combination by using information technology to combine different forms of explicit knowledge. Organisational structure enhances social processes to combine different forms of explicit knowledge; the Information Technology Department assists this process and promotes knowledge preservation. Responsibility reinforces social processes and coordination between team members for effective knowledge combination. Information technology infrastructure influences combination by enhancing knowledge accumulation, supporting social processes to combine explicit knowledge and fostering configuration of existing information. Employees’ empowerment promotes combination of concepts formed by teams using existing data and external knowledge. Knowledge structure affects combination by establishing a Centre to configure existing knowledge.

The internalisation process of KC was found to be influenced by 14 CSFs. Leadership enhances internalisation through convening meetings to explain the content of relevant reports and other documents, providing free access to information, and supporting employees’ autonomy. Organisational culture
influences internalisation by supporting freedom and democracy, openness and experimentation. Organisational rules shape internalisation by mandating intensive and frequent learning by doing, underpinning low formalisation and supporting learning. Organisational structure motivates internalisation through a decentralised structure, hierarchical formal organisation and low formalisation. Responsibilities enhance democracy; job descriptions clarify employees’ responsibilities, and development responsibilities lead to the acquisition of new knowledge. Information technology infrastructure supports the learning process. Measurement influences internalisation via review of knowledge and outcomes. Training enhances internalisation through formalised professional development that supports the learning process. Employees’ involvement promotes learning processes that enhance knowledge acquisition. Teamwork plays a vital role because it reinforces low formalisation. Employees’ empowerment enhances democracy and freedom and encourages learning by doing. Knowledge structure supports internalisation by establishing a department of KM and enhancing low formalisation of the organisation, supporting a professional development strategy and providing free access to information about outcomes. Employees’ relationships influence internalisation by supporting mutual trust and transparency.

In addition to these internal factors, the participants identified other external factors that significantly shape the implementation of KC processes. These were: socio-cultural factors, ethical considerations, political conditions, consequences and forces, financial considerations, complexity and uncertainty and inconsistencies in KM concepts.

The following chapter examines the similarities and differences between the results of the two case studies and discusses these results in relation to existing literature and the research aims and questions.
Chapter 6: Discussion

The previous two chapters presented the results of two cases studies, at the School of Social Science and Psychology (SSSP) at Western Sydney University (WSU) in Australia and King Fahd Security College (KFSC) in Saudi Arabia. They described the characteristics of the samples of participating academics and presented the results from analyses of semi-structured interviews and organisational documents in relation to critical success factors in Nonaka’s knowledge creation process (KCP). This chapter summarises and compares the key findings from the two case studies in relation to existing literature and the research questions addressed in this thesis.

6.1. Study Overview

Public and private higher education institutions (HEIs) aim to produce, generate and share new knowledge and ideas to drive innovation. It is widely acknowledged that implementation of appropriate knowledge management (KM) strategies support this process (Adhikari 2010; Hasani & Boroujerdi 2013; Hasani & Sheikhesmaeili 2016; Songsangyos 2012).

Notwithstanding its significance, KM is poorly understood, poorly implemented, and not always achieved in HEIs (Alshahrani, Dadich & Klikauer 2016; Ramachandran, Chong & Wong 2013). There are two main reasons for this. First, much of the existing research on KM to date has focused on industrial and business settings (Berraies, Chaher & Yahia 2014). Second, the model of knowledge creation and sharing developed by Nonaka and colleagues to improve organisational innovation (Nonaka 1994; Nonaka & Takeuchi 1995; Ramirez & Kumpikaite 2012; Sankowska 2013) has been difficult to translate into practice due to contextual variation among organisations (Alshahrani, Dadich & Klikauer 2016). Researchers have identified many relevant factors that explain the success of a KM strategy within an organisation or social entity (Berraies, Chaher & Yahia 2014) but to date there has been minimal investigation of the success factors in KM in the context of higher education (Arntzen, Worasinchai & Ribiere 2009).

While various strategies of KM have been employed in a variety of industries (Akhavan & Zahedi 2014; Anggia et al. 2013), very few studies have empirically
investigated the CSFs of knowledge creation and sharing (KCS) implementation in higher education. Little is known about the most important factors for successful implementation of KM in practice, particularly in the field of higher education (Ramachandran, Chong & Wong 2013). Institutions of higher education are primarily designed to generate and disseminate knowledge. Many researchers view HEIs as knowledge-creating entities and argue that effective KM implementation is a critical factor for ensuring the competitive advantage and sustainability of these organisations (e.g. Hameed & Badii 2012). What is missing from the current body of literature is a comprehensive understanding of the key success factors of KM practices in HEIs (Chumjit 2013).

6.1.1. Research Aim and Question

This study aimed to explore the CSFs that promote the application of KM to improve the performance of HEIs. More specifically, the research sought to examine how CSFs can enhance the implementation of Nonaka’s model in HEIs. In other words, the purpose was to explore the process of KCS in higher education, how it is employed and implemented, what CSFs and/or procedures are necessary for its proper implementation and how they should be employed.

The study sought to identify situations or conditions that foster KM practices in KFSC and SSSP at WSU in Australia, following the SECI model (Nonaka 1994; Nonaka & Takeuchi 1995). The questions asked in this study relate to CSFs for KM as experienced and implemented by academic staff, specifically, key staff holding positions of responsibility for teaching policing and criminology in KFSC and SSSP at WSU. They were asked to report their experiences on what CSFs effectively influence KM implementation within their institution, and how this is achieved.

6.1.2. Research Design and Method

A qualitative, case study research design was used to capture participants’ meanings, understandings and lived experiences of KM implementation at KFSC and SSSP (Bryman & Bell 2011; Hunter 2004). A purposeful (non-random) sample of 38 academics (13 from WSU and 25 from KFSC) was recruited to participate in semi-structured interviews. Each interview was digitally audio-recorded, and verbatim
transcriptions were produced by the chief investigator for manual thematic coding and deductive and inductive analysis. Organisational documentation and archival records were used as secondary data sources to compensate for limitations in the primary sources (Albaqami 2015; Merriam 2009; Patton 2002).

6.1.3. Findings

The analyses showed that implementation of KCS processes in both settings stems from a complex interplay of factors and behaviours in the situation of action. Several \textit{a priori} categories of critical success factors for KM were identified, to which all other categories of KCS processes were related. These comprised 14 internal and six external factors that significantly contributed to the successful implementation of four modes of Nonaka’s knowledge conversion model - socialisation, externalisation, combination and internalisation.

An adaptive, conceptual process of KCS emerged from the data as a pattern, making sense of complex and varied KM practices in many contexts. Descriptive analysis of the data led to development of an innovative and exploratory model to guide robust knowledge production and exchange in complex situations. The model (Figure 7.1) was developed to explain the effects of CSFs on the KM process, and to show how one might improve system performance in a multi-agent KM system. It remains to be tested.

The results showed that knowledge production and distribution in Saudi Arabian and Australian HEIs is not just an explicit activity and does not take place within a single static framework, but is predominantly contextual and changes over time. Sometimes, KCS is implicitly embedded in social and cultural circumstances that people might not be familiar with.

Proper implementation of KCS processes in both cases was primarily influenced by a set of internal and external factors within the situation of action, though there were minor differences between the two. The CSFs of knowledge conversion that were implemented in the Australian higher education context were not exactly the same as those used throughout the HEIs in Saudi Arabia. The main focus of Australian participants’ attention was on contextual KC and transformation processes.
Current CSFs of KM, however, are not sufficient for KC and transfer in real situations. Other key factors were found to affect the four modes of knowledge conversion towards proper implementation of KM in both contexts. This suggests that proper implementation of a KM system in higher education involves multiple rational, cognitive and intuitive processes and practices with different characteristics and dynamics that mutually inform the generation and distribution of knowledge. The study’s findings can help research scholars, educators and decision-makers to better recognise and understand the factors that critically enhance the implementation of knowledge creation, transmission and exchange in organisations that rely on human resources.

6.2. Specific Findings

This section discusses the significant findings of the study. It begins by assessing the extent to which the research aims and questions were successfully addressed in both studies. It then discusses the main findings in light of previous literature.

6.2.1. Research Aims

The aims of this study were to ascertain what factors are employed in Saudi Arabian and Australian higher education to enhance KM implementation, in particular to enhance KCP, what factors are most/least favoured in these two cases, and the extent to which they use those CSFs in practice. To some extent, it also explored how CSFs are applied and how KM operates in those two contexts.

To meet these aims, the study focused on the key guiding principles of the research project (i.e. research questions) outlined in Chapter 1. The research framework was based on the similarities and differences in the CSFs employed in KM implementation in HEIs in Australia and Saudi Arabia. The three main research questions were:

1. What KM processes, practices and/or strategies are applied in HEIs in Australia and Saudi Arabia? How they are implemented and what are the differences between the two?
Empirical evidence obtained from university documents and archival records of the SSSP at WSU and from KFSC revealed limited similarities between the higher education context in the two countries in relation to their vision, mission, beliefs, values, objectives and structure for KM implementation.

**Vision:** Both aim to bring success to every student through delivery of innovative education, training and research within a dynamic environment. While WSU mainly focused on the delivery of excellence in research in relation to community-oriented health and social sciences, KFSC saw itself as a centre of excellence in security-related issues.

**Mission:** WSU has a mission to serve its local and national community and become an internationally recognised education provider that highlights academic excellence through the implementation of strategic initiatives in scholarship, teaching, learning and research programs. The services are predominantly offered through a mix of knowledge sources. KFSC’s mission is to contribute to its local community by offering teaching and research programs to officials who work in different security sectors in the country. Its main focus is on enhancing the knowledge and skills of qualified security officers.

**Objectives:** WSU seeks to become a pre-eminent education provider in Australia, with a focus on innovative and interactive learning programs across local, regional, national and global communities, thereby building its reputation and creating a culture of success. KFSC aims to actively participate in community service by graduating qualified local officers and improving their security-related knowledge and skills through special training and research programs.

**Beliefs:** WSU’s beliefs are based on accountability to students and recognition of the importance of their experience with the university, social and environmental responsibilities to the community it serves, creation of an inclusive and vibrant intellectual community, optimum opportunities for excellence, interactions at both the local and international levels, and appropriate behaviour and values of its workforce. This suggests that WSU believes that success will follow if students and staff are provided with an inspiring, nurturing and interactive learning environment that respects needs, preferences and expectations and facilitates and values
collaborations and interactions between those involved in education. KFSC did not provide a formal statement of its beliefs.

Values: WSU values diversity, equity and ethics, and respects all students, faculty, staff and members of its community from different backgrounds in order to ensure integrity of its innovative and high quality training and research. The university consciously acts to achieve academic excellence (by increasing knowledge, respecting academic freedom and promoting creativity and innovation) and build a positive, constructive and participative culture within an ethical framework. KSFC did not provide a formal statement of its values.

Structure: HEIs in both countries follow a top-down and bottom-up hierarchy of power distribution and control. Their respective organisational structures depict the roles and responsibilities of each position. The evidence, however, is insufficient to determine if these organisational structures rely on a specific person to make decisions and provide direction for the organisation (centralised organisational design) or operate via delegation of decision-making powers and flexible processes (decentralised organisational structure). The organisational structure, including the hierarchy of management and leadership, can play a key role in implementing KM if higher-level authorities maintain their commitment to change and support for subordinates, and if employees are empowered to make a difference.

2. What CSFs are used for successful implementation of KM in the HEIs in Australia and Saudi Arabia, and how?

Several categories of CSFs, encompassing a diverse range of elements, were identified. A core category of contextual KM emerged from the data as a broad process to which all other categories of CSFs were related. In both cases, these factors significantly contributed to proper implementation of Nonaka’s four modes of knowledge conversion (Figure 7.1) for the creation and transfer of tacit and explicit knowledge. That is, KM in both higher education contexts was influenced by a multifaceted interplay of factors and behaviour in the situation of action. These included internal and external factors related to the knowledge environment. There were 14 internal factors: leadership, organisational culture, rules, organisational structure, responsibility, information technology infrastructure, measurement,
training, teamwork, employee involvement, employee empowerment, knowledge structure, organisational strategy and building worthy relationship and trust between employees. The six external factors were: cultural factors, ethics, contextual complexity/uncertainty, politics, financial considerations and knowledge concepts.

In both cases, trusting relationships emerged as the most significant success factor for knowledge creation, sharing and transfer. Although there is a substantial body of literature about the influence of trust on proper implementation of KM, the findings of this study are novel in the sense that trust is knowledge-based and are rooted in past relationships, experiences and performance. Previous research has largely isolated single factors. For many participants in this study, knowledge was primarily created and shared through communities of practice and trust which result from mutually-agreed personal contacts, confidence and social interactions.

While trust might be abused, avoided or treated superficially by some people, a high level of trust was expected and desired by many participants. When trust does not exist between different parties, sources or levels of knowledge, knowledge cannot be nurtured and the KCP might be characterised by negative relationships and reluctance. Unwillingness to share knowledge impedes a proper KM system.

Empirical evidence also revealed that trust, whether individual or social, was intertwined with other contextual factors and practices that evolve over time. Establishing a community of trust and creating a culture of knowledge production and sharing are critical to the success of KM implementation; this will not happen without a committed and accountable management system. Trust will increase the involvement of staff in KCS, culminating in good innovation performance and higher levels of profitability.

3. How different is the current implementation of KM practices and initiatives in institutions of higher education in Australia and Saudi Arabia? What factors may be missing from these contexts in relation to the creation and sharing of knowledge?

The relevant findings were somewhat inconsistent. There was a common understanding amongst the participants in both cases about how the KM system and
CSFs influenced KCS implementation. Their views about the underlying concepts of KM and the value of these CSFs in KM implementation, however, varied. While almost all participants from the two cases reported familiarity with the KM implementation process and CSFs, having encountered them during their tertiary education, they had no practical experience in implementation of KM.

Australian participants’ grasp of KM implementation concepts, strategies and key success factors was slightly different from that of their Saudi Arabian counterparts, even though at times both groups of participants failed to demonstrate comprehensive understanding of KM during the different phases of knowledge conversion and implementation, and did not strictly distinguish between the key factors of success for KM implementation.

Participants in both countries identified several challenges to proper management of the knowledge system to enhance knowledge production and sharing. The main obstacles were: poor organisational and KM processes and structures; poor leadership and low levels of motivation; lack of trust; inappropriate information technology infrastructure; poor training; ignoring employee involvement; and teamwork.

While the primary challenge in the Saudi Arabian case was how KM was perceived and implemented by higher education, the major challenge for the Australian academics lay in its implementation. The most challenging issue for the Saudi Arabian institution was to define a proper KM system and implement it in an appropriate manner. Their Australian counterparts were more concerned about the implementation of a proper KM system. Both cases, however, confirmed that defining and implementing a proper KM system depends on the recognition and selection of appropriate KM (system) tools and CSFs within the context. For the participants in both countries, proper implementation of KM will not be feasible if these and other contextual factors are marginalised or not fully appreciated.

6.2.2. Discussion of Major Findings

Overall, 14 internal and 6 external factors that emerged from analysis of the data could synergically influence the practice of KCS within the situation of action. While
both countries recognised the significance of many contextual factors in their KM practices, the dominant influence in the Australian case appeared to be about the implementation of KM per se but in Saudi Arabia it appeared to owe more to the way in which KM is both perceived and implemented in practice. All factors contributed to the successful implementation of KM and no factor had priority over another. Without all of those CSFs linked together, KM will most likely fail to be implemented properly in practice.

The study’s findings highlighted the complexity of KC management and its dependence on the internal and external context in which KM processes are implemented. A need for knowledge is triggered by specific events or circumstances. Three main bodies of literature were relevant to this study: literature focusing on KM success factors outside HEIs, most of which used Nonaka’s SECI framework to investigate business organisations; studies exploring KM critical factors and models in general; and qualitative and quantitative investigations of single factors. Each of these is discussed below in relation to the present study’s findings.

The research identified CSFs for KCP initiatives that had not previously been discussed in the literature, and this has important implications for higher education. Much of the previous research on KCS in HEIs focused on information and communication technologies and infrastructure as the main obstacle, but the present study identified a number of structural barriers, institutional factors and other factors such as trust and relationships.

Analysis of the case studies showed that proper implementation of KM is multifactorial and that knowledge is often generated in an interactive way when a group of people are engaged in an activity, use information technology and trust each other. Previous studies had shown that interpersonal interaction and social relationships are crucial to successful KM implementation, but the technology itself cannot generate KCS (Chinying Lang 2001; Chong, Siong Choy & Choi 2005). Rather, ITC acts as a catalyst to develop knowledge but a separate motivation is required to share knowledge. Lang (2001) argued that tacit knowledge can be expressed, shared and augmented in an interactive way. The present study supported and extended these findings, identifying a diverse range of factors and social processes that influenced KM practices.
The present study identified a number of important contributing factors beyond those discussed in previous literature. Both case studies showed that Nonaka’s knowledge conversion model was unevenly implemented in the KM system, but the implementation process was substantially influenced by context and the people responsible for KC and transmission often employed a combination of CSFs. The discussion in Chapter 4 emphasised the importance of collective knowledge construction, knowledge networks, trust and relationships, and communities of practice in processing knowledge. People often refused to communicate with each other and made choices without seeking outside advice, which can produce gaps in the system; this has been documented elsewhere (Alhussain 2011; Chumjit 2013).

The data showed that, while several previously identified CSFs play key roles in proper implementation of the four modes of Nonaka’s knowledge conversion model, the implications of those four domains for KC and dissemination have not been closely examined or translated into innovation.

A second body of literature on KM implementation has attempted to apply Nonaka’s SECI framework (Nonaka 1994; Nonaka & Takeuchi 1995) to KC and transfer in general (Bashar, Ammar & Rakan 2012; Easa 2011). The model is based on two types of knowledge - explicit and tacit knowledge - and proposes four ways in which these two types of knowledge can be generated, combined, shared and converted to (re)create new knowledge. The four modes of knowledge conversion are: socialisation (tacit to tacit), externalisation (tacit to explicit), combination (explicit to explicit), and internalisation (explicit to tacit) (Nonaka 1994).

This literature argues that KC is primarily about continuous transfer, combination, and conversion of tacit and explicit knowledge, as users practice, collaborate, interact, and learn/educate (Yeh, Y-c, Huang & Yeh 2011). Nonaka’s knowledge conversion framework has been widely applied within the context of business organisations, but it has also been employed within the education system, predominantly in secondary education (Lin, JMC & Wang 2008; Yeh, Y-c, Huang & Yeh 2011).

Most of the literature on KM conceptualises the model in a linear fashion or in terms of an upward spiral process in which KC is seen to start at the micro (individual)
level, move up to the collective (group or meso) level, and then to the macro (organisational) level, sometimes reaching out to the inter-organisational level (Finley & Sathe 2013; Foss, Husted & Michailova 2010). The SECI framework describes a multi-level yet complex and overlapping process by which knowledge is created, transferred and becomes embedded within the fabric of an organisation, with the individual being the ‘essential actor’ in the process (Nonaka 1994, p. 34). The current literature, however, displays a relative neglect of individual KCS i.e. the micro level (Foss, Husted & Michailova 2010). It has mostly focused on the macro (mainly organisational) level to examine associations between organisational variables and knowledge outcomes. The extant literature on KM has overlooked a major component of KC, that is, individual-level processes (actions and interactions) that may occur in a formal or informal mode in spite of the role of meso-level processes through groups and teams (Foss, Husted & Michailova 2010).

Building on Nonaka’s seminal work on knowledge conversion theory (via the SECI framework), this study explored individuals’ incentive for collaboration, showing that it plays a key role in sharing and transferring knowledge within and between collective levels, especially when an appropriate governance mechanism is in place. This finding is consistent with those of previous studies suggesting that encouraging collaboration and communication between individual members of a group or team and/or across different levels of an organisation increases knowledge creation, sharing and transfer (Berraies, Chaher & Yahia 2014; Nejatian et al. 2013; Sarker, Nicholson & Joshi 2005).

This study also found that multiple knowledge handoffs bridge the knowledge exchange between different levels depending on the dominant CSFs in place. Although some breakdowns can occur in the process of knowledge conversation and transfer, it is not necessarily a static model with a sequential, hierarchical or systematic structure. The form of the KCP is mainly continuous, dynamic and spiral rather than linear. These findings are consistent with those from previous investigations which showed that proper implementation of KCS is highly dependent on a combination of elements that interact in a cyclic and dynamic fashion and together produce, transfer and share knowledge (Finley & Sathe 2013; Foss, Husted
Building on Nonaka’s SECI framework, the study identified several factors made up of diverse elements that contributed to successful implementation of KCS in both cases. A single, core category - contextual KCS - emerged from the data to which all other categories of KM were related, suggesting that different contexts will have different implications for KC, as previously suggested by Sarvary (1999).

The contextual KCS process described by participants incorporated a wide range of variables to improve fit. These included two main categories (clusters of information) which contributed to a pathway for constructing the process for KC and facilitating or hindering the implementation of KM. None, by itself, was adequate to fully explain a situation, but each could offer influential circumstantial support. While categories are differentiated below, there is overlap between them. Together, all of these factors helped to theorise the contextual process of knowledge creation, sharing and exchange and to create an adaptive model of KM.

6.3. Critical Success Factors of the Knowledge Creation Process

The results showed that the success of a KM initiative, including the four modes of knowledge conversion proposed by Nonaka (1994), depends on many factors inherent in the context of KCS within the two HEIs. A comprehensive literature review prior to data collection and analysis was used to develop a unified framework of KCP which could depict all relevant factors to successful implementation of KM. This process identified 14 key components to successful KCP, that is, 14 CSFs. Interviews with participants in both countries identified other factors critical to successful implementation of KM. These factors were grouped into two primary categories - internal and external environment.

6.3.1. Internal Factors related to the Knowledge Environment

The internal environment included 14 factors that occurred within the internal boundary of the organisation. Each is discussed below.
6.3.1.1. Leadership, Commitment and Accountability

Leadership (not simply management or administration) was pivotal to the success of KM in both cases. While management includes controlling a group of people and/or a set of entities to achieve a goal, leadership is an individual's ability to influence and encourage people to contribute to the organisation’s success by creating knowledge and building competitive power (Kumar, Jain & Tiwary 2013). Participants asserted that the ability of executives to influence the activities of an individual or collective towards goal attainment within a given situation, and the willingness to be deeply accountable for the management of knowledge at the individual and collective levels of an organisation by supporting rather than controlling those involved in KCP significantly influenced the proper implementation of KCP. This included influences on socialisation (tacit to tacit), externalisation (tacit to explicit), combination (explicit to explicit) and internalisation (explicit to tacit).

In both higher education contexts, leadership was reported to influence the process of socialisation in five different ways. A leader encourages a team of individuals to interact and collaborate within the work environment and support each other through informal, on-the-job training in order to create knowledge. A leader has the ability to empower the employees to create new ideas through collaboration with people inside or outside the organisation, support, guide and motivate them to take on new initiatives, and support professional training. It is at this interface that tacit knowledge can be created through joint activities and shared experience between individuals working together.

In both cases, leadership was shown to affect the externalisation process of KC in three ways. The participants reported that leaders have the potential to convert tacit knowledge into explicit knowledge when they create mechanisms for successive rounds of two-way and meaningful dialogue, active listening and the visual depiction of ideas and concepts, when they adhere to a decentralised style of management that encourages participation, and when they create and promote a learning atmosphere in which employees can share their skills and experiences with others to generate new ideas and design new models or forms of knowledge.
Most often, it is at this interface that leadership has the potential to influence the way an individual’s tacit knowledge is codified and translated into comprehensible forms of documents and manuals that can be readily disseminated through the organisation and be understood and expressed by others. The knowledge transfer gap was more evident in relation to the conversion of tacit knowledge into explicit knowledge, largely because the participants had different opinions about their responsibilities for others’ learning.

In both cases, participants saw leadership as critical for facilitating the combination mode of KC and sharing. They observed that leaders can modify or enhance social processes of continuous learning that require active engagement of individuals, most often by utilising information and communication technologies – through academic forums, research processes, face-to-face meetings and audio or web-based conversations – to combine different bodies of explicit/codified knowledge (e.g. documents) to create new knowledge. In their view, when leaders encourage and support individuals or groups to interact socially and use information technology, information processing occurs as information is passed from one to another. In this way, different bodies of explicit knowledge can be exchanged and combined, thus adding to explicit knowledge.

They identified three phases in the conversion process: gathering and combining externalised knowledge, disseminating and distributing this knowledge, and revising and reconceptualising the explicit knowledge to drive a new level of performance, build capacity and make it more functional and understandable Nonaka and Konno (1998).

In both cases studies, top management leadership and commitment was also central to the success of the internalisation mode of KCS. Participants reported that leadership affects the internalisation process of knowledge conversion when employees are encouraged to attend formal or informal meetings to discuss the knowledge contained in reports and other documents. Leadership also gave employees autonomy to acquire new knowledge. In particular, participants at WSU reported that leaders of an organisation have the potential to facilitate or hinder the enhancement or modification of individuals’ existing tacit knowledge as new explicit sources of knowledge are used in practice and ‘learned by doing’ through short
courses and workshops, on-the-job training, meetings, simulations and research. This is consistent with the findings of Nonaka and Konno (1998) that conversion occurs when explicit knowledge is embodied in action and internalised through ‘learning by doing’ (p. 45) at an individual, group or organisational level. In both cases studies, top management commitment and leadership support was shown to be critical to the success of almost any KM initiative within the organisations. Previous literature demonstrates that top management commitment and leadership support is necessary to create an infrastructure that promotes and supports the growth of communities of practices. Within this infrastructure, KM initiatives can be sustained through these communities of practice, and knowledge managers, brokers, facilitators, practitioners and scholars can search for new approaches to KC and culture sharing (Chong, Siong Choy 2006; Chong, Siong Choy & Choi 2005).

Existing literature confirms that knowledge inherent in an organisation is a valuable asset which is becoming increasingly vital for competitive advantage, and that leaders have recognised employees’ knowledge as a critical resource for this purpose (Abebe & Onyisi 2016a; Conley & Zheng 2009). Previous research identified management commitment and leadership support as an enabler of KM, in that managers integrate the creation and use of knowledge into their mission and vision, communicate that mission and vision, create an infrastructure that fully supports KC and management, and builds a culture of trust that regards knowledge as a vital resource (Abebe & Onyisi 2016b; Gichohi 2017; Vakharia & Janardhan 2017). It is therefore important for top managers to recognise the importance of leadership and accountability and reinforce programs that facilitate proper implementation of KM.

In the literature, a favourable environment for KCP depends on the existence of strong links between leadership activities and KC (Kumar, Jain & Tiwary 2013). Al-Hakim and Hassan (2012) showed that transformational leadership influences KCP. Berraies, Chaher and Yahia (2014), however, argued that transformational leadership is associated with socialisation and externalisation.

The literature also identifies poor leadership quality and poor stewardship as threats to successful KM implementation (Chong, Siong Choy & Choi 2005). Today’s complex organisations require the support of top level managers and strong leadership in order to implement and effectively deploy a KM strategy. Strong
leaders are capable of providing an appropriate working environment and stable context that can motivate and empower their followers and employees to produce, share and exchange knowledge. It is the sustainability of leadership support and stewardship that can help others realise the potential of KM and implement it properly.

### 6.3.1.2. Organisational Culture

Results showed that an open organisational and knowledge-friendly culture was a key enabler of successful implementation of KM. In this context, an open organisational culture was characterised by willingness to change, high tolerance of uncertainty and flexibility of operation (Szymańska 2016). Culture is commonly defined as a set of beliefs and core values, rules, practices, behaviours, social customs and norms that govern the way an individual acts and behaves in an organisation and through which the organisation conducts its business (Chong, Siong Choy & Choi 2005; Nonaka & Konno 1998; Wong 2005). The organisational culture also includes organisational goals and scope, performance criteria, position of authority, legitimacy of power, decision-making orientation, leadership and management styles, compliance, assessment and motivation (Abebe & Onyisi 2016a). Culture provides an identity or character for the organisation on how things are done within the organisation (Chong, Siong Choy & Choi 2005; Gichohi 2017) or how day to day activities of KM are run (Abebe & Onyisi 2016a). Culture can also be defined as an outcome of individuals sharing their knowledge within the community (Goffee & Jones 1996).

In general, participants in both settings stated that organisational culture is central to successful implementation of KM. They noted that organisational culture significantly contributes to the four modes of knowledge conversion in Nonaka’s model. For them, the biggest challenge facing most KM efforts lay in developing a culture that is supportive of learning and innovation, highly values knowledge and encourages its construction and dissemination.

The results supported previous findings that cultivation of a knowledge-friendly environment is necessary for KC implementation to succeed. Previous literature (e.g. Choy & Suk 2005) highlights the fact that social entities have realised the critical
significance of ‘soft’ aspects of KM initiatives, such as culture, as well as the ‘hard’ aspects, such as information and communication technologies. This study has shown that the two are fundamental for proper implementation of KC in today’s complex organisations, and that a sense of knowledge ownership in the overall aim of the organisational KM system is required if employees are expected to effectively create and share their knowledge with others. How organisational culture contributes to different modes of knowledge conversation is elaborated below.

Participants in both settings reported that organisational culture significantly affects the socialisation (tacit to tacit) process in Nonaka’s KCS model, in several ways. A friendly culture reflects how an organisation views and facilitates learning and innovation in cross-sector and within-sector collaborations by promoting knowledge generation and circulation. Culture was seen as a key component of managing organisational change and stability and, since KM is an example of such a change, culture was identified as a dominant factor in the proper implementation of KM.

A friendly and supportive culture was also said not only to inspire individuals to interact and collaborate with each other but also to encourage them to search for and create innovative forms of organisational KC that can improve their learning and enhance value for themselves and the community they serve. A culture that respects individuals’ privacy, autonomy, equality, preferences and involvement has potential to promote communication and create communities of practice and networks of trust, suggesting that new ideas can be easily created and shared as they communicate effectively, collaborate and work together.

These findings tentatively suggest that, for a knowledge-centric organisation to perform successfully and gain competitive advantage, a workplace climate and culture of learning that views knowledge as an institutional asset is required. It is at this interface that organisational culture has the potential to leverage the way disparate sources of data and information are collected and shared, and also to boost the acquisition of new (tacit) knowledge. Therefore, organisations will be able to respond more quickly to changes in a dynamic environment. Establishing and nurturing a culture of learning is, thus, necessary for today’s complex organisations to properly implement KC and foster knowledge sharing.
These findings support previous evidence on KM and confirm the significance of culture as an enabler of KC. Previous research showed that collaborative learning has a significant effect on KCP (Berraies, Chafer & Yahia 2014; Jeng & Dunk 2013; Nejatian et al. 2013) and that a positive organisational culture is an essential success factor for KM implementation (Anggia et al. 2013). Andreeva and Ikhilchik (2011) argued that the SECI model should be embedded in organisational culture to increase the efficiency of KM. Social entities, including those relying on human beings, should ensure that their KM initiatives fit into their organisational culture and be prepared to make changes if they do not (Abebe & Onyisi 2016a; Wong 2005).

Previous research showed that organisational culture plays a key role in the externalisation (tacit to explicit) process of KC, and this was supported in both educational contexts. Participants in both case studies reported that a culture of democracy, freedom and learning within the organisation has the potential to convert tacit knowledge into explicit knowledge by providing employees with the opportunity and ‘space’ to become engaged in the organisation’s daily activities, decisions and programs and have their say. When successive rounds of meaningful dialogue, such as discussion groups and two-way communication channels, are created, individuals can communicate with each other, share their experiences and explore new ideas which might form a basis for formalising new knowledge – for example, new forms of effective teaching and practice. Participants at WSU also observed that a motivation and incentive culture encourages employees to produce knowledge, while those at KFSC indicated that a documentation culture helps to transform tacit knowledge into explicit knowledge that enhances the externalisation process. An open organisational culture should, however, be sufficiently supportive to encourage change and innovation and reinforce the hard work of staff (Goffee & Jones 1996).

These findings are fairly consistent with those of previous studies that emphasised the importance of organisational culture in successful implementation of KC. This work portrayed organisational culture as the interactive dynamics of an organisation that form the foundation of its social capital, and conceptualised culture as a framework for interpersonal communication to the extent that it constructs a context for social interaction (Evosys 2015). Berraies, Chafer and Yahia (2014) suggested
that a rewards culture effectively influences the externalisation process. Nejatian et al. (2013) and Jeng and Dunk (2013) argued that a learning culture is necessary for externalisation. The present study confirmed that, while tele-communication technologies and infrastructure can facilitate communication, it is the organisational culture that encourages and moderates the communication between individuals.

Both groups of participants viewed culture, as well as technological infrastructure, as essential for facilitating the combination (explicit to explicit) mode of KCS. Culture played a key role in successful implementation of KM as it could modify or enhance social processes in which individuals collaborated. Continuous collaboration occurs most often when individuals interact with each other and with their environment in ongoing and subtle ways (Abebe & Onyisi 2016a; Jeng & Dunk 2013; Nejatian et al. 2013); hence knowledge and innovation can flow through social interactions.

According to both groups of participants, a supportive culture is needed to encourage and reinforce the use of IT by individuals and groups and to interact socially in order to exchange information and codified knowledge. It was at this interface that different bodies of explicit knowledge could be exchanged and combined to create new knowledge, thereby adding to the store of explicit knowledge. According to Nonaka and Konno (1998), for knowledge conversion of this kind to be successfully implemented, three steps must be followed: collecting and combining externalised knowledge, circulating and distributing this knowledge, and revising and reconceptualising the explicit knowledge to drive a new level of performance, build capacity and make it more functional and understandable. The present study’s findings supported the importance of culture in the combination process of Nonaka’s knowledge conversion theory.

Organisational culture was also pivotal to the success of the internalisation (explicit to tacit) mode of KCS, according to both sets of participants. When a culture of freedom and democracy is created and supported within the organisations, employees can engage in social activities and mutual work. Such an open culture will nurture the learning process. The participants at WSU further suggested that culture can enhance the learning process through the use of information technology. KFSC participants also supported the idea that culture can reinforce the acquisition of a new knowledge. As such, culture has the potential to facilitate or hinder the enhancement
or modification of individuals’ existing tacit knowledge as explicit sources of knowledge are used in practice and ‘learned by doing’ (p. 45) or via an experimentation culture (through online searching) or attending training courses. The internalisation process of knowledge conversion was seen to be affected by organisational culture when employees have freedom, democracy and openness to learn by doing. This is in line with Nonaka and Konno’s findings (Nonaka & Konno 1998) that conversion occurs when explicit knowledge is embodied in action and internalised through ‘learning by doing’ (p. 45) at an individual, group or organisational level.

These findings are supported by existing literature Berraies, Chaher and Yahia (2014), Nejatian et al. (2013) and Jeng and Dunk (2013) reported that organisational culture shapes the internalisation process by enhancing experimentation culture or learning by doing. An organisational culture makes a significant contribution to the proper implementation of KCS, but the degree to which this occurs is highly dependent on top management leadership and motivation, collaboration between different levels of the organisation, individuals and collective groups, and the trust present among employees. Without these factors in place, it would be very difficult to successfully implement KM initiatives. This study has added new evidence about the significance of culture in KC to the existing literature (Ling 2011) in a novel context, namely, higher education.

6.3.1.3. Organisational Rules and Regulations

In both studies, organisational rules and regulations were identified as key success factors that influenced knowledge creation, sharing and usage. These rules and regulations included guidelines for delivering services, such as research, teaching and learning, and those related to administrative and financial matters.

The findings showed that social entities relying on public or private interpersonal mechanisms require rules and regulations within which to operate. The organisational rules and regulations serve as a template for operational order, policy, procedure, standards, focus and discipline. For participants in this study, organisational rules and regulations could influence the way in which authorities developed and implemented KM initiatives both positively and negatively. Top
management leadership was also seen to be important for creating a safe and friendly working environment capable of supporting collaboration and mutual respect and trust among staff.

The overall findings confirmed that operating rules, policies, guidelines and procedures set a basis for proper implementation of KCP, including socialisation, externalisation, combination and internalisation modes of knowledge conversion. Previous studies have come to the same conclusion for KM in general, though in different industries (Gichohi 2017; Huang & Lai 2014).

Organisational rules and regulations were pivotal to successful processes of socialisation involved in the creation and sharing of knowledge, in different ways. For the majority of Australian participants, the extent to which organisational rules and regulations supported team-building and field interaction, facilitated collaboration and mentoring, and inspired knowledge acquisition was a matter of fact to determine knowledge production and exchange. The findings suggested that organisational rules should be in place to formulate and authorise sharing experience through personnel rotation, and observation of and interaction with experienced staff.

Almost one-third of their Saudi Arabian counterparts made a similar point about the role of organisational rules and regulations in relation to the socialisation process of KCS. They did not, however, mention acquisition of new knowledge via on the job training. These findings add to the growing body of literature on the CSFs of KM (Fatemeh & Leila 2014; Gichohi 2017; Saade & Nijher 2016). They extend our understanding of how organisational rules can support the process of KCS over the long term. In both case studies, organisational rules and regulations affected the externalisation process of KC in different ways.

Participants in both cases reported that organisational rules and regulations contribute to successful implementation of the externalisation mode of KC, in different ways. New knowledge can be produced and shared when formal policies are in place to encourage people to publish their research and engage in successive rounds of meaningful dialogue. Participants at KFSC added that low formalisation and more autonomy should be supported by organisational rules and regulations to enhance the externalisation process.
While organisational rules and regulations can help to create new knowledge and convert tacit knowledge into explicit knowledge, they can also enhance accumulation of knowledge. During a discussion, team members may be inspired, empowered or stimulated to create new knowledge as a result of collaboration between less and more experienced members during socialisation. It is at this interface that members come to know (explicitly) what they know (implicitly) and knowledge becomes available in forms that can be applied, articulated, written down, adapted and codified (Hameed & Badii 2012; Mackenzie Owen 2001).

Organisational rules and regulations were also a key determinant of proper implementation of combination within the KM process. For participants in both case studies, combination was the (mostly rational) process whereby they could acquire knowledge (e.g. through reading) and process it through analysis and comparison. This can result in the configuration and combination of new knowledge from existing knowledge that can enhance understanding of problems and improve learning. Such learning is applicable at both the individual and collective levels of the organisation. Central to this finding was the fact that organisational rules contribute to knowledge conversion when appropriate information technology is in place to facilitate knowledge circulation, for instance through email. This is in line with previous literature showing that a well-developed technology infrastructure is required for successful implementation of KM (Alshahrani, Dadich & Klikauer 2016; Ramachandran, Chong & Wong 2013; Wong 2005).

Organisational rules and regulations were also central to the success of the internalisation mode of KCS, according to both groups of study participants. They noted that explicit and articulated knowledge can become ‘second nature’ through practice, that is, ‘learning by doing’. While people can use that internalised knowledge, it might be difficult for them to communicate or externalise it again even though one may acquire that knowledge from others through socialisation, observation or interaction (Mackenzie Owen 2001). According to both sets of participants, rules that support learning are important for the internalisation process. Participants at WSU added that job duties should be explicitly described by the organisational rules to allow employees to acquire new knowledge. Their Saudi Arabian counterparts went further, emphasising that rules can reinforce a flexible
organisation with low formalisation in which employees can perform their work freely and acquire knowledge efficiently. This finding is supported by existing literature showing that KC needs rules that support low formalisation rather than complex work rules (Nejatian et al. 2013).

6.3.1.4. Organisational Structure

The governance of KM is subject to the ways in which organisations are structured. The right organisational structure and mechanisms help KC, usage and sharing to move in a preferred direction and/or towards a preferred level. The governance of knowledge has recently become an important issue for organisations. According to Chen and Huang (2007), there are three main categories of organisational structure - formalised, centralised and integrated.

**Formalisation** refers to the extent to which rules, regulations, policies and procedures, instructions and communication are explicit and standardised and govern activities within an organisation. It also refers to the degree to which employee behaviour is guided by those explicit rules and regulations. Most often, organisations with a high degree of formalisation employ explicit and rigid standards, rules and procedures that would most likely hamper the freedom and flexibility required for internal innovation. Though effective and fair enforcement of regulations can be useful within organisations, standard norms and regulations can reduce opportunities for employees to engage in alternative behaviours and decrease their willingness to participate in discussions of alternatives. When tasks are written down, encoded, formulated and trained by the organisation, there is little need for discussion between individuals at different levels about how work should be done. In organisations with low formalisation, however, behaviours are less structured and employees have greater autonomy in handling the changing demands of their relevant tasks (Chen, C-J & Huang 2007).

**Centralisation** has been defined as the degree to which decision-making power and authority are concentrated at the higher levels of the organisation’s hierarchical structure (Mahmoudsalehi, Moradkhannejad & Safari 2012). In organisations with a high degree of centralisation, the locus of decision-making authority can create a non-participatory environment that reduces individuals’ communication,
commitment and participation in tasks and projects, thus leading to decreased KC (Lee, H & Choi 2003). This suggests that, like formalisation, a more centralised organisational structure is expected to significantly impede the ability of employees to create and share knowledge, and such a passive role would likely reduce the flow of constructive knowledge to produce innovations (Tsai 2002). Janz and Prasarnphanich (2003) suggested that centralisation prevents staff from exercising freedom of choice in the workplace and can cause inefficiency in KCS. Very little incentive remains for individuals to develop inter- and intra-organisational ties for knowledge production and exchange if a high level of centralisation is in place.

Organisations relying on semi-centralised or decentralised structures can promote the concept and provide guidance, direction and support for projects or initiatives through their top-level executives and supporting committees (Foss, Husted & Michailova 2010). Most often, those sitting on the committees possess advanced project management, leadership and interpersonal skills, and often communicate their ideas and knowledge with executives within the organisation. Typically the role of such a consultant group (also known as a KM committee) is to provide initial support and direction for projects or initiatives. The project is usually transferred to the business owners for implementation. These people are knowledge stewards or owners who are responsible for change through knowledge creation, sharing and acquisition within the organisation. Using a common language, they are responsible for teaching the principles of KM within the organisation. These people work together as a team and collaborate to incorporate resistant workforces into the process. KCS behaviour can be sustained if there is ownership of knowledge and learning, a culture of trust, leadership and commitment within the organisation.

The association between KM and innovativeness is likely to be more positive when the organisational structure is less centralised or decentralised, suggesting that a decentralised structure has more potential to facilitate the proper implementation of KCS. This is because a lower degree of centralisation facilitates inter- and intra-organisational networks which in turn foster interdependence and boost cooperation, since all parties share control over outcomes (Walter, Lechner & Kellermanns 2007). Usually, high decentralisation motivates interactions among individuals and collectives within an organisation that provide opportunity for their growth and
advancement. This is particularly the case in dynamic and complex situations, where knowledge workers with more responsibilities and greater knowledge and expertise need greater autonomy, independence, self-regulation and discretion to determine what actions are needed to identify and implement the way forward. These people will be more supportive of enforcement-focused policy options and accept the decision outcomes when they are given the opportunity to communicate their ideas and add their thoughts during the process of decision-making (Chen, C-J & Huang 2007; Chen, C-J, Huang & Hsiao 2010). It is at this interface that stakeholders believe organisational structure can mediate the success of the KM process by shaping patterns and new ideas.

**Integration** describes the extent to which the activities of separate actors and subdivisions within an organisation can be coordinated through formal mechanisms, as well as the degree to which these elements work inter-relatedly (Liao, C, Chuang & To 2011). For implementation of KM to be successful, a systemic change is needed among intra-organisational links. Such a change may require an integrated approach to coordinate and optimise the activities of various players and technologies used within the organisation (Chen, C-J & Huang 2007).

Individuals within an organisation require access to the broadest range of knowledge for successful performance. An integrated organisational structure is argued to provide employees with opportunities to interact with each other, learn from their co-workers and practise. Most often, individuals can build relationship and coordination channels to exchange relevant expertise and knowledge by working together, sharing information and observing each other’s behaviour (Janz & Prasarnphanich 2003). Organisations that have established an integrated mechanism of coordination and control and support and clear expectations are more likely to increase social interaction across their systems. A cohesive network structure encourages individuals to demonstrate cooperative behaviours, facilitates the development of group activities and shared values which, in turn, enable people to create new knowledge and translate new or existing knowledge into practice and innovation (Obstfeld 2005).

**Complexity** of organisational structure was also an issue of concern for some participants in this study. It has been defined differently but, for the purpose of this
study, complexity describes the degree to which an idea or innovation is perceived to be difficult to understand or use, and the extent to which different activities are distinguished with regard to the organisational goals, task orientation and degree of autonomy (Mahmoudsalehi, Moradkhannejad & Safari 2012). Part of KCS practice occurs when individuals face complexity and learn from their errors (Baghbanian et al. 2012; Baghbanian, Torkfar & Baghbanian 2012).

Overall, the four aspects of organisational structure (formalisation, centralisation, integration and complexity) were reported to be the fundamental elements of knowledge control and coordination within an organisation and vital for proper implementation of knowledge conversion. Study participants repeatedly observed that organisations with less formalised, less centralised and more integrated structures tend to enjoy more social interaction, involvement and social support than organisations with rigid, linear structures. Individuals in flexible and dynamic organisations were found to be more willing to engage in creative activities and proper implementation of knowledge construction and circulation. In particular, while the majority of Australian participants affirmed that organisational structure supports the KCP through socialisation, externalisation, combination and internalisation, only half of their Saudi Arabian counterparts came to the same conclusion. This could indicate that KM culture and practice has not been sufficiently strengthened within the Saudi Arabian context, where policies and structure were seen to be less supportive of KM activities.

Organisational structure was seen to be central to successful processes of socialisation that underpin knowledge creation and sharing, in several ways. Participants from both countries were mostly supportive of less formalised, less cartelised and more integrated structures as enablers of proper KC from tacit to tacit, even though they gave different weight to elements forming the structure. While degrees of control and coordination were favoured by Australian participants through leadership mentoring, they agreed that a flexible organisational structure would provide more communication channels within and outside the higher education context and facilitate interaction across the higher education system, all of which is necessary for creating and exchanging ideas and, especially, for knowledge dissemination. Formal or informal meetings, dialogue and collaboration between
different levels of the organisation and beyond the internal boundaries of the organisation were seen as significant factors mediating the role of structure in knowledge creation. The Saudi Arabian participants expressed similar views, adding that a flexible organisational structure supports OJT via personnel rotation across departments.

Existing literature supports the study’s findings on socialisation. Low formalisation and decentralisation have a positive influence on socialisation (Berraies, Chaher & Yahia 2014; Nejatian et al. 2013). According to Jeng and Dunk (2013), however, decentralisation is strongly related to socialisation but there is no relationship between low formalisation and socialisation. Lee, H and Choi (2003) reported no relationship between KCP and decentralisation and low formalisation.

Two-thirds of the Australian and one-quarter of the Saudi Arabian participants reported that organisational structure affects the externalisation process of KC, in various ways. Less formalised and more integrated structures were seen to facilitate and support the creation of successive rounds of meaningful dialogue between individuals which, in turn, reinforce the dissemination of knowledge and, therefore, the conversion of tacit knowledge into explicit knowledge. In particular, they noted that the freedom and autonomy that accrue to employees as a result of decentralisation generate more relationships and interactions through dialogue and the open dissemination of ideas and opinions, thus creating knowledge. Existing literature supports these results. Nejatian et al. (2013) argued that low formalisation and decentralisation are essential for externalisation, although Berraies, Chahe and Yahia (2014) concluded that only low formalisation positively affects externalisation and Jeng and Dunk (2013) proposed that decentralisation influences KCP.

Organisational structure was also a key determinant of KM. Study participants noted that structure shaped the combination stage of KC when it was applied to information and communication technologies and when social networks and interactions were supported within the organisation. Participants from both countries reported that a less formalised, less centralised and more integrated organisation facilitates discussion in meetings – a social process that supports the combination of different bodies of explicit knowledge. When employees communicate with each other, they have the opportunity to share and exchange existing explicit knowledge within the
organisation, convert it into useful and applicable form and create new knowledge that can benefit the organisation. In particular, the data revealed the mediating role of information technology in gathering and integrating knowledge which employees can circulate via communication channels such as email, thereby creating new knowledge. Saudi Arabian participants mentioned the idea of preserving knowledge by establishing specific departments for this function.

According to some scholars, decentralisation has a significant influence on combination, and low formalisation has a negative effect on this process (Berraies, Chaher & Yahia 2014; Jeng & Dunk 2013). In contrast, Nejatian et al. (2013) argued that low formalisation and decentralisation are necessary for KCP. Organisational structure is also central to the success of the internalisation mode of KCS, as highlighted by both groups of participants in the present study. They noted that explicit knowledge produced in the combination process is embodied as personal tacit knowledge when explicit knowledge is put into practice - so-called ‘learning by doing’.

Research has shown that less centralised and less formalised organisations support the process of converting explicit knowledge into tacit knowledge when organisational constraints are reduced and employees are encouraged and supported to have their say and document their ideas, for example, via a narrative that embodies new tacit knowledge (Nonaka & Takeuchi 1995).

Interestingly, however, participants from both countries noted that a degree of formalisation is required to facilitate the proper implementation of KCP at different levels of management, since these positions were occupied by experienced people who could transfer knowledge up and down. Previous studies found that decentralisation and low formalisation were significant for the internalisation process (Berraies, Chaher & Yahia 2014; Nejatian et al. 2013). Jeng and Dunk (2013), however, concluded that only decentralisation is strongly related to KCP, including the internalisation process.
6.3.1.5. Knowledge Structure

Knowledge structure was cited as one of the most critical factors contributing to knowledge sharing and creation in this study. Knowledge structure is defined as the organisation of knowledge or the way humans organise knowledge, shared beliefs and/or information elements within a given knowledge domain based on proximal relationships between the knowledge elements (Kim, HW & Mun 2012).

For two-thirds of the Australian participants, knowledge structure had a significant role in the socialisation, externalisation and internalisation processes of KC but only a minor role in combination. Nearly half of their Saudi Arabian counterparts, however, identified its critical role in all four modes of knowledge conversion (socialisation, externalisation, combination and internalisation).

Participants in both countries indicated that socialisation is influenced by communicative channels with partners through which knowledge is exchanged. Australian participants identified a decentralised structure and mentoring as significant for socialisation, while their Saudi Arabian counterparts stated that formalised professional development of KM shapes socialisation. Externalisation was seen to be affected by knowledge structure in terms of providing funding for employees to produce knowledge (Australian participants) and establishing a department to capture knowledge (Saudi Arabian participants). In relation to combination, only the Saudi Arabian participants mentioned that a centre for configuring existing knowledge was vital to knowledge structure. Finally, participants in both countries reported that information channels for employees using technology enhance the internalisation process. While the Australian participants identified free access to knowledge as necessary for internalisation, the Saudi Arabian participants stated that low formalisation effectively improves knowledge acquisition.

Knowledge from many sources can be created and shared. It can be created at the individual, collective (team or group) or organisational level. Useful, applicable, up-to-date and trustworthy knowledge can be captured and created by knowledge sharing and exchange with other members of the collectives (Chong, Siong Choy & Choi 2005). Existing literature has clearly identified knowledge structure as one of
the critical success factors for KM implementation (Akhavan, Jafari & Fathian 2006; Choi, YS 2000; Davenport, Thomas H., De Long & Beers 1998; Hasanali 2002; Hickins 2000; Kim, HW & Mun 2012; Moffett, McAdam & Parkinson 2003; Wong 2005). In particular, studies have recognised the importance of employees and customers as key sources of ideas for product development and service innovation for organisations. Such strategic partnerships and internal and external relationships can create long-term prospects for those organisations if a well-established knowledge structure is in place to successfully implement KM (Akhavan, Hosnavi & Sanjaghi 2009; Akhavan, Jafari & Fathian 2006; Akhavan & Zahedi 2014; Chong, Siong Choy & Choi 2005).

The present study found that the management of knowledge to support students has become increasingly important to HEIs in Australia and Saudi Arabia because of the need for products and services to adjust to the ever-changing educational environment. Overall, it was concluded that a well-designed knowledge structure is a critical factor for successful implementation of KM in the higher education context, a knowledge structure that identifies sources and users of knowledge, processes, strategies and linkages.

6.3.1.6. Individual and Collective Responsibilities, Trust and Collaboration

Nearly all participants in Australia and over two-thirds of those in Saudi Arabia agreed that entrusting (delegating) responsibilities to employees, including responsibilities for coordination, and collaboration affect socialisation, externalisation, combination and internalisation in various ways. As more individuals engage in organisational activities, such as KM initiatives, individual level knowledge is transferred into groups or teams of actors, spreading beyond the collective level and into the organisational level, eventually becoming organisational knowledge. When individuals and teams are given the opportunity to be involved in knowledge initiatives and are supported and entrusted to independently provide ideas, knowledge is circulated.

It has been argued that the more autonomy and freedom members of an organisation retain, the more responsibility they will feel for the outcomes of their decisions and
for their work role and context (Chen, C-J & Huang 2007). Both individualised and teamwork behaviours play key roles in KM, which suggests that organisational members should share full responsibility for what happens in the four processes of knowledge conversion (Claver-Cortes, Zaragoza-Saez & Pertusa-Ortega 2007). Willem and Scarbrough (2006) and Butler and Murphy (2007) observed that employees are more capable of constructing and sharing new knowledge and skills to explain new or existing concerns if they are allowed and supported to do so (Willem & Scarbrough 2006) or given the chance to enhance their responsibilities for more cooperation (Yeh, Y-c, Huang & Yeh 2011). Like other factors, responsibility and trust can influence the four processes of KC and sharing.

In both countries, social interactions, collaboration responsibilities and team responsibilities were among the key factors that enhanced the socialisation process of KM. The Saudi Arabian participants affirmed that individual responsibility requires the employee to develop relevant skills and acquire new knowledge. Democracy and freedom were said to give employees more space to take responsibility and, as such, could affect the externalisation process of KM. For participants in this study, such a responsibility encouraged them to publish useful research and reports. Individual and team responsibilities towards social processes, such as participation in organisational meetings, influenced the combination process. This form of social responsibility aims to gather and integrate different bodies of explicit knowledge and convert it into new codified knowledge. Individual and team responsibilities shaped the internalisation process by enhancing democracy, autonomy and freedom for employees to become more involved in activities and acquire knowledge. The hierarchical structure of the organisation also contributed to internalisation, as it determined the degree of employees’ responsibility.

6.3.1.7. Information Technology Infrastructure

The findings also supported the idea that information and communications technology and infrastructure (ICT) plays a key role in the practice of KM. Although information technology structure and KM are not the same, ICT was reported to be vital in enabling and facilitating KM processes and initiatives including KCS. The majority of the Australian participants agreed that information technology infrastructure largely affects socialisation, internalisation and, particularly,
combination but had only very limited influence on externalisation. For the Saudi Arabian participants, however, information technology was central to all four processes of KCS. While information technology and infrastructure has been frequently identified as the second most important factor in the success of KM (Alazmi & Zairi 2003), it should not be overemphasised as a determinant of KM as a whole (Hasanali 2002).

Some scholars argue that proper implementation of KM is impossible without technological infrastructure, including information systems (Davenport, Thomas H., De Long & Beers 1998; Moffett, McAdam & Parkinson 2003). This is particularly the case in business management. In surveys of top executives by Stivers et al. (1997) and Davis and Riggs (1999), for example, participants identified information technology as one of the most critical factors for KM success.

Research has shown that ICT can influence the KM system in two ways: via the establishment of the technology and infrastructure (i.e. hardware) *per se* and through the utilisation of that technology, which is highly dependent on the software and operators who use it. Critical to this discussion is the key role of human resources, in the form of knowledge workers, in communicating the information and in the systematic management and leverage of knowledge for KCS (Chong, Siong Choy & Choi 2005).

Clearly, information technology is an extremely important tool to support KM initiatives, enabling individuals to communicate and collaborate. It should not, however, be seen as the basis of the initiative itself. In line with previous literature, information technology, in this study, was found to mediate and reinforce the implementation of KM initiatives, even though its role was dominant in the combination process of KCS. This study found that, in today’s complex world, knowledge cannot be simply stored, transferred or exchanged without an effective and efficient information technology system in place. According to Davenport, Thomas H., De Long and Beers (1998), KM initiatives have the best chance of success when a robust and diversified information technology system is available to meet the needs of diverse audiences within an organisation. These authors found that, directly or indirectly (i.e. in a mediating fashion), the focus of information technology was increasingly on enabling individual connections, although it also
played a key role in collecting and codifying knowledge, suggesting that the collaborative and communicative features of an organisation’s technology infrastructure are critical to the success of KM initiatives.

This study also found that positive reinforcement and motivation in using ICTs influence the practice of KCS. It was noted that leaders encouraged employees to use ICTs as a means of creating and sharing knowledge when they putting courses and publications online for others to access or share their research findings in the media. Usually, media including social media comprise a set of tools identified as social networking platforms that allow people to engage, connect, communicate, and collaborate (Hemsley & Mason 2013). These tools produce a dynamic information infrastructure that facilitate effective communication and processing of data and information, and permits easier, faster, and more collaborative and widespread sharing of information. These properties can create phenomena such as vital processes, and they can change the way people work and behave in organisations (Behringer & Sassenberg 2015). According to Aisenberg Ferenhof, Durst and Hesamamiri (2016), knowledge intervention in virtual communities establish a continuous basis for knowledge creation and dissemination. The authors argue that some special media support the management of individual and collective knowledge. In particular, the author state that social media has the potential for expediting the exchange of tacit knowledge, which is a necessity of businesses (Aisenberg Ferenhof, Durst & Hesamamiri 2016). It would appear that media plays a key role in validating one’s research findings as it enables individuals communicate, collect, respond and interpret data and information. It is believed that the knowledge that is created in this collective way is worthwhile.

Usually, technology has the potential to empower personnel to facilitate knowledge sharing within organisations. Dialogues, discussion groups and communities of practice are created to facilitate knowledge flow. With hardware and software information and communication technologies such as the intranet, virtual communities of practice can be created ‘at a distance’, facilitating interactions and increasing the scope and timeliness of KCS (Ardichvili 2002). Similar studies have come to the same conclusion - that integrating ICT into KM initiatives and governance, such as SECI, would provide practical support for interaction and
collaboration and, hence, knowledge construction and transfer and improved learning (Gasson & Shelfer 2007).

Overall, the findings of the present study have contributed to existing knowledge by identifying the mediating and enabling role of information technology infrastructure in the successful implementation of KCS processes. In both countries, ICTs contributed significantly to socialisation (tacit to tacit) by enhancing team interactions and supporting collaboration and knowledge exchange with people from outside the institutions; to internalisation (explicit to tacit) by supporting the learning process; and to combination (explicit to explicit) by preserving knowledge and enhancing social processes that help to combine explicit knowledge. Only the Saudi Arabian participants, however, reported that it contributed to externalisation (tacit to explicit) by contributing to KC and enhancing configuration of existing information. Thus, communication and information technologies play a vital role in KCP since they enable employees to share information, communicate explicit knowledge and create new ideas and innovations. Yet, organisations should not fall into the trap of technological determinism and overemphasise its role; rather it is merely a platform or source of KCS (Chan, A & Garrick 2003).

Existing literature on the influence of information technology infrastructure on KCP supports these results Berraies, Chaher and Yahia (2014), Nejatian et al. (2013) and Choi, B and Lee (2002) reported that information technology influences all KCPs. According to Jeng and Dunk (2013), however, it only shapes the combination and internalisation processes.

6.3.1.8. Measurement

A range of quantitative and qualitative measures are available to evaluate KM initiatives. The KM components and processes are widely known to influence the performance and effectiveness of organisations. The relationship between key aspects of the organisation, such as innovation and productivity, and knowledge measurement has been documented in the literature (Carneiro 2001; Conley & Zheng 2009).
Participants in both countries reported that performance measurement, assessment and intervention were critical to successful implementation of KCP. They argued that performance and efficiency evaluation motivates KCP, particularly at the externalisation stage of the knowledge conversion model. Simply defined, performance measurement describes an individual, group or larger organisational unit’s efficiency and productivity and is calculated using quantitative and/or qualitative indicators, such as return on investment (Carneiro 2001; Chong, Siong Choy & Choi 2005; Ramachandran, Chong & Wong 2013). Such assessments identify areas in need of improvement.

Existing research has found a positive association between performance and/or efficiency measurement and successful implementation of KCP (Chong, Siong Choy & Choi 2005; Conley & Zheng 2009). Traditional or classic approaches to employees’ and organisational performance focused on financial indicators, but these are inadequate to address the effect of knowledge on organisational performance within a development environment (Chong, Siong Choy & Choi 2005). New theories and approaches to performance measurement are required that have non-financial ratios or indicators and include intellectual assets as well as financial measures to evaluate management efficiency. Such intellectual assets include individual know-how within and outside the organisation and organisational processes (Carneiro 2001).

The findings of the present study showed that a rigorous system of performance measurement and/or intervention is required to ensure that the right information is delivered to the right person at the right time. Interventions such as team discussions, mentoring by experts and leaders and meetings at multiple levels of the organisation contributed to successful implementation. Both measures of intellectual capital and financial performance should stand at the core of such a system to enumerate and evaluate financial and non-financial performance. Bukowitz and Petrash (1997) stressed that, for KM implementation to be successful, a system of measurement is required that can explicitly include intangibles. The authors added that, in the case of both tacit and explicit knowledge, the contribution of performance to KC implementation must be measurable by both traditional financial indicators and others that capture employees’ know-how, processes and customer knowledge.
Clearly, it is essential to include the performance measurement system as a key factor in the proper implementation of KM.

The findings from both case studies showed that performance measurements affected the socialisation process when multiple levels of leaders and experienced staff mentored junior members, thereby supporting the flow of KC, and when they worked together as part of a team or interacted in formal and informal meetings where knowledge was transferred. According to participants, when leaders and experienced academics advised employees during work or when they attended meetings, knowledge would flow from the top down and vice versa. As a result, employees exchanged knowledge smoothly.

Two-thirds of the Australian and half of the Saudi Arabian participants agreed that performance measurement influenced externalisation by creating successive rounds of dialogue in which institutional knowledge was reviewed. According to the Australian participants, evaluations of existing knowledge and measurements of knowledge production contributed to the creation of new knowledge and influenced the combination process via meetings at which academic work was reviewed. The Saudi Arabian participants, however, did not provide any comparable evidence. Both groups of participants reported that measurements of knowledge and outcomes influenced the internalisation process via attendance at assessment meetings, at which students’ results and feedback were evaluated and new knowledge was acquired in the process.

6.3.1.9. Training and Development

Regular education and training of employees was critical to successful implementation of KM according to the study participants. This is consistent with findings from previous studies (Alazmi & Zairi 2003; Artail 2006; Chumjit 2013; Hameed & Badii 2012; Sedighi & Zand 2012; Tsui et al. 2009).

While some employees may understand what KM is and recognise the advantages of its adoption, it is essential that training activities take place on a regular basis; these should address different aspects of KM, its concepts and processes, what type of knowledge is valuable, and the ways in which different types of knowledge can be
properly developed, converted and shared. Ongoing training and education play a key role in keeping employees up-to-date and reduce the uncertainties and complexities knowledge workers might face. The more they know about KM, collaborate in KM activities and are aware of its benefits for their day-to-day tasks, the more likely they are to engage in learning and contribute to organisational knowledge governance (Akhavan & Zahedi 2014; Wong 2005).

Training creates a platform for staff development, innovation and creativity where knowledge can be easily transferred and shared between people and new ideas created. It provides both employees and managers with the skills and information they need to fulfil their responsibilities (Akhavan & Zahedi 2014).

In order to facilitate and implement a KM system, organisational leaders and business owners must utilise their expertise in training and development to identify the needs of their organisations and its staff, analyse how they can contribute to the KM system, deliver the most up-to-date and relevant KM knowledge and resources, and ensure their continued involvement in KM. According to Yahya and Goh (2002), for an organisation to be truly knowledge-based, it must support its activities with quality training and education. This is particularly the case in today’s complex market in which customers demand quality products and services at reasonable cost and with fast-track processing. A strategic goal for organisations is to continually improve their overall performance to satisfy these requirements. High tech advances and improved processes have already played an important role in helping organisations to meet this challenge. However, a well-informed workforce is the key competitive advantage for any industry or organisation – one that must remain competent and up-to-date in all areas of practice through continuous training and development. That is why many organisations have become, or are now striving to become, learning organisations. Learning organisations view training as a long-term investment rather than a cost and recognise that failure to adequately train their workforce reduces the effectiveness of KM principles in practice (Chong, Siong Choy & Choi 2005; Valmohammadi 2010).

Previous research highlighted the importance of preserving intellectual capital through training and development and identified three main ways in which executives, including human resource managers, contribute to building a learning
organisation.: helping individuals and collectives to construct and use knowledge; developing appropriate linkages and networks; and engaging in double loop learning, or learning to change underlying beliefs, values and assumptions (Argyris & Schon 1978; Chong, Siong Choy & Choi 2005). The present study’s findings provide new evidence to show that a robust system of KM cannot sustain productivity unless those working within the organisation learn to use and share knowledge creatively.

Almost all the Australian participants agreed that training promoted socialisation (through on the job training, team interactions, formalised professional development and mentoring) and internalisation (through training programs, workshops and seminars, which represent a kind of learning by doing). Two-thirds of Saudi Arabian participants supported the perception that training reinforced socialisation and internalisation in most of these ways; but they failed to mention training through mentoring in socialisation and learning by doing in internalisation, and made an additional observation about the role of collaborative training with partners to support socialisation via knowledge exchange. They also reported that training shapes externalisation by creating knowledge. HEIs, with their focus on training and research, play a key role is supporting organisational learning efforts; thus training is considered to be one of the main CSFs for implementation of KCP.

6.3.1.10. Employees’ Involvement

The engagement of employees in KM initiatives was seen as critical to successful implementation of KM. Involvement can be interpreted as the degree of information processing and the extent to which every employee attaches importance to a decision, product or service. It also denotes the extent to which individuals share information, knowledge, rewards and power/authority throughout an organisation (Chong, Siong Choy & Choi 2005; Chumjit 2013). Such involvement has a significant influence on employees’ behaviour and their potential for effective contribution to the achievement of organisational goals (Abou-Gamila, Abdulla & Abdel-Razek 2015).

Previous research has highlighted employee involvement as a key enabler of successful KM implementation. Organisational authorities have realised that employees’ knowledge is an asset central to competitive advantage, so they are increasingly encouraging their employees to learn, communicate and practise by
engaging them in organisational activities (Lee, H & Choi 2003; Moffett, McAdam & Parkinson 2003). Successful KM implementation and performance improvement are largely rooted in the recognition of the importance of employees’ tacit knowledge and their willingness to bring this type of knowledge into continuous process improvement and innovation (Chong, Siong Choy 2006).

Knowledge is built on previously acquired knowledge and experience when it is shared (Al-Jarrah, Al-Sawalqah & Al-Hamdan 2017) and when individuals engage in organisational activities where information and knowledge can be shared and combined to generate new ideas and innovation. Through proper management of knowledge, organisations can survive and solve the problems they face by stressing employee involvement and commitment (Sedighi & Zand 2012).

This was the view of the majority of Australian participants, who reported that employee involvement can shape KC, particularly externalisation. Most of their Saudi Arabian counterparts agreed with the influence of involvement on socialisation and externalisation, but there was no reference to combination.

**6.3.1.11. Collaboration and Teamwork**

Collaboration and teamwork in an open and trustworthy environment was seen as essential to successful implementation of KM. Collaboration refers to individuals and collectives (groups or teams) working together and the extent to which individuals actively support each other in achieving organisational goals. Collaboration creates a platform to leverage knowledge and foster KCS within the organisation (Abou-Gamila, Abdulla & Abdel-Razek 2015; Alshahrani, Dadich & Klikauer 2016; Karami et al. 2015).

Teams comprise a group of two or more people coming together to interact and influence each other to achieve a common goal. Team members are mutually responsible for achieving common goals and perceive themselves as a social entity within an organisation (Zeff & Higby 2002). It is widely recognised by today’s organisations that groups and teams potentially make more creative and informed decisions than individuals and that they can organise and coordinate their work with minimal supervision. Accordingly, they have been characterised as basic building
blocks of the organisation (Chong, Siong Choy & Choi 2005; Sedighi & Zand 2012), although they cannot replace individuals. Groups and teams provide a means for more interaction and improved learning than can be achieved by individuals working in isolation.

In both countries, collaboration and teamwork were seen to significantly influence KCP, particularly socialisation. Australian participants reported that collaboration and teamwork also influenced other modes of knowledge conversion (combination, externalisation and internalisation), but Saudi Arabian participants did not mention combination.

Available literature indicated that social processes, such as discussion forums and dialogue, are essential elements of a KM team if knowledge is to be embodied and disseminated effectively (Abou-Gamila, Abdulla & Abdel-Razek 2015; Chong, Siong Choy & Choi 2005). In this study, teamwork was the main source of the knowledge generation process, and a well-developed and creative team was seen as pivotal to successful KM implementation. This finding in the higher education context supports previous results on KCP in other contexts.

An individual’s knowledge is rarely articulated as it is deeply embedded in routines and practices that are taken for granted. Through collaboration, an organisation can invest diverse skills and experiences into its processes and problem-solving activities. Overall, the focus of knowledge governance is on providing an environment in which knowledge workers from different disciplines can come together and create new knowledge (Blomqvist & Levy 2006; Chong, Siong Choy & Choi 2005). It is at this interface that employees can build on each other’s ideas and assets by developing trusting and meaningful interactions within the team.

6.3.1.12. Employees’ Empowerment

Employee empowerment was seen as pivotal to successful implementation of KM. The findings showed that those with greater autonomy and self-determination are better able to implement KM initiatives - so-called employee empowerment. In particular, the study identified the influence of employee empowerment on
socialisation, externalisation and internalisation in Australia, and on socialisation, externalisation, combination and internalisation in Saudi Arabia.

Empowerment refers to the feelings of control and self-efficacy that arise when someone in a previously weak or immobilised situation is given official authority or delegated the legal power to do something (for instance, to authorise or commission something) (Abebe & Onyisi 2016a). This suggests the need to reduce excessive (and coercive) bureaucracy by flattening the hierarchical structure of the organisation and creating a sense of autonomy and independence so that employees can devote all their aptitudes and energies to the accomplishment of shared goals (Chong, Siong Choy & Choi 2005).

Previous research has identified employee empowerment as one of the CSFs for KM implementation. The advantages of KM cannot be fully realised without the genuine empowerment of knowledge workers (Abebe & Onyisi 2016a; Hasani & Sheikhsemaeili 2016).

When employees feel they have been empowered, they seek knowledge that will enable them to contribute to organisational performance. This is mainly because they feel that they are part of the team and are valued, so they take more responsibilities to learn their jobs, explore new ideas for problem-solving and remain committed to the organisation’s success (Karami et al. 2015; Sedighi & Zand 2012). Eventually, such empowerment leads to employees being more knowledgeable (Abebe & Onyisi 2016a; Chong, Siong Choy 2006). There is consensus in the current literature that employees are empowered if they are fully involved in organisational decisions and engaged in the framing, conceptualisation, development and implementation of KM (Abebe & Onyisi 2016a). Organisations will fail to implement KCS properly and sustain competitive advantage if employees do not feel a sense of ownership in the process of KM (Chong, Siong Choy 2006).

Overall, organisational knowledge primarily originates from the know-how, learning and experience of the employees. This study’s findings support previous assertions that business owners and managers can empower their employees by valuing their knowledge and helping them to communicate their knowledge through various forms
of knowledge creation, organisation and sharing. Employee empowerment is thus acknowledged as another critical enabler of KCP.

6.3.1.13. Organisational Strategies

Organisational strategy, which is usually developed by top management, is an articulated policy framework that expresses how an organisation needs to evolve over time to achieve its goals, along with a detailed evaluation of what needs to be done. It refers to actions and benchmarks - the systematic process of searching for best practices for superior performance (Chong, Siong Choy 2006)] - that a company intends to put in place to ensure that long-term goals are accomplished. Together, these actions make up an organisation’s strategic plan. The strategic plan outlines the essential steps in a sequence that must be undertaken in order to translate an idea or theory into practice. This process requires high levels of supervision and leadership support and can be likened to the successful implementation of KM. Developing such a strategy for an organisation involves comparing its present state and its targeted state to identify gaps and differences, and determining what is needed for the desired changes to take place. KM strategies have a significant effect on the KM process (Choi, B & Lee 2002).

Well-developed organisational strategies were seen as central to successful KCP implementation. Both the Australian and Saudi Arabian participants reported that organisational strategy significantly contributed to the socialisation, externalisation and internalisation processes of KCS. None reported any influence on the combination process. Half of the participants in both countries reported that organisational strategy influences socialisation via mentoring, collaboration and team interaction. Saudi Arabian participants added formalised professional development strategy to this list. Both groups asserted that human strategy shapes externalisation; Australian participants added that low formalisation and encouragement strategies influence externalisation and that a low formalisation strategy is also important for internalisation. Saudi Arabian participants indicated that formalised professional development and openness strategies played a vital role in internalisation.

The association between KM and strategy has been discussed within the literature from two perspectives. One explanation is that KM should support organisational
strategies and be incorporated into the organisation’s strategic plan to be successful and truly meaningful to the organisation. The other argument is that an identified KM strategy (such as codification or personalisation) should be in place to achieve the organisational goals (Conley & Zheng 2009).

Previous studies showed that strategies influence the ways organisations can properly accomplish KM initiatives (Chourides, Longbottom & Murphy 2003; Wong 2005). It is noted, however, that an appropriate KM strategy is one that is built on the needs of the individual organisation within its context (Wong 2005).

Without a clear and well-planned strategy it would be very difficult to drive the success of KCP, as there would be no criterion or index to measure the changes resulting from KM initiatives and assessing the implications (Akhavan & Zahedi 2014). Researchers have identified several strategies for successful implementation of KM (Wong 2005), but emphasise that any strategy needs to be adapted to the situation of action and knowledge context.

6.3.1.14. Mutual Relationships and Interaction

Building relationships, setting up committees and collaboration activities were seen to be pivotal to the exchange of knowledge and accumulation of experience. In both countries, some participants reported that effective relationships could enhance socialisation and internalisation in many ways. Some Australian participants indicated that it influences externalisation. No influence on combination was reported. According to Hung, W-H et al. (2012) and Valmohammadi (2010), there is a positive association between network relationships and a successful knowledge transfer climate. The author concluded that building relationships and communities of practice is critical for the successful implementation of KCS.

From a different perspective, the interactions between CSFs can also contribute significantly to KM practices. Hasanali (2002), for example, proposed that successful KM relies on such key factors as leadership, culture, structure, roles, and responsibilities, information technology infrastructure and measurement. The author concluded that the interaction between these elements facilitates successful KM. Similarly, Yeh, YMC (2011) argues that while the influence of these elements on
KM can vary depending on the specific perspective adopted, the three components of people, processes and technology are common to all KM approaches. In a higher education setting, KM can be defined as a knowledge sharing and creation process that is facilitated through ICTs, where learners first organise and internalise explicit knowledge into tacit knowledge and then convert tacit knowledge into explicit knowledge via interactions.

6.3.2. External Factors related to the Knowledge Environment

The study identified the following influential factors that are external to the organisation: socio-cultural factors, ethical considerations, complexity/uncertainty, political conditions and consequences, concepts of knowledge and KC and financial considerations.

6.3.2.1. Socio-Cultural Factors

Both the literature and the study participants in both countries viewed socio-cultural factors as relevant. While many researchers and developers of KM processes and structures are less concerned about the role of socio-cultural factors in KC, this study found evidence that the societal environment and culture are important considerations. This finding supports existing literature showing that culture plays a key role in people’s learning and is a critical element in organisational change and development (Farzin et al. 2014; Fatemeh & Leila 2014; Karami et al. 2015; Ling 2011; Mason 2003). These authors argue that ignoring the individual’s socio-cultural background and diversity within an organisation creates an impediment to innovation and KC. Being sensitive to social and cultural dimensions can create a better climate for knowledge access, sharing and creation. Yet not all participants from the two case studies mentioned the role of socio-cultural values in KC.

6.3.2.2. Ethical Considerations

Proper implementation of KCS cannot be decoupled from the ethical imperatives and moral concerns rooted in the KM context. Existing research shows that a positive correlation exists between ethics and KCP (Akhavan & Zahedi 2014). A KM system, therefore, must incorporate the ethical and moral aspects of action (Land, Amjad &
Nolas 2007; Morais da Costa 2010; Prabhu 2015). Even though very little research has explored the role of ethics and morality in the proper implementation of KCS, it would appear that ethics would influence the participants’ view while creating and sharing knowledge. This finding is consistent with the results of previous studies that pointed to the need for the ethics dimension to be incorporated into current KM research and practice (Land, Amjad & Nolas 2007). Very little evidence, however, was found in the current literature to consistently support any specific ethical theory for KC. Future research is needed to identify the ethical dilemmas around KCS at individual and collective levels in the context of higher education.

6.3.2.3. Complexity/Uncertainty

Most participants recognised the complexities and uncertainties around KCS. They reported that rationality and fact-based management provided insights for them in less complex situations, whereas in more complex situations rationality alone could not help them create and share knowledge due to its failure to address inherent uncertainty. Instead, they reported that they have learned from experience, communication, trial and error and/or feedback from others. This finding is consistent with previous research which shows that knowledge is linked to learning and that (explicit) knowledge is internalised through ‘learning by doing’ (Nonaka & Konno 1998).

It has been suggested that in a risky, uncertain and complex environment, collaboration might be an important integrating concept in KM that can explain much of the success in KC and collaborative innovation (Blomqvist & Levy 2006). Knowing how to collaborate, it is argued, helps individuals and collectives to generate and transfer knowledge for innovation and better productivity and performance (Blomqvist & Levy 2006; Chen, W et al. 2016).

6.3.2.4. Political Conditions and Consequences

Political considerations also contributed to the implementation of KM. For some participants, the creation, use and diffusion of knowledge was affected by political conditions, consequences and forces. Although power relationships and political decisions appear to structure KC, both hindering and facilitating the transmission
process, these factors have been relatively little studied. Power relationships between individuals within a social structure and the political will of leaders or managers contribute negatively or positively to KC and knowledge exchange (Weiler 2011). According to Weiler, political factors can block KC and diffusion, thus slowing down organisational learning, or they can facilitate knowledge flow, accelerating learning and decision-making. It is important to note, however, that where power relations become the dominant force in KC and diffusion within an organisation, individual preferences may replace the organisational mission; hence the implementation of KCS may not be based on the existing conditions but on political and personal interests.

6.3.2.5. Concepts of Knowledge and Knowledge Creation

Both the literature and analysis of the qualitative data showed that, as expected, there was an understanding among participants in both countries about KC and transfer processes and, hence, what might be termed ‘knowledge’, but views about the proper definition and implementation of KCS varied. Despite a great deal of interest in the subject of KM, there was no consensus on a suitable definition of KC, mainly because the participants had different perspectives on the subject. While some viewed KM at the individual level, for others it was seen to be based on organisational competencies. This finding supports previous studies which concluded that different perspectives on the concept of knowledge can generate different definitions of KM (Chong, Siong Choy 2006; Yeh, Y-c, Huang & Yeh 2011).

6.3.2.6. Financial Considerations

Resource constraints and financial challenges were seen to impede the implementation of KM initiatives. Many participants noted that sufficient financial resources must be allocated to KM if they were to be able to properly implement KM initiatives. The existing literature emphasises the importance of financial and non-financial resources in implementing KM initiatives (Akhavan & Pezeshkan 2014). Yet, in contrast to the findings of the present study, Abukhader (2016) reported that none of his Saudi Arabian participants believed that financial considerations posed an obstacle to KM.
6.4. Summary

This chapter discussed the results of the study. It presented an overview of the research, followed by a detailed comparison between the two case studies, drawing on insights from available literature to evaluate, interpret and contextualise the findings.

Two sets of factors were shown to contribute to the proper implementation of KM in Australian and Saudi Arabian HEIs, although their influence was at times uneven. There were 14 internal and 6 external factors related to the KM environment. The internal factors were: leadership, organisational culture, organisational rules, organisational structure, responsibility, information technology infrastructure, measurement, training, teamwork, employees’ involvement, employees’ empowerment, knowledge structure, organisational strategy and building worthy relationship between employees. The external factors were socio-cultural factors, ethical considerations, complexity/uncertainty, political conditions and consequences, concept of knowledge and KC and financial considerations.

Overall, these internal and external CSFs synergically influenced the practice of KCS within the higher education setting. They influenced the four dimensions of Nonaka’s model of KM (socialisation, externalisation, combination and internalisation) in different ways.

The following chapter presents an overview of the study, discusses its contributions and limitations, and makes recommendations for future research.
Chapter 7: Conclusion

The previous chapter discussed the results of this research and interpreted its findings in relation to the extant literature and the research questions that the project explored. This chapter presents a brief overview of the study, including the research aims and questions, study design and findings. It elaborates the contributions of the study, including a model of knowledge creation process (KCP) in complex situations to show how this new model can help in producing knowledge. The chapter concludes by discussing the limitations of this study and recommending directions for further research.

This empirical study aimed to identify the critical success factors (CSFs) of knowledge management (KM) in higher education institutions (HEIs) associated with Nonaka’s model through a comparison between Western Sydney University (WSU) in Australia and King Fahd Security College (KFSC) in Saudi Arabia. The analysis identified several CSFs based on previous literature that contributed to the proper implementation of KCP in the higher education contexts in both countries.

7.1. Overview

The main responsibility of higher education is to create and share new insights and ideas that can inform the development of innovations in the public and private sectors. It is widely recognised that the successful implementation of KM practices within higher education is fundamental to such development (Adhikari 2010; Hasani & Boroujerdi 2013; Hasani & Sheikhesmaeili 2016; Songsangyos 2012). Yet the significance of KM and the factors that contribute to it within higher education have been under-researched and remain poorly understood (Alshahrani, Dadich & Klikauer 2016; Ramachandran, Chong & Wong 2013). Existing studies have mainly focused on industrial and business settings (Aghdasi & Tehrani 2011; Berraies, Chafer & Yahia 2014). Previous research on KCP model has mostly been aimed at improving organisational innovation (Nonaka 1994; Nonaka & Takeuchi 1995; Ramirez & Kumpikaite 2012; Sankowska 2013) but it has proved challenging to translate its findings into practice because of contextual variation among
organisations (Alshahrani, Dadich & Klikauer 2016). Nonaka and colleagues’ model of KCS has not been widely used in higher education.

Researchers have identified many relevant factors that contribute to the successful implementation of KM within social organisations (Berraies, Chafer & Yahia 2014). There is, however, very little evidence about the CSFs of KM in HEIs (Arntzen, Worasinchai & Ribiere 2009). Similarly, few studies have empirically investigated the CSFs of knowledge creation and sharing (KCS) implementation in the practice of higher education (Ramachandran, Chong & Wong 2013). The main purpose of higher education is to generate and disseminate knowledge. Effective KM implementation is thus believed to play a key role in ensuring competitive advantage and sustainability in this sector (e.g. Hameed & Badii 2012). What is missing from the current literature is a comprehensive understanding of the key success factors of KM practices, more specifically KCP, in HEIs (Chumjit 2013).

This empirical study aimed to identify the CSFs that contributed to the proper implementation of KM in Australian and Saudi Arabian HEIs and to explore how these CSFs could enhance the implementation of Nonaka’s model (1994) in HEIs. The findings were expected to show how KM practices were fostered in two HEIs, according to the SECI model (Nonaka 1994; Nonaka & Takeuchi 1995).

Two case studies were conducted, at KFSC in Saudi Arabia and the School of Social Sciences and Psychology (SSSP) at WSU in Australia. Semi-structured interviews were conducted with a purposefully selected sample of 13 academic staff who taught policing and criminology in SSSP at WSU and 25 academics at KFSC. Each interview was digitally audio-recorded, and verbatim transcriptions were produced by the chief investigator for manual thematic coding and deductive and inductive analysis. Organisational documentation and archival records provided complementary secondary data.

The results showed that proper implementation of KCS processes in both settings depended on a complex interplay of factors and behaviours in the situation of action. Several critical success categories of KM, comprising diverse a priori factors, were identified, to which all other categories of KCS processes were related. Fourteen internal and six external factors were found to significantly contribute to the
successful implementation of the four modes of Nonaka’s knowledge conversion model - socialisation, externalisation, combination and internalisation.

The analysis of primary and secondary data showed that KCS in these two higher education contexts was not exclusively an explicit activity that takes place within a single static framework, but is predominantly contextual and changes over time. Sometimes, knowledge production and exchange are implicitly embedded in social and cultural circumstances that may not be easily understood by people. The CSFs of knowledge conversion that were implemented in the Australian setting were not exactly the same as those applied in the Saudi Arabian institution.

Participants from both countries expressed the need to seek and understand tacit and explicit knowledge and convert it into organisational knowledge, but they brought different states of knowledge into the social setting that reflected their accumulated information, skills and experiences, personal traits and value orientations. These individual differences have previously been shown to influence how people understand the proper implementation of the KCS process (Bengoa & Kaufmann 2015; Conley & Zheng 2009).

The findings also showed that individual participants applied a certain combination of knowledge resources to the performance of a particular activity, but the components and types of knowledge that individuals brought to KCS were not used in isolation rather they complement each other. Individual KCP differed from collective knowledge construction: collective knowledge practices were emergent in the sense that they were not simply the sum of individuals’ knowledge creation (KC) practices but something that was generated in social interaction through recognition, co-presence and engagement.

There was a tendency for participants from both countries to seek and share explicit knowledge, mainly in the form of published research and policy directives, to make rational choices. Rationality alone, however, did not explain practice because evidence-based literature and codified knowledge are not always sufficient to inform an activity that cannot be described or expressed precisely. This was more evident in situations that exceeded participants’ explicit knowledge. Consequently, they sought to integrate other sources of knowledge to properly implement the KCP.
In complex situations, participants could not exclusively stick to evidence-based procedures or scientific literature to implement KCP. They were required to critically consider the role of various elements within the knowledge context. While participants relied highly on their technical skills, expert advice and in-service training to manage evidence-based, routine and less complex situations, they employed a range of interpersonal and possibly conceptual skills to deal with highly complex situations. In particular, they reported that were likely to employ their conceptual skills and intuitions to focus on broader processes of KCP in specific situations. This suggests that KM cannot always be accomplished in an instrumentalised, performative way but, rather, may be transferred through tacit knowledge (Garrick & Chan 2017).

The interviews with academics were also intended to validate the components of the CSFs framework. The analysis showed that participants considered the framework of CSFs in each domain of KCS depending on the situation of action.

Like previous research, this investigation validated the SECI model of knowledge conversion. Its findings supported the assertion that proper implementation of KM can be an effective tool for educational training and that access to knowledge, knowledge use; invention, sharing and publication are important factors in enhancing individuals’ professional development. These findings also suggested that the development of an individual’s professional knowledge involves the same KCS processes presented in the SECI model, that is, the transition from explicit knowledge to tacit knowledge and back to explicit knowledge. It was therefore concluded that the SECI model is an appropriate tool for training and, especially, for improving an individual’s professional knowledge. These research findings are consistent with those of other studies that showed proper implementation of KM practices can be enhanced by appropriate use of CSFs within the situation of action. Knowledge is contextual; it is triggered by need and relies on interactions and trust.

A conceptual and adaptive process of KM emerged from the data, making sense of complex and varied KM practices in many contexts. Descriptive analysis of the data subsequently led to development of an innovative exploratory model to guide robust knowledge production and exchange in complex situations. The model (Figure 7.1) was developed to explain the effects of several external and internal CSFs on
Nonaka’s model of KC and conversion, and to show how one might improve system performance in a multi-agent KM system. It remains to be tested.

Figure 7.1 echoes the preliminary conceptual model presented in Chapters 1 and 2, with a focus on key internal and external factors that are closely related to the proper implementation of KM in HEIs. As previously discussed, this is a revised version of the initial model, showing 20 distinct internal and external factors contributing to the successful creation and sharing of knowledge.

7.2. Theoretical Contributions

A number of findings are unique to this study: it is new in its application of Nonaka’s conversion theory to higher education in Australia and Saudi Arabia, and assumes a
more contextual approach than that adopted in previous literature. Its findings are novel in the sense that participants recognised the CSFs affected their practice and actively incorporated them into their practice in some way.

The present study highlights the importance of teamwork, interaction and collaboration, engagement in social networking and trust building. The more actively and keenly diverse groups of participants were involved in KM and governance, the more likely it was that innovative outcomes and ideas would be influenced by their attitudes, explicit and tacit knowledge and values. Engagement and collaboration in KM practices represents a platform on which explicit, tacit and/or implicit thinking might be socialised, combined, internalised or externalised in a dynamic process that provides a basis for KC and dissemination. Through employee involvement and collaboration, cognitive and intuitive processes develop and are better informed (Baghbanian et al. 2012; Baghbanian, Torkfar & Baghbanian 2012). According to Baghbanian and colleagues (2012), collaboration with others and integrating interdisciplinary ideas and evidence into training provides knowledge workers with a better grasp of the situation and more opportunities to intensify KC and exchange, and build practical linkages for sharing know-how (Baghbanian et al. 2012; Baghbanian, Torkfar & Baghbanian 2012).

The promise of KCS is enhanced as a result of social processes. In contrast to some previous research, which showed that some individuals do not communicate their information or knowledge with others (Alhussain 2011; Chumjit 2013; Glisby & Holden 2003), or may rely on information and communication technologies, this study found that those who interact with others and participate in collective decision-making gain significantly more benefit from the knowledge created or shared than their more isolated counterparts. Through effective communication, people not only share their experiences and knowledge but also build a dynamic system with a feedback loop that reinforces emerging ideas.

The study also made a pivotal contribution by highlighting the importance of trust in building relationships to create and share knowledge. This finding adds weight to similar results from other studies (Bengoa & Kaufmann 2015; Sankowska 2013).
To the best of the researcher knowledge, this is the first international, comparative study that found a range of CSFs that contributed to the implementation of KCP (Nonaka model 1994) in higher education contexts of Australia and Saudi Arabia. The researcher believes it is the first to investigate the role of 20 internal and external CSFs in successful implementation of Nonaka’s model of KCP; previous studies only identified five CSFs for KCP and they were conducted in contexts other than higher education. This contribution can provide a foundation for future research.

Building on relevant literature in the field of KM, this study sought to identify the CSFs that could contribute to the proper implementation of KM and, more specifically, the factors that contribute to the four modes of Nonaka’s knowledge conversion model (SECI) for KCS. It developed a model of CSFs that can help individuals and organisations make sense of KM in complex situations.

7.3. Research Implications

The findings, if confirmed, have significant theoretical and policy implications for KM in higher education. The present study suggested that the theoretical framework of Nonaka and Takeuchi (1995) is valid but needs to be viewed within a broader social context of relationships and behaviours. Many factors can influence the proper implementation of KCS but these factors may differ from one context to another or from one country to another. There is no ‘one size fits all’ model or theory.

The findings suggest that the Nonaka and Takeuchi (1995) model of KM can - tentatively at least – be applied to analysis of KCS in higher education. That is, knowledge can be created and shared through the four domains of SECI: socialisation (from individual tacit to group tacit knowledge), externalisation (from tacit to explicit knowledge), combination (from separate explicit to systemic explicit knowledge), and internalisation (from explicit to tacit knowledge). These findings, however, need to be confirmed through further investigation within higher education.

7.4. Research Limitations

The limitations of the study are considered below.
First, the small sample size might have introduced bias. It is however important to note that the study’s aim was to obtain rich data and not to produce generalisable results. The use of multiple case studies and different sources of data also enhances the reliability and validity of the findings.

Second, the limited timeframe and budget meant that it was not possible to conduct a longitudinal study and/or observe participants’ behaviour in practice. The data are limited to participants’ self-reports, which may introduce bias. They do not tell us how they actually implemented KM, but only how they described or narrativised the implementation of KCS processes. Constraints on academics’ time at WSU also restricted access for interviews; as a result, only 13 interviews were conducted.

Although every effort was made to consider all relevant factors, not all aspects of social processes were considered in this study. Although the phenomenon was investigated via an international comparative study, time and budgetary constraints meant that only one case study was investigated in each country (Australia and Saudi Arabia). In addition, because the focus was on CSFs for KCP in HEIs, the results cannot be generalised beyond HEIs.

The interpretive and data analysis skills of the novice researcher in this investigation might also be considered as a limitation. In all phases of the work, however, he sought and received expert advice from his supervisory team. Finally, it should be noted that access to some institutional records was restricted because they contained sensitive information.

**7.5. Directions for Further Research**

This study showed that a significant awareness of KM exists within the HEI context in Australia and Saudi Arabia, and that KM is practised somehow on a systemic level the proper implementation of KM is strongly dependant on the organisational factors and cultural context in which it is embedded. It is suggested to investigate the potential use and advantages of implementing KM on an institutional wide level in future.

As noted above, this study did not observe how KM initiatives are actually implemented. It presented a descriptive model that can be tested in practice through
field research involving diverse groups of people. It will be useful to test the application of the model in different situations of action and in different communities in order to investigate how effectively it accounts for successful implementation of KM.

The primary data in this study came from interviews with academic staff in two universities. It would be useful to collect data from other sectors of the university, including non-academic staff, to further explore the CSFs for implementation of KCP in the real world. This study proposed a new model of KCP to extend its application. It is recommended that this model be examined in other contexts.

However, although thinking machines are getting smarter, AI is not a replacement, or substitute for human intelligence. AI programs may be built for a specific purpose and not intended to or able to demonstrate general intelligence. Whether or not thinking machines one day become as intelligent, or much more intelligent, than human beings i.e. super intelligent is remained to be investigated.

Eventually, In the era of technology revolution and artificial intelligence, there is also a general feeling that thinking machines’ and ‘artificial intelligence’ (AI) contribute to human knowledge. ‘Thinking machines’ and AI, even though have already been an indispensable part of human lives and have replaced their tasks and jobs, and will penetrate many other aspects of contemporary life (Bostrom 1998; Roberts & Jacob 2016). However, although thinking machines are getting smarter, AI is not a replacement, or substitute for human intelligence. AI programs may be built for a specific purpose and not intended to or able to demonstrate general intelligence. Whether or not thinking machines one day become as intelligent, or much more intelligent, than human beings i.e. super intelligent is remained to be investigated.
References

Abebe, D & Onyisi, J 2016a, 'The Effect of Knowledge Management Enablers on Sustainable Competitive Advantage Amongst Humanitarian Agencies in Kenya'.

Abebe, D & Onyisi, J 2016b, 'The Influence of Management Leadership Commitment as an Enabler of Knowledge Management on Sustainable Competitive Advantage Amongst Humanitarian Agencies in Kenya'.


AF Ragab, M & Arisha, A 2013, 'Knowledge management and measurement: a critical review', *Journal of knowledge management*, vol. 17, no. 6, pp. 873-901.


Aisenberg Ferenhof, H, Durst, S & Hesamamiri, R 2016, 'The impact of social media on knowledge management', in *11th International Forum on Knowledge Asset Dynamics (IFKAD), Dresden, Germany, 15-17 June, 2016*. 262


Al-Jarrah, MA, Al-Sawalqah, AA & Al-Hamdan, SF 2017, 'Developing a course timetable system for academic departments using genetic algorithm'.


Alsaiaari, H 2015, 'Teaching Arabic through communicative language teaching approaches informed by new understandings of literacy in primary schools in Tabuk, Saudi Arabia'.


Artail, HA 2006, 'Application of KM measures to the impact of a specialized groupware system on corporate productivity and operations', *Information & Management*, vol. 43, no. 4, pp. 551-564.


Aswath, L & Gupta, S 2009, 'Knowledge management tools and academic library services', in International Conference on Academic Libraries–vision and roles of the future academic libraries, pp. 05-08.

Badah, A 2012, 'Relationship between the knowledge management processes and the administrative empowerment with the employees of the ministry of higher education and scientific research-jordan', European Scientific Journal, vol. 8, no. 28, pp. 191-209.


Biloslavo, R & Trnavčevič, A 2007, 'Knowledge management audit in a higher educational institution: a case study', Knowledge and process management, vol. 14, no. 4, pp. 275-286.


Boyatzis, RE 1998, Transforming qualitative information: Thematic analysis and code development, sage.
Bratianu, C 2011, 'Barriers in innovation and knowledge management in the Romanian emergent economy', *Management & Marketing*, vol. 6, no. 4, pp. 515-528.


Bryman, A 2007, 'Barriers to integrating quantitative and qualitative research', *Journal of mixed methods research*, vol. 1, no. 1, pp. 8-22.


Cecez-Kecmanovic, D 2000, 'Understanding Knowledge Sharing in Organizational Decision Making Supported by CMC', in *IFIP TC8/WG8. 3 International Conference on Decision Support through Knowledge Management*, pp. 77-90.


Charmaz, K 2006, 'Constructing grounded theory: A practical guide through qualitative analysis (Introducing Qualitative Methods Series)'.


Chenail, RJ 2011, 'Interviewing the investigator: Strategies for addressing instrumentation and researcher bias concerns in qualitative research', *The Qualitative Report*, vol. 16, no. 1, p. 255.


Chumjit, S 2013, 'Knowledge management in higher education in Thailand', University of Texas at Arlington.


Cranfield, D 2011, 'Knowledge management and higher education: A UK case study using grounded theory', University of Southampton.


Davis, B & Riggs, B 1999, 'Get Smart', *InformationWeek*, vol. April, no. 728, pp. 40-44.


Dearing, JW, Greene, SM, Stewart, WF & Williams, AE 2011, 'If we only knew what we know: principles for knowledge sharing across people, practices, and platforms', *Translational behavioral medicine*, vol. 1, no. 1, pp. 15-25.

Denzin, NK & Lincoln, YS 2016, The SAGE handbook of qualitative research, Sage.

Department of Planning and Development 2017, Annual plan of training, King Fahd Security College, Saudi Arabia.

DeSantis, L & Ugarriza, DN 2000, 'The concept of theme as used in qualitative nursing research', Western Journal of Nursing Research, vol. 22, no. 3, pp. 351-372.


Easa, N 2011, 'Knowledge creation process & Innovation in Egyptian Banking Sector', in Organization Learning, Knowledge and Capabilities, UK.

Easterby-Smith, M & Lyles, MA 2011, Handbook of organizational learning and knowledge management, John Wiley & Sons.


Garrick, J & Chan, A 2017, 'Knowledge management and professional experience: the uneasy dynamics between tacit knowledge and performativity in organizations', *Journal of knowledge management*, no. just-accepted, pp. 00-00.


Gettier, EL 1963, 'Is justified true belief knowledge?', *analysis*, vol. 23, no. 6, pp. 121-123.


Golafshani, N 2003, 'Understanding reliability and validity in qualitative research', *The qualitative report*, vol. 8, no. 4, pp. 597-606.


Graneheim, UH & Lundman, B 2004, 'Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness', *Nurse education today*, vol. 24, no. 2, pp. 105-112.


Harorimana Mr, D 2010, 'Cultural implications of knowledge sharing, management and transfer: identifying competitive advantage'.


Hasanali, F 2002, Critical success factors of knowledge management, APQC.


Hays, DG & Singh, AA 2011, Qualitative inquiry in clinical and educational settings, Guilford Press.


Hosseini, SM 2011, 'The application of SECI model as a framework of knowledge creation in virtual learning', *Asia Pacific Education Review*, vol. 12, no. 2, pp. 263-270.


284


Klein, HK & Myers, MD 1999, 'A set of principles for conducting and evaluating interpretive field studies in information systems', *MIS quarterly*, pp. 67-93.

Klein, RL 2010, *Knowledge management: Usefulness of knowledge to organizational managers*, ERIC.


Kumar, KK, Jain, KK & Tiwary, RR 2013, 'Leadership activities and their impact on creating knowledge in organizations'.


Liew, A 2007, 'Understanding data, information, knowledge and their inter-relationships', *Journal of Knowledge Management Practice*, vol. 8, no. 2, pp. 1-16.


Marín, LMG, Betancur, MST & Aguilar, LJ 2016, 'Interactivity Model 2.0: Social communication dynamics in organizational contexts', *Journal of Business Research*, vol. 69, no. 11, pp. 4947-4952.


McAdam, R, Mason, B & McCrory, J 2007, 'Exploring the dichotomies within the tacit knowledge literature: towards a process of tacit knowing in organizations', *Journal of knowledge management*, vol. 11, no. 2, pp. 43-59.


Merriam, SB 1998, *Qualitative research and case study applications in education. Revised and expanded from*, ERIC.

Merriam, SB 2009, 'Qualitative Research: A Guide to Design and Implementation'.


Miles, MB & Huberman, AM 1994, *Qualitative data analysis: An expanded sourcebook*, Sage.


Mohammed, N 2015, 'Knowledge and attitudes of pain management by nurses in Saudi Arabian emergency departments: a mixed methods investigation', University of Western Sydney, Australia.

Morais da Costa, GJ 2010, Ethical Issues and Social Dilemmas in Knowledge Management: Organizational Innovation: Organizational Innovation, IGI Global, St Olaf College, USA: Hershey.


Myers 1997, 'Interpretive research in information systems', Information systems: An emerging discipline, pp. 239-266.


Myers, MD & Avison, D 2002, 'An introduction to qualitative research in information systems'.


Nasiruzzaman, M, Qudaih, HA & Dahlan, ARA 2013, 'Project Success And Knowledge Management (KM) Practices In Malaysian Institution Of Higher
Learning (IHL)', *Journal of Education and Vocational Research*, vol. 4, no. 5, pp. 159-164.


Neuman, LW 2013, *Social research methods: Qualitative and quantitative approaches*, 7th edn, Pearson Education Limited, United Kingdom.


Nonaka, I, Toyama, R & Konno, N 2000, 'SECI, Ba and leadership: a unified model of dynamic knowledge creation', *Long range planning*, vol. 33, no. 1, pp. 5-34.


Obstfeld, D 2005, ‘Social networks, the tertius iungens orientation, and involvement in innovation’, *Administrative science quarterly*, vol. 50, no. 1, pp. 100-130.

Oliver, GR, Handzic, M & Van Toorn, C 2003, ‘Towards understanding KM practices in the academic environment: the shoemaker’s paradox’, *Electronic Journal on Knowledge Management*, vol. 1, no. 2, pp. 139-146.


Omerzel, DG, Biloslavo, R & Trnavcevic, A 2011, ‘Knowledge management and organisational culture in higher education institutions’, *Journal for East European Management Studies*, vol. 16, no. 2, pp. 111-139.


Petrides, LA & Nodine, TR 2003, 'Knowledge management in education: Defining the landscape'.

Pircher, R & Pausits, A 2011, 'Information and knowledge management at higher education institutions', *Management Information Systems*, vol. 6, no. 2, pp. 008-016.

Polanyi, M 1997, 'The tacit dimension', *Knowledge in organizations*, pp. 135-146.


Prabhu, V 2015, 'Towards a holistic knowledge management paradigm ', Christ University

Prax, J-Y 2003, 'Le manuel du knowledge management(une approche de 2 ème génération)', *Collection Stratèges et management*. 

294


Ramachandran, SD, Chong, SC & Wong, KY 2013, 'Knowledge management practices and enablers in public universities: a gap analysis', *Campus-Wide Information Systems*, vol. 30, no. 2, pp. 76-94.

Ramanigopal, C 2013, 'Knowledge management for the oil and gas industry - opportunities and challenges', *Advances in Management*, vol. 6, no. 8, pp. 3-8.


Razi, MJM & Karim, NSA 2010, 'An instrument to assess organizational readiness to implement knowledge management process', in *Knowledge management:*
Razmerita, L, Razmerita, L, Kirchner, K, Kirchner, K, Nielsen, P & Nielsen, P 2016, 'What factors influence knowledge sharing in organizations? A social dilemma perspective of social media communication', *Journal of knowledge management*, vol. 20, no. 6, pp. 1225-1246.


Reid, MC, Bennett, DA, Chen, WG, Eldadah, BA, Farrar, JT, Ferrell, B, Gallagher, RM, Hanlon, JT, Herr, K & Horn, SD 2011, 'Improving the pharmacologic management of pain in older adults: identifying the research gaps and methods to address them', *Pain medicine*, vol. 12, no. 9, pp. 1336-1357.

Richter, L 2011, 'A critique of Nonaka’s SECI model', in University of Zilina, Faculty of Management Science, Faculty of Management Science and Informatics, Department of Management Theories., Slovakia.

Roberts & Jacob 2016, *Thinking Machines; The Search for Artificial Intelligence*, Alfred A. Knopf.

Robertson, S & Caroline, B 2005, 'Developing the knowledge management environment', *NLH Knowledge*.


Russel Bernard, H 1988, 'Research methods in cultural anthropology', *Qualitative and*.


296

Safa, MS, Shakir, F & Boon, OK 2006, 'Knowledge management: Practice and performance of NGO in Maldives'.


Saini, M & Shlonsky, A 2012, Systematic synthesis of qualitative research, OUP USA.


Silverman, D 2006, Interpreting qualitative data: Methods for analyzing talk, text and interaction, Sage.

Simons, H 2009, Case study research in practice, SAGE publications.


Stake, RE 2010, Qualitative research: Studying how things work, Guilford Press.


Steiger, JS, Hammou, KA & Galib, MH 2014, 'An examination of the influence of organizational structure types and management levels on knowledge management practices in organizations', International Journal of Business and Management, vol. 9, no. 6, pp. 43-57.
Steyn, G 2004, 'Harnessing the power of knowledge in higher education', *Education*, vol. 124, no. 4, pp. 615-631.


Suri, H 2011, 'Purposeful sampling in qualitative research synthesis', *Qualitative Research Journal*, vol. 11, no. 2, pp. 63-75.


Thall, JB 2005, 'The role of the manager in the conversion of tacit to explicit knowledge', George Washington University.


Tsai, W 2002, 'Social structure of “cooperation” within a multiunit organization: Coordination, competition, and intraorganizational knowledge sharing', *Organization science*, vol. 13, no. 2, pp. 179-190.


Urbancova, H 2013, 'Competitive advantage achievement through innovation and knowledge', Journal of Competitiveness, vol. 5, no. 1, pp. 82-96.


Vijayan, P 2009, 'Identification of organisational key capabilities for effective implementation of knowledge management in domestic bank', Napier University, Scotland.


Wang, J, Yang, J, Chen, Q & Tsai, S-B 2016, 'Creating the sustainable conditions for knowledge information sharing in virtual community', *SpringerPlus*, vol. 5, no. 1, pp. 1-9.


Webster, M 2006, 'Merriam-Webster online dictionary'.

Weiler, HN 2011, 'Knowledge and Power', *Journal of Educational Planning and Administration*, vol. 25, no. 3, pp. 205-221.


Western Sydney University 2017b, *Research governance committees*, Western Sydney University, viewed 01 January 2017.
White, T 2004, *Knowledge management in an academic library: Case study*, Oxford University, UK.


Yeh, YMC 2011, 'The implementation of knowledge management system in Taiwan’s higher education', *Journal of College Teaching & Learning (TLC)*, vol. 2, no. 9, pp. 35-42.

Yin, RK 1994, 'Case study research: design and methods. Thousands Oaks', *International Educational and Professional Publisher*.

Yin, RK 2009, *Case study research: design and methods*, Illustrated edn, Sage Publication.


Appendices

Appendix A: The Context of School of Social Science and Psychology at Western Sydney University in Australia

This section explains the context of School of Social Science and Psychology at Western Sydney University (WSU) including its vision, mission, beliefs, values, objectives, structure and information processing. The facts and information provided below is based on documents and archival records of WSU.

Vision
Western Sydney University aims at securing success through both innovation as well as discovery in a dynamic environment for its students and also for those living in the Greater Sydney region (2017b).

Mission
Western Sydney University has a mission to become an internationally recognised university that achieves excellence through its scholarship programs, teaching, learning, research and other services offered to communities inside or outside the country (2017b).

Beliefs
Western Sydney University establishes its’ beliefs on the following statements:

- The experience of the student should be given the highest importance.
- There should be both social and environmental responsibility.
- The intellectual community should be inclusive as well as vibrant.
- There should be optimum opportunities for excellence.
- There should be connections both at the local and international level.
- There should be value and reward in an adequate manner for staff (2017b).

Values
Western Sydney University founds its’ values on the following statements:

- There should be presence of both excellences along with quality.
- There has to be a presence of scholarly vigour along with integrity.
- There has to be presence of equity along with inclusiveness.
- The atmosphere should be collegiate and participative.
- There has to be freedom in academic along with requisite responsibility.
- The work should be both relevant and responsible in nature.
- The university should have the presence of both ethics and accountability (2017b).

Objectives
The objectives are all aimed at making Western Sydney University as a distinctively Australian education provider. The objectives are as follows:

- The university should be vibrant with an impact on regional, national and global levels.
- There has to be an aspiration towards providing learning which is innovative and flexible in nature.
- There has to be a strategic intent for expanding the reputation along with reach.
- The university needs to assume responsibility as an advocate for Western Sydney region.
- There has to be commitment towards a culture which helps in ensuring success (2017b).
**Structure**

Figure A.1 shows the organisational structure of Western Sydney University including the delegations and roles and responsibilities of the employees. It is considered as a top-down structure; where Vice-Chancellor & President are assigned to the top of the hierarchy. It is divided into three levels with a decentralised structure.

![Western Sydney University Structure Diagram](https://www.westernsydney.edu.au)

**Information processing**

School of Social Science and Psychology is a leader in knowledge delivery. Some of the interesting courses offered are anthropology, criminology, heritage, geography and urban planning, policing and psychology. A deeper look into the courses shall help in creating a better idea about the program and its facets. The School has a critical role in delivering research and teaching excellence. Many of available programs offered at this School include social work, counselling, policing along with other services at the humanitarian level.

The School of Social Sciences aims to build a reputation through the use of the following:

- The conduct of research which contributes to the generation of new knowledge at an international level.
- Engagement in research related to areas which have an impact on current society.
- The provision of undergraduate and post graduate students of very high quality from the area of Western Sydney.
- The creation of ground breaking programs which are in concordance with standards of industry, so that graduates can both have opportunities for professional employment along with careers which are rewarding in nature.
- The development of collaborations in industry as well as research.

![Figure 8-1 (Figure A.1.): Western Sydney University Structure](https://www.westernsydney.edu.au)
Appendix B: The Context of King Fahd Security College

This section clarifies the context of King Fahd Security College including its mission, vision, objectives, and structure. This information is based on documents and archival records of this College.

Vision statement
The vision of the King Fahd Security College is to deliver education, training and research services in all aspects of the security that has introduced the college as a pivot of security excellence.

Mission statement
The mission of the King Fahd Security College is to contribute to the society through its qualified security officers to work in the different security sectors, to provide training programs to the security officers to enhance their knowledge and skills and to organise and assist security studies.

Objectives
King Fahd Security College aims to:

- Graduate qualified officers with the basic security knowledge and skills.
- Boost the knowledge, skills and capabilities of security officers through designing and conducting special training programs.
- Conduct and support all security research studies.
- Participate actively in community service.

Structure
Figure B.1 shows the organisational structure of King Fahd Security College. The structure indicates the delegations, roles and responsibilities of the employees with a top-down structure and defined, organised and flexible roles and responsibilities. The roles and responsibilities of each department and individual are defined and as such, training of the employees would be quite an easy task.
Appendix C: Brief Review of CSFs and KCP

Identifying CSFs for KM Implementation in HEIs: A Comparative Study of WSU in AU and KFSC in SA

CSFs are considered as major elements for organisational success and performance in numerous areas. They will ensure successful knowledge creation and sharing (Conley 2011; Sedighi & Zand 2012).

KM is defined as an organisational capability to continuously create, transfer and share knowledge (Berraies, Chahe & Yahia 2014; Brătianu 2011; Moghaddam, Mosakhani & Aalabeiki 2013).

The significance of this thesis stems from the fact that educational institutions aim to generate knowledge and innovations. KM should be implemented and employed to support these roles in the educational institutions. Ramayah and colleagues (2014) argued that a crucial factor for success in every sector including HE is effective KM implementation as HEIs is considered to be a knowledge-creating entity. The creation, preservation, integration, dissemination, and application of knowledge are the primary mission of HEIs.

Nonetheless, there is a lack research in HEIs about the CSFs of KM practices in HEIs. There are no international comparative studies to investigate the CSFs of KM practices in HEIs.

This research will study the CSFs of KM in HEIs as partly presented by Ramachandran and colleagues (2013) and Hameed et al (2012), who only investigated the CSFs for KM in HE, and provided strategic directions for the management of public universities to deal more effectively with the KM practices Nonaka Model (1994). This research is designed to make a contribution to the current literature by applying Nonaka’s knowledge conversion model (1994) in HEIs.

Approaching Key Terms

In this research study the key research variables are:

Knowledge

Knowledge has been defined from different aspects but it may be divided into three complementary elements. First, knowledge is reasonable true belief. Creatures justify the truthfulness of their beliefs based on their communication with the world. Second, knowledge is the actuality experience obtained from performance and knowledge allows individuals to describe, arrange, shape and learn to solve a task or problem. Third, knowledge is situated on a continuum from explicit to tacit knowledge (Nonaka & Von Krogh 2009).

KM

There are debates about the definition of KM due to the differing understandings of knowledge and the way it is managed. One obviously definition of KM is that organisation has capability to build a set of activities or processes to continuously create an environment within an organisation that facilitates the creation, transfer and sharing of knowledge (Berraies, Chahe & Yahia 2014; Brătianu 2011; Moghaddam, Mosakhani & Aalabeiki 2013).

CSFs

This study defines CSFs as major elements that contribute to knowledge management for organisational success and performance in different areas (Conley 2011; Sedighi & Zand 2012). Table 8-1 shows a list of these CSFs.

<table>
<thead>
<tr>
<th>No</th>
<th>CSFs</th>
<th>No</th>
<th>CSFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Leadership</td>
<td>8</td>
<td>Employee training</td>
</tr>
<tr>
<td>2</td>
<td>Organisational culture</td>
<td>9</td>
<td>Employee involvement</td>
</tr>
<tr>
<td>3</td>
<td>Rules</td>
<td>10</td>
<td>Teamwork</td>
</tr>
<tr>
<td>4</td>
<td>Structure</td>
<td>11</td>
<td>Employee empowerment</td>
</tr>
<tr>
<td>5</td>
<td>Responsibility</td>
<td>12</td>
<td>Knowledge structure</td>
</tr>
<tr>
<td>6</td>
<td>Information technology infrastructure</td>
<td>13</td>
<td>Organisational strategy</td>
</tr>
</tbody>
</table>
Dynamic theory of Organisational KC based on the Nonaka and colleague’s research (1994)

One of the most dominant theories in the field is the theory of organisational knowledge creation (KC) proposed by Nonaka and colleagues (1994) (Virtanen 2011). Their dynamic model of KC relies on the assumption that an individual’s knowledge is produced and shared through social interaction between tacit and explicit knowledge - what they refer to as ‘knowledge conversion’ - through the dimensions of socialisation, externalisation, combination and internalisation (the SECI framework). The model is primarily based on the two types of knowledge (explicit and tacit), and proposes four ways in which these can be generated, combined, shared and converted to (re)create new knowledge. It identifies four modes of knowledge conversion: socialisation (tacit to tacit), externalisation (tacit to explicit), combination (explicit to explicit), and internalisation (explicit to tacit) (Nonaka 1994; Nonaka & Takeuchi 1995; Nonaka, Toyama & Konno 2000). Generally, both tacit and explicit knowledge appear between individuals in the organisation (Bollinger & Smith 2001; Constantinescu 2008; Murray & Peyrefitte 2007). Figure 8-3 depicts the KC model.

![Figure 8-3: Knowledge conversion in Nonaka model](Source: (Nonaka, 1994, p 19))
Appendix D: Semi-Structured Interview

Western Sydney University
School of Business
Interview for Doctoral Research
“Identifying CSFs for KM Implementation in HEIs”

Time of Interview:
Date:
Location:
Interviewer:
Interviewee:

1. What is your highest academic degree?
   □ PhD
   □ Master Degree
   □ Bachelor Degree
   □ Other (please specify)………………

2. What is your job title?
   □ Professor
   □ Associated Professor
   □ Senior Lecturer
   □ Lecturer
   □ Assistance Lecturer
   □ Other (please specify)………………

3. How many years have you been academic in HEIs?
   □ 1 – 10 years
   □ 11 – 20 years
   □ 21 – 30 years
   □ More than 30

4. How many years have you been academic in this university?
   □ 1 – 10 years
   □ 11 – 20 years
   □ 21 – 30 years
   □ More than 30

5. Which level do you teach in this university?
   □ Under Graduate
   □ Post Graduate
   □ PhD - supervisor

6. How does your manager or leader influence the ways that you manage knowledge?

7. How might organisational culture factors impact the adoption of KM?

8. A. How might the roles of Policing and Criminology Department at this University foster the adoption of KM?

   b. How might the structure of Policing and Criminology Department at this University foster the adoption of KM?
3. How do the responsibilities of Policing and Criminology Department at this University foster the adoption of KM?

9. How does the information technology infrastructure affect the adoption of KM?

10. What are the KM measures and interventions undertaken by your department?

11. Describe how does employee training promote the adoption of KM?

12. Describe how does employee involvement influence the KM implementation in this university?

13. Describe how does teamwork affect KM employment?

14. Describe how does employee empowerment lead to implement KM effectively?

15. How do organisational constraints (rigid hierarchies, red tape, and outdated procedures) impede Policing and Criminology Department at WSU efforts to establish KM system?

16. How might knowledge structure (for example, KM Department and Information Officer) promote the implementation of KM?

17. How does organisational strategy influence the adoption of KM in Policing and Criminology Department at University?

18. From your experience, are there other CSFs to manage Organisational Knowledge except indicated above?

19. Do you have any other comments on this?
Appendix E: Invitation Letter

EMAIL COMPOSITION

SUBJECT: KM within Academe

BODY:

Dear [TBA],

As researchers at the WSU, we are conducting a study to understand how you manage knowledge within your institution. We would like to invite you to participate in this voluntary project, which is supported by UWS and the SAn Cultural Mission. Your contact details were sourced from your School Manager or the University’s staff directory, which is in the public domain.

Participation involves an interview to explore how you make sense and use data and information that are documented, as well as information, experiences, values, and perceptions that are not documented. The interview will be confidential; it will be held at a time and location that is convenient for you; and it will take approximately 60 minutes to complete. Pending your consent, the audio of the interview may be recorded to aid analysis. Please be assured that only the researchers will have access to the information that you provide. Participation is entirely voluntary and you are not obliged to be involved. If you do participate, you can withdraw at any time without giving any reason. If you do choose to withdraw, any information that you have supplied will be destroyed.

We hope that you consider this invitation favourably. To inform your decision, an information sheet is attached for your consideration. A member of the research team will contact you to determine whether and how you might like to participate in this project.

Warm regards,

Mr Abdulaziz Alshahrani, ahashbal@hotmail.com, Dr Thomas Klikauer, Dr Ann Dadich

School of Business, WSU
Appendix F: Participant Consent Form

Human Research Ethics Committee
Office of Research Services
Participant Consent Form

This is a project specific consent form. It restricts the use of the data collected to the named project by the named investigators.

Project Title: Identifying CSFs for KM Implementation in HEIs: A Comparative Study of WSU in AU and KFSC in SA.

I, ____________________________, consent to participate in the research project titled Identifying CSFs for KM Implementation in HEIs: A Comparative Study of WSU in AU and KFSC in SA.

I acknowledge that:

I have read the participant information sheet and have been given the opportunity to discuss the information and my involvement in the project with the researcher/s.

The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.

I consent to the answering interview questions and recording it by audio taping.

I understand that my involvement is confidential and that the information gained during the study may be published but no information about me will be used in any way that reveals my identity.

I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher/s now or in the future.

Signed:
Name:
Date:

Return Address: [enter researcher’s address]

This study has been approved by the WSU Human Research Ethics Committee. The Approval number is: [enter approval number]

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel +61 2 4736 0229

Fax +61 2 4736 0905 or email humanethics@uws.edu.au. Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.
Appendix G: Participant Information Sheet

Project Title: Identifying CSFs for KM Implementation in HEIs: A Comparative Study of WSU in AU and KFSC in SA

Project Summary:

AIM

Research suggests that KM practices can enable organisations to be effective and efficient (Hossain et al, 20). Although universities are largely knowledge-based organisations, little is known about the factors needed to enhance KM. As such, the AIM of this study is to determine the CSFs required for KM within HEIs – namely, the WSU (UWS) and the KFSC (KFSC).

RESEARCH DESIGN & METHODS

Extending previous research (Hameed et al., 2012; Nonaka 1994; Ramachandran et al., 2013), this will be achieved using the case study methodology (Yin 2008). More specifically, semi-structured interviews will be conducted with academic staffs who are affiliated with comparable departments – namely, the policing and criminology departments within both institutions. These will be complemented by a consideration of organisational policy documents.

You are invited to participate in a research study being conducted by Abdulaziz Alshahrani, PHD Candidate, School of Business under the Supervision of Dr. Thomas Klikauer, Senior Lecture, School of Business.

How is the study being paid for?
The study is being sponsored by SA Culture Mission.

What will I be asked to do?
Participants will be interviewed regarding their KM practices, as well as the factors that help and hinder effective KM. More specifically, the interview will explore how these individuals make sense and use data and information that are documented, as well as information, experiences, values, and perceptions that are not documented. The interview will:

1. Be confidential
2. Be conducted in person
3. Be held at a time and in a location that is convenient for the participant - however, the interviews are expected to be held within the participant's office
4. Be recorded using an audio-recorder, pending participant consent

How much of my time will I need to give?
This interview will need approximately 60 minutes to conduct.

What specific benefits will I receive for participating?
You are not expected to receive specific benefits by participating in this project; however, the recommendations and the theoretical outcomes of this study may improve the KM process in their HEIs.

Will the study involve any discomfort for me? If so, what will you do to rectify it?
The time which is spent to answer the interview is the only expected inconvenience for the participants. This will be outweighed by the findings of the research which will provide further awareness of the topic. Also, a participant is able to withdraw from the study at any time without consequence.

How do you intend to publish the results?
The principal researcher, the primary supervisor (Dr Thomas Klikauer) and the co-supervisor (Dr Ann Dadich) will have full access to the data for the purposes of monitoring the research.

The data will be used to write a Doctorate thesis, relevant papers will be published, and conference papers will be presented.

Data will be stored for five years or until completion of the project.

Can I withdraw from the study?
Participation is entirely voluntary and you are not obliged to be involved. If you do participate, you can withdraw at any time without giving a reason or consequence.
If you decide to revoke your consent, any information that you have supplied will be disposed. For example, if there is in computer files, it will be deleted; paper copies, it will be disposed in UWS secured destruction bins; Audio taping, it will be destroyed.

Data storage

There are a number of government initiatives in place to centrally store research data and to make it available for further research. For more information, see http://www.ands.org.au/ and http://www.rdsi.uq.edu.au/about. Regardless of whether the information you supply or about you is stored centrally or not, it will be stored securely and it will be de-identified before it is made to available to any other researcher.

What if I require further information?

Please contact Abdulaziz Alshahrani (A.Alshahrani@uws.edu.au), should you wish to discuss the research further before deciding whether or not to participate. Also, participants can obtain further information about this project by liaising with an English-speaking staff member within the KFSC who is nominated.

Abdulaziz Alshahrani
PHD Candidate
Tel: 96859194

What if I have a complaint?

This study has been approved by the WSU Human Research Ethics Committee. The Approval number is [enter approval number once the project has been approved]

If you have any complaints or reservations about the ethical conduct of this research, you may contact the Ethics Committee through the Office of Research Services on Tel +61 2 4736 0229 Fax +61 2 4736 0905 or email humanethics@uws.edu.au – if they are not literate in the English language, they will be advised that written correspondence can be forwarded to the UWS HREC in Arabic.

Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

If you agree to participate in this study, you may be asked to sign the Participant Consent Form.
Appendix H: Access Letters

Melissa Maucort Actions
To: Abdulaziz Alshahrani
Cc: Thomas Klikauer; Melissa Lindeberg; Peter Bansel;
Thursday, 23 April 2015 8:50 PM
Dear Abdulaziz,

I am informed you came to the Kingswood office today however as I previously advised I am in Sydney all week. Thank you for providing this information, however I fear your submission has come extremely late for us to respond, given your ethics application is due tomorrow and the School hasn't been given sufficient time to consider the additional information provided. You did not make this deadline clear in previous correspondence.

It would appear you are asking for 20 staff in policing and criminology at UWS however I cannot confirm that we have that relevant number of staff available, nor possibly prepared to participate in this survey. However if you can confirm that all you are asking is permission to request staff to participate, with no guarantee that staff will, the School can immediately agree to this, via this email?

Your topic area does appear to be very management orientated, as represented by the School in which you are supervising, so I can only assume that staff in this discipline area (within academia) can assist, if they so choose.

In summary, the School is happy to give approval for you to request participation, but we can in no way guarantee that staff will accept this invitation.
Saudi Arabia  
Ministry of Interior  
King Fahad Security College  
Planning and Development Department

Subject: The Approval of a field study related to the scholarship for Major. Abdulaziz Alshahrani on college employees.

Dear Major. Abdulaziz Alshahrani (Member of King Fahd Security College, and a Ph.D. student at the University of Western Sydney, Australia),

In the name of Allah the most Gracious the most Merciful,

We are pleased to confirm and approve your request in reference to your letter regarding the request for an approval to carry out the collection of data on the subject of Ph.D. research entitled “Identifying success factors for the implementation of knowledge management in educational institutions: a comparative study between the University of Western Sydney in Australia, and King Fahd Security College in Saudi Arabia.” Moreover, implementing his empirical studies on King Fahd Security College staff.

Wishing you Success

Best Regards,

General Director of King Fahd Security College  
Major. General  
Saad bin Abdullah Alshahrani
Appendix I: Approval Letter from Human Research Ethics Committee

Locked Bag 1797
Penrith NSW 2751 AU
Office of Research Services
ORS Reference: H11144
HUMAN RESEARCH ETHICS COMMITTEE
13 July 2015
Mr Thomas Klikauer
School of Business
Dear Thomas,

I wish to formally advise you that the Human Research Ethics Committee has approved your research proposal H11144 “CSFs for KM in HEIs”, until 27 April 2020 with the provision of a progress report annually if over 12 months and a final report on completion.

Conditions of Approval
1. A progress report will be due annually on the anniversary of the approval date.
2. A final report will be due at the expiration of the approval period.
3. Any amendments to the project must be approved by the Human Research Ethics Committee prior to being implemented. Amendments must be requested using the HREC Amendment Request Form: http://www.uws.edu.au/__data/assets/pdf_file/0018/491130/HREC_Amendment_Request_Form.pdf
4. Any serious or unexpected adverse events on participants must be reported to the Human Ethics Committee via the Human Ethics Officer as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the Committee as a matter of priority
6. Consent forms are to be retained within the archives of the School or Research Institute and made available to the Committee upon request.

Please quote the registration number and title as indicated above in the subject line on all future correspondence related to this project. All correspondence should be sent to the email address humanethics@uws.edu.au.

This protocol covers the following researchers:
Thomas Klikauer, Ann Dadich, Abdulaziz Alshahrani

Yours sincerely
Professor Elizabeth Deane
Presiding Member,
Human Research Ethics Committee
## Appendix J: Coding of WSU Participants

**Table 8-2: Coding of WSU Participants**

<table>
<thead>
<tr>
<th>No</th>
<th>Code of participants</th>
<th>Date of interview</th>
<th>Time of interview</th>
<th>Location of interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AUWSUP1</td>
<td>10 am, on Friday</td>
<td>23/10/2015</td>
<td>Parramatta Campus, Building EI</td>
</tr>
<tr>
<td>2</td>
<td>AUWSUP2</td>
<td>2 pm, on Thursday</td>
<td>19/11/2015</td>
<td>Bankstown Campus, Building 17</td>
</tr>
<tr>
<td>3</td>
<td>AUWSUP3</td>
<td>1 pm, on Friday</td>
<td>18/9/2015</td>
<td>Bankstown Campus, Building 1</td>
</tr>
<tr>
<td>4</td>
<td>AUWSUP4</td>
<td>2 pm, on Wednesday</td>
<td>16/9/2015</td>
<td>Bankstown Campus, Building 1</td>
</tr>
<tr>
<td>5</td>
<td>AUWSUP5</td>
<td>1.15 pm, on Friday</td>
<td>25/9/2015</td>
<td>Parramatta City Campus, Level 4</td>
</tr>
<tr>
<td>6</td>
<td>AUWSUP6</td>
<td>2 pm, on Wednesday</td>
<td>30/9/2015</td>
<td>Bankstown Campus, Building 1</td>
</tr>
<tr>
<td>7</td>
<td>AUWSUP7</td>
<td>2 pm, on Wednesday</td>
<td>7/10/2015</td>
<td>Bankstown Campus, Building 1</td>
</tr>
<tr>
<td>8</td>
<td>AUWSUP8</td>
<td>11 am, on Tuesday</td>
<td>29/9/2015</td>
<td>Bankstown Campus, Building 1</td>
</tr>
<tr>
<td>9</td>
<td>AUWSUP9</td>
<td>2 pm, on Tuesday</td>
<td>15/9/2015</td>
<td>Bankstown Campus, Building 1</td>
</tr>
<tr>
<td>10</td>
<td>AUWSUP10</td>
<td>3.30 pm, on Friday</td>
<td>25/9/2015</td>
<td>Bankstown Campus, Building 1</td>
</tr>
<tr>
<td>11</td>
<td>AUWSUP11</td>
<td>10 am, on Tuesday</td>
<td>15/9/2015</td>
<td>Penrith Campus (Kingswood), Building Freda Whitlam Penrith Campus</td>
</tr>
<tr>
<td>12</td>
<td>AUWSUP12</td>
<td>11 am, on Tuesday</td>
<td>6/10/2015</td>
<td>(Kingswood), Swinburne Building P.G. 85</td>
</tr>
<tr>
<td>13</td>
<td>AUWSUP13</td>
<td>2:15 pm, on Monday</td>
<td>9/11/2015</td>
<td>Bankstown Campus, Building 17</td>
</tr>
</tbody>
</table>
## Appendix K: Coding of KFSC Participants

### Table 8-3: Coding of KFSC Participants

<table>
<thead>
<tr>
<th>No</th>
<th>Code of participants</th>
<th>Time of interview</th>
<th>Date of interview</th>
<th>Location of interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SAKFSCP1</td>
<td>12.30 pm, Sunday</td>
<td>27/12/2015</td>
<td>Studies and Researches Centre</td>
</tr>
<tr>
<td>2</td>
<td>SAKFSCP2</td>
<td>12 pm, Sunday</td>
<td>4/1/2016</td>
<td>Educational Building</td>
</tr>
<tr>
<td>3</td>
<td>SAKFSCP3</td>
<td>12.30 pm, Wednesday</td>
<td>30/12/2015</td>
<td>Educational Building</td>
</tr>
<tr>
<td>4</td>
<td>SAKFSCP4</td>
<td>10 am, Sunday</td>
<td>27/12/2015</td>
<td>Educational Building</td>
</tr>
<tr>
<td>5</td>
<td>SAKFSCP5</td>
<td>1 pm, Wednesday</td>
<td>6/1/2016</td>
<td>Management Building</td>
</tr>
<tr>
<td>6</td>
<td>SAKFSCP6</td>
<td>11 am, Wednesday</td>
<td>23/12/2015</td>
<td>Educational Building</td>
</tr>
<tr>
<td>7</td>
<td>SAKFSCP7</td>
<td>11.30 am, Thursday</td>
<td>14/1/2016</td>
<td>Educational Building</td>
</tr>
<tr>
<td>8</td>
<td>SAKFSCP8</td>
<td>1.40pm, Monday</td>
<td>28/12/2015</td>
<td>Educational Building</td>
</tr>
<tr>
<td>9</td>
<td>SAKFSCP9</td>
<td>11.30 am, Wednesday</td>
<td>30/12/2015</td>
<td>Educational Building</td>
</tr>
<tr>
<td>10</td>
<td>SAKFSCP10</td>
<td>1.30 pm, Thursday</td>
<td>21/1/2016</td>
<td>Management Building</td>
</tr>
<tr>
<td>11</td>
<td>SAKFSCP11</td>
<td>1.45 pm, Tuesday</td>
<td>29/12/2015</td>
<td>Educational Building</td>
</tr>
<tr>
<td>12</td>
<td>SAKFSCP12</td>
<td>9 am, Monday</td>
<td>23/12/2015</td>
<td>Training Centre</td>
</tr>
<tr>
<td>13</td>
<td>SAKFSCP13</td>
<td>11 am, Sunday</td>
<td>27/12/2015</td>
<td>Educational Building</td>
</tr>
<tr>
<td>14</td>
<td>SAKFSCP14</td>
<td>10.30 am, Monday</td>
<td>28/12/2015</td>
<td>Studies and Researches Centre</td>
</tr>
<tr>
<td>15</td>
<td>SAKFSCP15</td>
<td>12.30 pm, Monday</td>
<td>28/12/2015</td>
<td>Educational Building</td>
</tr>
<tr>
<td>16</td>
<td>SAKFSCP16</td>
<td>2pm, Friday</td>
<td>6/1/2016</td>
<td>Management Building</td>
</tr>
<tr>
<td>17</td>
<td>SAKFSCP17</td>
<td>10 am, Thursday</td>
<td>14/1/2016</td>
<td>Educational Building</td>
</tr>
<tr>
<td>18</td>
<td>SAKFSCP18</td>
<td>8 am, Thursday</td>
<td>24/12/2015</td>
<td>Educational Building</td>
</tr>
<tr>
<td>19</td>
<td>SAKFSCP19</td>
<td>10 am, Monday</td>
<td>11/1/2016</td>
<td>Security Building</td>
</tr>
<tr>
<td>20</td>
<td>SAKFSCP20</td>
<td>10 am, Wednesday</td>
<td>13/1/2016</td>
<td>Security Building</td>
</tr>
<tr>
<td>21</td>
<td>SAKFSCP21</td>
<td>12.40 pm, Monday</td>
<td>4/1/2016</td>
<td>Educational Building</td>
</tr>
<tr>
<td>22</td>
<td>SAKFSCP22</td>
<td>11 am, Wednesday</td>
<td>20/1/2016</td>
<td>Management Building</td>
</tr>
<tr>
<td>23</td>
<td>SAKFSCP23</td>
<td>10.30 am, Wednesday</td>
<td>30/12/2015</td>
<td>Educational Building</td>
</tr>
<tr>
<td>24</td>
<td>SAKFSCP24</td>
<td>1 pm, Thursday</td>
<td>31/12/2015</td>
<td>Studies and researches Centre</td>
</tr>
<tr>
<td>25</td>
<td>SAKFSCP25</td>
<td>10 am, Wednesday</td>
<td>6/1/2016</td>
<td>Educational Building</td>
</tr>
</tbody>
</table>