KNOWLEDGE MANAGEMENT AND ACADEMIC PERFORMANCE OF HIGHER EDUCATIONAL INSTITUTIONS IN NEPAL

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DEDICATION

This thesis is dedicated to my beloved late mother Batuli Paudel and late father Chudamani Paudel in honour of their guidance and encouragement that enabled me for successful completion of my PhD study. Their moral guidance always empowered me in the journey of education. This thesis is also dedicated to all who are on the path of changing society and nation through innovative knowledge.

DECLARATION

I hereby declare that this thesis has not been submitted for the candidature of any other degrees.

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AN ABSTRACT OF THE THESIS OF

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Abstract Approved

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Knowledge management and academic performance have received much attention in academic institutions these days. Both of these dimensions, however, have not been fully integrated with the strategic agenda of the most higher education institutions in Nepal to harness the benefits for such institutions. Therefore, this study was carried out to examine: (a) the predictors of knowledge management and academic performance, (b) the level of knowledge management and academic performance, (c) the practices of knowledge management by the faculty members, and (d) the associations and interdependent relationship between knowledge management and academic performance.

The questionnaire was constructed by using the Delphi method. The data were collected using survey questionnaire from 445 faculty members employed at four higher educational institutions. The factor analysis technique was used to identify the predictors of knowledge management and academic performance. The data were further analyzed by using one-way ANOVA, correlation, regression, and canonical correlation analysis.

This study identified seven predictors of knowledge management: knowledge

utilization, acquisition, generation, dissemination, creation, transfer, and presentation; and four predictors of academic performance: research and publications, innovation, interactive learning, and capacity building. Among the predictors, knowledge generation process and capacity building attributes of faculty members are not in the higher extent. The result also shows a significant relationship of participating faculty members' academic position, their age, qualifications, experiences, university, department, their participation in conferences, and their engagement in other universities with knowledge management practices.

The results also confirmed that knowledge management and academic performance have a positive relationship. The model of academic performance displays an association of knowledge utilization, acquisition, and creation with research and publications; knowledge utilization, dissemination, and presentation with innovation; knowledge utilization, generation, and dissemination with interactive learning and knowledge generation, utilization, transfer, creation, and acquisition with capacity building. The study confirmed interdependent relationship between knowledge utilization, acquisition, generation, and dissemination with research and publication and capacity building; knowledge creation with innovation; and knowledge transfer and presentation with interactive learning.

The study proposes a re-conceptualization of the linkage between knowledge management and academic performance. Universities in Nepal can prioritize both knowledge management and academic performance by implementing knowledge management strategies aimed at exploiting existing as well as new knowledge. This process further impacts the knowledge economy, particularly by increasing intellectual capital of faculty members.

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Krishna Prasad Paudel, Degree Candidate

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ABBREVIATIONS

ANOVA	:	Analysis of Variance
AP	:	Academic Performance
API	:	Academic Performance Indicator
CB	:	Capacity Building
CCA	:	Canonical Correlation Analysis
Chi-SQ	:	Chi Square
DF	:	Degree of Freedom
HE	:	Higher Education
HEI	:	Higher Education Institution
HEMIS	:	Higher Education Management Information System
ICT	:	Information and Communication Technology
IL	:	Interactive Learning
IT	:	Information Technology
KA	:	Knowledge Acquisition
KC	:	Knowledge Creation
KD	:	Knowledge Dissemination
KG	:	Knowledge Generation
KM	:	Knowledge Management
KMS	:	Knowledge Management System
KP	:	Knowledge Presentation
KT	:	Knowledge Transfer
KU	:	Knowledge Utilization
KUSOED	:	Kathmandu University School of Education

MIS	:	Management Information System
MOE	:	Ministry of Education
MOEST	:	Ministry of Education, Science and Technology
MOIC	:	Ministry of Information and Communication
MPhil	:	Master of Philosophy
NPC	:	National Planning Commission
PhD	:	Doctor of Philosophy
Q-Q	:	Quantile - Quantile
RP	:	Research and Publication
SD	:	Standard Deviation
SECI	:	Socialization Externalization Combination and Internalization
SPSS	:	Statistical Package of Social Sciences
UGC	:	University Grants Commission
VIF	:	Variance Inflation Factor

CHAPTER I

INTRODUCTION

This thesis examined the relationship between the practices of knowledge management and its impacts on the academic performance of higher educational institutions in Nepal. In this thesis, knowledge management was taken as the process of acquisition, dissemination, and utilization, individual and organizational knowledge and information to enhance personal academic activities and discourses within and outside academic institutions. Likewise, academic performance was taken as the process of carrying out academic activities and discourses by faculty members to enhance their research, innovation, and capacity building process with the help of knowledge management in the context of higher education. In this chapter, the following section begins with the discussion on the concept of knowledge management in educational settings. After establishing the concept of knowledge management, I elaborate the practices of knowledge management by faculty members to enhance their academic activities in higher educational contexts. Finally, I state the research problems, purpose of the study, research questions and hypotheses, rationale and delimitations of the study.

My Vignette on Knowledge Management

There is a village called Kalabang in the western part of Pokhara, just 8 kilometers far from Pokhara. I was born in a middle-class family there. Now the village is located in Pokhara Metropolitan City ward no. 22, western part of Pokhara, Nepal. My father was literate in Sanskrit education and my mother was illiterate. But she was aware of all types of knowledge and knowledge of day to day problems and issues. My father was a "Pandit" and my mother was a house wife. The source of the income of my family was farming along with my father's job of "Pandit". There were six children, four sons and two daughters from my parents. Among them, I was the youngest son.

I did my schooling from the same village where I was born. When I was at the graduation level, I always thought of how the academicians and top-level employees of any institution managed and updated their knowledge. I was also eager about the sources of knowledge for them; and how they solved their daily life problems through their knowledge. Keeping this concept in my mind, when I noticed a subject named "Knowledge Management" in the specialization area of the Master of Computer Application (MCA), 3rd Semester, I chose it. For the same degree, I did my research on the 'working principles and security system of the automated teller machine system'. After the completion of MCA, I started to work as an Information Technology (IT) consultant in various capacities to the different IT companies of Nepal.

In the meantime, I joined Master in Business Studies and specialized in management science. The major subjects were Management Information System (MIS) and Decision Support System. For the same degree, I did my thesis entitled "Management Information System for Community Learning Center". During my consultancy service period, I worked as a lead member to finalize the Information and Communication Technology (ICT) Master Plan of Kathmandu Metropolitan City, to establish Smart City, an MIS for Ministry of Cooperative and Poverty Alleviation, Citizen Profile System for Local Development Ministry. Besides consultancy service, I started to do research on the IT and ICT sector along with teaching different subjects like Management Information System, Information System, System Analysis and Design to the graduate and undergraduate level. I also worked at the Supreme Court of Nepal in the capacity of IT Director and was primarily engaged in finalizing the ICT Master Plan of Judiciary to automate the judicial activities.

During my work at the different institutions, I was concerned about the ways employees of each institution managed their data, information, and knowledge to solve the day to day problem. I tried to explore the sources of knowledge they acquired, how they disseminated such knowledge, and how they were applying the acquired knowledge to enhance their work performance so as to increase their intellectual capital. The question raised in my mind required further study and I thought of continuing my academic journey. After graduation from Tribhuvan University and Purbanchal University, I thought of joining Kathmandu University for further study.

I was confused whether to pursue PhD in education or search for other options to achieve it. I visited the Dean's office of Kathmandu University School of Education (KUSOED), Hattiban. During the visit, I came to know that I could carry out research in the same area that I was looking for. So, initially I developed the concept and proposal on the knowledge sharing system for a community learning center and submitted that to the Dean office of KUSOED. I appeared the entrance exam, presentation session, and interview. Finally, I was selected to pursue my PhD from Kathmandu University under the Leadership and Management Department. I got enrolled for PhD and gathered momentum with new thoughts and dreams to explore in the field of knowledge management.

After joining PhD at Kathmandu University, I got a chance to be the president of the Student Welfare Council (SWC). The changing role of studentship in PhD level changed my mindset. As the president of SWC, my focus was to improve the efficiency of students. At the same time, I thought of enhancing the capacity of students. So, I primarily focused on my learning in the sector of knowledge management, particularly for the improvement of higher education in Nepal.

During the PhD coursework, most of my assignments were focused on the theme of knowledge management. After the completion of 18 months course work, I developed a proposal for my PhD research on “The Role of Knowledge Management in Faculty Performance: A Survey of Higher Education Institutions in Nepal”. After defending the PhD proposal, I developed two qualifying papers on thematic and methodological parts. The title of the thematic paper was “Expectations and Realities of Knowledge Management: Experiences from Higher Education in Developing Countries”. Likewise, the title of the methodological paper was “Constructing Scales on Knowledge Management: Appreciating Standard or Self Constructed Tools”. Then I was engrossed in the area of knowledge management to obtain my PhD degree.

Nature of the Study

This study examined the relationship between knowledge management and academic performance of faculty members of higher educational institutions in Nepal. In the era of knowledge economy, Knowledge Management (KM) has been recognized as an important tool for creating, sharing and utilizing knowledge in educational institutions, particularly in universities and higher educational institutions. Knowledge management in higher education has been prioritized for a long time, seeking the educational productivity and performance. To elucidate the importance of knowledge management, Petrides and Nodine (2003) state that knowledge management is an integration of theory and practices in higher education (HE) and all stakeholders of universities. Following Petrides and Nodine (2003), I argue, in the context of Nepal, that knowledge management is fundamental for university faculties in higher educational institutions and universities to enhance their academic activities along with performance.

The majority of the organizations recognize knowledge as a major resource to obtain and sustain competitive advantage. In this context, knowledge has become an organizational asset that increases an organization's productive and adaptive capabilities (Marquardt, 2011). Knowledge management enhances the competitiveness of any institution. Patel and Patil (2016) emphasized that the provision of high-quality education and related services is the main engine that improves excellence, competitiveness, importance, and popularity of any higher educational institution. Furthermore, Baptista-Nunes, Kanwal, and Arif (2017) argued that the concerned authorities and personnel are aware of the importance of knowledge management in higher educational, and academic institutions.

The concept of knowledge management was introduced in Japan in the beginning of 1990s and since then organizations such as business enterprises and academic institutions have been using this new concept to their operations and decision-making processes. Highlighting the function of knowledge management, Dalkir (2005) mentioned that it is an ongoing process of creating and sharing the knowledge. In other words, knowledge management is a continuous process of generating and sharing knowledge to achieve the goal of an organization.

The universities and higher educational institutions (HEIs) produce required human resource of a country. The global scenario also determines, though to a certain extent, the kind of expertise in human resource that a country needs. The knowledge management has multiple aspects to conduct research initiatives ranging from knowledge creation (Brown & Duguid, 2000; Takeuchi, 2006), knowledge sharing and transfer (Alavi & Leinder 2001; Hornett & Stein, 2011), and knowledge management strategies (Farzin, Kahreh, Hesan, & Khalouei, 2014). This is indicative of the fact that knowledge management is used to enhance the capabilities of the faculty members from different perspectives in the context of a university.

The knowledge of individuals in our organizations and societies is responsible for the change in social dynamics. The knowledge of an organization, i.e. an educational institution focuses on the qualities and performance in its activities. The quality of the academic staff and research is another prominent shared measure because the quality of faculty and research supports the institutions to attract more research grants (Dill & Soo, 2005). Faculties with high level of academic performance bring the output of high-level academic excellences of graduates. Thus, I anticipate that the graduates of higher educational institutions can change the society for better eliminating the problems in all sectors of life. When faculty members are nurtured with knowledge and skills of knowledge management, the higher educational institutions can deliver high-quality application-based knowledge and skills to the students enabling them to face the challenges brought by external forces like globalization. Thus, it leads to an enhanced performance of the graduates. This understanding clearly has a positive connection with the performance of faculty members who are directly involved in teaching, learning, mentoring and research process within and outside universities.

Now, there has been an issue regarding the areas in which knowledge management can directly contribute to. In this regard, following Kidwell, Vander and Johnson (2000), I argue that knowledge management is the key component in higher education to accomplish the research activities, curriculum development, administrative services and business strategic planning. Additionally, Sallis and Jones (2002) argued that educational institutions are like business organizations where they have been using knowledge management to increase organizational performance. Educational institutions and business organizations share common traits in terms of knowledge management. The ultimate objective of both of them is to materialise the generated knowledge for the maximum output with appropriate management of the available knowledge in the institutions or organizations (Sallis & Jones, 2002).

The primary concern of universities and higher educational institutions is to transform the available knowledge into practice to enhance human life in harmony without disturbing nature. According to Austin (2002), higher educational institutions have significant opportunities to apply knowledge management to support every aspect of education and public service through research. The practices and perceptions of knowledge management differ in every individual (Lifang & Ziling, 2011). In the context of Nepal, IT policy of Nepal developed by Ministry of Information and Communication (MOIC, 2000) and IT policy of Nepal (MOIC, 2010) focus on the development of knowledge-based society and knowledge-based economy; it is only possible when there is proper implementation of knowledge management in the human resource development industries such as higher educational institutions and universities. Furthermore, the IT policy of Nepal emphasizes knowledge-based society and e-governance system (MOIC, 2015). This indicates that it is necessary to develop minimal infrastructure of IT to implement knowledge management in the higher educational institutions so that the government can implement the concept of e-governance and the knowledge-based society. It ultimately achieves knowledge-based economy for an overall development of Nepal.

The Higher Education (HE) policy developed by University Grants Commission [UGC] Nepal (2014) clearly mentions that it has been able to implement the Higher Education Management Information System (HEMIS) which enhances the practices of ICT in educational system in HEIs. The policy seeks to manage records of higher educational institutions and their activities through computer-based system by developing data repositories through HEMIS. This indicates the necessity of MIS even in the universities in order to store, disseminate and reuse the information of the higher educational institutions. Thus, the literature and policy are the baselines in my thrust of research endeavour on the knowledge management practices for faculty members' academic performance in Nepali higher educational institutions. Hence, KM, enhanced by application of new technology, contributes to academia to harness the intellectual capital of individual.

Statement of the Problem

Knowledge management in academia helps to enhance academic activities inside and outside the institutions. Effective knowledge management in higher educational institutions enhances the academic performance of university teachers (Santosh & Panda, 2016). Lifang and Ziling (2011) highlighted the importance of knowledge management techniques and technologies in higher education and business sectors. Muhammad et al. (2011) argued that inappropriate management of knowledge affects the academic performance and administrative processes of higher education institutes. Faculty members are found to play a significant role in HE with regard to teaching and producing teaching materials, providing consultation, conducting other professional activities, and publishing research papers (Islam, Ikeda, & Islam, 2013). Use of technology in teaching and learning activites has caused universities to transform the ways in which explicit knowledge is produced, stored, disseminated, and appropriated by the organization. Researchers also highlighted that faculty members were fully mindful of the importance of knowledge sharing, but they were mainly concentrated on teaching activities and sharing of learning resources (Shahzadi, Hameed, & Kashif, 2015).

The performance of the faculty members is an important academic phenomenon in any educational institutions. If the performance of the faculty members is good, it is obvious that the performance of students is also high. As highlighted by Yapa (2010), knowledge management has not been identified as an important function at any level of the university. Ramachandran, Chong, and Wong (2013) empirically stated that higher educational institutions do not have adequate practices of inclusion of knowledge management application. Baptista-Nunes et al. (2017) highlighted that only limited research studies were carried out on the issues of knowledge management in academia in South Asia. Academic institutions have explored unified knowledge management processes and key success factors in the higher education (Ramachandran et al., 2013). Researchers identified knowledge management initiatives as tools for driving innovative processes and maintaining competitiveness within business organizations (Carneiro, 2000; Bhatt, 2001). Sallis and Jones (2002) mentioned that the main problem of today's organization is to manage the information and not to find the information within organizations.

Adhikari (2010) contended that many non-educational institutions have been increasing their performance and productivity through integration of IT and ICT as the main components of knowledge management in their business process and the concept of knowledge management is incorporating academia as well. Universities are knowledge centers, which aim to open the academic and professional avenues for the students, parents, faculties, administrators and other stakeholders (Sharma et al., 2011).

Existing literature indicates that knowledge management in higher education institutions plays an important role in the academic performance. However, in the context of Nepal, systematic study in this regard has not been available to explore the link between knowledge management and academic performance and practice of knowledge management among university teachers. Therefore, the present study investigated how appropriate knowledge management influences academic performance. In this regard, higher educational institutions need a holistic conceptualization of how knowledge management processes dynamically interact in the academic performance.

Purpose of Study

The purpose of this study was to examine the relationship between knowledge management and its impact on academic performance of faculty members of higher educational institutions in Nepal. More specifically, the study identified and measured the predictors of knowledge management and academic performance in the context of Nepali higher educational institutions; and differentiated knowledge management practices by individual, personal characteristics and behaviour of engagement among faculty members.

Research Questions

The main research question of this study was: how are the faculty members of higher educational institutions of Nepal practicing knowledge management in their daily academic life? Further, considering the broad research question, following research questions were formulated:

i. What predicts knowledge management and academic performance of faculty members in higher educational institutions?
ii. What is the level of knowledge management and academic performance of faculty members in higher educational institutions?

iii. To what extent is knowledge management differed by faculty members' individual personal characteristics and personal engagements in academia?

iv. To what extent does knowledge management constitute academic performance of the faculty members in higher educational institutions?

Research Hypotheses

The study tests following three hypotheses:

a. There are significant differences on knowledge management in higher educational institutions across faculty members' individual personal characteristics and personal engagement in academia.

b. The academic performance depends upon the practices of knowledge management in higher educational institutions by the faculty members.

c. The interdependent relationship exists between the dimensions of knowledge management and academic performance.

Rationale of the Study

The way of managing information in an institution has been fast changing because of advancement in ICT. In this context, higher educational institutions produce and preserve knowledge for future use. Several studies highlighted the interface between knowledge management and academic performance. For example, Balaid, Abd-Rozan, Hikmi, and Memon (2016) discovered that effective knowledge management enhances academic performance. In a similar research, Rasula, Vuksic, and Stemberger (2012) identified the impact of knowledge management to enhance organizational performance. This indicates that knowledge management enhances organizational performance and it impacts on the academic institutions as well. The study of Danish, Munir, and Butt (2012) found that knowledge management practices have a strong positive association with organizational effectiveness and performance.

Knowledge management has a positive significant influence on the performance of banks (Ngahu & Mbugua, 2017). All these studies indicate a significant relationship between knowledge management and different organizations. In other words, effective knowledge management enhances organizational performance and productivity. However, this interface between knowledge management and academic performance of higher educational institutions in Nepal is an under researched area and this needs to be understood for effective planning and implementation.

In this context, this study investigated the relationship between knowledge management and academic performance of Nepali higher educational institutions to explore the status of the knowledge management practices by faculty members. Furthermore, this study also examined the interdependent relationship of knowledge management and academic performance to enhance the academic activities within higher educational institutions in Nepal.

Delimitations of the Study

The constructs of KM for this study were primarily conceptualized from the array of literature (Wiig, 1993; Nonaka, 1995; McCarthy, 2006; Lee, 2007; and O'Dell & Hubert, 2011). However, in the process of Delphi, I was open and flexible to identify the dimensions of knowledge management and academic performance. Consequently, knowledge utilization, acquisition, generation, dissemination, transfer, creation, and presentation appeared as the predictors of knowledge management and research and publications, innovation, interactive learning, and capacity building appeared as the predictors of academic performance in the factor analysis.

Organization of the Study

The thesis incorporates eight chapters. Chapter I introduces the area of the research discussing the concept of knowledge management and academic performance of faculty members of the higher educational institutions. After introducing the concepts relevant to the research topic, I state the statement of problem and purpose of the research, the research questions and research hypotheses. I also argue for the rationale of this study and finally I discuss the delimitations.

Chapter II critically reviews the relevant literature on the conceptualization of knowledge management, categories of the knowledge, knowledge management, knowledge management practices and academic performance, higher education in Nepal, higher education policies, theories of knowledge management, empirical evidences, and conceptual framework for this study.

Chapter III concentrates on the methodological procedures adapted for this study. In this process, I discuss the philosophy of the research, research design, techniques to measure the variables, identification of the population and sample, data collection tools and techniques, analysis of the data and interpretation of the results. The tools for reliability and validity test and the ethical considerations during research period are adequately discussed.

Chapter IV discusses the process of the development and finalization of the dimensions and items to measure knowledge management practices and academic performance of higher educational institutions in Nepal by using factor analysis. Chapter V revolves around analysis and description of the relationship between knowledge management practices with demographic variables of the faculty members of higher educational institutions. Chapter VI analyses the relationship and interdependencies of knowledge management practices and academic performance of the faculty members of higher educational institutions.

Chapter VII draws the findings and discusses these findings in relation to the theories adopted for this study. Primarily, it focuses on how the faculty members perceive knowledge management and academic performance in the higher educational context in Nepal. It also provides the model of knowledge management and academic performance for higher educational institutions to enhance the academic activities and discourses to establish knowledge-based society. Chapter VIII summarizes the findings, draws conclusions and discusses the implications of the research. It also focuses on how I, as a researcher, have drawn the way-forward in continuously carrying forward the research on knowledge management in the context of Nepali higher educational institutions. Finally, this chapter ends with the concluding remarks of this study.

CHAPTER II

LITERATURE REVIEW

This chapter critically examines the relevant literature on knowledge management and academic performance and their interrelationships. More specifically, this chapter also relates the empirical research on knowledge management and academic performance in global, regional, and national scenario. This chapter starts with the concept of data, information, knowledge, and knowledge management in the context of university. After establishing the concept of knowledge and knowledge management, the practices of knowledge management and academic performance in regional and national academic institutions of higher education are discussed. In the discussion, theoretical, practice based, and empirical research studies as well as policy documents are included. Based on these discussions, I developed the conceptual framework as the guiding roadmap for the study.

Relevance of Data, Information and Knowledge in Universities

The concept of knowledge is defined by Plato (347BC) as a conceptual viewpoint, and accurate estimation with an account as explained in Boas (1948). The human mind can generate knowledge through reflection, interpretation, synthesis, and context of data that are available in the field. For Davenport (1997), data are "Observations of states of the word, which can be easily structured, captured on the machine and later on can be transferred easily" (p. 9). The scholar also argued that when data are processed, knowledge gets generated; this generated knowledge is valuable. In research, data get converted into information, and the information is further used to solving contextual problem. Bender and Fish (2000) mentioned that data become information when it provides appropriate meaning and understanding.

Thus, data are raw facts or numbers (Alavi & Leinder, 2001) that can be processed for further interpretations.

The knowledge belongs to individuals' mind and is based within unique conditions and contextualized situations. According to Girard and Girard (2015), knowledge resides in the heads of people and it influences organizational success. Thereupon, knowledge refers to information stored in human mind and is used to solving the problems. We can solve the problems individually or by engaging ourselves in the team or group. Nonaka and Takeuchi (1995) argued that knowledge is something intangible, which resides in a shared space of mind called mental; knowledge can be separated from mental state and made tangible and later on can be transferable to others.

During problem-solving process, the concepts, ideas, and skills of individuals are transferred to others. Knowledge is associated with context, experience, beliefs, and interpretation (Davenport & Prusak, 1998). They also mention that data are the discrete and objective facts of the events. If the data and information are combined with experience and judgment, then they form knowledge (Bhatt, 2001). Alavi and Leinder (2001) explained that knowledge is personalized information which is related to facts, procedures, concepts, ideas, observations, and judgment. It is assessed through the mind of an individual. Yang, Zheng, and Vierce (2009) elaborated that knowledge is a construct of three perspectives of knowledge as factual, conceptual, and perceptual. The knowledge generated through information is further used either to create new knowledge or to solve problems of students and faculty members in the context of university.

Knowledge belongs to individuals and it is stored in their minds in the form of experience, observations, and reality in the hidden form. The knowledge contains information, skills, and expertise (Anand & Walsh, 2016). The experience-based knowledge of faculty members is tacit which is difficult for peers and students to understand. Hussi (2004) mentioned the tacit knowledge as a conception of reality that makes it difficult for the faculty members difficult to freely formalize and communicate their ideas. Johannessen (2008) added tacit knowledge as personal, informal experience of individuals, whereas meta knowledge and explicit knowledge are generated through formal education system. According to Nonaka and Kanno (1998), explicit knowledge can be expressed in words and numbers and later on can be shared in the form of data, formula, specifications, and manuals. At the meantime, this type of knowledge can be transferred among individuals.

The other type of knowledge is stored in the forms of reports, data, formulas, text, graphic and can be easily transferred and shared among the individuals. A widely accepted theory of knowledge is the process of conversion of data to information to knowledge (Nonaka, 1994). It means when the data is processed, it is converted into information, then knowledge is used to address the issue or solve the problems. As defined by Davenport, Harris, De Long, and Jacobson (2001), knowledge is combination of context, interpretation, experience, and reflection based on the context and situation. Knowledge has high value of information that is ready to be applied in the decision-making process and actions.

The underlying implications of this conceptualization are that knowledge can be an independent entity of individual (Dalmaris, Tsui, Hall, & Smith, 2007). Therefore, it is assumed that knowledge can be codified, formatted, edited and stored for retrieval by the users of system. Knowledge is contextual and it can be modified based on the context and situation. Individuals use existing knowledge to create new concepts and ideas for future use. Nonaka and Takeuchi (1995) considered two dimensions of knowledge creation; epistemological and ontological. The epistemological dimension describes two types of knowledge tacit and explicit. The epistemological dimension of knowledge is concerned with conversion from tacit to explicit and vice-versa and ontological dimension of knowledge is transformed from individuals to organization (Nonaka, 1994) to enhance organizational efficiency and productivity. The combination of these two dimensions is referred to as the model of Socialization Externalization Combination and Internalization (SECI).

Socialization is the process of transforming tacit knowledge into tacit knowledge (Nonaka & Takeuchi, 1995). Tacit knowledge is created and shared through direct experiences of individuals. Likewise, externalization is the process of transforming tacit knowledge into explicit knowledge (Nonaka & Takeuchi, 1995). Tacit knowledge can be transformed into explicit knowledge through continuous interaction, such as dialogue and reflection among peers. The combination is the transformation of explicit knowledge into more complicated forms of explicit knowledge (Nonaka & Takeuchi, 1995). The explicit knowledge is processed and categorized into different collections in order to create new knowledge from the existing one.

Internalization is the process of transforming explicit knowledge into tacit knowledge (Nonaka & Takeuchi, 1995). Explicit knowledge is learned and then internalized into individuals' tacit knowledge within institution. Moreover, internalizing knowledge is effective in developing a learning culture through experience-based learning (Rahimi, Arbabisarjou, Allameh, & Aghababaei, 2011). Along with SECI, for knowledge creation, Nonaka and Takeuchi (1995) addressed "ba", the last element of knowledge creation. 'Ba' is a Japanese term that refers to a place at a specific time (Chumjit, 2012). In the knowledge creation theory, ‘ba’ is the shared context for creating knowledge and the place to create knowledge.

There are several terms to specify different types of knowledge. Nonaka and Takeuchi (1995) first proposed the concept of explicit and tacit knowledge in research. Explicit knowledge can be written in the form of data, specifications, manuals, and so on for the organizational use (Alavi & Leinder, 2001). This type of knowledge describes everyday professional life of an individual. Manuals, books and articles are exemplified as "hard" knowledge.

Tacit knowledge exists in people's heads and that is not written down and this type of knowledge is extremely difficult to transfer. It includes insights and is difficult to express and formalize. It includes skills and experiences (Alavi & Leinder, 2001) that we feel but cannot share easily. Tacit knowledge guides the mentee in learning it through practice (Nonaka, von Krogh, & Voelpel, 2006). It is embedded in practices of the people of organizations and the organizational culture. This kind of knowledge is acquired over several years and stored in our mind. It is also known as "soft" knowledge. Both explicit and tacit knowledge are the intangible assets of any institution.

Consequently, tacit knowledge is invisible information stored in our mind or feeling, whereas explicit knowledge is documented and that can be visible (Filemon & Urairte, 2008). Explicit knowledge is codified and converted into another form and later on stored in documents, databases, websites, and emails and so on. Knowledge is important to both public and private organizations, particularly learning institutions like universities and colleges (Sizer, 2001). Knowledge is further used to establish a knowledge-based society and economy (Ismail & Chua, 2005) for an institution.

In summary, the essence of the knowledge creation theory is based on four main ideas (Bratianu, 2010), (1) knowledge can be created individually by conducting interaction and dialogue within groups, the source of knowledge can be either tacit or explicit, (2) the knowledge can be converted from the four process, namely socialization, externalization, combination and internalization, (3) knowledge creation at the organizational level is based on these four conversion processes, and (4) 'Ba' is one of the key mental factors that helps individuals interact with each other and then create knowledge derived from the contextual setting. In the same line, Takeuchi and Nonaka (2004) defined the organizational knowledge creation as "the capability of a company as a whole to create new knowledge, disseminate it throughout the organization, and embody it in products, services and systems" (p. 13). Hence, the concept of knowledge creation developed by Nonaka and Takeuchi is essential in institution to create knowledge from individual and institutional level.

Knowledge Management in General

Knowledge management is the process of conversion of tacit knowledge into explicit knowledge and sharing it within organizations (Nonaka & Takeuchi, 1995). Based on the context and situation, we have two ways of managing knowledge: technology focused or process focused and knowledge management to convert tacit knowledge into the explicit one. Faculty members from different institutions use technology such as computer, internet, extranet, e-portal, and other professional forums either to generate or transfer knowledge to solve any given problem. Knowledge management is integration of people, processes and technology to share knowledge within intuitions (Edwards, 2011). People share what they think others need to know while sharing knowledge. According to Mao, Liu, and Zhang (2015), people implement organizational culture to enable knowledge sharing habit in institution. Knowledge management is composed of 80% people and 20% technology (Girard & Girard, 2015). People with high technical skills are very innovative and are needed in most organizations (Bassi, 1998). The researcher further argues that knowledge management is the process of capturing, creating, and using knowledge to enhance organizational efficiency, productivity, and performance. Knowledge management captures knowledge-based competencies, storing, and disseminating knowledge for the benefit of the organization (Parlby, 1997). When we manage knowledge, we also create, share, and use knowledge in organization (Wu & Lee, 2007). Keeley (2004) emphasized knowledge management as integrated and collaborative approach to creation, organization, access, and use of knowledge in an organization.

Knowledge management has been broadly applied in business as well as educational sector. Effective knowledge management in academic institutions is always advantageous to achieve high performance (Coukos-Semmel, 2002; Mohayidin, Azirawani, Kamaruddin, & Margono, 2007; Yusoff, Mahmood, & Jaafar, 2012) to achieve higher educational missions such as teaching, conducting research, and community service and improvement of organizational management, e.g. developing strategic plans to enhance decision making processes. A critical examination of the available literature on knowledge management in higher education indicates three distinct perspectives of knowledge management: economic, cognitive, and information management (Wiig, 1993; McCarthy, 2006; Lee, 2007) in academia.

The economic perspective originated in the traditional notion of economic resources, including land, labour, and capital (Wiig, 1993). The economic capital includes knowledge, which is recognized as an integral part of intellectual capital.

From this perspective, knowledge management involves the management of intellectual capital (Wiig, 1993; Dalkir, 2005). Intellectual capital is intangible value of an individual that helps to enhance competitive advantage of any institution (Coukos-Semmel, 2002). Intellectual capital is an intangible organizational resource that represents an individual’s insight and experience owing to its emphasis on actionable knowledge and know-how (Wiig, 1993; Dalkir, 2005). Tan and Noor (2013) emphasized knowledge management in the higher educational institutions as a key component to conduct research to provide a conducive environment for research and innovation. The economic perspective views knowledge management as a key element for increasing an institution’s productivity and efficiency. Consequently, knowledge management has become one of the strategic solutions to achieve effective organizational performance.

The cognitive process of knowledge creation resides at the levels of individual, group, and organization. Watcharadamrongkun (2012) took knowledge management as a process of gathering, organizing, sharing, and analysing knowledge within and across an institution in terms of documents, resources, and people's skills. In relation to this, Asian Productivity Organization (2000) claimed that knowledge management puts tacit and explicit knowledge consciously into the action by creating infrastructure and learning cycles that enable people to collectively use the available knowledge of the enterprise. The research investigates how knowledge is created, shared, and used between and among individuals within an organization. Individuals and their interactions are at the centre of the knowledge management process. The main objective of knowledge management in an organization is to use the available knowledge for the highest possible performance and efficiency.

The information management perspective assumes that knowledge management enhances the use of organizational knowledge through the management of information (Lee, 2007). An organization is responsible for cultivating usable knowledge and making it readily accessible across an organization (McCarthy, 2006). Akin to this, Golden (2009) considered knowledge management as the process of capturing, creating, and using knowledge to enhance organizational performance. McCarthy (2006) argued that knowledge management is an organizational process that emphasizes combination of data and information processing capacity of technologies, and then creative and innovative capacity of human beings to fulfil the organizational objectives. From this perspective, knowledge refers to a set of transformed and available information that enables an organization to learn and adapt to its changing environment.

From the discussion above, I understood that the perspective of knowledge management for this study is the integration of economic, cognitive, and information management perspectives. In this research, it is claimed that intellectual capital is an organizational asset that can be managed to enhance organizational performance. It addresses the actions that an organization takes to derive the greatest value from the experience and understanding of its people as well as from other internal and external sources. Rather than viewing knowledge management as the process of summing the information held by an organization’s members, this study conceptualizes knowledge management as a process to acquire organizational knowledge from the faculty members’ learning process. It focuses on the learning interactions between individuals, groups, and organizations through managing the flow of knowledge.

Knowledge Management Process

The term knowledge management process refers to the way knowledge is processed or managed in an organizational setting to enhance the efficiency of an individual. Scholars studying the processes of knowledge management conceptualize knowledge management within an organization in multiple ways. Wiig (1993) proposed three-pillar model of knowledge management as creation, manifestation, use, and transfer. Zaim, Tatoglu, and Zaim (2007) identified four processes of knowledge management as knowledge generation, transfer, utilization, and storage. Yang et al. (2009) concluded socialization, systematization, transformation, formalization, routinization, evaluation, orientation, deliberation, and realization as processes of knowledge management. Bhatt (2001) regarded knowledge management as a process of knowledge creation, validation, presentation, distribution, and application. Alavi and Leidner (2001) took knowledge management as acquisition, indexing, filtering, linking, distributing, and application.

Pentland (1995) along with Davenport and Prusak (1998) agreed knowledge creation and generation, knowledge codification and retrieval, and knowledge transfer and knowledge application as the processes of knowledge management. Magnier-Watanabe and Senoo (2008) suggested that acquiring, storing, sharing, and implementation of information come under knowledge management. Wai and Chai (2008) concluded that identifying, acquiring, applying, sharing, creating, developing, preserving, and measuring are the processes of knowledge management. I, therefore, interpret the knowledge management as the process of acquiring, generating, disseminating, creating, transferring, utilizing, and presenting the knowledge in academia to enhance the academic activities and discourses.

Knowledge Utilization

Knowledge utilization particularly refers to the way an individual practices available knowledge to solve daily life problems and issues. According to Dhamdhere (2015), knowledge utilization means to apply the available knowledge to daily activities such as decision making, problem solving, and coordination by individuals and the groups in any institution. Individuals as well as institutions can use existing knowledge to create new knowledge (Omerzel, 2009) to enhance efficiency of their institutions. This study assumes that the faculty members of universities use knowledge to solve their daily life issues. Furthermore, knowledge is used to solving academic issues such as resolving research related problems of academic projects, workshops, seminars, etc.

Knowledge that an institution has access to can be reused internally and externally. In academic institutions, the faculty members use different strategies to use the knowledge of institution. For example, in higher educational institutions, faculties manifest knowledge application process through interaction and application of shared knowledge and ideas through organizing and archiving the available knowledge in databases. The basic purpose of application of that knowledge is to provide quality decision-making process and troubleshooting techniques within the educational process, as well as overall performance of faculties in academia. In this context, knowledge utilization refers to the use of existing and new knowledge to conduct daily activities such as decision making, problem solving, and coordination by individual within groups and institutions.

Knowledge Acquisition

Knowledge acquisition is the process of acquiring new knowledge which one did not exist before. Knowledge acquisition of faculties is discovered through organizing seminars and training programs, usage of technology while reading, interaction with the surroundings, consultations, and mentoring. Knowledge organization and storage aims to enable easy access of knowledge to everybody within the system. Stored knowledge has an explicit form and is organized for easy access. The organization and classification of knowledge in higher educational institutions can be organized through a certain informational system technologies and processes like as knowledge database or knowledge and information exchange software. Knowledge then can be accessible to one or more faculties, bringing together all the relevant knowledge of faculty members and the students within the network of organization.

A university is considered as a place where we acquire new information and knowledge. Knowledge acquisition is the process of obtaining the needed knowledge from both internal and external sources (Mohammad, Hamden, & Sabri, 2010). This requires faculty members to have complete access to knowledge and knowledge-based resources that facilitate the capturing of new knowledge, and exploiting the available knowledge (King, 2009). Mohammad et al. (2010) considered searching and organizing environment of learning are key activities for acquiring knowledge in organizations. Knowledge acquisition via searching can be achieved through three means, namely scanning, focusing on research, and performance monitoring. Likewise, organizing environment of learning involves managing study materials in both manual forms and computer-based databases.

Knowledge Generation

A university provides flexible academic environment to generate knowledge through existing situations of reality. Knowledge generation, in this study, refers to acquisition and development of knowledge (Ramachandran et al., 2013; Shoham &

Perry, 2009) aimed at building the needed knowledge, particularly know-how that fits in the context of an institution. An individual may generate knowledge through measuring work performances, enhancing leadership capacity (Aragon-Correa, Garcia-Morales, & Cordon-Pozo, 2007), and associating with external professional networks in order to participate in conferences to present ideas and concepts. For Bui and Baruch (2010), the higher education institutions are likely to develop and generate knowledge through study and research while Ordonez de Pablos (2006) and Ungerer (2006) argued thatknowledge generation can be linked to the structural capital dimension which is represented by research and development in academia. A research by Siadat, Hoveida, Abbaszadeh, and Moghtadaie (2012) posited that social capital promotes the knowledge creation process in an institution. In this regard, the members of the institution share the generated knowledge whichremains in the memory of the organization.

In educational context, faculty members are responsible for generating knowledge. The teamwork is an important source of the knowledge generation process (Lee & Choi, 2003). Formation of well-staffed team is vital for effective implementation of knowledge management (Civi, 2000) in an institution. Through creating a team of experts to conduct various research activities, and consultancy services, organizations apply diverse knowledge and skills of individual to seek answers to the issues of their institutions. In an educational institution, the team sits together and builds up the concept and ideas whenever an issue arises. Academia produces new knowledge through appropriate knowledge generation process and this new knowledge solves and addresses different types of social issues and problems.

Knowledge Dissemination

Knowledge dissemination is a process of distribution of available knowledge in institution. In higher educational institutions, dissemination process is concerned with a systematic and organized distribution of knowledge to the faculties. The distribution process is manifested through a practice of informing students about the availability of relevant knowledge through technologies of institution. The process includes the exchange of experience, ideas, and information of faculty members and students through a dialogue, presentations, and lecture attendance by publishing through the use of technology. Sharing of knowledge among students and faculty members is realized through team work, debates, discussions, and projects with the aim of exchanging and managing knowledge and opinions.

Universities provide avenues for disseminating and sharing knowledge fostering knowledge among their seekers. Knowledge sharing or dissemination is one of the key components of knowledge management (Wang & Noe, 2010). Bradley and McDonald (2011) argued that a successful knowledge management system allows the members to share, retrieve, and contribute to the knowledge base. Sharing enhances the opportunities of socialization and exchange of information. Talking about knowledge sharing structures, Van den Hooff and Huysman (2009) proposed that institutes share it through intensive on-the-job trainings, focus group meetings and workshops. Conducting workshops and seminars provides healthy forum for sharing and disseminating concepts and ideas of problem solving to presenters as well as seekers of knowledge. Such activities prepare individuals for the production of materials of trainings, workshops, and seminars in the days to come for the faculty members of higher educational institutions.

Knowledge Transfer

Knowledge transfer is another important dimension of knowledge management in academia and in business process. Knowledge transfer represents sharing and distributing of knowledge among the members of an organization

(Shoham & Perry, 2009; Aujirapongpan, Vadhanasindhu, Chandrachai, & Cooparat, 2010). Trust among members of institution encourages knowledge sharing by facilitating a more proactive and open relationship (Tan & Noor; 2013). Furthermore, openness in communication increases the willingness of members to share knowledge with each other (Basu & Sengupta, 2007) and it has a significant and positive influence on knowledge transfer (Tan & Noor, 2013). Sharing of knowledge goes beyond the distribution of knowledge because it helps to ensure the exchange of knowledge within an organization's communities.

Technological system provides a knowledge database and repository to provide accessible organizational knowledge between users of such system. The modern technology, particularly e-service is used to searching for required information rather than sharing discussion in forum (Sarawanawong, Tuamsuk, Vongprasert, & Khiewyoo, 2009). Such technology allows faculty members to access, collect, and assimilate existing internal knowledge within an organization and/or external knowledge from outside (Dalkir, 2013; Watcharadamrongkun, 2012) to enhance academic activities.

The purpose of knowledge transfer is not only distributing knowledge, but sharing knowledge (Bouthillier & Shearer, 2002). Consequently, knowledge transfer deals with combining knowledge in new and interesting ways in order to foster knowledge utilization and encouraging employees to share their own knowledge to acknowledge repository (Bukowitz & Williams, 2000). The ability to transfer knowledge is significant for the improvement of organizational operations because knowledge transfer aims to apply established knowledge when performing a regular and routine task within an institution.

Knowledge Creation

Knowledge creation is an important dimension of the knowledge management practice in the context of the higher educational institutions. The staffs working in an organization create knowledge (Numair, 2012; Chigada, 2012; Anduvare, 2015). Knowledge creation is one of the most important roles of the universities (Carayannis, 2004; Anduvare, 2015). The process of knowledge creation begins when faculty members share their personal and/or group knowledge within institution. This incoporates insights, skills, ideas, know-how and so forth. The daily interaction among faculty members, students, and peers of universities serve as a perfect platform for knowledge creation. This is a common activity in the universities to create, store, share, and reproduce knowledge through education and training.

Creation of new knowledge and its dissemination are considered as important processes of knowledge management within academic institutions. Members of an organization share new knowledge to increase efficiency and effectiveness of employee and institutions. Similarly, knowledge creation represents the peak of knowledge management cycles in an organization. The knowledge creation process is realized through research and experimenting it in work, in the process of interpreting, analyzing and discussion then in the conduction of academic research projects.

Knowledge Presentation

Another dimension of knowledge management practice is knowledge presentation. Presenting knowledge represents three processes such as planning, preparing, and presenting of knowledge (Niess, 2011). How the faculty member in an educational context by developing ideas, building alliances, exchanging information, and working together vary according to the group they belong to. So, each discipline might be seen as a distinct academic culture with its particular norms and practices (Hyland, 2012). While conducting consultancy services to different institutions, knowledge is presented through academic culture and norms. Thereby, the knowledge management processes mostly focus on how the knowledge is acquired in organizational context, how it is disseminated and transferred to the seekers of knowledge and how individual, group, and organization manage and utilize such types of knowledge to enhance the organizational efficiency and productivity. After the discussion of knowledge management and its dimensions in the academia, I now move on to discuss academic performance and its dimensions under the following headings.

Relationship between Knowledge Management and Academic Performance

Universities conduct academic activities such as teaching, learning, conducting of academic activities, workshops, and seminars along with publication of research findings. According to Steinberger (1993), academic performance is a multidimensional concept related to human growth and cognitive, emotional, social, and physical development. Academic performance is used to enhancing the capacity of individuals in higher educational institutions. Fairweather (1996) and Asif, Merceron, Ali, and Haider (2017) detailed academic performance as activities like teaching and research. They focus on the academic performance of the faculty members as their teaching inside classrooms and conducting research outside the classrooms. After teaching, the next job would be to conduct research activities. It helps them generate new concepts and enhance the capacity of students and faculty members.

The main objective of the academic output is to prepare faculty members and their students for the research activities. Besides this, another objective is to prepare them for delivering the ideas and concepts of research inside classroom along with developing new concepts. University Grants Commission [UGC] India (2010) identified the Academic Performance Indicator (API) into three categories as (1) teaching, learning, and evaluation related activities; (2) co-curricular, extension, and professional development related activities; and (3) research and academic contributions. Their framework highlights both activities of lecturing in classrooms and conducting research activities outside the classrooms. Research innovations inside as well as outside the classrooms help them develop new knowledge. It also enhances the capacity of individuals in the context of educational institutions.

The major objectives of the university are to teach and make active participation of learners along with the faculty members in research activities. They are expected to produce new knowledge which is required to the society and nation, and enhance the individual, and organizational capacity. Hilman and Abubakar (2017) regarded academic performance as students related academic activities and their extra-curricular achievements. Performance is then assessed in terms of structured nature of work, sustainability, productivity, and using teaching and service to enhance research and original creative work in educational context.

Hazelkorn (2015) considered peer review and accreditation as their performance assessment in most of the higher educational institutes. He ignores the other activities in institutions than research. Pinilla and Munoz (2005) took graduation rate as a key component for assessing university performance. In addition to graduation rate, students’ activities, and job market are taken indicators of academic performance. In the context of this research, teaching, learning, research, publication, and capacity building process of faculty members matter for the academic performance. The following sections discuss the different dimensions of academic performance.

Research and Publications

Universities are the hub of production of knowledge because of their involvement in research activities. Collinson and Cook (2004) argued that during academic research projects, the team leader helps and guides the individuals during the work process. Research activities in universities integrate different types of resources such as human capital, financial resources, scientific infrastructure and intangible resources such as knowledge and professional networks to enhance research capabilities among students and faculty members (Abramo, D'Angelo, Di Costa, & Solazzi, 2011). Such research includes various scholarly efforts designed to examine the social phenomenon by obtaining, analyzing, and interpreting data that can guide future research and help in the refinement of necessary ethics, guidelines and policy as well. Research contributions are often made through writing articles, doing presentations, and publishing journals. While some faculty members engage only in research, others may focus on original creative work while the remaining members remain engaged in both activities. All such activities enhance their academic activities inside and outside the institutions.

Knowledge sharing practices in the universities have taken the form of co-authored articles and research publications. This is quite the trend between supervisor and Master's or Doctoral students where the joint publications are generated from the current research topics and new additional information emerges from such contemporary studies. Knowledge management in higher education contributes to knowledge growth (Nawas & Gomes, 2014). Moreover, knowledge management minimizes turnaround time for most of the interdisciplinary research activities. It has also been found that knowledge management develops human capital and enhances responsiveness of the research scholars. Cranfield and Taylor (2008) advised that higher learning institutions concentrate on strategic knowledge management and in such a call, universities and graduates such as engineers cannot escape from the demands of knowledge management.

Innovation

Since the late 1950s, there has been a tremendous interest in the organizational innovation (Slappendel, 1996). Knowledge management in this regard, is taken as a key component and driving force for the organizations to generate competitive advantage on the basis of innovative ideas. Innovation is defined as “the creation of new knowledge and ideas to facilitate new business outcomes, aimed at improving internal business processes and structures and to create market driven products and services” (Plessis, 2007, p. 21). The research by Odumeru (2013) mentioned innovation as a key determinant of organizational performance. Tseng (2009) argued that knowledge management covers the conversion of tacit and explicit knowledge based on Polanyi’s (1966) theory of personal knowledge and (Nonaka & von Krogh, 2009) makes individual innovative. In this regard, Herkema (2003) mentioned that innovation is the process to acquire, share and assimilate the required knowledge to create new knowledge based on the situation and context of organization. Knowledge management is an antecedent and foundation for organizational innovation (Lee, Leong, Hew, & Ooi, 2013) for organizational context.

Knowledge management supports innovation in two ways (Maqsood & Finegan, 2009). First, it helps organizations locate innovative knowledge in the outside world, brings that knowledge inside the organization and effectively incorporates such knowledge into work practices. Second, knowledge management supports innovation by helping organizations to perform more productively. This can be accomplished through knowledge management process that helps an organization to obtain, assimilate and use external innovative knowledge. The theory of SECI developed by Nonaka and Takeuchi helps to transfer innovative ideas among faculty members in academia. Dasgupta and Gupta (2009) argued innovation as the interventions of new methods, techniques, practices or new reformed products or services to thrive the institution and enable to address the issues practically and efficiently.

Interactive Learning

Interactive learning is concerned with the ways of making learning environment effective. Birdsall (2002) stated that "obtaining feedback and ensuring students' participation in large classes are impossible without interactive learning system" (p. 2). The classroom discussion, critical thinking, creative works, student centric classroom, and technology in classroom increase the trends of making the classroom interactive and meaningful. Within classroom, lectures, and presentations may be particularly appropriate methods for sharing theoretical knowledge. If the number of audiences is larger, we can demonstrate it through simulator and other types of interactive elements.

High level of interaction among students leads to the devotion of learners to the process of learning and they spend more time engaging in learning activities (Brown, 2001). Changing pedagogy practices along with the advancement in technology attracts students to gain knowledge form online system as well. However, Badia and Monereo (2005) argued that the process of knowledge building through virtual interaction is not as effective as through face to face interaction because competence among the members is determined by factors like expertise in the use of ICT, effective management of information and resources, skills of communication and collaboration, self-regulation in learning, and time management. These factors affect the strategic use of available knowledge and information in addressing the issues at hand.

A closure examination of Panina and Vavilova (2008) and Panfilova (2009) indicated a changing educational paradigm in higher education. The phenomenon of change in higher educational institutes leads to some novel learning technology and practices (including interactive and student centric) and this orients to the professional development process of students as well as faculty members (Abykanova, Nugumanova, Yelezhanova, Kabylkhamit, & Sabirova, 2016). In an interactive activity, all participants actively participate in learning process (Shishov, Rabadanova, Artemyeva, Tonoyan, & Mezhina, 2018). The entire objective of knowledge management in education is to increase the level of knowledge of students and faculty members through the quality of materials and instructions (Petrides & Nodine, 2003). Knowledge management can enhance the quality of teaching and learning in higher educational institutions.

Capacity Building

The capacity building focuses on overall development of faculty members and their students in an institute of higher education. For academic purposes, building teachers' capacity, ultimately engenders development, growth and excellence within an education system (Egbo, 2011). The capacity building process of faculty members and students is associated with overall development of academic discourses in educational institutions. Particularly, it emphasizes the development of human capital in higher educational institutions. The capacity building is possible through the development of competitive human resources in universities although it is crucial (Sharma et al., 2011). The capacity building helps to accelerate the capabilities of faculty members to enhance their individual skills of conducting research, and field visit study, delivering the lectures within classes, writing up the articles and presenting at the conferences. The capacity building is also associated with the enhancement of intellectual capital of individuals as well. As a result, the capacity building enhances the performance of individuals and organizations leading to high level of output productivity of higher educational institutions.

The academic performance, particularly academic activities are concerned with the faculty members to enhance their capability of conduction of research and dig out the knowledge from such research. It also focuses on how the students can be engaged in such activities and work to enhance their conceptual and practical knowledge. It also emphasizes on how the interactive learning process can enhance in educational context. And how the capacity of both faculty members and students can enhance to prepare them to be more innovative and enhance academic discourses in academia.

Higher Education and Knowledge Management Initiatives in Nepal

The history of higher education in Nepal is relatively short. Higher education officially started in Nepal during the Rana regime in 1918 with the establishment of Tri-Chandra College (Sharma et al., 2011). It has been regarded as the beginning of modern higher educational institutions in Nepal. The development of higher education during that period remained slow because of the lack of willingness of the Ranas (ruled for 104 years in Nepal, i.e. from 1846 to 1951) who were heavily criticized for being against universal education (Khaniya, 2007). However, during 1950s, general public established a number of Liberal Arts, Sanskrit, Science, and Commerce colleges (United Nations Education and Scientific Cultural Organization, 2008).

Universities in Nepal vary in their size, mission, ethos, history, values, and location. After the political reform of 1989, Nepal's higher education institutions underwent major changes. More universities have been established in the country. The concept of mass education has been emphasized. As a result, the number of students as well as colleges rapidly increased across the country leading to a large number of graduates every year.

Nepali higher educational institutions play a significant role in the development of the nation's human capital and the economy in general, particularly after 1989. Investment on education from private sector provided more opportunities for Nepali than never before to pursue higher education within the country. UGC Nepal (2016) revealed that there are total of nine universities in Nepal, namely Tribhuvan University, Kathmandu University, Purbanchal University, Pokhara University, Nepal Sanskrit University, Mid-Western University, Far Western University, Nepal Agricultural and Forestry University, and Lumbini Buddhist University.

Universities in Nepal are getting involved in producing innovative knowledge business. To get innovative concepts and ideas, it demands the supports from the stakeholders of the universities. In some cases, the stakeholders demand high performances of faculty members and graduates. According to Ebersberger and Altman (2013), the universities face challenges of high expectations from stakeholders, global competition, and technological advances. Suciu et al. (2013) considered that universities are centres for knowledge creation to promote knowledge retrieval using appropriate tools and technologies. The effective knowledge management at the tertiary institution ensures the best use of resources available including knowledge itself, which lies in people, artefacts, and organizational entities. The processes that ensure effective knowledge management include creating, capturing, organizing, and storing knowledge at both individual and organizational level.

After the establishment of democracy in Nepal in 1990, the use of IT and ICT is being prioritized. In this regard, the Government of Nepal prioritized IT and ICT in organizations. The Ministry of Information and Communication (MOIC) was the line ministry to formulate and execute the policies regarding IT and ICT. For this, IT Policy (MOIC, 2000) recommended for the inclusion of the computer education in curriculum from school level. The IT Policy (MOIC, 2010) prioritized to assist educational institutions and encourage domestic and foreign training in fulfilling the requirement of appropriate human resources of information technology to enhance organizational effectiveness and efficiency.

Referring to National ICT Policy (MOIC, 2015), it focuses on the ICT in education, research and development, whereas higher education policy of Ministry of Education (2015) focuses on: (i) producing human resources competent enough in the global context, (ii) prioritizing research and development, (iii) establishing higher education research council, and (iv) enhancing the impacts of higher educational studies and research and make it contextually relevant, useful and globally competent. Likewise, the HE Policy by UGC (UGC Nepal, 2015) emphasized on: (i) to promote the access to higher education by regulating, managing and maintaining dignity of the higher education institutions regarding its establishment, operation, regulation and management, (ii) to develop human resource inclined to science and technology, competitive and enterprising for the overall socio- economic development having established higher education as cornerstones of original knowledge and identity considering extension and diversification of school education, and (iii) to make globally competitive citizens with due focus on relevance, usefulness and quality having increased the opportunities for higher education and research.

National Planning Commission (2016) recommended making the higher education accessible, competitive, and researchable. Likewise, as enshrined in the National Educational Policy released by Ministry of Education, Science, and Technology (MOEST, 2019), the goal of education is to develop human resource by making education competitive, techno-friendly, employment-oriented, and productive as per the need of the country.

Formally, the terms knowledge economy and knowledge-based society are used in IT Policy (MOIC, 2000). The policy has drawn the importance of knowledge management and its application in the society and government as well to enhance individual and societal capacity in terms of knowledge and information. In recent days, knowledge management is being prioritized by many institutions of Nepal such as Ministries, Government Agencies, Development Partners, International Government Organizations, National Government Organizations, etc. The government agencies, as well as private institutions, specially banks, hospitals, and other institutions, etc. give high priority to knowledge management for effective and efficient organizational performance.

Knowledge Management in Higher Educational Institutions

Institutions seek effective management of available knowledge to adapt new technology to enhance the intellectual capital of individuals and institutions. Knowledge management in education incorporates academic activities that frame and guide the process of knowledge creation (Koch, 2003). The process of knowledge creation is associated with retrieval, combination and erasing of institutional knowledge. Joseph (2001) argued that knowledge management in academic institutions is associated with creating and sharing of knowledge of individual and institutions. Goud, Venugopal, and Anitha (2006) expressed that higher educational institutions not only provide knowledge to students but also prepare existing knowledge for future reference as well.

Huang (1998) pointed out four major processes of knowledge sharing and collaboration in the context of higher education institution such as making knowledge visible, increasing knowledge intensity, building knowledge infrastructure, and developing knowledge culture. From academic knowledge perspective, the learning institutions start the knowledge generation from individual and departmental level, then share it with other institutions (Galbreath, 2000). Later on, we can use such knowledge to the professional networks and society that enhance to increase the concept of knowledge infrastructure.

Sunalai and Beyerlein (2015) classified knowledge management outcomes into three broad categories including achievement of higher educational mission, improvement of organizational management, and effectiveness of knowledge management in institution. The first two categories are primarily concerned with organizational performance resulting from managing knowledge. The third category primarily examines the perceptions of organizational members towards effectiveness of knowledge management. It helps faculty members to improve the teaching competencies and increase learning culture through the value-added change in teaching and learning process (Mohayidin et al., 2007; Arsenijevic, Tot, & Arsenijevic, 2010; Cranfield, 2011). Teaching and learning process can be enhanced through knowledge sharing activities among all members of institution. Knowledge management improves accessibility to scholarly communication such as informal communications about initial research, formal publications, and technical reports (McCarthy, 2006). Knowledge management also increases the research collaboration across universities resulting in an increase in the number of research projects and publications (Cranfield, 2011).

The study of Yeh (2005) on implementation of knowledge management system in Taiwan's higher education developed a framework for knowledge management in higher educational institutions. The study identified culture, leadership, and technology as key components for measuring the strategies of knowledge management. Good planning and proper procedures are required to maintain the knowledge management ecology with academic and organizational strategies. Lodhi and Mickulecky (2010) considered knowledge as the most important asset of universities and its proper application is extremely important.

Hoeborn and Bredtmann (2009) ascribed mentoring as a fundamental function for knowledge management in higher education. These researchers highlight that the actual task of tertiary institutions is to teach the students and conduct research to create new knowledge. They further argued that students need to acquire knowledge and skills relevant for their professional sphere and job opportunities. Appropriate mentoring enhances students’ chances of success. Cawyer, Simonds, and Davis (2002) reiterated that mentoring provides professional socialisation and personal support to prepare for the job market. In this way, universities create space for research and innovation through robust mentoring to nurture research culture that stimulates the passion for learning. The research space created in universities provides a way out to the increased pressure arising from globalisation craving for innovations.

Such an environment in universities creates a sense of competitiveness among students and faculties alike in many research universities.

Universities are diverse institutions with different backgrounds, cultures, and resources (Cranfield & Taylor, 2008) performing different academic activities. There are several issues that promote or alternatively hinder knowledge management implementation at tertiary academic institutions. The universities face a more interconnected world where knowledge and innovations are essential elements. In higher education, globalisation encourages universities to think about the most innovative ways they teach, conduct research, and manage institutions (Cranfield & Taylor, 2008). Institutions simultaneously face external pressure due to globalisation that requires massive production of expert knowledge. A typical consideration driving knowledge management efforts in higher education includes managing intellectual capital in the workforce.

One of the objectives of this study was to explore the meaning of knowledge management as it is applied to universities in supporting and ensuring effectiveness of institutions. Suciu et al. (2013) argued that the source of sustainable advantage for universities exists in the knowledge and skills of human resource available in universities. Hence, universities are responsible for produce, transmit, and disseminate knowledge. Sohail and Daud (2009) observed that knowledge management in higher education promotes and establishes an innovative and learning culture which results in the development of new concepts. These ideas and concepts are developed through research using appropriate technologies.

Mikulecky and Mikulecka (1999) addressed the role of universities in managing knowledge as components of sustainable environment. Furthermore, their research informs the role of knowledge management as: (i) universities always adopt newer technology and IT infrastructure, (ii) the infrastructure is used to share the lectures among stakeholders especially with students, and (iii) the concern of the students seems to acquire knowledge by using such types of infrastructure. Universities are organizations of a large number of intellectual people and the knowledge and innovations that they create make life better by adopting latest available technologies. Appropriate technology increases the performance and academic excellences of the graduates as well.

Knowledge management is indicative of advancement in teaching and learning process, research process, curriculum development, administrative services, and business strategic planning (Sallis & Jones, 2002; Metaxiotis & Psarras, 2003; Chen & Burstein, 2006). Knowledge management also involves knowledge sharing (Sohail & Daud, 2009), problem solving processes (Hoveida, Shams, & Hooshmand, 2008), improvement in research output (Moss, Kubacki, Hersh, & Gunn, 2007), roles and effects of knowledge management technologies on education (Kebao & Junxun, 2008). It reflects that higher educational institutions have a propensity to play a significant academic role in the communities.

The intellectual and economic capital can be enhanced through proper usage of knowledge management in institutions. Academic institutions such as universities serve as agents for sources of technological knowledge, knowledge providers, and human capital development for individuals and businesses (Brewer & Brewer, 20l0). Ranjan and Khalil (2007) demonstrated that universities build and develop a healthy environment to access, share, and manage knowledge within institutions. Knowledge management helps institutes of higher education construct a consortium of information and experience making available to seekers of knowledge.

Academic institutions, particularly higher educational institutions like the universities and colleges are seen as 'centre of knowledge hubs', where diverse academic activities discourses are carried out for the generation, diffusion, application and preservation of knowledge. Faculty members, students and researchers are integral parts of the academic institutions. They are engaged in academic activities to enhance the academic discourses. Knowledge management plays an important role to improve the organizational competitive advantages. By sharing of the best practices, achieving better decision making, and faster responses to the key institutional issues, better process handling and improvement of the skills of the people in institution enhance the performance. In general, higher educational institutions form policies in compliance with institutional goals, objectives, improved academic and administrative services, the ability to access information more quickly, reduced costs, and prevention of mistakes and failures. The dearth of knowledge management initiatives and practices are basically caused because of lack of cultural sharing, awareness of the benefits of knowledge management, and a failure to integrate knowledge management into everyday working practices (Bhusry & Ranjan, 2011).

Universities and colleges are key institutions of society for the constant pursuit of knowledge. Knowledge management in educational settings provides a set of designs for linking people, processes, and technologies and a space for discussion on the issues of promoting policies and practices to facilitate people to share and manage knowledge (Petrides & Nodine, 2003). Normally, a higher educational institution generates two types of knowledge: academic and organizational. Academic knowledge drives academic excellences while organizational knowledge relates to business processes and activities. Organizational knowledge includes its strength and weaknesses (Coukos-Semmel, 2002) to enhance the intellectual capital of individual and organization.

Empirical Studies on Knowledge Management in Higher Education

Quite a significant number of empirical studies are now available on knowledge management in educational institutions. Rowley (2000) highlighted existing facilities like libraries, electronic collection of learning materials, network for email communication, and MIS which influence academic performance of an educational institute. The scholar also found that strengthening of the communication network, particularly the MIS enhances the performance of graduates and faculties as well. Emphasizing this idea Aharony (2011) argued that knowledge sharing process among the students and the instructors has a positive significance in the performance in academia. The scholar concludes that knowledge management is a key indicator to measure academic performance. This study develops the criteria for measuring assessment and technology adopted in institutions. And it supports the fourth driver of the knowledge management as well as the contextual and input process of the teaching and learning process of higher educational institutions.

Furthermore, Ahmadi and Ahmadi (2012) conducted a research on the impact of knowledge management in Shshtar University, Iran and concluded that institutions of higher education benefit from knowledge management. For this process, the universities have adopted the processes like creating and maintaining the knowledge repositories, improving the knowledge access, enhancing knowledge environment and valuing knowledge among the stakeholders of the University of Shshtar. It depictsthat the universities are the hub of knowledge centre and knowledge management is essential to share and disseminate the knowledge among the users. Rusuli, Tasmin, Takala, and Norazlin (2012), in their study at a Malaysian university also address these issues and come to similar conclusion. In their study, they developed a model to measure the satisfaction of library users through the knowledge management practices. As a factor variable, they took six components of knowledge management practices such as knowledge creation, acquisition, capture, sharing, recording, and preserving. They found that there was a significant relationship between knowledge management with satisfaction of the library users.

Thapa (2013) found that there was a great sense of trust because of free and open communication among the scholars. The study focused on the knowledge management process and knowledge sharing process among 60 research scholars. This study also added value on the communication process of knowledge management. This process represents knowledge sharing state and is very important during knowledge dissemination. Likewise, in a study carried out in the UK, Cranfield and Taylor (2008) found that HEIs leadership is slowly prioritizing knowledge management, and the management structure of university. They reported that it affects its ability to respond quickly to external influences and pressure. The study identified correlation between the history of institution and its ability to respond to the challenges. The leadership quality directly influences the implementation and the investment on the IT infrastructure in HE. It is the basic requirement to start the knowledge management process in teaching and learning process of HE.

The research on the impact and role of knowledge management system in the higher education institution was done by Ramakrishnan and Yasin (2012) in Malaysian university. Particularly, they focused their research on the administrative part of the university where the infrastructure of IT and ICT were kept as the main functional building of the Knowledge Management System (KMS). And they concluded that KMS helped the institution improve administrative services related to teaching and learning process by using technology, and improved responsiveness of authoritarian body. It emphasizes that KMS could help to incorporate the roles and responsibilities during delivering knowledge and application process of any subject matter. Most importantly, it was used to measure the performance of students in their subject matter and way of solving the problem they faced. They also found that it was very helpful to increase the level of knowledge of students and the methodology focusing on the student centric pedagogy as well. It means that KMS could be the best tool to deliver knowledge and problem-solving techniques for the students and the faculties during their learning and research process, and it can directly impact on the social value and job market as well.

In their study on relationship between the knowledge management and HE, Yaakub, Othman, and Yousif (2014) came to similar conclusion. They reported that knowledge management helped students and faculties increase the efficiency and effectiveness of the organization, an indicator of the organizational performance. They argue that knowledge management including the IT infrastructure is one of the key factors for producing competent graduates. Likewise, Nasiruzzaman, Qudaih, and Dahlan (2013) stated that there is a strong relationship between knowledge practices, leadership, ICT infrastructure and organization to improve the performance of the organization. This justifies that if we want better performance of higher educational institutions, we can align with knowledge practices, leadership, and ICT infrastructure during teaching learning and learning.

Similarly, Mohayidin et al. (2007) conducted a research on knowledge management practices in Malaysian public and private universities. Based on 685 responses, the research concluded that knowledge generation, storage, dissemination and reuse are very helpful during the teaching and learning process. The research also recommended that there was strong relationship between knowledge management with teaching and learning along with the research process. The study conducted by Zwain, Teong, and Othman (2012) found the significant relationship between knowledge management and academic performance in Iraqi HEIs. Baroniyas, Gadge, Baroniya, and Vyas (2014) did research in India to measure the status of the academic performance of teachers. They found that the academic performance of the college teachers is determined by the practices of knowledge management.

A study carried out in a university in Kuwait, Al-Qarioti (2015) concluded that knowledge management has a positive and significance influence on the organizational performance. The study results showed that knowledge acquisition, information technology, and knowledge organizationhave a significant impact on organizational performance. Identically, Anduvare (2015) revealed practices of knowledge management at Marist International University College, Nairobi, Kenya. The study found that knowledge management is not undertaken formally; leadership takes initiation for knowledge management but often financial constraints hinder the progress. Al-oqaily, Hassan, Rashid, and Al-sulami (2014) investigated the success factors of knowledge management in the universities based on the data from Jordanian private universities. They established that the Jordanian private universities have mentioned important factors of knowledge management implementationfor organizational culture, effective and systematic processes, knowledge measurement, knowledge organization and knowledge system infrastructure.

Another study of Hoq and Akter (2012) explored the role of knowledge workers in universities. They established that universities are the highest centres for knowledge creation through learning, teaching, research and innovation. Their findings indicated that the role of knowledge workers is significant in the sense that universities build information infrastructure and create healthy atmosphere to conduct various knowledge management activities by promoting knowledge creation, sharing and application. Through appropriate knowledge management, universities can bring about enormous changes in university's organizational cultures and individual behaviors relative to knowledge. In a study on enhancing knowledge retention at University of Zambia, Wamundila and Ngulube (2011) established that the core academic functions at university of Zambia such as teaching, research, curriculum development, and academic citizenship are facilitated by knowledge management. A research of Mohayidin et al. (2007) indicated that infrastructure capacity; info-structure support; info-culture; and knowledge acquisition, generation, storage and dissemination are crucial factors in shaping the knowledge management initiatives in Malaysian universities.

A study conducted by Mohayidin et al. (2007) confirmed the application of knowledge management in enhancing the performance of Malaysian universities. The main objective of the study was to assess the level of knowledge management practice among the academics and to determine the factors contributing to the effectiveness of knowledge management practices. Notably, the study by Wamundila and Ngulube (2011) established that knowledge acquisition, creation, sharing, and application sustained knowledge management practice at university of Zambia. Some of the knowledge creation strategies adopted by this university included training and development, brainstorming, interviews, expert systems, subject matter experts, and after-action reviews. The study also revealed that knowledge practices at this university included Community of Practices (CoPs), knowledge repositories, mentorship, coaching, story-telling, phased retirement, succession planning, orientation, and job rotation.

In the same time, Elrehail, Emeagwali, Alsaad, and Alzghoul (2018) stated that innovation in higher educational institutions is considered as the ability to implement a new proactively reinforced organizational method, process, and product which has a significant effect on the activities of higher educational institutions and its stakeholders. Knowledge management improves the level of competence and knowledge shared by institutions (Suryadi, 2007). There is a need for higher educational institutions to provide materials for familiarizing people (teachers, students, researchers, and industry and external business entities) with advances in technology (Sunalai & Beyerlein, 2015). Two different dimensions of knowledge management have been identified in higher educational institutions. 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, and links to research centres (Lin, Hou, Wang, & Chang, 2013). Bhusry and Ranjan (2012) argued that knowledge management 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.

The past studies tried to dig out the importance of knowledge management in the higher education system. Some of the studies focus on the knowledge management along with enablers such as leadership, culture, and technological infrastructure to enhance the academic activities within educational context. I did not find any study in relation to knowledge management and academic performance by identifying the predictors of knowledge management and academic performance to link their associations to enhance the academic activities and discourses to enhance the intellectual capital of individual and institution by creating new knowledge with in educational context. Furthermore, it is important to make the faculty members of HEIs more innovative to develop the overall knowledge economy of a country through maximum utilization of the technological advancement of this century.

A close examination of available studies on interrelationship between knowledge management and academic performance indicates that knowledge management practice in the academia is getting high priority these days. Majority of studies concluded that knowledge management is enhanced by enabling students and faculties to use technology efficiently. Efficient use of available technology enhances organizational efficiency and productivity. However, the area of knowledge management and its impact on academic performance is under-studied in the context of Nepali academia. In this context, this research aimed at examining the interdependencies of knowledge management and academic performance in higher educational institutions of Nepal.

Conceptual Framework

This study was carried out under the theoretical assumptions of knowledge creation and organizational epistemology. These two theories inform the researchers on the issues raised in this study, i.e. creation of knowledge at individual, group, and organizational levels; and the connectionist approach as a foundation of organizations' system to enhance academic performance of higher educational institutions. The conceptual framework of this study is presented in Figure 1.

The knowledge creation theory aims at understanding how knowledge is dynamically created within an organization (Takeuchi & Nonaka, 2004). This theory relies on an assumption that tacit and explicit knowledge is created through social interactions. Tacit knowledge has a cognitive dimension such as mental models and conceptual frameworks (Nonaka, 1994). It can be described as experiences, know-how, competencies, or skills. Tacit knowledge is difficult to document. In contrast, explicit knowledge comes in the form of the documents, formulas, contracts, process diagrams, and manuals (O'Dell & Hubert, 2011).

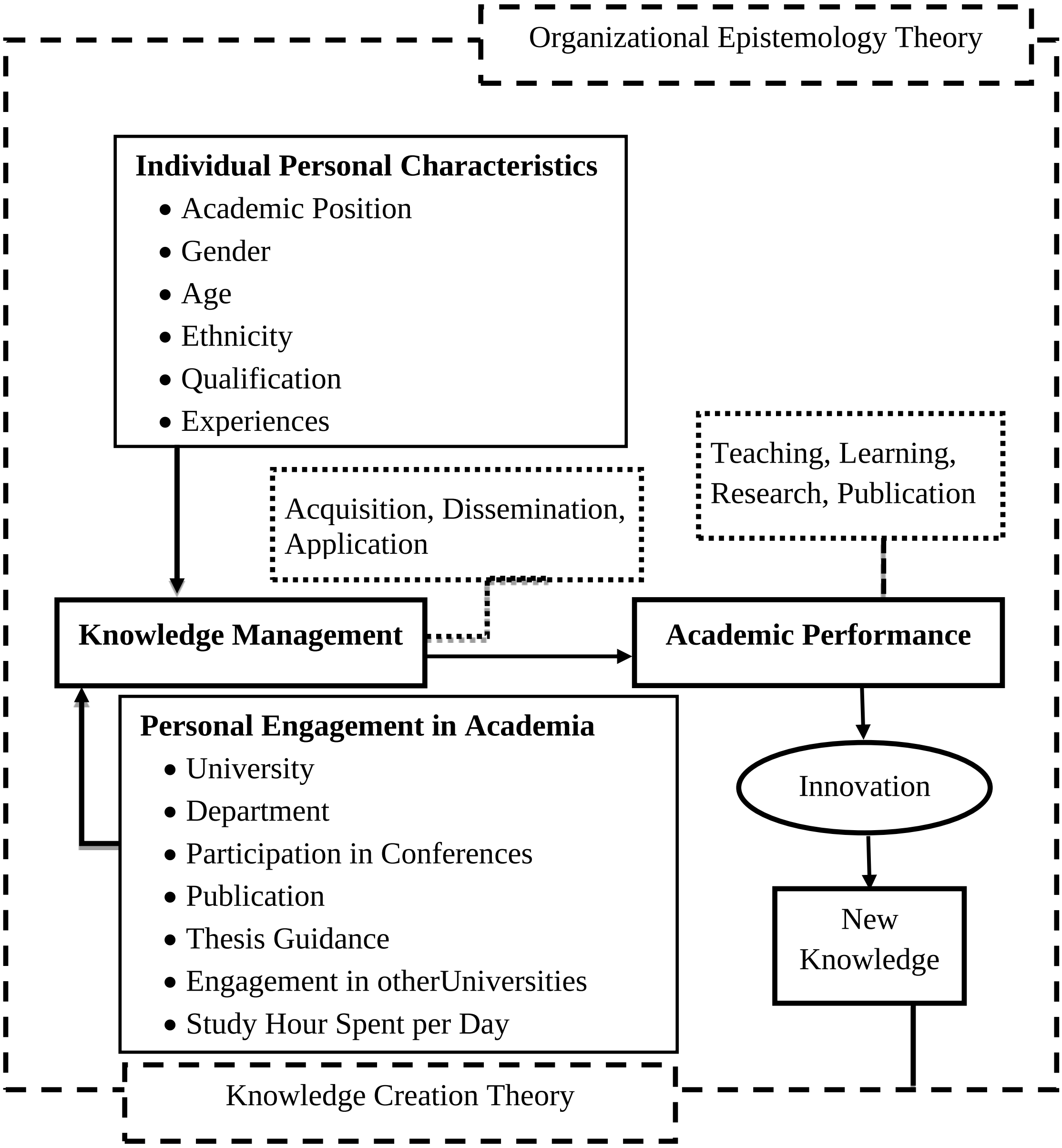


Figure 1. Conceptual Framework

The theory of organizational epistemology provides a theoretical corner stone for a systematic and organization-wide knowledge management model used in organizations. This theory involves interactions of the individualized and socialized organizational knowledge as well as impediments to organizational knowledge

(Dalkir, 2013). These theories also provide the lens to develop the conceptual framework of this study.

The knowledge management in educational institution reflects how higher educational institutions increase their performance by using the knowledge management approach to their academic activities. The academic performance associated with an organization can be influenced by knowledge management processes. The knowledge management process displays the flow of knowledge in conjunction with tacit and explicit knowledge within higher educational institutions. The knowledge management practices and academic performance differ as per the different demographic variables of faculty members of HEIs. The higher educational institutions have looked for ways to continuously transform themselves into learning organizations in which their individuals and groups can increase their performance improvement (Marquardt, 2011) for a society and individual.

The university as an organization for learning refers to an organization where all the members learn collectively and effectively and that transform the knowledge through the use of organizational knowledge and resources. The learning in the universities can take place at three levels such as individual, group, and organizations. Individuals are the basic unit of groups and organizations. The individual learning includes changes in knowledge, attitudes, and skills acquired through self-study, technology-based instruction, and observation. On the other hand, the group learning or interaction refers to an increase in knowledge, attitudes and skills accomplished by and with groups. At the meantime, the organizational learning represents the enhanced intellectual and productive capacity gained through shared commitment (knowledge, beliefs, or assumptions of members) to the organization.

The overall concept of creating knowledge within institution to enhance the intellectual capital of individual and institutional is determined by the knowledge creation process environment of the institution. This knowledge creation is impacted by the organizational culture, environment, leadership qualities, and the infrastructure of IT and ICT. The production of new knowledge through the knowledge creation process makes the faculty members more innovative and constructive to enhance the academic activities and discourses to enhance the knowledge economy.

Chapter Summary

This chapter has explored the importance of data, information, and knowledge in universities. It also explored how the knowledge management and academic performance is being practiced in higher educational context. The knowledge management processes and systems were discussed in detail, together with their relevance to higher educational institutions in relation to academic performance of their faculty members. This chapter also drew an importance of knowledge management in higher learning institutions through analysing previous findings and their critical analysis. This chapter further provided a conceptual framework of current studies based on the concepts, ideas, and linkage of theories to test the hypotheses and the findings of the study.

CHAPTER III

RESEARCH METHODOLOGY

This chapter presents the research methodology adopted for this research. Initially, I have conceptualized the methodological insights required for this study. Then making my epistemological and ontological stands explicit, I developed the research design under cross-sectional survey. This chapter also contains the study population, sample and study site selection, data collection tools, data analysis, and interpretation methods and procedures of the research. Then, I discuss the validity and reliability of my survey. The chapter concludes with the ethical considerations of research.

Philosophical Consideration

Research philosophy has greatly helped me in shaping the research design. There were both the personal and social philosophical premises that acted as stimulators for me to undertake research under this particular topic. A researcher needs to have clear understanding of research philosophy and its underlying ontology, epistemology and methodology before initiating any kind of study (Cohen & Manion, 1994). This concern is also important for me since a clear understanding of underlying assumptions of research paradigms (quantitative, qualitative, and pragmatist) and research philosophies help to select appropriate methods for analyzing research problems throughout the study (Mertens, 2015). Research philosophy, therefore, has greatly helped me in shaping the research design.

In search of relevant research philosophy and methodology for this study, I realized the appearance of contrasting viewpoints among the researchers regarding knowing the realities. I found that the research communities are divided into two groups: post-positivists and non-positivists. The post-positivists argue that the material world is major ontological position, which seeks a universal truth and can be measured precisely through experiments and surveys. On the other hand, non-positivists diverge from this view; and for them; truth is multiple and differs with time and context (Cohen, Manion, & Morrison, 2007; McLaughlin, 2012; Cohen, Manion, & Morrison, 2018). Both views have their own stances and logic, and are used while conducting the academic research.

This study was carried out following quantitative research design as it was associated with what Creswell (2013) suggested as, “post-positivist philosophical assumptions” (p.12). Three elements of the post-positivist philosophical paradigm (ontology, epistemology and methodology) are discussed in relation to the issues raised in this study. For this research, ontological assumptions lead the epistemological assumptions, methodological considerations, issues of instrumentation and data collection (Cohen et al., 2018). Thus, the result from the data regarding the knowledge management practices of the faculty members of higher educational institutions of Nepal describes the nature of reality in this study.

The reality is based on the statistical results yielded from the data that are supposed to be free from the researcher to some extent. Then, the reality has been, by nature, single and external to the researcher, which was the ontological assumption of this study where the ontology is the degree of relationship between the knowledge management and academic performance of the faculty members of higher educational institutions. Creswell (2003) suggested that ontology involves people making claims about what is knowledge; epistemology is how people know; axiology is what values go into it; and methodology is the process of studying. The relationship between knowledge management and academic performance of faculty members can be measured and explained objectively.

Epistemology for this researcher was to inquire the nature of knowledge and truth (Chilisa & Kawulich, 2012). The epistemological assumptions of this study were the attitudes of the faculty members' knowledge management practices and academic performance could be acquired through empirical observation and measurements. Concerning empirical observation and measurement, the findings were revealed on empirical observation and measurement of knowledge management practices among faculty members in relation to their academic performance. Therefore, it was the objective way of data collection and communication of the knowledge. The collected data, therefore, were independent of researcher's value, interest, judgement, and feelings.

In this study, the research issues about the faculty members' knowledge management practices in higher educational institutions were deduced into specific research questions and then, the questions were further theorized into hypothetical statements for testing. Axiological philosophical premise was used by me to assess the role of the researcher's own value judgements in all the stages of the research process (Li, 2016). This research process was based on deductive reasoning which is the process of this field-survey study. After the result, I used fundamental theories in this study: Nonaka's (1994) knowledge creation theory is used to discuss the research findings.

Accordingly, the ontological and epistemological position, as discussed above, guided me to develop the research methodology adapted for this study. My axiological stand guided the procedures and techniques of analyzing and interpreting data (Long, 2014). Overall, post-positivism paradigm, involving a part of other contextual philosophical premises, was used to apply the theory and predict the results while also finding the strength of the relationship between knowledge management and academic performance.

Research Design

This research design is based on the cross-sectional survey of faculty members of higher educational institutions in Nepal. This research design was adopted to make data collection process more relevant for assessing the practices of knowledge management by university faculty members of higher educational institutions. The research design followed the descriptive approach for predicting and explaining the practices of the knowledge management along with research and publications, innovation, interactive learning, and capacity building. Furthermore, exploratory approach was employed wherever the need arose to better understand the correlation between knowledge management and academic performance.

The overall data analysis approach is quantitative predominantly used to test the theories and hypotheses. Both dependent variables; dimensions of academic performance and independent variables of knowledge management were measured and analyzed objectively by using statistical instrument (Creswell, 2013), specifically the computer-based Statistical Package for Social Science (SPSS) and quantitative application software (Muijs, 2010). The research design also considered the reiteration of data analysis by checking validity and reliability of instruments throughout the analysis process.

I have followed survey method to accomplish this study establishing the rationale and giving valid and objective descriptions. One of the rationales for the quantitative method is that the study entailed collecting data from the research respondents using a structured questionnaire (Ngulube, 2015) to analyze and investigate the educational issues (Borg & Gall, 1989). I used Yamane (1967) formula to determine sample size, and used random sampling technique for the representativeness.

Instrument and Scale Construction

As questionnaire is a basic instrument for a survey research, they need to be scientific, contextual, measurable, and understandable. In this study, the questionnaire included four sections: first section covered the introductory part and included the personal information of the respondents. The personal information of the respondents was categorized as academic position, gender, age, ethnicity, qualification, experiences, university, department, publication, thesis guidance, participation in conferences, engagement in other university, and study hours per day. The second section raised 36 Likert scale questionnaires of the knowledge management. The third section raised 23 Likert scale questionnaires of the academic performance. Similarly, the fourth section has raised one open question.

This study has presented the steps and processes of tools development to measure knowledge management. Developing absolutely effective tools to measure knowledge management and the academic performance was difficult. Objective of the steps and process of tools development were disclosed to make the questionnaire contextual in Nepali higher educational context.

The Delphi method is a popular process to achieve consensus on the important issues or complex social problems with the help of subject experts and practitioners in the particular field (Linstone & Turoff, 2002). Paudel (2019) argued that the Delphi is widely adopted method developed in social science research. The Delphi process generally includes in-depth interviews with practitioners in the field (grounded), written interview, open-ended questions, and panel discussion with experts. This process helps the researcher to identify underlying dimensions to measure particular social construct or concept. After Keeney, Hasson, and McKenna (2011) believed that the items scoring high percentage rating retains to measure the experts' views. So, I retained the items of those views with high weightage. Linstone and Turoff (2002) stated that the process may also vary based on the complexity of the subject matter. For example, there may be one in-depth interview with a few experts or several in-depth interviews with experts representing from different professional arena.

The items to measure knowledge management and academic performance were difficult. In the same line, Paudel (2019) argued that the Delphi process carried out the local knowledge, norms and values in the social context. Contextually developed items can better represent the ground reality of the knowledge management practices (Linstone & Turoff, 2002). In this regard, Campanelli (2008) advised three steps in tools development such as literature review, experts' consultation, and understanding of participants' cultural and language issues while developing the survey questions. However, recognizing the expert was a difficult task and the development of questionnaire was a qualitative process. Yet, three steps were followed to collect the measurable items of knowledge management practices; literature review, open interviews and panel discussion. Later on, some rounds of tools verifications were also followed. The steps of the tools' development have been defined as:

Step I: Books, journal articles, working papers, research reports, and empirical studies of knowledge management and academic performance in the contexts of higher educational institutions were reviewed.

Step II: Open interviews with knowledge management experts and practitioners to identify the contextually measurable items of knowledge management and academic performance were conducted. Guzys, Dickson-Swift, Kenny, and Kenny (2015) suggested selecting the participants on the basis of their experience and knowledge.

Step III: Guzys et al. (2015) opined that such a panel discussion was a part of Delphi. Therefore, a panel discussion consisting of a team of experienced experts and role players in the areas of knowledge management sector was conducted. Dew and Xiao (2011) also argued that the panel discussion among the experts help in assuring face and content validity.

Step IV: Collecting the items

The Delphi process was adopted to understand the deep-rooted concept of social construct on particular issue (Keeney et al., 2011), where identification of the research problem was the first and the most important step. The experts and the practitioners involved in the process helped the researcher to identify the underlying dimensions and indicators of research problem or social construct. Comprehensive reviews of literature in local and global contexts and in-depth individual interviews with the practitioners in the field are needed to identify research problems. I conducted individual interviews with professors and the faculty members of higher educational institutions of Nepal after finalizing the research proposal. The in-depth interviews were conducted with five professors and three faculty members of different universities of Nepal along with three practitioners of knowledge management. The interviews focused on two major areas of my study: (1) How are the faculty members practising their knowledge of knowledge management in higher educational context? and (2) How are the faculty members enhancing their academic excellences in their academic career?

With the help of the field interviews and literature, I, followed the Delphi process, prepared the questions to be asked to the experts and practitioners in higher educational institutions. Invitation letters explaining the Delphi process and requesting to participate in the Delphi were sent to 32 experts and practitioners applying purposive sampling technique. Open ended questions related to the knowledge management practices and the academic performance measurement of the faculty members were sent to 32 experts requesting them to provide written answers through email. Out of 32 experts, 19 provided written answers and three provided verbal answers (face to face and telephone interviews). The written answers provided by the experts were read several times and segregated into different dimensions and items of measuring knowledge management practices and academic performance of the faculty members of higher educational institutions of Nepal. The collected answers, which were prepared with the help of information collected from the field and available literature, were then analysed to measure the knowledge management practices and the academic performance of the faculty members of higher educational institutions of Nepal.

The in-depth interview, literature, and written responses from the practitioners identified 42 items of knowledge management under four dimensions of knowledge management and 26 items of academic performance under two dimensions of academic performance. The identified items were developed into statement and sent to the experts and the academicians for rating. Keeney et al. (2011) mentioned that if 70% or more expert panels come into agreement on the importance of the statement, it is considered as consensus level. I have retained the items scoring more than 70 percentage of total rating under strongly agree and agree category. Other items were removed. All the dimensions have more than 70% weight, so all the items were acceptable.

The experts and the practitioners were invited as participants for panel discussion to provide their views on the topic to be researched. The participants agreed that the way of practicing knowledge management practices of the faculty members of higher educational institutions of Nepal is different from each other. The participants advised some revisions in the questionnaire as currently available performance measurement tools were not complete. Their inputs in the panel discussion were noted and recorded after getting the consent from them. The identified indicators from the grounded data including experts' views and insights received from panel discussion were compared with literature and categorized these into different dimensions of knowledge management and academic performance. Out of 59 items identified through the Delphi; 36 items were categorized under the three dimensions of knowledge management (acquisition, dissemination, and utilization) and 23 items were categorized under the two dimensions of academic performance (teaching & learning and research & publication).

I developed 7-point Likert scales from the indicators identified from the expert interviews (grounded) and literature to measure the knowledge management practices and the academic performance of the faculty members of higher educational institutions of Nepal. There is a debate among the researchers concerning the optimum number of choices in a Likert scale. Some researchers argue that the reliability and validity of an instrument is not affected by the number of scale points used in the Likert items (Mattel & Jacoby, 1971). They argued that high scale points of Likert scale increase the reliability of tools. There are some researchers who prefer scales with 7 items or with an even number of response items (Cohen, Manion, & Morrison, 2000). On that account, the researcher followed the 7-point scale to develop a questionnaire for this study. The 7-point scale ranges from (1) Very untrue for me,

(2) Untrue for me, (3) Somewhat untrue for me, (4) Neutral, (5) Somewhat true for me, (6) True for me, and (7) Very true for me. Incorporating the inputs received from the above process of development of tools, I then changed the set of questionnaires and took them to my supervisors in order to give it a final shape. I then took this questionnaire to conduct the face to face interviews with the faculty members. During interviews, I asked the respondents to express their understanding of each question. I took the notes if the respondents understood the items clearly. The unclear items were re-phrased and rewritten. The respondents were also asked their understanding after rephrasing the statement. Some of the items are negatively quoted and while coding to SPSS, I have coded them positively. The items were translated into Nepali in order to prepare the tools for the pilot testing.

Study Site, Population and Sample

The population of this study primarily comprised of all the faculty members (professors, associate professors/readers, and assistant professors/lecturers) working at the schools/faculties of Humanities, Education, Management, and Science. The faculties were from Tribhuvan University, Kathmandu University, Purbanchal University, and Pokhara University. Total 857 faculties working in the schools/faculties were the population of the study (Table 1). The sampling frame of this study was the list of the number of faculties working at centrally located constituent campuse/department/school/faculty of the four universities, i.e. central campuse/department of Tribhuvan University located to Kritipur; Dhulikhel and Kathmandu valley located school of Kathmandu University; central campuse/faculty of Purbanchal University; and central campuse/department of Pokhara University of Nepal. As the population of the faculty members (professors, associate professors/readers, and assistant professors/lecturers) of the universities was large and widely scattered, the centrally located constituent campuses of the four universities were selected for their representativeness (Bhattacherjee, 2012; Cohen et al., 2018). The names of the universities were mentioned as A, B, C, and D for ethical reasons.

Table 1

Population of Study

University	Department/School								Total (N)
	Humanities/Arts		Education		Management		Science		
	N	%	N	%	N	%	N	%	
A	362	61.5	107	18.2	28	4.8	92	15.6	589
B	25	17.0	15	10.2	24	16.3	83	56.5	147
C	19	25.7	9	12.2	26	35.1	20	27.0	74
D	11	23.4	0	0.0	36	76.6	0	0.0	47
Total	417		131		114		195		857

(UGC, 2016)

Then, the sample size was determined proportionately from each university considering the total population of each faculty/school (Alvi, 2016). The sample size was calculated by applying sampling formula of Yamane (1967):

n = N/(1+N* ∝^2)

Where,

n = Sample size

N = Total population

α = Level of significance = 0.05

This formula was applied to identify the sample size of four universities individually. In case of TU it was calculated as;

No = 589/(1+589* (0.05)^2)

No = 233 faculty members of university A,

This process of calculation of sample from each university by using the same formula was applied to remaining three universities (Cohen et al., 2018). By calculation, 233 faculty members from university A, 107 from university B, 63 from

C, and 42 from D were the sample size of the study (Table 2). Therefore, the total 445 faculty members were the sample size of the study.

Table 2

Sample of Study

University	Department/School								Total (n)
	Arts/Humanities		Education		Management		Science		
	n	%	N	%	N	%	N	%	
A	143	61.5	43	18.2	11	4.8	36	15.6	233
B	18	17.0	11	10.2	17	16.3	61	56.5	107
C	16	25.7	8	12.2	22	35.1	17	27.0	63
D	10	23.4	0	0.0	32	76.6	0	0.0	42
Total	187		62		82		114		445

After finalizing the sample size, an official letter from Kathmandu University was obtained to request the concerned schools/campuses of these four universities of Nepal to support in course of my research. Then I visited the field and obtained the prior informed consent from each department/school of the universities and decided the date and time of my visit. In the visit, required number of faculty members was selected randomly by lottery method with the help of head of department and program coordinator of respective department/school.

Pilot Study and Data Collection

I administered the constructed tools before finalizing the questionnaire among the faculty members of different universities particularly from university A and B in small scale for a pilot testing. The different researchers (Lackey & Wingate, 1998; Hertzog, 2008) mentioned that 10 percent sample was needed from the total number of the final sample to estimate the reliability of the scale. Thus, I took 49 sample respondents while conducting the pilot test and established the internal reliability of this scale. Those faculty members were not included in the survey study. These scales were administered among those faculty members of university A and B, who were not involved as the sample respondents for the study. From the observation of the pilot study, no any serious issue was found. This study confirmed that the main study was feasible to complete within a given period. Furthermore, the pilot study ensured that the survey through a questionnaire was appropriate to address research problems and research questions of the study. I moved ahead with the data collection procedures after confirming the final set of questionnaires developed through the google-form. Then, I proceeded towards the collection of data for the final survey.

First of all, I managed to prepare a list of the respondents with the contact numbers and meetings were requested with them. The survey was conducted in the group meeting according to the schedule provided by the respective constituent colleges of the university. In each survey, I requested the participants, who were selected as a sample of my study, to fill up the questionnaire to confirm self-enumeration of the data by the researcher reduces the non-response error, incomplete response, the cost of data collection, and helps in maintaining secrecy of sensitive issues (Weisberg, 2009). As I collected the data, the research has opened two options to respond to the questionnaire, either to fill up the printed copy of the questionnaire or provide the information through e-mail by using google form that I developed.

Initially, I went to the Faculty of Arts/Humanities of University A, considering 143 sample size randomly. Out of 143, eight respondents filled-up the questionnaire immediately and returned them to me at the same time. The 12 respondents responded by email. I collected remaining questionnaire from 98 participants and made multiple visits with concerned respondents. Out of 143 questionnaires, I was able to collect only 118 questionnaires, for remaining 25 respondents I adopted the random sampling (excluding the previous list of participants) from the population. Then, I provided the questionnaire to them. The same process was applied for the other three faculties, namely Education, Management and Science. Out of 43 respondents from Faculty of Education, six responses were instantly collected from them during my first visit. I was then able to collect six responses via e-mail. For the remaining 31 responses, I made multiple visits. In the case of the Faculty of Management, I was able to collect all 11 questionnaires in my first attempt. In case of Faculty of Science, I was able to collect nine of them at the first attempt, eight questionnaires by email and remaining 19 questionnaires during my repeated visits to the field.

Then I visited the central campus of university B, and distributed questionnaire to 61 the respondents of the School of Science. Out of 61 questionnaires, I instantly received 12 responses and 12 through e-mail. The remaining 37 questionnaire were collected during my repeated visits them. I visited the School of Management of University B. I provided 17 questionnaires to the participating faculty members. Out of 17, five responses were received by e-mail and 12 were collected directly during my repeated visits. I adopted the random sampling process to choose 18 faculty members of School of Arts/HumanitiesI was able to collect five responses during my first attempt, four responses through e-mails and nine responses were received in the next visits. In case of the School of Education, there were 11 participants, of whom I was able to collect nine responses at the first attempt and two through their e-mails.

I then visited the central campuses of the University C. At first, I visited the faculty members of the Faculty of Arts/Humanities and applied the random sampling process leading to the selection of 16 respondents. Although I was not able to receive any of the responses at the first attempt, six participants responded by email and I received the remaining 10 responses during my second and third visits. In case of the Faculty of Education, all eight respondents were able to submit their responses at the first attempt. Applying the similar random sampling method, I selected 22 respondents from the Faculty of Management of whom four of them were able to respond during my first visit. The remaining ten provided their responses through e-mail, and eight submitted their responses during my second visit. I had selected 17 respondents from the Faculty of Science of whom five of them returned their responses by e-mail and 12 during my second visit.

I also visited the central campuses of University D and selected 10 respondents from the Faculty of Arts/Humanities of whom five respondents instantly agreed to give their time and responded to my research by filling up the questionnaire. The remaining five respondents e-mailed their responses to me. In case of the Faculty of Management, the 32 respondents were selected. Out of 32 questionnaire, five respondents responded immediately during my first meeting, 10 returned the complete questionnaire by e-mail while 12 were collected during my second visit. The remaining five responses were received during my third visit.

In this way, I collected the questionnaire either directly during my visits to the participants in the field through their emails. Out of 445 respondents in total, I was able to collect questionnaire from 82 participants in my first meeting with them while questionnaire from 85 participants were received via-mail. I was able to collect the questionnaires from 278 participants during my next repeated visits.

Data Analysis Procedure

In this section, some general steps of academic research, namely data analysis and discussion were employed. The data analysis process also involved steps such as preparing data for analysis, exploring the data while analysis of data covered representing, interpreting, and validating/interpreting of them. Relevant statistical techniques were applied both in the data analysis and in the hypothesis testing, particularly, factor analysis; Analysis of Variance (ANOVA) test, correlation analysis; multiple regression analysis; and canonical correlation analysis. The SPSS Version 25.0, was used in all the analyses. After the collection of data, the responses were coded numerically. The data from the coded questionnaire were entered into SPSS software. Both, descriptive and inferential statistics were carried out complying with the research questions. Here, I discuss the data analysis process in detail.

Exploring Factors

Factor analysis is a multivariate statistical technique (Rummel, 1967; Shenoy & Madan, 1994), which is used to determine a large number of variables in terms of relatively few hypothetical variables called factors. The factor analysis is also used to find the information in a number of original values into only a few factors. This analysis attempted to explore the correlations among the items and variables by yielding only a small number of underlying factors, which contain all the essential information about concerned variables. According to Shenoy and Madan (1994), factor analysis result has three main purposes which includeidentifying the underlying, or latent, factors which determine the relationship between observed variables; clarifying the relationship between the variables; and providing a classification scheme, in terms of which data scores on various rating scales are grouped together.

In this study, factor analysis techniques were used to identify the items/variables and factors/dimensions of knowledge management and academic performance. Lewis-Beck (1994) stated that factor analysis takes "the form of either exploratory factor analysis, or of confirmatory factor analysis" (p. 4). The current study applied exploratory factor analysis to determine the factor loadings on variables in the study. After the number of the factors extracted was determined, the data analysis was undertaken based on the factors extracted for further analysis.

Measuring Level of Knowledge Management and Academic Performance

The level of knowledge management and academic performance is divided into three parts as low, medium and high. In identifying knowledge management among the faculty members, I have categorized the mean score in three levels as high, medium and low. These levels of knowledge management were calculated mainly based on the faculty members mean score of 1 – 2.99, 3 – 4.99 and 5 – 7 respectively. These three different levels of categorization were derived from the Best's (as cited in Shabbir, Wei, Nabi, Zaheer, & Khan, 2014) criteria as follows:

$$\frac{Higher\ score - Lower\ score}{Number of Levels}$$

$$= \frac{7-1}{3} = \frac{6}{3} = 2$$

The same formula is applied to measure the level of academic performance of the faculty members of higher educational institutions in Nepal.

***t*-Test/ANOVA**

The possibilities of parametric and non-parametric tests were explored through normality test by examining histograms and Shapiro-Wilk Normality Test (Levin & Fox, 2000). The equal variance assumption was tested by Levine's test of equality of variances. It was planned that failure to satisfy either of these assumptions resulted in the use of Kruskal-Wallis tests in place of *t*-test or analysis of variance (ANOVA), with follow-up tests (comparing each pair of groups) performed with Mann-Whitney tests.

After the data were found to be normal, both descriptive and inferential statistical analyses were performed with respective tests. Initially, descriptive statistics was computed for the background variables such as academic position, gender, age, ethnicity, qualification, experience, university, department, participation in conferences, publication, thesis guidance, engagement in other universities, and study hour. This analysis consisted of frequency and percentage calculation and their presentation in cross tables. The descriptive statistics consisting of means and standard deviation was also applied for computing the seven outcome variables of knowledge management, i.e. knowledge utilization, acquisition, generation, dissemination, transfer, creation, and presentation. All inferential analyses were performed using two-tailed tests with alpha level of 0.05 unless otherwise noted. The null hypothesis in this study was to indicate the differences between groups (defined by background variables) on seven outcome measures of knowledge management. The ANOVA test was used to examine the differences among the groups, if existed. When significant difference was explored, a follow up Post Hoc was performed to know the significant differences in the particular group. Likewise, this study uses Post Hoc and G*Power analysis tests to identify the particular groups which makes significantly differences in practices of knowledge management.

The test was conducted to know the achieved power in empirical analysis. The test was typically performed after a study was conducted. It made into account the given sample size (n), desired alpha level, specified effect size, a measure of difference between the null and alternative hypothesis (Mayr, Erdfelder, Buchner, & Faul, 2007). According to Hinton, McMurray, and Brownlow (2014), a test that has a power of 1- β = .80 is considered as a test of high power, .5 as medium power, and .2 as low power. The G*Power 3.1.9.2 software is used to make power analysis. Coefficient of determination was used to know the estimated effect size of the model to predict the relationship between dependent and independent variables. Effect size (f^2) is also calculated using G*Power software according to which f^2 = .02 is small effect, f^2 = .15 is medium effect, and f^2 = .35 is large effect by convention.

Correlation Analysis

In social sciences, researchers seek to understand and interpret the nature of relationships between different dimensions, variables and items while analysing the data. The correlation analysis determines the relationships between two or more variables or dimensions. According to Sekaran (2003), the correlation analysis illustrates three fundamental dimensions of data such as significance, direction, and magnitude. The number of variables or dimensions correlated may lead to the classification of basic kinds of correlations or relationships, consisting of either bivariate or multiple correlations among variables and dimensions. The bivariate correlations also called symmetric correlations, are non-directional, other bivariate correlations, called asymmetric correlations, are directional by nature. In the current study, bivariate correlation analysis using a Pearson correlation matrix was used in order to determine how the dimensions of knowledge management and academic performance are correlated to each other to explain the direction and relationship of the values.

Coefficient (*r*) ranges from +1 to -1. If r = +1, there is perfect linear association, if r = - 1, there is perfect negative linear relationship, and if r = 0, there is no linear relationship between two variables (Brase & Brase, 2012). The strength of the relationship is defined by Cohen (1992), where he suggested that *r* between .10 to .29 is small, between .30 to .49 is medium, and between .50 to 1 is large. Likewise, Bartz (1999) indicates five levels of correlation as (1) 0 to 0.2, very low, (2) 0.2 to 0.4, low, (3) 0.4 to 0.6, moderate, (4) 0.6 to 0.8, strong, and (5) 0.8 to 1, high.

Regression Analysis

The regression analysis explains the associations between the variables. In the line of Chatterjee and Simonoff (2013), regression analysis consists of the determination of the statistical relationship between two or more variables. The regression analysis predicts the association and interrelationship between dependent and independent variables. Regression analysis can be expressed either simple or multiple. The basic relationship in a simple regression analysis is represented by the following formula:

$Y = \alpha + \beta X$

where Y = the dependent variable; α = constant; β = the beta coefficient; and X = the independent variable.

Multiple regression analysis demands some assumptions to be met for robustness of empirical finding. In multiple regression analysis, more than one independent variables were considered, which enable the magnitude and direction of the relationship. The relationship of multiple regression is represented by the following formula:

$Y = \alpha + \beta X_1 + \beta X_2 + \beta X_3 + \beta X_4 + \beta X_5$

where Y = the dependent variable; α = the constant; β = the beta; and

$X_1 – X_5$ = the independent variables.

The current study determined the interrelationship between the dimensions of knowledge management and academic performance in higher education institutions, applied by multiple regression analysis.

Canonical Correlation Analysis

The canonical correlation analysis identified the interdependent relationship among sets by identifying more related variables in one covariate. In the line of Hair, Anderson, Tatham, and Black (1998), Canonical Correlation Analysis (CCA) is a multivariate statistical technique to identify interrelationships among sets of multiple variables. Thorndike (2000) defined canonical correlation analysis as a multivariate statistical analytical process and method, which is used to investigate and examine the relations among two or more variable sets. In the line of De-Bruin and Lew (2006), canonical correlation analysis combined the predicted value of multiple sets of variables which has the highest correlation. According to Thorndike (2000), "A canonical correlation may be viewed as a product moment correlation between two weighted composites, in which the composites of a pair are defined in a manner that maximizes their canonical correlation" (p. 242). Hair et al. (1998) further stated that canonical correlation analysis develops a number of independent canonical functions, which maximizes the correlation between linear composites of canonical variates. The canonical variate, which is the square of the canonical correlation, expresses the proportion of variance in each composite that is related to the pair of variables (Hair, Black, Babin, Anderson, & Tatham, 2006). As a result, the canonical correlation analysis demonstrates the features of the overall relationship between a set of variables allowing for the inter-relationship of the dimensions.

Weighted composites are referred to as canonical variates. According to De-Bruin and Lew (2006), "the variance explained by a canonical variate may be partially separated from the original correlation matrix, with a second variate being formed from the residuals" (p. 45). In such cases, the second canonical variate is independent to the first canonical variate, resulting in it detailing less of the variance than the first variate does. Such a process may be repeated until either a non-significant canonical variate is found, or until the number of the variates is equal to the number of variables in the smaller set. The current study sought to determine the dimensions of interdependence (or the interrelationship) between the knowledge management practices and the academic performance leading to canonical correlation analysis.

Reliability and Validity

Reliability test is one of the important facets of quantitative research design. It measures the consistency of the data in the same group or different groups and at the same point of time or in different time periods (Cohen et al., 2007). If the study obtained more or less similar responses from the same respondent in different time period or obtained similar answers from randomly selected respondents, the instrument used is considered reliable.

Many statistical tools are available to measure reliability and internal consistency of the data. Among them, split half method and alpha coefficient of consistency are mostly used (Best & Kahn, 2006). I used Cronbach’s alpha coefficient in my study to check the consistency of the instrument applied in the study as it is widely used and popular technique to check reliability. The collected data were analyzed through SPSS. The reliability of knowledge management and academic performance was tested separately. The results are mentioned in tables 3 and 4.

Table 3

Cronbach's Alpha Coefficient of Knowledge Management

SN	Dimension of Knowledge Management	Cronbach's Alpha coefficient
1	Knowledge Acquisition	0.708
2	Knowledge Dissemination	0.816
3	Knowledge Utilization	0.709

The table 3 presents the reliability value related to knowledge management dimensions and the table 4 shows the value for dimensions of academic performance.

Table 4

Cronbach's Alpha Coefficient of Academic Performance

SN	Dimension of Academic Performance	Cronbach's Alpha coefficient
1	Teaching and Learning	0.812
2	Research and Publications	0.816

As presented in tables 3 and 4, the values of Cronbach's alpha (α) for knowledge management are; knowledge acquisition: 0.708, knowledge dissemination: 0.816, and knowledge utilization: 0.709. Likewise, for academic performance, they are: teaching and learning: 0.812, and research and publications: 0.816. For an instrument to be used, its internal reliability coefficient-Cronbach's alpha (α) must be at least 0.7 (Santos, 1999); 0.67 (Cohen et al., 2018) considered as the accepted level. Thus, the condition for reliability was satisfied. As the alpha value of all dimensions is more than 0.67, the condition for reliability is satisfied.

Validity was another concern of the study. According to Creswell (2008), validity refers to whether the questionnaire measures what it intends to measure or not. Among many types of validity, face, construct, content, and criterion validity are four principal validities that need to be considered at the very outset in the quantitative research (Cohen et al., 2018). Face, construct, content, and criterion validity are evaluated during whole process of a research (Babbie, 2001; Huck, 2012; Mohajan, 2017). These four types of validity indicators are briefly noted in the following paragraph.

Face validity of this research was ascertained by an overall judgment of the instrument/tools by experts (Mohajan, 2017). Developing research questions, hypotheses and research tools in line with research problem and articulating their interconnection and association enhance construct validity (Mohajan, 2017).

Explaining concept of social construct clearly and breaking the abstract concept into different underlying dimensions and measurable items improve construct validity. Face and content validity of the instrument was also ensured in this research by using the rigorous Delphi Method of instrument development. It was further supplemented by literature review and field interaction with faculty members and experts.

Content validity refers to the degree in which the content of a test or questionnaire covers the extent and depth of the topics it has intended to cover (Babbie, 2001). The content validity is ensured by incorporating all the dimensions of the subject under study and applying valid measures. Mohajan (2017) stated that the content validity checks whether various items of the questionnaire cover all the aspects of the study. I have reviewed all the relevant literature and obtained advice from the subject experts, the practitioners and my supervisors to make sure that all the variables to measure the concept in question were included and content validity is ensured. Moreover, I have applied the Delphi technique while developing questionnaire, which incorporated contextual experience of practitioners and experts in the particular field.

The criterion validity relates with the scale outcome of the research (Moerdyk, 2009). The criterion validity is further categorized as concurrent validity and predictive validity (Schutt, 2014). The concurrent validity refers to the ability of a test to predict an event in the present form (Drost, 2011). The concurrent validity addresses and supports to conduct the research by adopting and applying the same tools developed by the Delphi method. In the similar manner, predictive validity refers to the ability of a test to measure some event or outcome in the future (Bolliger & Inan, 2012). In this study, the academic position matters for knowledge management practices in educational setting. The professors can generate the knowledge very well comparing to associate professors/readers and assistant professors/lecturers. We use correlations to assess the strength of the association between the knowledge management along with score with the criterion, i.e. academic position.

Ethical Considerations

Research in general, and social science research in particular, requires to consider the ethical considerations of the study which apply to the researcher and the research respondents as well. According to Sekaran (2003), ethical issues are related to how the respondents are treated, and how confidential information is safeguarded during the research process. To meet the ethical requirements, professional competences, integrity, professional, scientific and scholarly responsibility, respect of people's right, dignity, diversity, and social responsibility were maintained during the research. According to Alcser, Antoun, Bowers, Clemens and Lien (2011), the ethical consideration is necessary from the initial stage to the end of research study. In the course of data collection, first I approached the Dean of respective School or Faculty or Department in all four universities, requesting them to make their faculty members available to participate willingly in the study. To ensure the anonymity of the respondents, they were asked not to indicate their names inthe questionnaire concerned. To maintain the secrecy of the respondents, I was aware that I needed to be careful while publishing the detail of their individual information and maintain the professional research ethics.

I maintained the prior informed consent from research participants, and undertook measures to protect their anonymity and confidentiality, and gave them the right to withdraw from research at any time if they no longer wanted to be involved (Gray, 2019). This research was conducted by using specialized knowledge and skills gained during the academic period, self-regulation was applied throughout within the limits of societal expectation (Zeidner, Boekaerts, & Pintrich, 2000).

Research professionalism was maintained throughout. This research was conducted by using specialized knowledge and skills gained during the academic period, self-regulation was applied throughout, and research conducted within the limits of societal expectation (Zeidner et al., 2000). Non-maleficence was one major issue concerned while carrying out the research (Griffin, 2019). No harm or exploitation to the participants, regarding information and time, was meant at any time during the course of this research. Whilst interpreting and inferring the findings, appropriate precautions were taken to avoid any harm to the participants.

The objective of the research was stated and printed at the front of the questionnaire in order to inform the participants. The participants were asked to read and understand it fully before proceeding to complete the questionnaire. Participants were informed that they could opt out of the research if they did not want to be involved. The participants were assured that data and information provided by them would be used only for the research purpose. Further, the participants were asked not to put their names, schools' names or any other identification regarding their personal characteristics. Since most of the questions had multiple choices, the participants were asked to tick mark the answers and not to write anything on the questionnaire. Data security was also maintained by not allowing any other person to code or enter data. The researcher gave code ID to each participant and all data were entered into the computer by the researcher. No prejudiced claim was made against the response of the participants and findings in this research.

Chapter Summary

This chapter described the process of research methodology adopted in the study. It included the underlying research philosophy and the justification for the choice of a quantitative methodology. The chapter further uncovered how the research was designed to conduct this study. I convincingly argued for the selection of study site, population, sampling, sampling procedures and sample size, instruments for survey, process of development of research tools and entire data collection procedures in detail. The procedures for determining the reliability and validity of the data, in addition to the ethical considerations in this study, were discussed in detail. This chapter also argued for the relevance of descriptive and inferential data analysis procedures appropriate for this study after examining the nature of data.

CHAPTER IV

EXPLORING DIMENSIONS OF KNOWLEDGE MANAGEMENT AND ACADEMIC PERFORMANCE

The main objective of this thesis was to examine the relationship between different aspects of knowledge management and academic performance. In this regard, this chapter discusses the conditions, processes, and outcomes of different aspects of knowledge management practices of the faculty members of higher educational institutions in Nepal through factor analysis. I also adopted the items of the factors based on factor analysis that contributed to knowledge management as well as academic performance, also illustrated the factors/dimensions of those items. Furthermore, the correlations between the dimensions of knowledge management and academic performance are explained by including the conditions of the variance inflation factor and multi-collinearity of each of the dimensions respectively.

Conditions to be Satisfied for Factor Analysis

Researchers need to check whether the data satisfy the conditions for factor analysis before administering it. Thus, before the factor analysis, some conditions are to be satisfied (Field, 2005; Foster, Barkus, & Yavorsky, 2006; Field, 2009; Yong & Pearce, 2013), The conditions are: (a) data type, (b) sample size >100, (c) correlation of items > 0.3, (d) retention of item loading values >= 0.3, (e) eigenvalue > 1, (f) retaining factors; at least 3 items in per dimension, (g) Kaiser-Meyer-Sampling Adequacy > 0.5, (h) average of extraction of communalities > 0.5, and (i) normality of data required for items and dimensions. Therefore, I checked the conditions for factor analysis before administering it which are listed in Table 5.

Table 5 lists the conditions for factor analysis along with factor loading as discussed in Yong and Pearce (2013). In the table below; first column incorporates the conditions to be fulfilled and the second contains the result of my study.

Table 5

Conditions for Factor Analysis

Conditions to be Fulfilled	My Conditions and Result of My Study
1. Data type: Interval scale or five- or seven-point Likert scale	Researcher Used 7 Point Likert Scale
2. Sample size 100 is sufficient if the number of respondents is more than twice of the items	A sample size of this study was 445 and total items were 36 for knowledge management and 23 for academic performance
3. Correlations of items/variables > 0.30	Correlations all items were> 0.30
4. Retention of items loading > 0.30	Retained items loading > 0.40
5. Retention of dimension having Eigenvalues > 1	I have retained factors which have Eigenvalues >1 (Annex 2, Table 3 and Annex 3, Table 3)
6. Retaining factor: At least three items under each factor are needed to consider a valid factor or to retain factor	In this study, items under each factor were 3 to 6 after analysis
7. Kaiser-Meyer-Sampling Adequacy > 0.5 and communalities of average of Extraction > 0.5	Kaiser-Meyer-Sampling Adequacy of this study was (For KM: 0.840; for AP: 0.790) and communalities of average of Extraction was (for KM > 0.613; for AP > 0,638) Annex 2 &3

Table 5 exhibits that all the conditions for factor analysis were satisfied. The first condition stated in Table 4 is about the data type. It depicts that factor analysis can be run only if data is collected in five or more interval scales. The data was collected by using 7 points of Likert scale which satisfy the first condition for factor analysis.

The second condition is about the minimum number of respondents (>100) and respondent per item (more than twice of the items). A sample size of this study was 445; there were 36 items in knowledge management and 23 in academic performance and respondents per item were 12 for knowledge management and 19 for academic performance, which is sufficient to satisfy the third condition for factor analysis. However, there are different views on the adequate number of sample size for factor analysis. Cohen et al. (2007) argued that factor analysis does not identify appropriate dimensions, or the results would be inaccurate if the sample size is small (<100), or if respondents per variable is less than ten recommended. In this regard, Tabachnick, Fidell, and Ullman (2007) suggested that studies consisting of at least 10 to15 participants per variable and 300 cases are considered a good sample size. In general, sample size of 100 is considered poor, 300 are considered good and 1000 is considered excellent (Comrey & Lee, as cited in Field, 2009). Since the sample size of my study is 445 and a minimum of 12 items for knowledge management satisfy the condition of sample size as mentioned by different researchers.

The third condition is the correlations of items/variables. All the items of my study have correlation value over 0.3. This satisfies the second condition for factor analysis. The fourth condition of factor analysis is about factor loading. Factor loading is the correlation between the item and the dimension which is denoted by the coefficient correlation value. It is the relationship between the items and dimension measuring the construct. There are different viewpoints on the minimum value of the correlation coefficient to retain the factors. Some authors such as Foster et al. (2006) recommend including items/variables having factor loading of 0.3 or higher, while other scholars recommend retaining items with a coefficient of 0.4 or higher. Costello and Osborne (2005) consider retaining only items with 0.50 or more loading value. Based on the nature of data, the researcher has to decide the cut-off point of factor loading either 0.3 or 0.4 or 0.5. The decision as to where to place the cut-off point is a matter of professional judgment while reviewing the data (Cohen et al., 2007). As suggested by Cohen et al. (2007), I decided 0.4 to be the cut-off point and suppressed the items having less than 0.4 coefficient values and included items that carry 0.4 or higher load while administering factor analysis.

The factor loading process also elaborates the Eigenvalues. They are used to determine as how many factors to retain (Yong & Pearce, 2013). In my study, the factor analysis confirmed seven dimensions (Annex 2, Table 5) of knowledge management and four dimensions (Annex 3, Table 5) of academic performance with Eigenvalue of one or more. During the process of performing factor analysis sometimes items were loaded in the multiple factors. If an item/ a variable loads on two or more factors, it is called multiple-loadings, cross-loadings, or split loadings (Foster et al., 2006). Such a variable is also called a complex variable. Depending on the design of the study of research, a complex variable can be retained or dropped where the researcher needs to use his/her expert judgment to decide on whether to retain or drop the complex variables (Yong & Pearce, 2013). In my study, I have dropped cross-loaded item (for example KM14). I have also removed the empty items/variables during the process of factor loading which variables/items were either loaded empty or cross-loaded, for example variables such as AP4 and AP11 that are listed in Annex 3 (Table 4).

The fifth condition of making the decision on retaining factor is Eigenvalues. The factors having Eigenvalues of >1 are retained (Yong & Pearce, 2013). In my study, factor analysis confirmed Eigenvalues of 1 or more, which is presented to Annex 2 (Table 3) and Annex 3 (Table 3).

The sixth criterion is about retaining the number of factors. The factor having three or more items is generally retained to measure the construct. For Kline (1994), at least three variables are needed for each factor, while Tabachnick and Fidell (1996) advocated for five variables per factor (as cited in Foster et al., 2006). In my study, there are three to six items in each factor/dimension, the details are shown in Table 5 and Table 6 (see on Annex 2, Table 5 and Annex 3, Table 5) for further details.

The seventh criterion of factor analysis is about Kaiser-Meyer- Sampling Adequacy and commonalities. According to this criterion, Kaiser-Meyer- Sampling adequacy and commonalities must be more than 0.5. The data of my study manifested that sampling adequacy is 0.840 for knowledge management (Annex 2, Table 1) and 0. 790 for academic performance (Annex 3, Table 1); and commonalities of average extraction is 0.613 for knowledge management (Annex 2, Table 2), and 0.638 for academic performance (Annex 3, Table 1). Thereby, condition seventh of factor analysis was also satisfied.

Besides the seven criteria discussed above, the normality of data is another important condition to be fulfilled for applying factor analysis (Creswell, 2009). The finding of a normality test (Shapiro-Wilk tests, Table 8) verifies that data of this study is not normally distributed. According to Costello and Osborne (2005), in social science research, researchers rarely get normally distributed data (the non-significant result of the Shapiro-Wilk test). In such a case, there is a debate about whether a researcher can administer factor analysis or not.

Many researchers argue that with large enough sample sizes (>300), the violation of the normality assumption does not cause major problems and the researcher can administer factor analysis and apply parametric procedures (Costello & Osborne, 2005). Brown and Moore (2012) mentioned that normal data is not needed to run factor analysis in larger sample size, and factor loading is not affected even if the assumption of normality is violated. A requirement such as more than 300 sample size and 10 to 15 participants per variable are more important than normality of data to run factor analysis (Field, 2009). The normality of test is detailed in Chapter five, a section of inferential statistics. The factor analysis loaded 26 items of knowledge under seven dimensions and 15 items of academic performance under four dimensions. After I explored the factor loading, I named the dimension of knowledge management in the following sections:

Dimensions of Knowledge Management

Once the number of items under each factor was identified by factor analysis followed by naming of dimensions, providing appropriate term to such dimensions identified is more of an 'art' as there are no scientific rules for naming them, except to give names that best represent the variables within the factors (Yong & Pearce, 2013). The naming of factors is done by evaluating the items under each factor. It is mainly done by the researcher based on his/ her expert judgment (Foster et al., 2006). However, the generally accepted principle is that the name of each factor is given in such a way that it summarizes all items loaded under it. The items/variables of each factor are presented in Table 6.

Table 6

Final Factors of Knowledge Management

Factor	Item Name	Factor Loading						
		1	2	3	4	5	6	7
1	Improve Efficiency	0.723						
	Conduct Research	0.718						
	Increase Thought	0.645						
	Daily Life Issues	0.595						
	Solving Problem	0.552						
2	Interaction		0.724					
	Discussion		0.723					
	Modern Technology		0.671					
	Conducting Training		0.46					
3	Individual Performance			0.734				
	Org. Leadership			0.616				
	Professional Networks			0.606				
	Conference Participation			0.514				
4	Knowledge by Teaching				0.697			
	Usage of Social Media				0.682			
	Institutional Research				0.58			
5	Usage of e-Portal					0.718		
	Learning Environment					0.715		
	Training Sessions					0.571		
6	Mentoring new faculty						0.748	
	Joint Projects						0.563	
	Workshop/Conference						0.532	
	Purchase of e-Sources						0.411	
7	Individual Training							0.73
	Simulators							0.693
	Consultancy Services							0.515

Table 6 shows the keywords of the items of the variable with their respective factors of knowledge management identified by factor loading. Based on the keyword of the items/variables, the name of the factors was given. These factors were named Knowledge Utilization (KU), Knowledge Acquisition (KA), Knowledge Generation (KG), Knowledge Dissemination (KD), Knowledge Transfer (KT), Knowledge Creation (KC), and Knowledge Presentation (KP) respectively. Further, these factors were termed as dimensions. The are seven dimensions of knowledge management as identified by factor analysis and their names as mentioned in Figure 2.

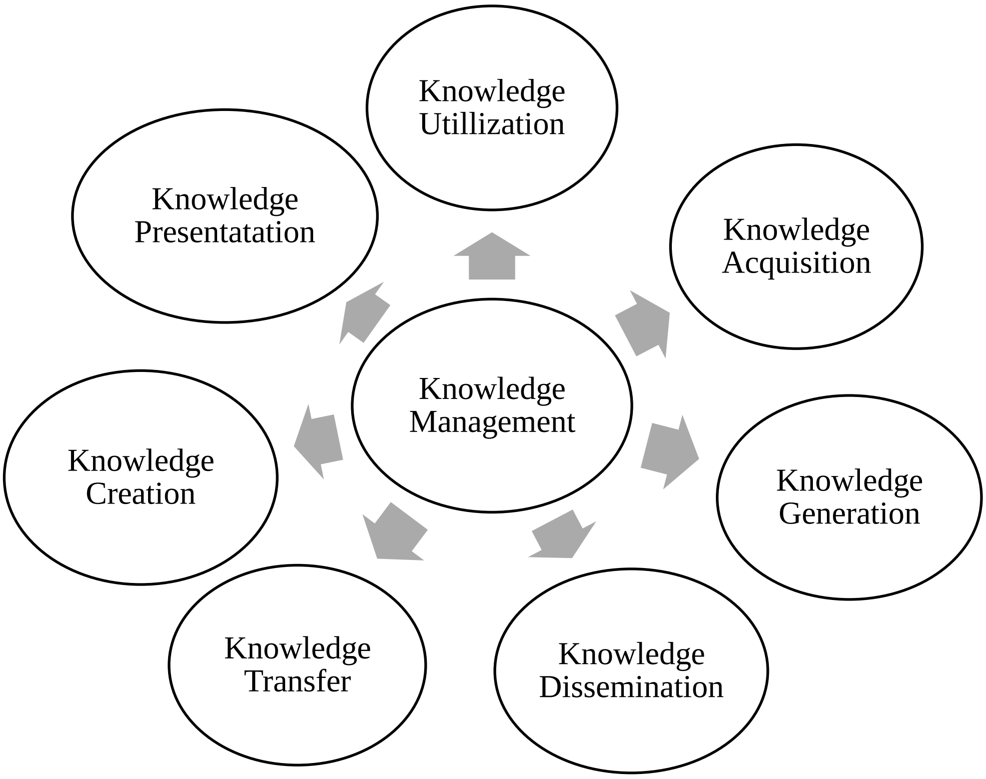


Figure 2. Dimension of Knowledge Management

The sections that follow explain the different dimensions of knowledge management practices in the pictorial form than the simple explanation of the dimensions of knowledge management.

Explanation of Dimensions of Knowledge Management

After naming the different dimensions of knowledge management, they are discussed in the following sections.

Factor One: Knowledge Utilization

The first factor of knowledge management practices is knowledge utilization. Factor one has five items related to the knowledge utilization of the knowledge management practices of faculty members of higher educational institutions. The list of the items of different dimensions of knowledge management is shown in Annex 2

(Table 5). The first item of this factor fosters the improvement of efficiency through the use of knowledge while the second item talks about research activity and the enhancement of the capacity of the faculty members in higher educational institutions. The third item emphasizes on enhancing the thoughts of an individual through the appropriate use of knowledge and the fourth item focuses on the research activity to produce new knowledge and that knowledge is used to solve the problems of daily life. Similarly, the fifth item of knowledge utilization is explained as: knowledge is used to identify the issues and solve the problem in the context of higher education.

Factor Two: Knowledge Acquisition

The second factor of knowledge management practices is knowledge acquisition. This factor consists of four items. The first item focuses on how the faculty members of higher educational institutions acquire knowledge within an institutional environment. The second item focuses on the discussion to acquire knowledge in the context of higher education. The third item of this factor emphasizes on the use of modern technological tools to acquire knowledge in the higher educational context. And the fourth item emphasizes how the faculty members of higher educational institutions of Nepal acquire knowledge through training sessions.

Factor Three: Knowledge Generation

The third factor of knowledge management is knowledge generation. This factor consists of four items. The first item prioritizes assessment of individual work performance to increase the level of knowledge of an individual. The second item of this factor focuses on the organizational leadership to generate knowledge of the faculty members. As we know, the management team of academic institutions organizes workshops, conferences, purchases journals, books, etc. to enhance the capacity of faculty members. The third item of this factor focuses on the involvement of faculty members within external professional networks to get new concepts and ideas of research, teaching and learning so that they can generate new knowledge. The fourth item of this factor focuses on presenting the concepts and ideas of the conferences so that the participants of the program can easily get or receive new ideas, concepts and knowledge.

Factor Four: Knowledge Dissemination

The fourth factor of knowledge management practices is knowledge dissemination. This factor contains three items. As we know teaching is the best way of transferring ideas and concepts to the students, the first item focuses on the teaching process to transfer or disseminate ideas to the audience. The second item emphasizes the usage of social media such as Twitter, Facebook, Skype, Viber, LinkedIn, etc. to transfer the ideas and concepts. We can transfer ideas and concepts by developing a close group of these different types of applications of social media. The third item of this factor is about research activity conducted by the institution rather than individual.

Factor Five: Knowledge Transfer

The fifth factor of knowledge management practices is knowledge transfer. This factor contains three items. The first item focuses on technology to get important information these days. We can access to different types of information through different e-portals. As we know the learning environment plays a vital role in gaining information, the second item of this factor emphasizes the learning environment rather than learning tendency of an individual to retrieve the required information. The third item focuses on participation in the training sessions to access or retrieve information from presenter and participants.

Factor Six: Knowledge Creation

The sixth factor of knowledge management practices is knowledge creation. This factor contains four items where the first one emphasizes on mentorship to the faculty members to create knowledge in the context of higher education. The second item of this factor is on joint projects conducted by a group of professionals to create ideas and concepts. The third item of this factor focuses on the workshops and conferences as a source of knowledge creation process. The last item of this factor emphasizes on the purchase of the different types of journals, research reports and books as the main sources of the knowledge creation process.

Factor Seven: Knowledge Presentation

The seventh factor of knowledge management practices is knowledge presentation. This factor contains three items. The first item of this factor is about training sessions to present the knowledge among peers. The second item explains the development of simulator to present the ideas and concepts among peers. Likewise, the third item focuses on the consultancy services to present the ideas and concepts to the market.

The following section includes different dimensions of academic performance, namely research and publications, innovation, interactive learning, and capacity building.

Dimensions of Academic Performance

The naming of factors is done by evaluating the items under each factor. It is mainly done by the researcher based on his/ her expert judgment (Foster et al., 2006). However, the generally accepted principle is that the name of each factor is given in such a way that it summarizes all items loaded under it. The four factors of academic performance are identified using factor analysis. The items/variables of each factor are presented in Table 7.

Table 7

Final Factor of Academic Performance

Factors	Items Name	Factor Loading			
		1	2	3	4
1	Involvement in Research	0.879			
	Bringing Research Insights to Classroom	0.875			
	Mentoring through Technology	0.600			
	Conversion of Theory into Practice	0.530			
	Number of Publications	0.515			
	Interaction with Students	0.433			
2	Quality Information Inside Classroom		0.844		
	Classroom Environment		0.783		
	Case-based Learning		0.702		
	Focuses on Activities		0.430		
3	Preparation of Lesson Plan of Semester			0.790	
	Preparation of Lesson Plan of Topics			0.755	
	Use of e-Portal During Class			0.613	
4	Generation of New Knowledge				0.715
	Involvement of Students in Research				0.700
	Technology in Classrooms				0.673

The factors of academic performance were termed considering the keyword of each item/variable. The first factor was named as Research and Publications (RP) while rest of other factors were termed Innovation (INNO), Interactive Learning (IL), and Capacity Building (CB) accordingly. After naming the name of the factors, it was termed as dimensions.

The sections that follow explain the different dimensions of academic performance in the pictorial form than the simple explanation of the dimensions of academic performance.

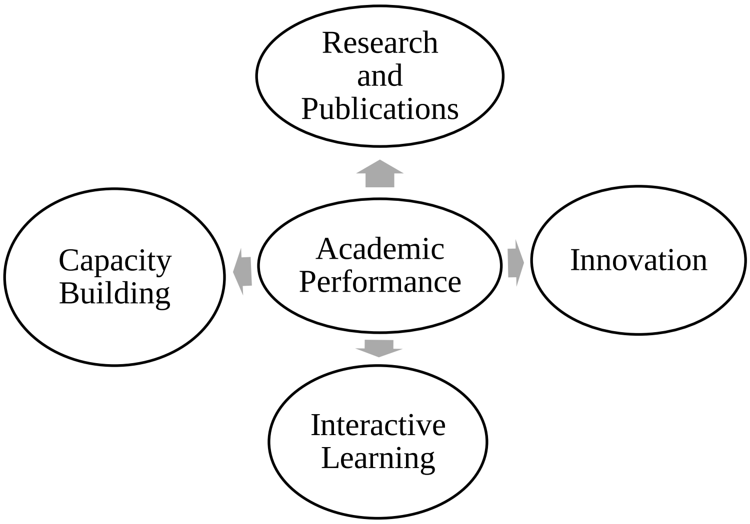


Figure 3. Dimensions of Academic Performance

The sections that follow explain the different dimensions of academic performance in the pictorial form than the simple explanation of the dimensions of academic performance.

Explanation of Dimensions of Academic Performance

After naming different dimensions of academic performance, each of them is elucidated in the following sub-sections:

Factor One: Research and Publications

The first factor of the academic performance is research and publications in higher educational institutions of Nepal. There are six items under this factor. The first item of this factor is research activity which is used to enhance problem-solving capacity. These days research is the most integral part of universities which helps students and faculties to accelerate the capability of academic excellence. The second item is related to the transferring of new knowledge created through research to classroom. The third item of this factor is modern technology used to accelerate research activities.

Likewise, the fourth item of this factor is the conversion of theoretical concept into practice. The fifth item of this factor is a number of publications, which measure the key integral components of the academicians these days at university. The sixth item of this factor concerns with the dissemination of knowledge, ideas and concepts to intellectual communities. Modern society is aware of the value of publication and dissemination of innovative knowledge created in academia and these publications are taken to be pivotal in social transformation by addressing social issues.

Factor Two: Innovation

The second factor of academic performance is innovation. This factor includes four items related to innovation in the context of higher educational institutions. The first item of this factor is concerned with quality information inside the classroom. The faculty members can transfer quality information in classrooms only after having a deep search on related subject matter. The second item of this factor is concerned with the classroom environment. Classroom environment focuses on student-centric pedagogy, technology, etc. that enhance learning efficiently. The third item of this factor is learning through project or case-based activities of getting engaged in learning. The fourth item of this factor emphasizes the conversion of theoretical knowledge into addressing the problems of everyday life.

Factor Three: Interactive Learning

The third factor of the academic performance is interactive learning which is considered to be the most important activity of the university. There are three items under this factor. The first item of this factor focuses on lesson plan that faculty members prepare prior to the commencement of new academic sessions/semesters. The second item of this factor focuses on developing and designing of activities for active engagement of students during class hours. The third item of this factor concerns with the use of e-portal and technology to familiarize the students and teachers with the recent global trends in higher education.

Factor Four: Capacity Building

The fourth factor of the academic performance is capacity building, one of the primary objectives of the educational institutions. There are three items under this factor. The first item of this factor is concerned with research activity that is used to enhance the capacity of an individual. The second item of this factor focuses on the involvement of students into research activity that accelerates students in the process of learning. The third item of this factor emphasizes on the effective use of technology in entire classroom activities.

Correlations between Factors of Knowledge Management

Coefficient of correlation indicates the strength and direction of correlation of factors of knowledge management in the range between – 1 to + 1. Correlation coefficient + 0.6 or more is considered a strong positive correlation. Significant at the 0.01 level means the chance of occurring similar result is 99.99%. In social research significant at 0.05 level or confidence level 95% is considered sufficient to generalize the results (Levin & Fox, 2006).

Table 8 discloses the value of the correlation between the dimensions of knowledge management, i.e. knowledge utilization, acquisition, generation, dissemination, transfer, creation, and presentation. Table 8 displays that the correlation value of all dimensions of knowledge management is below +0.6. Levin and Fox (2006) suggest that if the value is less than +0.6, it proves a correlation but not a strong one. The results indicate that all factors of knowledge management are correlated. Although there is no high or strong correlation among factors in this result, I am very aware of high correlations that produce multi-collinearity (Williams, 2014).

Table 8

Correlations between Factors of Knowledge Management

Dimensions of KM	KU	KA	KG	KD	KT	KC	KP
KU	1						
KA	.47**	1					
KG	.43**	.29**	1				
KD	.45**	.55**	.38**	1			
KT	.34**	.24**	.40**	.29**	1		
KC	.31**	.24**	.46**	.29**	.34**	1	
KP	.29**	.26**	.26**	.18**	.21**	.23**	1

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

Multi-collinearity is a situation where two or more variables are very closely related (close to 1 or -1) or are in perfect linear relationship between two or more of the predictors in a regression model. If the variables are highly correlated, they may not predict the correct regression model (Bowerman & O'Connell as cited in Field, 2009). Multi-collinearity poses a problem only for multiple-regression not for simple regression as it requires only one predictor. This study testifies the correlation between the dimensions of knowledge management practices.

There are several ways of checking the existence of multi-collinearity of variables in the study. Field (2009) suggested that researchers should use the following techniques to check multi-collinearity:

i. Check the correlation matrix of all of the predictor variables (dimensions of knowledge management of HEI of Nepal in my study) and see if any correlates very high ($r > 0.9$) between predictors.

ii. Remove predictors, which are correlated close to 1 or -1 or above 0.9. In my study (Table 12), the correlation among variables is less than 0.56.

iii. Remove highly correlated factors/items *(r* > 0.8) in factor analysis. In my study, all the items have a correlation value of less than 0.56.

These techniques are just precautions of avoiding the problem of multi-collinearity. The most accurate way of identifying subtle forms of multi-collinearity is to calculate the Variance Inflation Factor (VIF) and tolerance level of collinearity with the help of SPSS (Bowerman & O'Connell as cited in Field, 2009). The VIF indicates whether a predictor has a strong linear relationship with other predictor(s).

Table 9 comprises VIF and tolerance level of seven dimensions of knowledge management that predict knowledge management practices level of the faculty members of higher educational institutions of Nepal. Table 9 displays the value of tolerance and VIF of different dimensions of knowledge management. Since the value of VIF is not less than 0.1, it asserts that there is no problem of multi-collinearity in this data set.

Table 9

Variance Inflation Factor and Tolerance of Knowledge Management

	Collinearity Statistics	
Dimensions	Tolerance	VIF
Knowledge Utilization	0.64	1.57
Knowledge Acquisition	0.62	1.62
Knowledge Generation	0.64	1.57
Knowledge Dissemination	0.61	1.63
Knowledge Transfer	0.77	1.30
Knowledge Creation	0.74	1.35
Knowledge Presentation	0.87	1.16

The VIF tolerance value below 0.1 indicates a serious problem of multi-collinearity (Field, 2009). Table 8 indicates that tolerance value of all five dimensions of knowledge management is more than 0.1; so, there is no problem of multi-collinearity in my study. Another way of ascertaining the problem of multi-collinearity is to check the VIF value. The VIF value that is greater than 10 indicates the problem of multi-collinearity (Bowerman & O'Connell; Myers as cited in Field, 2009). In my study, the highest VIF value is 1.7. All the above stated evidence indicates that there is no problem of multi-collinearity in my study.

We can further diagnose the collinearity problem by analyzing variance proportions of study variables (Field, 2009). Table 10 presents the value of variance proportion. Since the value of variance proportion of all the dimensions of knowledge management is between 0 to 1, it indicates that there is no problem of multi-collinearity.

Table 10

Variance Proportions of Dimensions of Knowledge Management

Dimensions	Eigenvalue	Condition Index	Variance Proportions							
			(Constant)	KU	KA	KG	KD	KT	KC	KP
1	7.89	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.03	15.10	0.02	0.00	0.04	0.71	0.01	0.01	0.00	0.02
3	0.03	17.51	0.02	0.00	0.04	0.02	0.47	0.08	0.03	0.06
4	0.02	21.08	0.01	0.01	0.01	0.09	0.05	0.83	0.01	0.10
5	0.01	25.18	0.00	0.04	0.09	0.07	0.08	0.05	0.71	0.08
6	0.01	27.39	0.00	0.12	0.33	0.00	0.36	0.00	0.04	0.48
7	0.01	30.17	0.02	0.66	0.49	0.02	0.03	0.02	0.03	0.04
8	0.01	37.02	0.93	0.17	0.01	0.09	0.00	0.01	0.18	0.22

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

KU = Knowledge Utilization, KA= Knowledge Acquisition, KG = Knowledge Generation, KD = Knowledge Dissemination, KT = Knowledge Transfer, KC = Knowledge Creation, KP = Knowledge Presentation

The variance proportions normally vary between 0 and 1, and each predictor is distributed across different dimensions (Field, 2009). Table 9 indicates the variance proportions in all dimensions of knowledge management between 0 and 1. Hence, from variance proportions analysis, it can also be concluded that there is no problem of multicollinearity in this study. In the next section, I have explained the correlations between factors of academic performance.

Correlations between Factors of Academic Performance

Table 11 illustrates the value of the correlation between the dimensions of academic performance, i.e. research and publications, innovation, interactive learning, and capacity building.

Table 11

Correlations of Factors of Academic Performance

Dimensions of AP	RP	INNO	IL	CB
RP	1			
INNO	.44**	1		
IL	.47**	.40**	1	
CB	.45**	.42**	.45**	1

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

RP = Research and Publications, INNO = Innovation, IL = Interactive Learning, CB = Capacity Building

Table 11 shows that the correlation value of all dimensions of academic performance is less than + 0.6. Levin and Fox (2006) suggest that if the value is less than +0.6, it demonstrates a correlation but not a strongone. The results indicate that all factors of academic performance are correlated. Although there is no high or strong correlation among factors in this result, I am aware of high correlations that produce multi-collinearity.

Table 12

Variance Inflation Factor and Tolerance of Academic Performance

	Collinearity Statistics	
Dimensions	Tolerance	VIF
Research and Publications	0.66	1.51
Innovation	0.72	1.38
Interactive Learning	0.69	1.45
Capacity Building	0.69	1.45

VIF = Variance Inflation Factor

Table 12 comprises of VIF and tolerance level of four dimensions of academic performance that predict academic performance of higher educational institutions of Nepal. It also explicates the value of tolerance and VIF of different dimensions of academic performance. Since the value of VIF is not less than 0.1, it shows that there is no problem of multi-collinearity in this data set.

The VIF tolerance value below 0.1 indicates a serious problem of multi-collinearity (Field, 2009). Table 12 indicates the tolerance value of all three dimensions of academic performance more than 0.1. Another way of checking the problem of multi-collinearity is to check the VIF value. The VIF value greater than 10 indicates the problem of multi-collinearity (Bowerman & O'Connell, Myersas cited in Field, 2009). In my study, the highest VIF value is 5.9. All the above stated evidences indicate that there is no problem with multi-collinearity in my study.

Table 13 shows the value of variance proportion. Since the value of variance proportion of all the dimensions of academic performance is between 0 to 1, it indicates that there is no problem of multi-collinearity in this study.

Table 13

Variance Proportions of Dimensions of Academic Performance

Dimensions	Eigenvalue	Condition Index	Variance Proportions				
			(Constant)	RP	INNO	IL	CB
1	4.93	1.00	0.00	0.00	0.00	0.00	0.00
2	0.03	12.26	0.05	0.01	0.02	0.01	0.90
3	0.02	18.01	0.04	0.02	0.92	0.19	0.00
4	0.01	21.19	0.22	0.18	0.06	0.80	0.03
5	0.01	24.73	0.68	0.79	0.00	0.00	0.07

Chapter Summary

The factor analysis identified seven factors of knowledge management, i.e. knowledge utilization, acquisition, generation, dissemination, transfer, creation, and presentation. The factor analysis loaded four factors of academic performance, i.e. research and publications, innovation, interactive learning, and capacity building in the context of Nepali higher educational institutions. There was no problem of the collinearity in the dimensions of knowledge management and academic performance.

CHAPTER V

KNOWLEDGE MANAGEMENT PRACTICES OF FACULTY MEMBERS

This chapter incorporates the knowledge management practices and level of faculty members' knowledge management practices in higher educational institutions as perceived by them. For this purpose, both descriptive and inferential statistics were used to measure the knowledge management practices and level of knowledge management of faculty members. Initially, this chapter provides statistical analysis procedures along with the detailed information of the faculty members' demographic variables including their individual personal characteristics and personal engagement in academia. Finally, this chapter presents the results of the test statistics to test the hypotheses of the study.

Statistical Analysis Procedure

In this study, both the descriptive and inferential statistical analyses were used to describe the demographic variables in relation to knowledge management. Initially, descriptive statistics was applied to analyse thirteen background variables such as academic position, gender, age, ethnicity, qualification, experiences, university, department, participation in conferences, publication, exposure during thesis guidance, engagement in other universities, and study hour spent per day. Descriptive statistics was then computed for seven outcome variables of knowledge management such as knowledge utilization, acquisition, generation, dissemination, transfer, creation, and presentation consisting of the frequencies, means and standard deviations.

To know whether there exists a significant difference between mean scores of the demographic variables and knowledge management practices by the faculty members of higher educational institutions in Nepal, a *t*-test (for gender, participation in conferences, publication, thesis guidance, and engagement in other universities) and ANOVA, (for academic position, age, ethnicity, qualification, experiences, university, department, study hour spent per day) were performed in each outcome variable, and the output presented along with the mean and standard deviation of their outcome variables.

All the inferential analyses were performed using two-tailed tests and an alpha level of 0.05 unless otherwise noted accordingly. The hypotheses in the current study related the differences between different groups, i.e. defined by academic position, gender, age, ethnicity, qualification, experiences, university, department, participation in conferences, publication, thesis guidance, engagement in other universities, and study hour per day to seven outcome variables of knowledge management practices, i.e. knowledge utilization acquisition, generation, dissemination, transfer, creation, and presentation. The study encompassed the following null hypotheses.

$H_0$1: There is no significant difference across academic position on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0$2: There is no significant difference across gender on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0$3: There is no significant difference across age on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0$4: There is no significant difference across ethnicity on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0$5: There is no significant difference across qualifications on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0$6: There is no significant difference across experiences on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0$7: There is no significant difference across universities on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0$8: There is no significant difference across departments/schools on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0$9: There is no significant difference across participation in conferences on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0$10: There is no significant difference across publications on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0$11: There is no significant difference across thesis guidance on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0$12: There is no significant difference across engagement in other universities on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

$H_0 13$: There is no significant difference across study hours per day on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

The use of both parametric tests, i.e. *t*-test or one-way ANOVA and non-parametric tests, i.e. Mann Whitney or Kruskal-Wallis test was applied. To warrant the use of parametric test as mentioned above, it must display a) random, independent sampling from the populations; b) the dependent variable is distributed normally and c)equal variance across groups is present (Wilcox, 1995; Khan, 2003; Hecke, 2010).The equal variance assumption was tested by Levene's test of equality of variance. As mentioned above, all the respondents were taken randomly from different departments of the different universities as elaborated in the methodology section of sample size calculation. The Quantile - Quantile (Q-Q) plots of each dimension (Annex 5) verified that all the data were normally distributed.

The data in the Annex 6 present that they donot have any problem of equal variance and this was done through Levene's Equal variance test. There was no problem of homogeneity in the data as discussed under the section Durbin-Watson test in chapter VI. Furthermore, G*Power analysis was used to check the effect size and power analysis in order to examine the difference in knowledge management practices of the faculty members in HEIs. The effect size (f^2) 0.02, 0.15 and 0.35 are considered small, medium and large effect respectively (Field, 2009). Using effect size value, the G*power software calculate the power in the range of 1.00 to 0. The 1.00 means 100 percent probability or chances of correctly accepting the research hypothesis and 0 means 0 percent chance of wrongly rejecting the null hypothesis. The power of 1- β; 0.80, 0.50 and 0.20 is considered high, medium, and low power respectively of accepting or rejecting hypothesis (Hinton et al., 2014).

Frequencies of Background Variables

The respondents of the study were faculty members of higher educational institutions of Nepal. The background variables of the study were individual personal characteristics and personal engagement in academia. The number of those respondents' background variables is calculated in Table 14 and Table 15.

Table 14

Demography of Individual Personal Characteristics

Category	Total (n=445)	Percentage
Academic Position		
Professors	19	4.3
Associate Professors/Readers	53	11.9
Assistant Professors/Lecturers	373	83.8
Gender		
Male	399	89.7
Female	46	10.3
Age Group		
30 to 39 Years	180	40.5
40 to 49 Years	252	56.6
>=50 Years	13	2.9
Ethnicity		
Brahman/Chhetri	342	76.8
Indigenous Ethnic	56	12.6
Madhesi	39	8.8
Dalit	8	1.8
Qualification		
PhD	69	15.5
MPhil	32	7.2
Masters	344	77.3
Experience		
<10 Years	175	39.3
10 to 19 Years	183	41.1
20 to 29 Years	82	18.4
>=30 Years	5	1.2

The first categorization of the demographic variable is individual personal characteristics: academic position, gender, age, ethnicity, qualification, and experiences as presented in Table 14. Among of 445 respondents, the number of professors, associate professors/readers, and assistant professors/lecturers was 19 (4.3%), 53 (11.9%), and 373 (83.8%) respectively. Regarding gender, 399 (89.7%) participants were male and 46 (10.3%) participants were female. Next categories of this group were: age group, < 40 years, 40 years to 49 years and >=50 years. The total number of respondents whose age was <40 years was 180, representing 40.5% of total sample size. Among the participants 252, (56.6 %) were between age 40 to 49 years, 13, 2.9% were of 50 years or above.

Ethnicity was another category of demographic variable of this group. The respondents belonged to four different ethnic groups of Nepal. It seems that the majority of the faculty members in higher educational institutions were from the ethnic group of Brahman and Chhetri (342, 76.8%) whereas ethnic indigenous communities represented by 56 people (12.6%). On the other hand, communities from Madhes represented by 39 (8.8%). The Dalits were the lowest representing 8, one i.e. (1.8%).

Qualifications of respondents were another category of the demographic variable of this group. The qualifications of the respondents were categorized as PhD, MPhil and Master's degree. It seems that majority of the faculty members' qualifications in Nepali higher educational institution was Master's degree (344, 77.3%). Faculty members with doctoral degree were 69, i.e. 15.5%. Faculty members with the degree of Master of Philosophy were 34 comprising 7.2%.

Experience was another category of demographic variable of this group. The experiences were categorized into four groups as; < 10 years, 10 to 19 years, 20 to 29 years, and >=30 years. A very few (only 5 out of 445) respondents had experience of more than 30 years in academic activities. A majority of the respondents (183, 41.1%) had experiences between 10 to 20 years. The respondents whose experiences were less than 10 years were also a lot (175, 39.3%) but there was no any professor from this group. On the basis of experiences of the professors and associate professors/readers, they belonged to third type of experienced group, i.e. their experience was between 20 to 30 years (82, 18.4%).

Personal engagement in academia was the second category of the demographic variable. It comprised of university, department, participation in conferences, publication, thesis guidance, engagement in other universities, and study hour spent per day (See Table 15). The first demographic variable of this group is university where the faculty members belong to. The names of the universities are coded as A, B, C, and D. The number of respondents from university A, B, C, and D was 233, 107, 63, and 42 respectively.

Another demographic variable of this group was working department (school) of the respondents. The different departments/schools of the universities are Arts/Humanities, Education, Management and Science. The total respondents from the Arts/Humanities department were 187; 42.1%, and 62; 13.9%, 82; 18.4%, 114; 25.6% were from Education, Management and Science departments respectively.

The demographic variable of this group was represented by participation in conferences. It was categorized as those who participated and did not participate in the conferences. Among 445 respondents, only 81 respondents from the group of assistant professors/lecturers did not get chance to participate in the conferences. In total, 364 respondents, i.e. 81.8% participated in conferences and 18.2 % respondents did not participate in conferences.

The other category of the demographic variable of this group was publications of respondents. It was categorized whether the respondents had published their research work or not. Among 445 respondents, 385; 86.5% respondents replied that they published their research work whereas 60; 13.5% had none.

Table 15

Demography of Personal Engagement in Academia

Category	Total (n=445)	Percentage
University		
A	233	52.4
B	107	24.0
C	63	14.2
D	42	9.4
Department		
Arts/Humanities	187	42.1
Education	62	13.9
Management	82	18.4
Science	114	25.6
Participation in Conferences		
Yes	364	81.8
No	81	18.2
Publication		
Yes	385	86.5
No	60	13.5
Thesis Guidance		
Yes	390	87.6
No	55	12.4
Engaged in Other University		
Yes	96	21.6
No	349	78.4
Study Hour Per Day		
<3 Hours	129	29.0
3 to 5 Hours	282	63.4
>5 Hours	34	7.6

Another demographic variable of this group was thesis guidance. Among 445 respondents, 390, i.e. 87.6% were involved in the activity of thesis guidance and 55, i.e. 12.4% did not. The next category of the demographic variable of this group was participants' involvement in other universities as visiting faculties. Among 445 respondents, only 96, i.e. 21.6% were involved in other universities and 349, i.e. 78.4% were not.

The last demographic variable of this group was study hour they spent per day. This variable was divided into three different groups. The first group is <3 hours, second is 3 to 5 hours, and third is >5 hours. Among 445 respondents, 129, i.e., 29.0% respondents studied less than 3 hours per day. Similarly, 282, i.e., 63.4% respondents studied 3 to 5 hours per day. In addition, 34, i.e., 7.6% respondents spent more than 5 hours in their studies per day.

Inferential Statistics

To test the hypotheses of this study, the tools of inferential statistics were used. Parametric and non-parametric tests were found effective to decide which test would provide better result. According to Eze (as cited in Ehiwario, Osemeke, & Nnaemeka, 2013), applying the ANOVA technique without testing for the conformity of the underlying assumptions is like treating a disease without going through medical diagnosis. Therefore, the main assumptions of those tests were: (1) the samples are randomly selected and independent of one another, (2) all populations involved follow a normal distribution and (3) all populations have the same variance (Wilcox, 1995; Khan, 2003; Hecke, 2010). To examine these assumptions in the database of this study, the following measures were applied.

In case of this study, the questionnaire was distributed through stratified sampling procedure and thus the first assumption of parametric test was satisfied. In order to verify the second assumption about normality, for having the population of below 2000, Shapiro-Wilk statistics was used (Table 16) to evaluate at .01 level of significance.

Table 16

Shapiro–Wilk Test of Knowledge Management

	Shapiro-Wilk		
Dimensions	Statistics	df	Sig.
Knowledge Utilization	0.96	445	0.000
Knowledge Acquisition	0.92	445	0.000
Knowledge Generation	0.99	445	0.000
Knowledge Dissemination	0.93	445	0.000
Knowledge Transfer	0.93	445	0.000
Knowledge Creation	0.97	445	0.000
Knowledge Presentation	0.97	445	0.000

The Shapiro-Wilk normality test (Table 16) indicates the significant values for all of the dimensions of knowledge management. If the Shapiro-Wilk test is significant ($p < .05$), it implies that the distribution of the sample is significantly different from a normal distribution. In other words, data is not normally distributed (Field, 2009). In such a case, researchers are not advised to apply parametric test. However, other researchers disagree with this viewpoint. According to them, in case of large sample size in social science research, the normality test would largely point out non-normality of the data even if there are minor deviations (Costello & Osborne, 2005; Ghasemi & Zahediasl, 2012).

Many scholars such as Field (2009) and Ghasemi and Zahediasl (2012) stated that satisfying conditions for normal distribution of data are rare in behavioral data and social science studies. Another concern is that the p-value of normality test does not verify whether the deviation from normality prevents to apply parametric test. Moreover, with large sample sizes (>300), violation of the normality assumption should not cause major problems and researchers can use parametric procedures

(Field, 2009). The normality test was examined by using Q-Q plot as well (See Annex 5). The Q-Q plot exhibits that the distribution of data is normally distributed.

The third assumption of ANOVA was about the variance. The equal variance assumption was tested with Levine's test (Table 17 and Table 18) for the results. In the table 17, the variance of each of the seven outcome measures of knowledge management (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) were examined.

Levene's Equal Variance Test of Demographic Variables

The Levene's equal variance test was used to test thirteen demographic variables, i.e. academic position, gender, age group, ethnicity, qualification, experiences, university, department, participation in conferences, publication, thesis guidance, engaged in other university, and study hour per day. The Levene's equal variance test was conducted for 13 different demographic variables of respondents. It was tested by the dimensions of knowledge management in terms of statistics, degree of freedom, and parameter values. For each of the demographic variables, it was tested through the dimensions of knowledge management, i.e. knowledge utilization, acquisition, generation, dissemination, transfer, creation, and presentation. Table 17 presents the test statistics of Levene's test.

As shown in Table 17, of the 42 tests, 10 resulted in a rejection of the null hypothesis of equal variance. The ten cases that resulted in a rejection of the null hypothesis of equal variance was knowledge utilization across academic position, acquisition across academic position, qualification, and experiences; dissemination across age group, qualification, and experiences; transfer across academic position, and qualification; and creation across academic position.

Table 17

Levene's Test of Individual Personal Characteristics

Comparison	KU	KA	KG	KD	KT	KC	KP
Academic Position							
Statics	4.75	11.04	1.46	2.70	5.69	5.31	0.75
DF	2442	2442	2442	2442	2442	2442	2442
p	0.01*	0.00*	0.23	0.07	0.00*	0.01*	0.48
Gender							
Statics	1.29	0.34	4.88	1.77	0.23	1.71	0.11
DF	1443	1443	1443	1443	1443	1443	1443
p	0.26	0.56	0.03	0.18	0.63	0.19	0.74
Age Group							
Statics	1.69	4.26	0.34	7.87	0.65	0.14	0.66
DF	2442	2442	2442	2442	2442	2442	2442
p	0.19	0.02	0.72	0.00*	0.53	0.87	0.52
Ethnicity							
Statics	0.65	0.22	1.49	1.02	0.32	0.56	1.52
DF	3441	3441	3441	3441	3441	3441	3441
p	0.58	0.88	0.22	0.38	0.81	0.64	0.21
Qualification							
Statics	1.89	20.70	0.98	10.41	4.91	2.36	1.99
DF	2442	2442	2442	2442	2442	2442	2442
p	0.15	0.00*	0.38	0.00*	0.01*	0.10	0.14
Experiences							
Statics	2.58	7.57	1.72	5.18	2.42	1.20	3.12
DF	3441	3441	3441	3441	3441	3441	3441
p	0.05	0.00*	0.16	0.00*	0.07	0.31	0.03

DF = Degree of Freedom, *p* = P Value

Table 18 shows the Levene's test statistics of the personal engagement in academia by the faculty members of higher educational institutions. As displayed in Table 18, of the 49 tests, seven resulted in a rejection of the null hypothesis of equal variance. The seven cases which resulted in a rejection of the null hypothesis of equal variance were knowledge acquisition across department, and engagement in other university; knowledge dissemination across department, participation in conferences, publication, and thesis guidance, and knowledge creation across university.

Table 18

Levene's Test of Personal Engagement in Academia

Comparison	KU	KA	KG	KD	KT	KC	KP
University							
Statics	1.47	1.87	0.09	0.76	0.04	8.93	2.40
DF	3411	3411	3411	3411	3411	3411	3411
p	0.22	0.13	0.97	0.52	0.99	0.00*	0.07
Department							
Statics	1.28	5.07	3.15	8.78	1.95	3.05	0.13
DF	3441	3441	3441	3441	3441	3441	3441
p	0.28	0.00*	0.03	0.00*	0.12	0.03	0.94
Participation in Conferences							
Statics	0.38	4.49	0.36	9.02	2.09	0.95	0.12
DF	1443	1443	1443	1443	1443	1443	1443
p	0.54	0.04	0.55	0.00*	0.15	0.33	0.73
Publication							
Statics	0.42	4.78	0.10	6.69	4.57	2.82	0.43
DF	1443	1443	1443	1443	1443	1443	1443
p	0.52	0.03	0.75	0.01*	0.03	0.09	0.51
Thesis Guidance							
Statics	0.09	3.48	0.06	7.04	3.97	1.32	0.06
DF	1443	1443	1443	1443	1443	1443	1443
p	0.76	0.06	0.81	0.01*	0.05	0.25	0.81
Engagement in other Universities							
Statics	0.75	9.07	3.66	0.57	0.14	1.47	0.89
DF	1443	1443	1443	1443	1443	1443	1443
p	0.39	0.00*	0.06	0.45	0.71	0.23	0.35
Study Hour							
Statics	2.08	1.55	4.18	0.12	2.41	1.45	2.95
DF	2442	2442	2442	2442	2442	2442	2442
p	0.13	0.21	0.02	0.89	0.09	0.24	0.05

DF = Degree of Freedom, *p* = P Value

The 74 tests did not reject the null hypotheses of equal variance across groups. This indicates that the ANOVA assumption of equality of variance mostly satisfied the database. However, then two Levene's tests that resulted in a rejection of the null hypothesis caused a confusion regarding as to how to decide on the appropriate test: Kruskal-Wallis or one-way ANOVA. In addition, the normality assumption in Table

17 was not satisfied although the test statistics was very close to 1. Therefore, relevant literature on ANOVA assumption was revisited.

There is a considerable discussion on ANOVA assumptions and its violations (For example, Wilcox, 1995; Hecke, 2010; Ehiwario et al., 2013). Wilcox's (1995) research on the effect of the violation of the normality assumption in the case of ANOVA concluded that non-normality has some effect on the Type I error, but the effect is minimal when the variances are equal. In this study, the variance was mostly equal and ANOVA was chosen for further analysis of this study.

Regarding normality assumption, Ehiwario et al. (2013) stated "the central limit theorem allows us to assume that the criterion of normality is approximated even for the skewed distributions if the sample sizes are large enough" (p. 128). In case of this study, the sample size covered 51.9% (n=445) faculty members of total 857 in the constituent campuses/schools/departments/faculties of the four universities. The minimum sample size in 5% precision is 232 and thus the sample size, i.e. the total number of questionnaires collected was higher than the minimum sample size. This also indicated the choice of parametric test of this study is appropriate.

The equal variance assumption was mostly satisfied as presented in Table 17 and Table 18. However, it was not satisfied to knowledge utilization across academic position; knowledge acquisition across academic position, qualifications, experiences, department, and engagement in other universities; knowledge dissemination in age group, qualification, experiences, department, participation in conferences, publication, and thesis guidance; knowledge transfer in academic position and qualification; and knowledge creation in academic position and university. In this regard, Ehiwario et al. (2013) advise that when the homogeneity of variance assumption is moderately violated, the *F*-test (ANOVA) is not seriously affected.

Therefore, it was decided to test the hypothesis with *t*-test and ANOVA.

To confirm if there could be any differences in using non-parametric test, equivalent non-parametric test (Mann Whitney for two groups or Kruskal-Wallis test) was performed. A design for the study was formulated to test all the statistically significant results of parametric from the non-parametric. If those significant results from the parametric tests are denied by the non-parametric tests to a high extent, i.e. if more than 0.1 level of significance, the results of the parametric are also considered insignificant, and they are accordingly explained. However, such cases were not encountered in this study.

Level of Knowledge Management among Faculty Members

This section primarily investigated the level of knowledge management and it is determined collectively through the dimensions of knowledge management, utilization, acquisition, generation, dissemination, transfer, creation, and presentation. Primarily, the analysis was based on the frequencies, percentage, mean and standard deviation (SD). For identifying the knowledge management, mean score was categorized into three levels of knowledge management: high, medium and low (as cited in Shabbir et al., 2014). The categorization was given in detail in Chapter III, under the section measuring level of knowledge management and academic performance.

The presentation of collected data in Table 19 indicates that the faculty members of higher educational institutions have the high and medium level of knowledge management among all its components. The faculty members of higher educational institutions maintained high level of knowledge management (Mean = 5.46, SD = 0.56). Among these seven dimensions of knowledge management, knowledge utilization possessed the highest mean score (5.78).

Table 19

Level of Knowledge Management

Dimensions	Mean	SD	Level
Knowledge Utilization	5.78	0.73	High
Knowledge Acquisition	5.71	0.83	High
Knowledge Generation	4.83	1.06	Medium
Knowledge Dissemination	5.46	1.03	High
Knowledge Transfer	5.45	0.90	High
Knowledge Creation	5.51	0.74	High
Knowledge Presentation	5.48	0.69	High
Knowledge Management	5.46	0.56	High

SD = Standard Deviation

High level of knowledge utilization reflects that the faculty members of higher educational institutions apply their knowledge for academic excellence. It also discloses that the pace of knowledge generation process of faculty members of higher educational institutions was in medium level. Rest of the knowledge management processes, i.e. knowledge acquisition, dissemination, transfer, creation, and presentation were relatively high.

Table 20 presents frequencies of knowledge management level among faculty members of higher educational institutions of Nepal. Knowledge management is the sum of the mean score of seven dimensions of knowledge management (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in this study. The majority of the respondents had high level of knowledge management in all of the dimensions except knowledge generation. Overall, the majority of faculty members (n = 342, % = 76.9) belonged to high knowledge management category. In the dimensions i.e., knowledge presentation, the respondents (n = 157, % = 35.3) had medium pace of knowledge management.

Table 20

Description of Level of Knowledge Management

Dimensions	High		Medium		Low		Total	
	N	%	N	%	N	%	N	%
Knowledge Utilization	368	82.7	76	17.1	1	0.2	445	100
Knowledge Acquisition	348	78.2	89	20.0	8	1.8	445	100
Knowledge Generation	175	39.3	242	54.4	28	6.3	445	100
Knowledge Dissemination	308	69.2	121	27.2	16	3.6	445	100
Knowledge Transfer	301	67.6	133	29.9	11	2.5	445	100
Knowledge Creation	317	71.2	126	28.3	2	0.5	445	100
Knowledge Presentation	287	64.5	157	35.3	1	0.2	445	100
Knowledge Management	342	76.9	103	23.1	0	0	445	100

In the data a very few faculty members gave their responses as they possessed low knowledge management in relation to the entire components of knowledge management. The section that follows presents the knowledge management practices of the faculty membes of HEIs.

Measuring Knowledge Management Practices of Faculty Members of HEIs

The analysis of data collected from the respondents of different universities of Nepal to assess the faculty members' knowledge management practices has been presented in this section. Knowledge management practices have been presented along with the indicators of knowledge management. The result has been presented in Annex 6.

Academic Position and Knowledge Management Practices

To explore the potential relationship between knowledge management practices and academic position in higher educational institutions, the data concerning this relationship were analyzed. The academic position were categories as; professors, associate professors/readers, and assistant professors/lecturers. The responses of these academic position, were analyzed in relation to knowledge management practices Annex 6 (Table 1). The mean value of Annex 6 (Table 1) indicates the way professors, associate professors/readers, and assistant professors/lecturers of higher educational institutions in Nepal practice their knowledge of knowledge management practices. Further, it indicates that professors practice their knowledge management behaviours and activities effectively in knowledge generation (mean = 5.17), transfer (mean = 5.82), creation (mean = 5.78), and presentation (mean = 5.64) comparing to associate professors/readers and assistant professors/lecturers. Furthermore, associate professors/readers practice their knowledge management practices in knowledge utilization (mean = 5.90), and dissemination (mean = 5.72) effectively comparing to professors and assistant professors/lecturers. But in case of knowledge acquisition process, assistant professors/lecturers (mean = 5.80) effectively acquire knowledge in Nepali higher educational context.

The test result of academic position (Annex 6, Table 1) demonstrated knowledge utilization ($f = 0.814$, $p = 0.444$), acquisition ($f = 66.186$, $p = 0.000$), generation ($f = 2.515$, $p = 0.082$), dissemination ($f = 30.227$, $p = 0.000$), transfer ($f = 2.411$, $p = 0.091$), creation ($f = 1.464$, $p = 0.232$), and presentation ($f = 0.630$, $p = 0.533$). This indicates that there was statistical difference in knowledge acquisition and dissemination process by professors, associate professors/readers, and assistant professors/lecturers. A follow-up *t* test indicated that the assistant professors/lecturers (M = 5.8) acquiring knowledge well comparing to associate professors/readers (M = 5.7) and professors (M = 3.8) in higher educaitional context. It was further analyzed by using the G*Power analysis (effect size $f = 0.46$; power (1- β error prob) = 0.99) which supported the finding identified by the follow-up *t* test. The follow-up *t* test of associate professors/readers shows that they

(M = 5.7) are disseminating the knowledge effectively comparing to professors (M = 3.8) and assistant professors/lecturers (M = 5.5) in higher educational context.

The Post Hoc and G*Power analysis (effect size f = 0.34; power (1- β error prob) = 0.99) indicated that the assistant professors/lecturers are practicing very well in knowledge acquisition process and associate professors/readers in knowledge disseminating process. The finding of present research so in line with Mazhar and Akhtar (2018). They emphasize that knowledge management practice differs by nature and position of a job.

Gender and Knowledge Management Practices

The mean value indicated differences between male and female faculty members in knowledge management practices in Nepali higher educational institutions. The details of mean value were presented in the section Annex 6 (Table 2). The mean value of knowledge utilization process (female = 5.86, male = 5.77) and the mean value of knowledge presentation skills (female = 5.60, male = 5.46) indicated that the female faculty members performed better than their male counterparts. But in case of remaining dimensions of knowledge management process, male faculty members outnumbered their female counterparts. The mean values of male and female faculty members were recorded as: knowledge acquisition (male = 5.73, female = 5.57), knowledge generation (male = 4.83, female = 4.80), dissemination (male = 5.46, female = 5.40), transfer (male = 5.45, female = 5.42), and creation (male = 5.51, female = 5.42). It revealed that male faculty members were better than female faculty members.

The test statistics of Annex 6, Table 2 proves that there were no significant differences in knowledge management practice behaviours among the males and female faculty members of higher educational institutions in Nepal although there are mean differences between the values of male and females.

Age Group and Knowledge Management Practices

This section discusses the way faculty members of different age groups practise their knowledge of knowledge management. The mean value of Annex 6 (Table 3) indicates how the knowledge management practices are different between different age groups of faculty members in Nepali higher educational institutions. The mean value of knowledge utilization process (age group 40 – 50 = 5.83, < 40 years = 5.70, >50 years = 5.8), the mean value of knowledge generation activities (age group 40 – 50 = 4.92, < 40 years = 4.70, >50 years = 4.73), and the mean value of knowledge creation process (age group 40 – 50 = 5.52, < 40 years = 5.50, >50 years = 5.25) verified that the participants of age group between 40 to 50 years had better knowledge utilization, generation, and creation process than other age group. Likewise, the mean value of knowledge acquisition (<40 years = 5.76, 40 – 50 years = 5.71, >50 years = 4.90), and the mean value of knowledge dissemination (<40 years = 5.57, 40 – 50 years = 5.41, >50 years = 4.76) indicated that the participants <40 years had better knowledge acquisition and dissemination process than other age groups. Similarly, the mean value of knowledge transfer (>50 years = 5.53, <40 years = 5.46, 40 – 50 years = 5.43), and the mean value of knowledge presentation (>50 years = 5.61, <40 years = 5.40, 40 – 50 years = 5.52) replicated that the participants belonging to>50 years had better knowledge transfer and presentation process.

The test result of age group (Annex 6, Table 3) demonstrated knowledge utilization (f = 1.596, p = 0.204), acquisition (f = 6.737, p = 0.001), generation (f = 2.354, p = 0.096), dissemination (f = 4.295, p = 0.014), transfer (f = 0.121, p = 0.886), creation (f = 0.847, p = 0.429), and presentation (f = 1.953, p = 0.143). These results indicate that there was statistical difference in the knowledge acquisition, and dissemination process, among different age groups of faculty members of Nepali higher educational institutions.

The mean value of age group > 50 years (M = 4.9) is less than that of the age group of 30 – 39 years (M = 5.8), and 40 – 49 years (M = 5.7) and a follow-up *t* test indicated that the age group having 30 – 39 years are practicing very well in knowledge generation process in higher educational institutions. It was further analyzed by using the G*Power analysis (effect size *f* = 0.14; power (1- β error prob) = 0.99) which supported the finding identified by the follow-up *t* test. A follow-up *t* test indicated that the age group having 30 – 39 years and age group > 50 years are significant, and it also showed that the age group 30 – 39 years (M = 5.6) are disseminating the knowledge in higher educational institutions very well comparing age group > 50 years (M = 4.8). G*Power analysis (effect size *f* = 0.11; power (1- β error prob) = 0.99) supported the finding identified by the follow-up *t* test.

The Post Hoc and G*Power analysis showed that age group having 30 – 39 years are practicing very well in knowledge generation and dissemination process in higher educational institutions. The previous studies (Rahimi et al., 2011; Mazhar & Akhtar, 2018) showed that there is significant difference in knowledge management practices according to age group.

Ethnicity and Knowledge Management Practices

This section discusses behaviour of knowledge management practices by different ethnic groups in higher educational institutions. The mean value of Annex 6 (Table 4) pointed to the differences in knowledge management practices among faculty members of different ethnic origins.

The mean values were: knowledge utilization process (Dalit = 6.10, Brahman/Chhetri = 5.78, Indigenous Ethnic = 5.73, Madhesi = 5.80), knowledge acquisition (Dalit = 6.00, Brahman/Chhetri = 5.69, Indigenous Ethnic = 5.68, Madhesi = 5.83), knowledge generation (Dalit = 5.37, Brahman/Chhetri = 4.78, Indigenous Ethnic = 5.00, Madhesi = 4.87), knowledge transfer (Dalit = 5.66, Brahman/Chhetri = 5.42, Indigenous Ethnic = 5.41, Madhesi = 5.49), knowledge creation (Dalit = 5.78, Brahman/Chhetri = 5.49, Indigenous Ethnic = 5.49, Madhesi = 5.55), and knowledge presentation (Dalit = 5.75, Brahman/Chhetri = 5.43, Indigenous Ethnic = 5.64, Madhesi = 5.54). It indicates that the faculty members from ethnic group of the Dalit practiced more knowledge utilization, acquisition, generation, transfer, creation, and presentation process than faculty members coming from other ethnic origins.

In contrast, the mean values of knowledge dissemination were Madhesi (5.60), Brahman/Chhetri (5.44), Indigenous Ethnic (5.41), and Dalit (5.50). This illustrates that the faculty members from the Madhesi ethnic group disseminated their knowledge very well in comparison to other ethnic groups. The test statistics of Annex 6 (Table 2) confirms that there were not any significant differences in the behaviour of knowledge management practices among different ethnic groups represented by the participating faculty members of this research.

Qualifications and Knowledge Management Practices

The significance of qualification on the practices of knowledge management is discussed in this section. The mean value presented in Annex 6 (Table 5) indicates how the faculty members having different academic qualifications, i.e. Doctoral, Master of Philosophy and Master’s degree practise knowledge management in their academic activities in higher educational institutions.

The mean values were: knowledge utilization (MPhil = 6.04, PhD = 5.88, Master = 5.73), acquisition (MPhil = 6.09, PhD = 5.42, Master = 7.73), generation (MPhil = 5.37, PhD = 5.05, Master = 4.73), dissemination (MPhil = 5.86, PhD = 5.31, Master = 5.44), and presentation (MPhil = 5.65, PhD = 5.49, Master = 5.46).

The results verify that the faculty members with the degree of Master of Philosophy had higher level of knowledge management practices than others in knowledge utilization, acquisition, generation, dissemination and presentation process. Moreover, the mean value of knowledge transfer (PhD = 5.67, MPhil = 5.46, Master = 5.40), and creation (PhD = 5.61, MPhil = 5.58, Master = 5.47) validate that the faculty members having PhD degree more effectively practiced their knowledge in knowledge transfer and creation process in comparison to associate professors/readers and assistant professors/lecturers.

The test result of qualification (Annex 6, Table 5) shows knowledge utilization (f = 3.372, p = 0.035), acquisition (f = 8.053, p = 0.000), generation (f = 7.428, p = 0.001), dissemination (f = 3.230, p = 0.041), transfer (f = 2.593, p = 0.076), creation (f = 1.230, p = 0.293), and presentation (f = 1.056, p = 0.349). It indicated that there were statistical differences in knowledge utilization, acquisition, generation, and dissemination process by faculty members having different academic qualifications. The follow-up *t* test showed the significance of knowledge acquisition, generation, and dissemination process with different academic qualifications of the faculty members of HEIs. It shows that having MPhil degree (M = 6.1) is better than the degrees having PhD (M = 5.4) and Master (M = 5.7) in knowledge acquisition process. To confirm the result, G*Power analysis (effect size f = 0.20; power (1- β error prob) = 0.99) was performed which supported the finding of follow-up *t* test.

For knowledge generation process, the follow-up *t* test identified the result as; having MPhil degree (M = 5.4) is better than having Master's degree (M = 4.7). This finding is also verified by the G*Power analysis (effect size $f = 0.22$; power (1- β error prob) = 0.99) and it also supported the previous findings. Similarly, in knowledge dissemination process having MPhil degree (M = 5.9) is better than having PhD degree (M = 5.3); which was also analysed through the G*Power analysis (effect size $f = 0.14$; power (1- β error prob) = 0.99).

The Post Hoc and G*Power analysis showed that having MPhil degree is better than having PhD and Master's degree in knowledge acquisition, generation and dissemination process in higher educational institutions. The previous studies (Boondao, 2013; Marosi & Katona, 2015) showed that there is significant difference in knowledge management practices according to qualifications. They highlighted that qualification matters in practices of KM in institution, particularly in HEIs.

Faculty Members' Experiences and Knowledge Management Practices

The faculty members' experiences matter highly for the knowledge management practices in higher educational institutions. This section investigates the way the experience of faculty members influences knowledge management practices. The mean value of Annex 6 (Table 6) points to the relationship between experiences of faculty members of higher educational institutions and practices of knowledge management.

The mean values were: knowledge utilization (>= 30 years = 5.96, < 10 years = 5.75, 10 – 19 years = 5.81, 20 – 29 years = 5.67), and knowledge creation (>= 30 years = 5.60, < 10 years = 5.45, 10 – 19 years = 5.52, 20 – 29 years = 5.57). The result indicates that faculty members with experience of 30 years or more had better performance knowledge utilization and knowledge creation process than faculty members having experience of less than 30 years.

The mean values (< 10 years = 5.83, 10 – 19 years = 5.79, 20 – 29 years =

5.30, >= 30 years = 5.40) certify that faculty members with the experience of less than 10 years had better knowledge acquisition behaviours than faculty members with experience of more than 10 years. Here, the mean values of knowledge generation (20 – 29 years = 4.98, < 10 years = 4.71, 10 – 19 years = 4.86, >= 30 years = 4.90), knowledge transfer (20 – 29 years = 5.53, < 10 years = 5.40, 10 – 19 years = 5.45, >= 30 years = 5.13), and knowledge presentation (20 – 29 years = 5.56, < 10 years = 5.41, 10 – 19 years = 5.50, >= 30 years = 5.26) indicate that the faculty members with the experience of 20 - 29 years had higher level of performance in knowledge generation, transfer and presentation skills than faculty members with experience of more than 30 years or less than 21 years.

The test result of experiences (Annex 6, Table 6) shows knowledge utilization ($f = 0.302$, $p = 0.824$), acquisition ($f = 9.096$, $p = 0.000$), generation ($f = 1.314$, $p = 0.269$), dissemination ($f = 3.280$, $p = 0.021$), transfer ($f = 0.568$, $p = 0.636$), creation ($f = 0.621$, $p = 0.602$), and presentation ($f = 1.163$, $p = 0.324$). It reveals that there were statistical differences in knowledge acquisition, and dissemination process by the faculty members having different levels of experiences. The follow-up *t* test analysis showed that experiences having < 10 years (M = 5.8) are practicing the knowledge acquisition process better compared to the experiences of 10 – 19 years (M = 5.7) and 21 – 29 years (M = 5.3). The G*Power analysis was also performed to test the result and it was supported through the value identified by its test (effect size $f = 0.21$; power (1- β error prob) = 0.99). In the same way having experiences < 10 years (M = 5.6) is better in knowledge disseminating process in academia comparing to experiences having 21 – 29 years (M = 5.2). It was also analysed through the G*Power analysis (effect size $f = 0.13$; power (1- β error prob) = 0.99) which supported the previous finding of follow-up *t* test.

The Post Hoc and G*Power analysis confirmed that having experiences < 10 years are practicing their knowledge of acquisition and dissemination very well in comparison to having experiences more than 10 years. This study is supported by the previous finding of Mazhar and Akhtar (2018). The researcher highlighted that practicing KM in academia, particularly in higher educational institutions differs by years of teaching experience.

Universities and Knowledge Management Practices

In some contexts, the type of university and the attitude of faculty members towards knowledge management practices matter. The mean value of Annex 6 (Table 7) indicates how faculty members of different universities have practised knowledge management in the context of higher education in Nepal.

The mean value of knowledge utilization process of different universities (A = 5.85, B = 5.77, C = 5.61, and D = 5.70) indicates that the faculty members from university A were practicing their knowledge utilization effectively comparing to other universities. In this, the mean values of knowledge acquisition of different universities (B = 5.91, A = 5.70, C = 5.57, and D 5.49), and dissemination (B=5.61, A = 5.47, C = 5.29, and D = 5.24) disclose that faculty members from university B were practicing their knowledge of knowledge management better than faculty members from other universities.

The mean values of different dimensions of knowledge management were calculated as knowledge generation process of different universities (C = 4.96, A = 4.78, B = 4.85, and D = 4.79), transfer (C = 5.53, A = 5.43, B = 5.48, and D = 5.30), creation (C = 5.67, A = 5.39, B = 5.65, and D = 5.47), and presentation (C = 5.56, A = 5.48, B = 5.49, and D = 5.29). This calculation verifies that the faculty members of university C were practicing their knowledge of knowledge management in knowledge generation, transfer, creation and presentation process very well comparing to other universities.

The test results of Annex 6 (Table 7) present knowledge utilization (f = 2.227, p = 0.084), acquisition (f = 3.925, p = 0.009), generation (f = 0.518, p = 0.670), dissemination (f = 1.948, p = 0.121), transfer (f = 0.663, p = 0.575), creation (f = 4.317, p = 0.005), and presentation (f = 1.346, p = 0.259) of different universities. It finds that there were statistical differences in knowledge acquisition and creation processes by the faculty members of different universities. The follow-up t test was executed to confirm the result of ANOVA analysis and it showed that the University B (M = 5.9) is practicing the knowledge acquisition process very well comparing to University C (M = 5.5) and University D (M = 5.4). It was further confirmed by G*Power analysis, which showed the result as; effect size f = 0.21; power (1- β error prob) = 0.99, which is supported by the result of follow-up t test. Likewise, the knowledge creation process of University B (M = 5.6) is better comparing to University A (M = 5.4) and University C (M = 5.4). It was also further analysed through the G*Power analysis, effect size f = 0.22; power (1- β error prob) = 0.99 and it supports the previous findings.

The Post Hoc and G*Power analysis showed that university B is better in practicing knowledge acquisition and creation process comparing to other universities. The past study of Rahimi et al. (2011) also supports this finding.

Department and Knowledge Management Practices

This section describes how the faculty members from the different departments are practicing their knowledge of knowledge management. The mean value of Annex 6 (Table 8) indicates how the faculty members of different schools or departments were practicing their knowledge of knowledge management practices in higher educational context of Nepal.

The mean values of knowledge utilization (management = 5.81, humanities = 5.80, education = 5.76, and science = 5.75), knowledge generation (management = 5.30, humanities = 4.74, education = 4.67, and science = 4.73), knowledge transfer (management = 5.55, humanities = 5.51, education = 5.29, and science = 5.33), knowledge creation (management = 5.67, humanities = 5.45, education = 5.37, science = 5.52), and knowledge presentation (management = 5.61, humanities = 5.41, education = 5.56, and science = 5.46) were calculated. These figures indicate that the faculty members of the management department/school were practicing their knowledge of knowledge management practices in knowledge utilization, generation, transfer, creation and presentation process much better than those of faculty members of other departments of the universities of Nepal.

Furthermore, the mean value of knowledge acquisition (science = 5.76, humanities = 5.74, education = 5.60, and management = 5.63) discloses that the faculty members from department/school of science had higher level of knowledge acquiring process than faculty members of other departments such as humanities, education, and management. In terms of knowledge dissemination, faculty members of education department/school (the mean value of; education = 5.63, humanities = 5.49, management = 5.45, and science = 5.33) represented the highest level of knowledge management practices than faculty members of other departments such as humanities, management and science.

The test result (Annex 6, Table 8) finds behaviours of faculty members of different departments of universities: knowledge utilization (f = 0.207, p = 0.892), acquisition (f = 0.790, p = 0.500), generation (f = 6.659, p = 0.000), dissemination (f =1.213, p = 0.305), transfer (f = 1.885, p = 0.131), creation (f = 2.307, p = 0.076), and presentation (*f* = 1.772, *p* = 0.152). Furthermore, a follow-up *t* test analysis was performed to confirm the result of ANOVA analysis and the result indicated that there was statistical difference in knowledge generation process by the faculty members of different department/school. Further analysis showed that faculty members of the Department/School of Managemnt (M = 5.3) are generating knowledge very well comparing to other departments/schools: Arts/Humanities (M = 4.7), Education (M = 4.6), and Science (M = 4.7) in higher educational context. The findings were confirmed by the G*Power analysis (effect size *f* = 0.25; power (1- β error prob) = 0.99), which were also supported by the finding of follow-up *t* test analysis.

The Post Hoc and G*Power analysis showed that faculty members of management department/school are practicing their knowledge generation process very well compared to other school and department in higher educational context. Different departments of the university conduct their jobs differently and their innovative processes and activities are different (Dysart & Weckerle, 2015) which matter to the practice of knowledge management in higher academic institutions.

Participation in Conferences and Knowledge Management Practices

This section discusses the impact of participation in conferences on knowledge management practices behaviour of faculty members. The mean value of Annex 6 (Table 9) illustrates how knowledge management practices of faculty members contribute to conferences and other related events.

The mean values of knowledge utilization (No = 5.84, Yes = 5.76), acquisition (No = 5.89, Yes = 5.67) dissemination (No = 5.72, Yes = 5.39), and transfer (No = 5.46, Yes = 5.44) indicate that the participating in conferences was not crucial for knowledge utilization, acquisition, dissemination and transfer process.

There were no significant differences in these dimensions when compared with faculty members who participated in conferences. Here, the mean values of knowledge generation (Yes = 4.85, No = 4.69), creation (Yes = 5.52, No = 5.42), and presentation (Yes = 5.43, No = 5.41) verify that the faculty members, who participated in conferences performed more efficiently in knowledge generation, creation, and presentation process than the faculty members who did not participate in conferences.

The t-test result of (Annex 6, Table 9) knowledge utilization (t = 0.694, p = 0.405), acquisition (t = 4.511, p = 0.033), generation (t = 1.550, p = 0.214), dissemination (t = 6.935, p = 0.009), transfer (t = 0.051, p = 0.822), creation (t = 1.238, p = 0.266), and presentation (t = 0.856, p = 0.355) pointed out that participating in conferences had better performance in knowledge acquisition and dissemination process than not participating in conferences. The test was also confirmed by G*Power analysis for knowledge acquisition (effect size f = 0.28; power (1- β error prob) = 0.99) and knowledge dissemination (effect size f = 0.44; power (1- β error prob) = 0.99), which is supported by the findings of ANOVA analysis. It showed that digital technologies matter in disseminating knowledge (Wall, 2013) which emphasizes on the conferences and seminar activities.

Academic Publications and Knowledge Management Practices

This section seeks to understand whether publications of faculty members have impacts on their knowledge management practices. The mean value of Annex 6 (Table 10) shows the link between publications and knowledge management among faculty members of higher education institutes.

The mean values of knowledge utilization (No = 5.80, Yes = 5.78), acquisition (No = 5.85, Yes = 5.69), and dissemination (No = 5.63, Yes = 5.43) indicate that the faculty members without publications had low level of knowledge management activities of knowledge utilization, acquisition and dissemination. However, faculty members without academic publications performed better in knowledge generation (Yes = 4.84, No = 4.75), transfer (Yes = 5.46, No = 5.32), creation (Yes = 5.52, No = 5.37), and presentation (Yes = 5.49, No = 5.41) than faculty members with publications.

The test statistics of Annex 6 (Table 10) proves that there is no significant differences in knowledge management practices behaviour among the faculty members who are engaged in the publication process of academic output or not in higher educational institutions of Nepal although there are differences in mean values.

Thesis Guidance and Knowledge Management Practices

Thesis guidance is another demographic variable of the faculty members of higher educational institutions. The mean value of Annex 6 (Table 11) indicates how the faculty members' thesis guidance activities impact on the knowledge management. The faculty members who were not involved in thesis guidance performed better in knowledge utilization (No = 5.83, Yes = 5.78), acquisition (No = 5.90, Yes = 5.69), and dissemination (No = 5.66, Yes = 5.42) than faculty members who supervised theses. Faculty members involved in thesis supervision were found better performing in knowledge generation (Yes = 4.84, No = 4.76), transfer (Yes = 5. 46, No = 5.36), creation (Yes = 5.53, No = 5.34), and presentation (Yes = 5.48, No = 5.44) than faculty members not involved in thesis supervision.

Engagement with other Universities and Knowledge Management Practices

This section examines the link between knowledge management practices and involvement of faculty members in other universities. The mean value of Annex 6 (Table 12) indicates the impact of the engagement of faculty members in the other universities on knowledge management practices. The result indicates that faculty members involved in other universities got higher points in knowledge utilization (Yes = 5.81, No = 5.78), generation (Yes = 5.06, No = 4.77), and presentation (Yes = 5.50, No = 5.47) than faculty members not involved in other universities.

On the other hand, faculty members not involved in other universities were found better in knowledge acquisition (No = 5.75, Yes = 5.58), dissemination (No = 5.46, Yes = 5.43), transfer (No = 5.46, Yes = 5.40), and creation (No = 5.49, Yes = 5.56) than faculty members who were involved in other universities.

The test result of engagement in other university (Annex 6, Table 12) finds knowledge utilization (t = 0.143, p = 0.705), acquisition (t = 3.071, p = 0.080), generation (t = 5.995, p = 0.015), dissemination (t = 0.069, p = 0.793), transfer (t = 0.317, p = 0.574), creation (t = 0.722, p = 0.396), and presentation (t = 0.110, p = 0.740). The test was also confirmed by the G*Power analysis (effect size f = 0.44; power (1- β error prob) = 0.99) which supported the findings of ANOVA analysis. The teaching and learning practice is different in institutional level (Blackmore, Blackwell & Edmondson, 2016) which makes difference in practicing knowledge management.

Study Hour and Knowledge Management Practices

This section examines the impact of study hour of faculty members on their behaviour of knowledge management practices. The mean value of Annex 6 (Table 13) indicates the impact of study hours of faculty members on knowledge management practices.

The mean values of knowledge utilization (3 – 4 hours = 5.80, <3 hours = 5.74, >4 hours = 5.79), acquisition (3 – 4 hours = 5.74, <3 hours = 5.66, >4 hours = 5.73), and transfer (3 – 4 hours = 5.46, <3 hours = 5.43, >4 hours = 5.45). These values indicate that the study hours influence on the knowledge management practices. Faculty members studying 3 – 4 hours every day had higher level of performance in knowledge utilization, acquisition, and transfer process than faculty members studying less than 3 hours or more than 4 hours daily.

Faculty members studying more than four hours had better knowledge management practices in the knowledge generation, dissemination, creation, and presentation process as; knowledge generation (> 4 hours = 5.00, <3 hours = 4.72, 3 – 4 hours = 4.86), dissemination (> 4 hours = 5.51, <3 hours = 5.41, 3 – 4 hours = 5.48), creation (> 4 hours = 5.65, <3 hours = 5.48, 3 – 4 hours = 5.50), and presentation (> 4 hours = 5.71, <3 hours = 5.52, 3 – 4 hours = 5.44) than those who studied less than three hours and greater than four hours per day. A closer look at the data presented in Annex 6, Table 13 reveals that the difference is not very significant. This shows that the study hours by the faculty members in HEIs matter for the practices of KM at individual level.

Result of Statistical/Hypothesis Tests

ANOVA or *t*-test was performed to examine the differences in knowledge utilization, acquisition, generation, dissemination, transfer, creation, and presentation as a function of thirteen independent variables such as academic position, gender, age, ethnicity, qualification, experiences, university, department, participation in conferences, publication, thesis guidance, engagement in other universities, and study hours per day. The mean values in the dimensions of knowledge utilization, acquisition, dissemination, transfer, creation, and presentation indicate that the faculty members of the higher educational institutions represent their practices of the knowledge management satisfactorily. However, it shows poor result in knowledge generation of the faculty members of higher educational institutions in Nepal.

Inferential tests were performed to examine the differences in knowledge utilization, acquisition, generation, dissemination, transfer, creation, and presentation process and activities as a function of thirteen independent variables: academic position, gender, age, ethnicity, qualification, experiences, university, department, participation in conferences, publication, thesis guidance, engagement in other university, and study hour. The follow-up *t* test and G*Power analysis were used to confirm the result of the ANOVA analysis. With respect to academic position, differences were observed in all seven independent measures. Hence, null hypothesis one, $H_0 1$: There is no significant difference across academic position on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions. The knowledge management practices in higher educational institutions viewed by the professors, associate professors/readers, and assistant professors/lecturers; the assistant professors/lecturers scored significantly higher than professors and associate professors/readers in knowledge acquisition process and associate professors/readers scored higher than professors and assistant professors/lecturers in knowledge dissemination process.

A research conducted by Mazhar and Akhtar (2018) stressed that knowledge management practice differs by the academic position in academia. This indicated that /associate professors/readers are good in knowledge dissemination process and assistant professors/lecturers are found better in knowledge acquisition process in higher educational context. Chahal and Savita (2014) highlighted that lecturers are recognized as important team members of the organization in the process of practicing knowledge management. Hence, this finding rejects to fail the null hypothesis and it showed that the academic position matters in knowledge management practices in HEIs.

The faculty members of the HEIs belonging to different age groups matter in practicing knowledge management. The test statistics shows that age group having 30 – 39 years are practicing very well in knowledge generation and dissemination process in higher educational institutions. Hence, the null hypothesis $H_0 3$: There is no significant difference across age on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation and presentation) in higher educational institutions fail to reject the null hypothesis. The researchers showed that the way of practicing knowledge management according to age is different (Rahimi et al., 2011; Mazhar & Akhtar, 2018). As Marosi (2013) highlighted that five years would be enough to identify, share, and retain the knowledge in higher education institution. Hence, this shows that younger faculties are more serious in their jobs and it impacts on practicing KM in their working institutions.

The academic qualification of faculty members is varied. The university faculties are practicing the knowledge of knowledge management differently based on their qualifications (Boondao, 2013; Marosi & Katona, 2015). Hence, the null hypothesis $H_0 5$: there is no significant difference across qualification on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions is accepted.

Likewise, the hypothesis $H_0 6$ was tested based on the experiences of the faculty members. Moensted (2002) emphasized that knowledge management practice in university differs by the working experiences of the teaching staff. This study also found that the KM is differed by the experiences. Hence, the null hypothesis $H_0 6$: there are no significant differences across experiences on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions is accepted. The respondents of this study belong to different universities in Nepal. Different universities have different physical infrastructure, leadership, environment, and so on (Rahmi et al., 2011) which matter in practicing knowledge management. Hence, we accept the null hypothesis $H_0$7: there is no significant difference across university on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions.

There are different departments/schools in a university which demand different types of teaching and learning methodologies. University business department/ school have to practice more than teaching and research activities (Moensted, 2002). This study also showed that the business department/school have significantly higher performance in knowledge management compared to other departments/schools. Thus, the null hypothesis $H_0$8: There is no significant difference across departments/schools on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions is failed to reject.

The academic institutions are center of knowledge generation, transfer, and dissemination. For this the universities conduct different types of workshops, seminars, and conferences to enhance the academic excellences of the faculty members. In this regard, Wall (2013) highlighted that digital technology enhances the knowledge dissemination process which covers through participating and presenting papers in conferences. This is in the line with the current study, hence, the null hypothesis $H_0$9: there is no significant difference across participation in conferences on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions fail to reject and accept the null hypothesis.

Sometimes, the faculty members of one university share and transfer their knowledge to other universities and it helps to generate new knowledge to the faculty members and students. Blackmore et al. (2016) emphasized that involving in multiple institutions enhance the understanding of concepts and ideas of practicing KM. This practice also enhances the knowledge generation process of an individual in an educational context. Thus, the null hypothesis, H_012: there is no significant difference across engagement in other universities on knowledge management dimensions (utilization, acquisition, generation, dissemination, transfer, creation, and presentation) in higher educational institutions fail to reject and accept the null hypothesis.

The test statistics presented a significant relationship of academic position with knowledge acquisition and dissemination; age with knowledge acquisition and dissemination, qualification with knowledge utilization, acquisition, generation, and dissemination; and experiences with knowledge acquisition and dissemination; university with knowledge acquisition and creation; department with knowledge generation; participation in conferences with knowledge acquisition and dissemination; and engaged in other university with knowledge generation. The research by Detlor et al. (2006) confirmed that younger ones are more effective in sharing information and knowledge than older faculties. Likewise, gender, age, and department (Rahimi et al., 2011), learning activities and learning environments (Tee & Lee, 2013), nature of job, teaching experience, gender, and age (Mazhar & Akhtar, 2018) matter in practicing KM in higher educational institutions. As a consequence, the KM practices of the faculty members in higher educational institutions differ from each other. The academic position, age group, qualification, experiences, working university, and department, participation in conferences and engagement in other university enhances practices of knowledge management in academia.

Chapter Summary

This chapter began with the description of the statistical analysis procedure. The statistical analysis indicates a significant difference in the views of faculty members' knowledge management practices in higher educational institutions in Nepal. The mean value of the level of knowledge management identifies the KM level of faculty members is high except knowledge generation. The way of practicing knowledge management by the faculty members having different academic positions, gender, age group, ethnic group, experiences, qualification, working university and department, engagement in academic activities such as participation in conferences, publication, thesis guidance, engagement in other university, and study hours of faculty members impact on their KM practice behaviours and attitudes. Faculty members' views on knowledge utilization, acquisition, generation, dissemination, transfer, creation, and presentation provided ample rooms to analyse and take the study further. The knowledge management practices of the faculty members differ on academic positions, age, qualifications, experiences, university, departments, their involvement in conferences, and engagement with other universities.

CHAPTER VI

RELATIONSHIP BETWEEN KNOWLEDGE MANAGEMENT AND ACADEMIC PERFORMANCE

This chapter examines the impact of effective knowledge management in academic performance of faculty members. In the process of examination, the correlation of knowledge management and academic performance along with its dimensions is discussed. A model of academic performance to enhance academic activities in relation to knowledge management is developed. The chapter ends with discussion on interdependence of knowledge management and academic performance of higher educational institutions of Nepal. The following section presents the results of levels of academic performance of those faculty members.

Statistical Analysis Procedure

In this study, the descriptive analysis was used to describe the level of academic performance of the faculty members of HEIs. Furthermore, inferential statistical procedures particularly correlation, regression, and canonical correlation analysis were performed to identify the direction, association and interdependent relationship between dimensions of knowledge management and academic performance. The study encompassed the following null hypotheses.

$H_0 1$: The academic performance depends upon the practices of knowledge management in higher educational institutions by the faculty members.

$H_0 2$: The interdependent relationship exists between the dimensions of knowledge management and academic performance.

Academic Performance of Faculty Members

In this study, the indicators of academic performances of faculty members are research and publications, innovation, interactive learning, and capacity building activities. In statistical analysis, these levels were measured by using mean and standard deviation. Following Best (as cited in Shabbir et al., 2014), the mean score was categorized in three levels of academic performance: high, medium and low. The following table presents the findings of the statistical analysis.

Table 21

Level of Academic Performance

Dimensions	Mean	SD	Level
Research and Publications	5.80	0.76	High
Innovation	5.74	0.95	High
Interactive Learning	5.79	0.86	High
Capacity Building	4.93	1.20	Medium
Academic Performance	5.56	0.72	High

SD = Standard Deviation

The above table shows that overall academic performance of faculty members including the dimensions of academic performance such as research and publications, innovation, and interactive learning was high. However, in case of capacity building, the level of academic performance was medium.

Table 22

Description of Level of Academic Performance

Dimensions	High		Medium		Low		Total	
	N	%	N	%	N	%	N	%
Research and Publications	365	82.0	78	17.5	2	0.5	445	100
Innovation	364	81.8	76	17.1	5	1.1	445	100
Interactive Learning	346	77.7	96	21.6	3	0.7	445	100
Capacity Building	193	43.3	217	48.8	35	7.9	445	100
Academic Performance	341	76.6	103	23.2	1	0.2	445	100

The above table highlights the frequencies of academic performance among faculty members. The majority of respondents have high level of academic performance in the universities where they work. The academic performance is the sum of the mean score of four dimensions (research and publications, innovation, interactive learning, and capacity building) in this study. The majority of the respondents had high academic performance in all dimensions except capacity building. The result exposed that a very few respondents had the low level of academic performance. The result further added that the practices of the faculty members of higher educational institutions were participating regularly to enhance their academic excellences except the capacity building processes.

Correlation between Knowledge Management and Academic Performance

The value of correlation is about the direction and relationship among the dimensions of knowledge management and academic performance. Table 23 discloses correlation between the dimensions of knowledge management and academic performance.

Table 23

Correlations between Knowledge Management and Academic Performance

	KU	KA	KG	KD	KT	KC	KP
RP	.44**	.36**	.33**	.32**	.20**	.36**	.24**
INNO	.40**	.33**	.26**	.37**	.12*	.18**	.25**
IL	.38**	.30**	.41**	.33**	.18**	.22**	.11*
CB	.52**	.37**	.53**	.38**	.38**	.18**	.24**

*Correlation is significant at the 0.01 (**.), 0.05 (*.) level(2-tailed).

KU = Knowledge Utilization, KA = Knowledge Acquisition, KG = Knowledge Generation, KD = Knowledge Dissemination, KT = Knowledge Transfer, KC = Knowledge Creation, KP = Knowledge Presentation, RP = Research and Publications, INNO = Innovation, IL = Interactive Learning, CB = Capacity Building

The results of the correlation, as shown in Table 23, indicate the correlations between all seven dimensions of knowledge management practices and four dimensions of academic performance at different levels, i.e. from very low to moderate level. Bartz (1999) indicates five levels of correlation as (1) 0 to 0.2, very low, (2) 0.2 to 0.4, low, (3) 0.4 to 0.6, moderate, (4) 0.6 to 0.8, strong, and (5) 0.8 to 1, high. Based on Bartz (1999), the relationships of knowledge utilization with the dimensions of academic performance were moderate with research and publications (.44) and capacity building (.52), and low with innovation (.40) and interactive learning (.38).

The relationship of knowledge acquisition with dimensions of academic performance was low with research and publications (.36), innovation (.33), interactive learning (.30), and capacity building (.37). With regard to knowledge generation and academic performance, the result was moderate with interactive learning (.41) and capacity building (.53); and low level of correlation with research and publications (.33) and innovation (.26) of academic performance.

Identically, the relationship of knowledge dissemination with academic performances was low with research and publications (.32), innovation (.37), interactive learning (.33), and capacity building (.38). For knowledge transfer and academic performance, the relationship is very low with research and publications (.20), innovation (.12), and interactive learning (.17); and low level of correlations with capacity building (.38) of academic performance.

The relationship between knowledge creation with academic performance was very low with innovation (.18), capacity building (.18), and interactive learning (.22); and low with research and publications (.36). For knowledge presentation, it seems very low with interactive learning (.11) and low with research and publications (.24), innovation (.25), and capacity building (.24). This finds that there is positive correlation between the dimensions of knowledge management and academic.

Knowledge Management Practices and Academic Performance

The relationship between knowledge management practices and academic performance was measured through multiple regression analysis. The main reason of conducting a multiple regression analysis was to determine whether the regression coefficients of the given predictor set of variables were statistically different or not (Cohen, West, & Aiken, 2014). When the coefficients are significant, it proves that the respective predictor variables are relatively important in predicting the criterion variable.

Correlation coefficients were positive and significant in all dimensions of knowledge management and academic performance. However, since all the coefficients indicated very low to moderate correlation (Bartz, 1999), it was deemed necessary to conduct a regression analysis in order to determine the existence of a causal relationship of knowledge management on research and publications. The output of regression analysis is shown in Table 24.

Multiple regression analysis was conducted to examine the contribution of predictors of knowledge management for the dimensions of academic performance. From the data of Table 24, out of seven different independent variables, only three variables viz. knowledge utilization, acquisition, and creation were found significant for research and publications at 5% level of significance. Knowledge utilization, dissemination, and presentation were found significant for innovation at 5% level of significance. Besides, knowledge utilization, generation, and dissemination were found significant for interactive learning at 5% level of significance. And knowledge utilization, generation, transfer, and creation were found significant for capacity building at 5% level of significance.

Table 24

Regression Analysis of Knowledge Management and Academic Performance

Predictor of KM	RP		INNO		IL		CB	
	Beta	t-Value	*Beta*	t-Value	*Beta*	t-Value	*Beta*	t-Value
Utilization	0.26	5.01*	0.22	4.25*	0.19	3.59*	0.29	6.35*
Acquisition	0.14	2.80*	0.09	1.59	0.09	1.66	0.09	1.85
Generation	0.07	1.43	0.06	1.14	0.30	5.67*	0.37	8.19*
Dissemination	0.04	0.80	0.21	3.82*	0.12	2.04	0.06	1.30
Transfer	-0.05	-1.13	-0.09	-1.97*	-0.05	-1.12	0.15	3.65*
Creation	0.21	4.41*	0.01	0.16	0.01	0.13	-0.18	-4.19*
Presentation	0.07	1.49	0.13	2.86*	-0.05	-1.20	0.04	1.09
R	.53[a]		.48[a]		.49[a]		.66[a]	
R^2	0.28		0.23		0.24		0.44	
Adjusted R^2	0.27		0.22		0.23		0.43	

KM = Knowledge Management, RP = Research and Publications,
INNO = Innovation, IL = Interactive Learning, CB = Capacity Building

After confirming the significance, the model is presented in Table 25 for further explanation. The results were interpreted using non-standardized beta coefficients and the R-square. Un-standardized coefficients present a change that is observable when the variables are in raw form. The R-square indicates the percentage of variance in dependent variables that independent variables jointly explain (Hair et al., 1998).

Table 25

Model Summary of Academic Performance

Dimension	R	R Square	Adjusted R Square	Std. Error of the Estimate
RP	.52[a]	0.27	0.27	0.65
INNO	.47[b]	0.22	0.21	0.84
IL	.48[c]	0.23	0.23	0.76
CB	.66[d]	0.43	0.43	0.90

RP = Research and Publications, INNO = Innovation, IL = Interactive Learning, CB = Capacity Building

a. Predictors: (Constant), Knowledge Utilization, Creation, Acquisition
b. Predictors: (Constant), Knowledge Utilization, Dissemination, Presentation
c. Predictors: (Constant), Knowledge Utilization, Generation, Dissemination
d. Predictors: (Constant), Knowledge Generation, Utilization, Transfer, Creation, and Acquisition

The model of research and publications presented in Table 25 shows R=0.521, R^2 =0.272, and adjusted R^2 = 0.267. Taking the value of adjusted R^2, it is understood that knowledge utilization, creation, and acquisition together encompass the research and publications variable as 26.7%. Thereby 73.3% explanation of the research and publications has been undefined. However, 26.7% seems to be pretty larger value to define faculty members' research and publications status due to different dimensions of the knowledge management.

The model of innovation presented in Table 25 indicate R = 0.466, R^2 = 0.217, and adjusted R^2 = 0.212. Taking the value of adjusted R^2, we can say that knowledge utilization, dissemination, and presentation collectively refer to the innovative variable by 21.2% but 78.8% explanation of the innovation is undefined. However, 21.2% is the pretty larger value to define faculty members' innovation status due to different dimensions of the knowledge management.

The model of interactive learning presented in Table 25 shows R = 0.481, R^2 = 0.232, and adjusted R^2 = 0.226. Taking the value of adjusted R^2, we can say that knowledge utilization, generation, and dissemination collectively define the interactive learning variable by 22.6%. That means, still 77.4% explanation of the interactive learning is undefined. However, 22.6% seems to be a larger value to define faculty members' interactive learning status due to different dimensions of the knowledge management.

The model of capacity building presented in Table 25 uncovers R = 0.656, R^2 = 0.431, and adjusted R^2 = 0.425. Taking the value of adjusted R^2, it is understood that knowledge utilization, generation, acquisition, transfer, and creation explain the capacity building variable by 42.5%. That means, still 57.5% explanation of the capacity building remains undefined. However, 42.5% is the pretty larger value to define faculty members' capacity building status due to different dimensions of the knowledge management.

After identifying the model of each dimension of academic performance, it is required to test the regression value based on the residual values as presented in the table 26. In Table 26, F test for research and publications is found significant (F= 54.83 and p-value = 0.000 ($<\alpha$=5%)). This means, the best fit regression model with explanatory variables knowledge utilization, creation, and acquisition and output variable research and publications can be developed. Likewise, F test for innovation is found significant (F = 40.86 and p-value = 0.000 ($<\alpha$=5%)). This means, the best fit regression model with explanatory variables knowledge utilization, and presentation and output variable innovation can be developed. Here, F test for interactive learning is found significant (F = 44.30 and p-value = 0.000 ($<\alpha$=5%)). This means, the best fit regression model with explanatory variables knowledge utilization, generation, and presentation and output variable interactive learning can be developed. And, F test for capacity building is found significant (F = 66.5 and p-value = 0.000 (<α=5%)). This means, the best fit regression model with explanatory variables knowledge generation, utilization, transfer, creation, and acquisition and output variable research and publications can be developed.

Table 26

Regression and Residual Values of Academic Performance

Dimension		Sum of Squares	df	Mean Square	F	Sig.
RP	Regression	70.22	3	23.41	54.83	0.000[a]
	Residual	188.27	441	0.43		
	Total	258.49	444			
INNO	Regression	86.26	3	28.75	40.85	0.000[b]
	Residual	310.39	441	0.70		
	Total	396.66	444			
IL	Regression	76.62	3	25.54	44.30	0.000[c]
	Residual	254.26	441	0.58		
	Total	330.88	444			
CB	Regression	270.88	5	54.18	66.50	0.000[d]
	Residual	357.63	439	0.82		
	Total	628.51	444			

RP = Research and Publications, INNO = Innovation, IL = Interactive Learning, CB = Capacity Building

a. Predictors: (Constant), Knowledge Utilization, Creation, Acquisition
b. Predictors: (Constant), Knowledge Utilization, Dissemination, Presentation
c. Predictors: (Constant), Knowledge Utilization, Generation, Dissemination
d. Predictors: (Constant), Knowledge Utilization, Generation, Acquisition, Transfer, and Creation

Table 27 presents the result of the regression analysis for t-test. The data presented in Table 27 display t-test for the regression coefficients of research and publications with hypothesis.

Table 27

Model Fit Coefficients Values of Academic Performance

Coefficient	Dimensions	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig
RP	Constant (a)	1.84	0.31		5.93	.000
	Knowledge Utilization	0.30	0.10	0.28	6.00	.000
	Knowledge Creation	0.24	0.04	0.23	5.45	.000
	Knowledge Acquisition	0.16	0.04	0.17	3.71	.000
INNO	Constant (b)	1.67	0.40		4.15	.000
	Knowledge Utilization	0.31	0.06	0.24	5.01	.000
	Knowledge Dissemination	0.22	0.04	0.24	5.09	.000
	Knowledge Presentation	0.20	0.06	0.14	3.13	0.002
IL	Constant (c)	2.74	0.30		9.18	.000
	Knowledge Utilization	0.23	0.06	0.19	3.94	.000
	Knowledge Generation	0.22	0.04	0.27	5.75	.000
	Knowledge Dissemination	0.12	0.04	0.14	2.92	0.004
CB	Constant (d)	-0.56	0.44		-1.26	0.209
	Knowledge Utilization	0.49	0.07	0.30	6.79	.000
	Knowledge Generation	0.43	0.05	0.38	8.62	.000
	Knowledge Acquisition	0.17	0.06	0.12	2.79	0.006
	Knowledge Transfer	0.21	0.05	0.16	3.82	.000
	Knowledge Creation	-0.27	0.07	-0.17	-4.04	.000

RP = Research and Publications, INNO = Innovation, IL = Interactive Learning,

CB = Capacity Building

a. Dependent Variable: Research and Publications
b. Dependent Variable: Innovation
c. Dependent Variable: Interactive Learning
d. Dependent Variable: Capacity Building

The value presented in Table 27 conveys that the coefficient of non-zero is significant (Constant: t = 5.931, p-value = 0.000; KU: t = 5.931, p-value = 0.000; KC: t = 5.995, p-value = 0.000; KA: t = 3.307,

p-value = 0.000). Therefore, the model is:

$Y = \beta_0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \varepsilon$ i

Where, y = research and publications, β_0 = constant, $\beta 1x1$ = coefficient of KU, x_1 = KU, $\beta_2 x2$ = coefficient of KC, x_2 = KC, $\beta 3x3$ = coefficient of KA, x_3 = KA, and ε = error terms are significant.

If we put the value of Table 27 in equation (i) then; the model of RP is shown as;

RP = 5.931 + 5.931KU + 5.995KC + 3.307KA ……………………………… (i)

Similarly, the data presented in Table 27 identify t-test for the regression coefficients of innovation with hypothesis that has non-zero coefficient which is significant (Constant: t = 4.153, p-value = 0.000; KU: t = 5.008, p-value = 0.000; KD: t = 5.088, p-value = 0.000; KP: t = 3.128, p-value = 0.000). So, the model is:

$Y = \beta_0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \varepsilon$ ii

Where, y = Innovation, β_0= constant, $\beta 1x1$ = coefficient of KU, x_1 = KU, $\beta_2 x2$ = coefficient of KD, x_2 = KD, $\beta 3x3$ = coefficient of KP, x_3 = KP, and ε = error terms are significant.

If we put the value of Table 27 in equation (ii); the model of INNO can be presented as;

INNO = 4.153 + 5.008KU + 5.088KD + 3.128KP ………………………… (2)

The data of Table 27 proves that t-test for the regression coefficients of interactive learning with hypothesis has non-zero coefficient and it is significant (Constant: t = 9.175, p-value = 0.000; KU: t = 3.938, p-value = 0.000; KG: t = 5.752, p-value = 0.000; KD: t = 2.919, p-value = 0.000). The model formed is:

$Y = \beta_0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \varepsilon$ iii

Where, y = Interactive Learning, β_0 = constant, $\beta 1x1$ = coefficient of KU, x_1 = KU, $\beta_2 x2$ = coefficient of KG, x_2 = KG, $\beta 3x3$ = coefficient of KD, x_3 = KD, and ε = error terms were significant.

If we put the value of Table 27 to equation (iii) then the model of IL is as;

$$IL = 9.175 + 3.938KU + 5.752KG + 2.919KD \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \ (3)$$

The data presented in Table 27 identified t-test for the regression coefficients of capacity building with hypothesis that has non-zero coefficient which is significant (Constant: t = 1.258, p-value = 0.000; KU: t = 6.786, p-value = 0.000; KG: t = 8.620, p-value = 0.000; KA: t = 2.788, p-value = 0.000; KT: t = 3.815, p-value = 0.000; KC: t = 4.041, p-value = 0.000). The developed model is:

$$Y = \beta_0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \beta 4x4 + \beta 5x5 + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots iv$$

Where, y = research and publications, β_0 = constant, $\beta 1x1$ = coefficient of KU, x_1 = KU, $\beta_2 x2$ = coefficient of KG, x_2 = KG, $\beta 3x3$ = coefficient of KA, x_3 = KA, $\beta 4x4$ = KT , x4 = KT, $\beta 5x5$ = KC, x5 = KC, and ε = error terms was significant.

If we put the value of Table 27 to equation (iv) then the model of CB as;

$$CB = 1.258 + 6.786KU + 8.620KG + 2.788KA + 3.815KT + 4.041KC \ldots \ (4)$$

The models presented above justify that the dimension of research and publications depends on the knowledge management practices of knowledge utilization, creation, and acquisition; innovation on the knowledge utilization, dissemination, and presentation; interactive learning in knowledge utilization, generation, and dissemination; and capacity building on knowledge utilization, generation, acquisition, transfer, and creation activities in higher educational contexts.

Table 27 presents that there exist four different models of academic performance. Field (2005) mentions the conditions in order to confirm the models for their best fit as (i) no existence of auto correlation, (ii) no multi-collinearity, (iii) no heteroscedasticity, and (iv) normality of residuals

For the autocorrelation test, the Durbin-Watson Test was performed. The summary of Durbin-Watson is presented in Table 28.

Measuring Auto Correlation

Durbin-Watson test was conducted to measure the auto correlation of academic performance. The output of the Durbin-Watson test is presented in Table 28.

Table 28

Durbin-Watson Test Statistics of Academic Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.52[a]	0.27	0.27	0.66	1.83
2	.47[b]	0.22	0.21	0.84	1.54
3	.48[c]	0.23	0.23	0.76	1.96
4	.66[d]	0.43	0.43	0.90	1.88

a. Predictors: (Constant), Knowledge Creation, Acquisition, and Utilization; Dependent Variable: Research and Publications
b. Predictors: (Constant), Knowledge Utilization, Dissemination, and Presentation; Dependent Variable: Innovation
c. Predictors: (Constant), Knowledge Generation, Utilization, and Dissemination; Dependent Variable: Interactive learning
d. Predictors: (Constant), Knowledge Utilization, Generation, Acquisition, Transfer, and Creation; Dependent Variable: Capacity Building

The value of Durbin-Watson presented in Table 28 is 1.83 (model 1), 1.54 (model 2), 1.96 (model 3), and 1.88 (model 4) lying between the range of 1.5 to 2.5 (Field, 2005) represented that there is no auto-correlation issue in the dataset.

Checking of Collinearity VIF

To confirm the issue of the multi-collinearity among the independent variables, the Variance Inflation Factor (VIF) was calculated. Table 29 is the output of the collinearity statistics.

Table 29

Collinearity of VIF Test Statistics of Academic Performance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig	Tolerance	VIF
		B	Std. Error	Beta				
1	Constant (a)	1.84	0.31		5.93	.000		
	KU	0.30	0.05	0.28	6.00	.000	0.73	1.36
	KA	0.16	0.04	0.17	3.71	.000	0.77	1.31
	KC	0.24	0.04	0.23	5.45	.000	0.90	1.12
2	Constant (b)	1.67	0.40		4.15	.000		
	KU	0.31	0.06	0.24	5.01	.000	0.76	1.32
	KD	0.22	0.04	0.24	5.09	.000	0.80	1.25
	KP	0.19	0.06	0.14	3.13	.002	0.92	1.09
3	Constant (c)	2.74	0.30		9.18	.000		
	KU	0.23	0.06	0.19	3.94	.000	0.72	1.39
	KG	0.22	0.04	0.27	5.75	.000	0.77	1.30
	KD	0.12	0.04	0.14	2.92	.004	0.76	1.32
4	Constant (d)	-0.56	0.44		-1.26	.209		
	KU	0.49	0.07	0.30	6.79	.000	0.66	1.52
	KA	0.17	0.06	0.12	2.79	.006	0.76	1.32
	KG	0.43	0.05	0.38	8.62	.000	0.66	1.52
	KT	0.21	0.05	0.16	3.82	.000	0.78	1.29
	KC	-0.27	0.07	-0.17	-4.04	.000	0.75	1.34

B = Beta, t = test value, VIF = Variance Inflation Factor, KU = Knowledge Utilization, KA = Knowledge Acquisition, KG = Knowledge Generation, KD = Knowledge Dissemination, KT = Knowledge Transfer, KC = Knowledge Creation, KP = Knowledge Presentation

a. Dependent Variable: Research and Publications
b. Dependent Variable: Innovation
c. Dependent Variable: Interactive Learning
d. Dependent Variable: Capacity Building

Table 29 shows that VIF for each of the independent variables is between 1-10 (Field, 2005). This indicates no issue of multi-collinearity. Further, to test the best fit of the model, the effect of the independent variables on the residual is checked to understand the issue of heteroscedasticity.

Checking of Heteroscedasticity

Here, Table 30 presents heteroscedasticity value of four different models of the academic performance of faculty members.

Table 30

Heteroscedasticity Test Statistics of Academic Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	-3.1E-15	0.311		.000	1.000
	KU	.000	0.05	.000	.000	1.000
	KA	.000	0.043	.000	.000	1.000
	KC	.000	0.044	.000	.000	1.000
2	(Constant)	1.768	0.403	.000	.000	1.000
	KU	.000	0.063	.000	.000	1.000
	KD	.000	0.043	.000	.000	1.000
	KP	.000	0.061	.000	.000	1.000
3	(Constant)	2.479	0.298	.000	.000	1.000
	KU	.000	0.058	.000	.000	1.000
	KG	.000	0.039	.000	.000	1.000
	KD	.000	0.04	.000	.000	1.000
4	(Constant)	1.37E-15	0.443		.000	1.000
	KU	.000	0.072	.000	.000	1.000
	KA	.000	0.059	.000	.000	1.000
	KG	.000	0.05	.000	.000	1.000
	KT	.000	0.054	.000	.000	1.000
	KC	.000	0.067	.000	.000	1.000

B = Beta, t = test value, VIF = Variance Inflation Factor, KU = Knowledge Utilization, KA = Knowledge Acquisition, KG = Knowledge Generation,

KD = Knowledge Dissemination, KT = Knowledge Transfer, KC = Knowledge Creation, KP = Knowledge Presentation

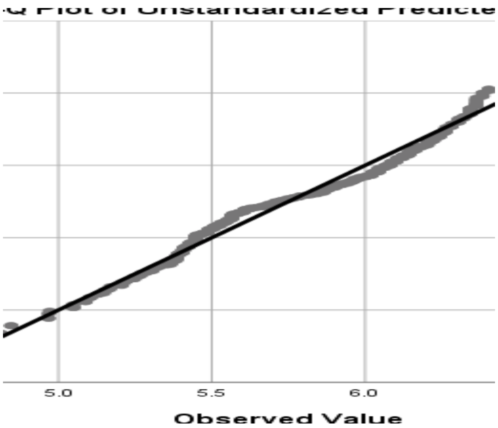
a. Dependent Variable: Unstandardized Residual

Table 30 identifies that none of the independent variables significantly contributed to the unstandardized residual. Therefore, the model does not have the issue of heteroscedasticity. At last, the distribution the residual was understood by using Q-Q plot.

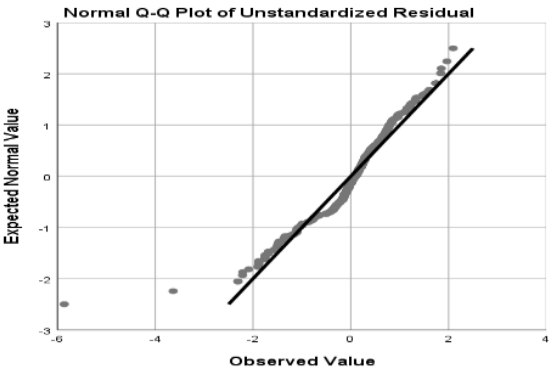
Normality of Residuals

The output of residual is presented by using Q-Q plot in Figure 4.

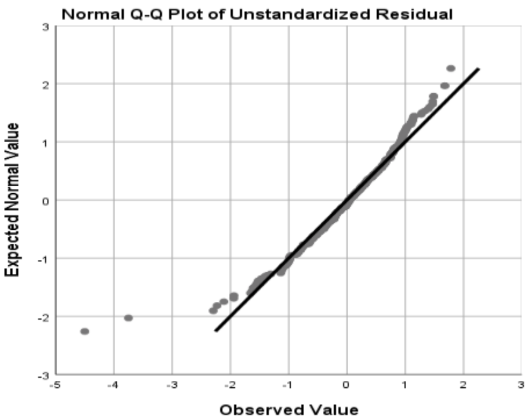
Research and Publications



Innovation



Interactive Learning



Capacity Building

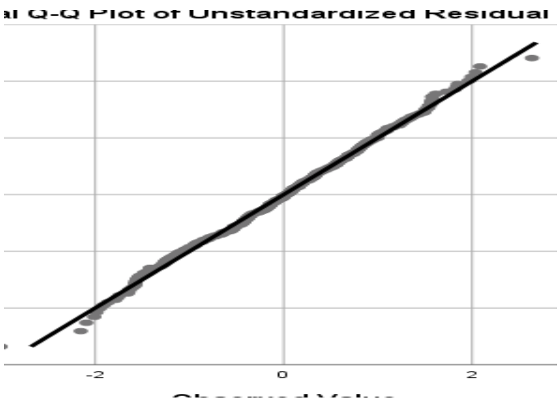


Figure 4. Normality of Residuals of Dimensions of Academic Performance

The residual follows a normal distribution because the distribution of the residual mostly aligns with the normal distribution. Thus, Table 27 summarizes the models as: (a) no issue of autocorrelation, (b) no issue of multi-collinearity, (c) no issue of heteroscedasticity, and (d) residuals are normally distributed.

The summary of models concludes that there is a relationship between knowledge management and academic performance, particularly the linear relationship among the research and publications with knowledge utilization, acquisition and creation; innovation with knowledge utilization, dissemination and presentation; interactive learning with knowledge utilization, generation and dissemination; and capacity building with knowledge utilization, acquisition, generation, transfer and creation. Figure 5 presents the association of knowledge management and academic performance.

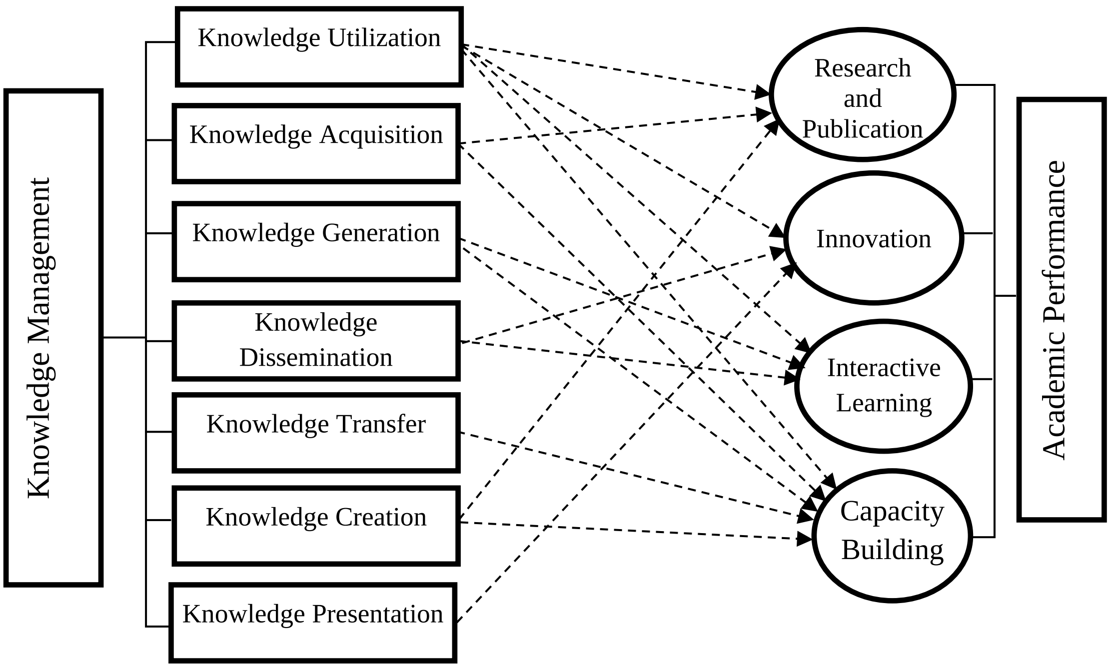


Figure 5. Association of Knowledge Management and Academic Performance

Figure 5 is based on the association identified by the multiple regression analysis. The results of both the correlation and regression analyses presented in the preceding sections links a relationship and association between knowledge management practices and academic performance. However, the relationship is not explained in detail regarding the interdependencies between individual variant of the knowledge management and academic performance.

The following section determines interdependencies of dimensions of knowledge management and academic performance through canonical correlation analysis.

Interdependence between Knowledge Management and Academic Performance

To determine interdependencies between the dimensions of knowledge management and academic performance, the canonical correlation analysis technique was used. The use of canonical correlation analysis, multivariate technique facilitates the study of interrelationships among sets of multiple variables (Hair et al., 1998; Hair et al., 2006). To identify the interrelationships, the procedure was executed by using syntax in SPSS version 25, by entering variable set 1, representing the knowledge management variables (knowledge utilization, acquisition, generation, dissemination, transfer, creation, and presentation), and variable set 2, representing the academic performance variables (research and publications, innovation, interactive learning, and capacity building), resulting in the production of canonical correlation output. Interpretation of the results was based on the classical rules of thumb such as (i) canonical loadings with a value greater than .30 were interpreted as acceptable minimum loading value (Lambert & Durand, 1975), (ii) canonical correlations and their levels of significance greater than 0.001. The output of the canonical correlation analysis is presented in Annex 7.

A canonical correlation analysis was run and presented in Table 31 for the results and further analysis. Table 31 clearly indicates that only three canonical variates were found to be significant at 0.001. The first canonical variate produced a correlation of 0.697, a Wilk's λ of 0.404, chi-SQ of 15.982, and $p < 0.001$. The second canonical variate, on the other hand, produced a canonical correlation of 0.387, a Wilk's λ of 0.786, chi-SQ of 6.090, and $p < 0.000$. The third canonical variate, on the other hand, produced a canonical correlation of 0.212, a Wilk's λ of 0.924, chi-SQ of 3.533, and $p < 0.001$. And the fourth canonical variate produced a canonical correlation of 0.181, a Wilk's λ of 0.967, chi-SQ of 3.705, and $p > 0.001$.

Table 31

Canonical Correlations and Their Levels of Significance

Number	Canonical Correlation	Squared Correlation	Wilk's λ test	Chi-sq	DF	Sig.
1	0.70	0.49	0.40	15.98	28.00	0.000
2	0.39	0.15	0.79	6.09	18.00	0.000
3	0.21	0.10	0.92	3.53	10.00	0.000
4	0.18	0.03	0.97	3.71	4.00	0.006

DF = Degree of Freedom, Sig. = Significance

The results further testify that the first canonical correlation, $Rc1 = 0.697^2$, contributed 48.56 % of the variance (R_{C1}^2), whereas the second canonical correlation contributed to 14.56 % of the shared variance, (R_{C2}^2) = 0.387, and the third canonical correlation contributed to 4.5 % of the shared variance, (R_{C3}^2) = 0.212. The fourth-canonical variate, which produced a canonical correlation, $Rc4 = 0.181^2$, contributed to 3.28 % of the variance (R_{C4}^2). The canonical loading of dimensions of knowledge management and academic performance is shown in Table 32. This exposes the covariate relations between different variates of the knowledge management and academic performance.

Based on Hair et al. (1998), analysing the canonical variates whose canonical correlation coefficients were statistically significant beyond a certain level, usually 0.05, is the most common practice for further analysis. From the findings of Table 31, three functions were found to have significant canonical correlation coefficients, at 0.000. And the fourth canonical function was significant at 0.05 (the detailed is shown in Annex 7) which was not accepted. Here, the absolute values of the canonical loadings were interpreted in a canonical covariate. The purpose of such analysis was to determine the dimensions of inter-relationship between the two sets of variables (knowledge management and academic performance) rather than only focusing on prediction and causation. This procedure was in line with Thorndike's (1976) contention "it is a well-known feature in factor analysis that the loadings on a factor may all be reversed in canonical analysis" (p. 250). The Table 32 presents the canonical loading of KM and AP on canonical variates.

Table 32

Canonical Loadings of KM and AP on Canonical Variates

	Canonical Variates			
	1	2	3	4
Can Corr.	0.697	0.387	0.212	0.181
SQ Can Corr.	0.4856 (48.56%)	0.1494 (14.56%)	0.045 (4.5%)	0.033 (3.3%)
KM				
KU	**-0.832**	-0.203	0.039	0.164
KA	**-0.621**	-0.331	0.093	0.008
KG	**-0.795**	0.231	-0.326	-0.215
KD	**-0.639**	-0.245	0.356	-0.340
KT	-0.505	0.303	-0.218	**0.538**
KC	-0.383	-0.561	**-0.603**	0.067
KP	-0.392	-0.277	0.363	**0.510**
AP				
RP	**-0.666**	-0.629	-0.358	0.179
INNO	-0.607	-0.461	**0.626**	-0.163
IL	-0.675	-0.079	-0.254	**-0.689**
CB	**-0.929**	0.301	0.04	0.211

KM = Knowledge Management, AP = Academic Performance, KU = Knowledge Utilization, Can Corr. = Cannonical Correlation, SQ Can Corr = Squared Canonical Correlation, KA = Knowledge Acquisition, KG = Knowledge Generation, KD = Knowledge Dissemination, KT = Knowledge Transfer, KC = Knowledge Creation, KP = Knowledge Presentation, RP = Research and Publications, INNO = Innovation, IL = Interactive Learning, CB = Capacity Building

The Canonical loadings presented in Table 32 are concerned with correlations of dimensions to a particular canonical root and path. Consequently, it is possible to have two items loading substantially on more than one canonical root. Once a large weight is assigned to one canonical root, the others remain redundant. In the first canonical root four subset of knowledge management and two subsets of academic performance variables were meaningfully correlated. For second canonical root none of the subset of knowledge management and academic performance variables is correlated. In case of third canonical root one subset of knowledge management and academic performance variables correlated meaningfully whereas for fourth canonical root has two variables of knowledge management and one variable of academic performance are correlated meaningfully. Diagrammatically, such a relationship is illustrated in Figure 6.

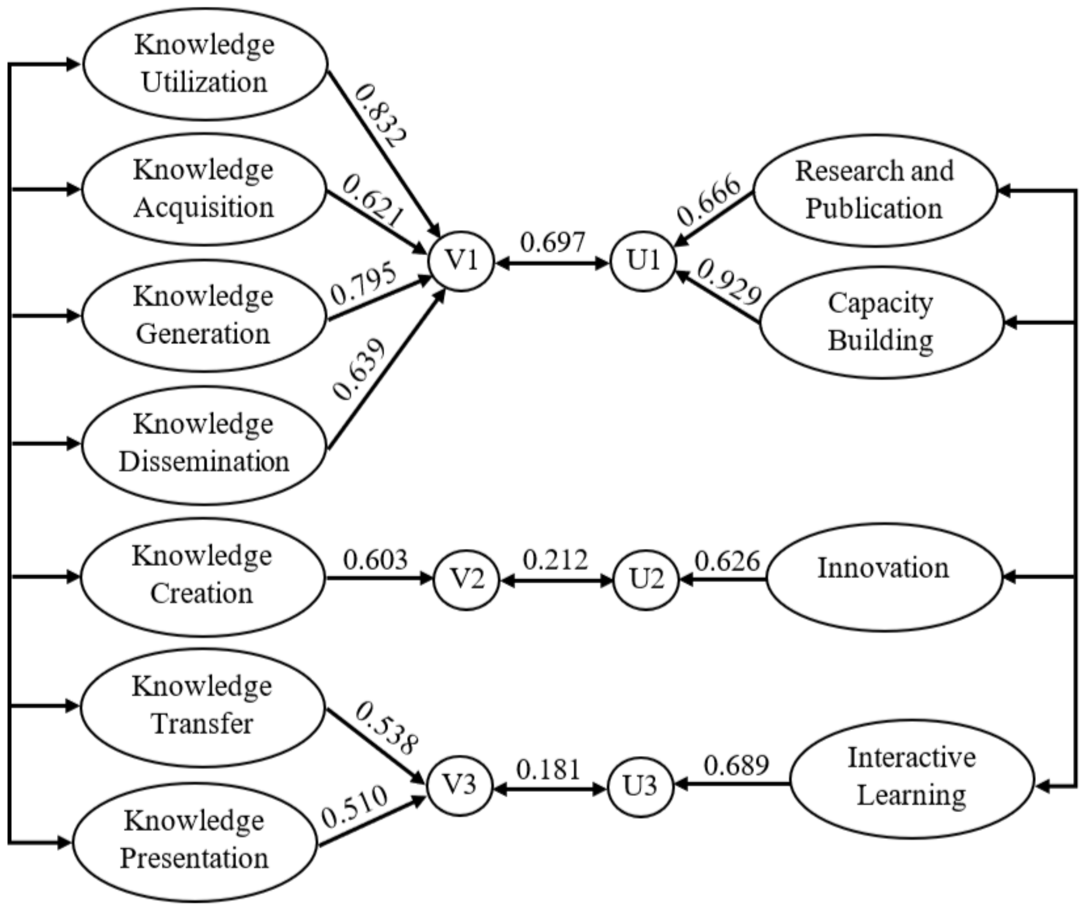


Figure 6. Interdependencies between Dimensions of KM and AP

For the first canonical variate, from the knowledge management practices: knowledge utilization (0.832), acquisition (0.621), generation (0.795), and dissemination (0.639) and from academic performance; research and publications (0.666), and capacity building (0.929) loaded significantly.

For the second canonical variate, none of the variables from knowledge management practices and academic performance loaded significantly. For the third canonical variate, the variable from knowledge management practices; knowledge creation (0.603) and from academic performance; innovation (0.607) loaded significantly. For the fourth canonical variate, the variable from knowledge management practices; knowledge transfer (0.505) and presentation (0.392); and from academic performance; interactive learning (0.675) meaningfully interrelated.

Further, the figure 6 shows the results of canonical correlation between the two sets of variables, one representing the knowledge management variables (X1–X7) and the other the academic performance variables (Y1–Y4). Such variables are knowledge utilization, acquisition, generation, dissemination, creation, transfer, and presentation for the knowledge management set were treated as the predictor set. The academic performance set, which contained research and publications, capacity building, innovation, and interactive learning, was treated as a criterion set. The circles were labelled V and U respectively to represent the linear combinations or canonical variates for the variables on the left and those on the right. The X represents the dimensions of knowledge management and Y represents the dimensions of academic performance. More specifically, V1 and U1 represent the first canonical variate for variable set X (knowledge management) and variable set Y (academic performance) respectively, V2 and U2 represent the second canonical variate, and V3 and U3 represent the third canonical variate for variable sets X and Y respectively. The lines connecting the X sets to the V sets and the Y sets to the U sets represent loading on the first one and last two pairs of variates which were found to be significant.

The canonical correlation analysis technique maximizes the relationship and interdependence between variable sets X and Y on the variates V and U, which maximizes the correlation between the dimensions of KM and AP. Such a selection implies that canonical correlation analysis helps to identify those dimensions which are closely linked to the underlying canonical variate or dimension. The above finding states that there is at least one distinct dimension which signifies the interdependence between knowledge management and academic performance. In fact, three dimensions represented by three canonical variates were identified.

Result of Statistical Tests

The result of this chapter presents that there was high level of academic performance of the faculty members in the context of higher education in Nepal. There exists a correlation between dimensions of knowledge management and academic performance. Multiple regressions (Cohen et al., 2018) were conducted to examine the contribution of dimensions of knowledge management for the dimensions of academic performance (Cohen, West & Aiken, 2014). The multiple regressions identified the linear relationship (Cohen et al., 2018) of research and publications with knowledge utilization, acquisition, and creation; innovation with knowledge utilization, acquisition, and presentation; interactive learning with knowledge utilization, generation, and dissemination, and capacity building with knowledge utilization, generation, acquisition, transfer, and creation. Hence, the null hypothesis H_01: the academic performance depends upon the practices of knowledge management in higher educational institutions by the faculty members exist.

The canonical correlation (Hair et al., 1998) identified the interdependent relations (Thorndike, 1976) of knowledge utilization, acquisition, generation and dissemination with research and publications and capacity building; knowledge creation with innovation; and knowledge transfer, and presentation with interactive learning. Thus, the null hypothesis $H_0 2$: the interdependent relationship exists between the dimensions of knowledge management and academic performance exist.

Chapter Summary

This chapter incorporated the statistical analysis procedures to measure the level of academic performance of faculty members, the model of academic performances, and interdependencies between knowledge management and academic performance. The results indicate that high academic performance of faculty members. The dimensions of knowledge management and academic performance were found correlated to each other. The results of the regression analysis indicate that knowledge management practices significantly influenced the academic performance of faculty members. The multiple regression analysis showed the association of research and publications with knowledge utilization, acquisition, and creation; innovation with knowledge utilization, dissemination, and presentation; interactive learning with knowledge utilization, generation, and dissemination; capacity building with knowledge generation, utilization, transfer, creation, and acquisition. The canonical correlation analysis significantly justified the interdependent relationships between knowledge management and academic performance. The canonical correlation analysis reveals the interdependent relationship of knowledge utilization, acquisition, generation, and dissemination with research and publications, and capacity building; knowledge creation with innovation; and knowledge transfer and presentation with interactive learning.

CHAPTER VII

FINDINGS AND DISCUSSION

This chapter discusses the findings of the study pertaining to the relationship between knowledge management and academic performance of faculty members in higher educational institutions of Nepal. The chapter begins with the presentation of major findings of the study in response to the research questions. After presenting the major findings, I discuss the predictors of knowledge management and academic performance in the context of faculty members' perceptions of Nepali higher educational institutions. Then, I discuss the findings of the study in the present context linking them with national and international practices. Finally, I develop a model of knowledge management and academic performance in the context of higher educational institutions.

Findings of this Study

This study was designed to seek answers of four research questions. This section begins with the findings of each of these research questions. The first research question was related to the identification of predictors of knowledge management and academic performance of academic staff of four universities, namely, Tribhuvan University, Kathmandu University, Purvanchal University, and Pokhara University. This study identified seven predictors of knowledge management such as utilization, acquisition, generation, dissemination, transfer, creation, and presentation of knowledge along with the four predictors of academic performance; research and publications, innovation, interactive learning, and capacity building.

The second research question was related to the measurement level of knowledge management practices and academic performance of faculty members of higher educational institutions in Nepal. This study found how the faculty members of higher educational institutions practised knowledge management to enhance their level of academic activities. The study also examined the level of knowledge management practices of the faculty members high in all dimensions except in knowledge generation. In case of their level of academic performance, it was high except in capacity building where it was medium.

The third research question was related to examine the knowledge management practices along with demographic variables of academic staff of four universities. The knowledge management practices by the faculty members of the higher educational institutions were analysed from the perspectives of (a) individual personal characteristics and (b) personal engagement in academia. The study found significant differences in academic position, age, qualifications, and experience of individual personal characteristics, and working university and department, participation in conferences, and engagement in other universities of personal engagement in academia.

The research question four was concerned with the relationship, association, and interdependence of knowledge management and academic performance in the context of higher educational institutions. The study identified a positive correlation from the range of low to the medium level between the dimensions of knowledge management and academic performance. The regression analysis showed the association between dimensions of knowledge management and academic performance. The multiple regression analysis presents the association of research and publications with knowledge utilization, acquisition, and creation; innovation with knowledge utilization, dissemination, and presentation; interactive learning with knowledge utilization, generation, and dissemination; capacity building with knowledge generation, utilization, transfer, creation, and acquisition. The study also analysed the interdependencies of the dimensions of academic performance to knowledge management by using canonical correlation analysis. The canonical correlation analysis identified the interdependent relationship between knowledge management and academic performance. It displayed the interdependent relationship of knowledge utilization, acquisition, generation, and dissemination with research and publications, and capacity building; knowledge creation with innovation; and knowledge transfer and presentation with interactive learning.

Discussion of the Findings

This section begins with the predictors of knowledge management and academic performance followed by their significance with demographic variables in accordance with the level of knowledge management and academic performance, the regression model identified by the multiple regression analysis, and the variable relationship identified by the canonical correlation analysis. Finally, the model of knowledge management is discussed in the context of higher educational institutions of Nepal.

The overall study and conceptual framework of this study was guided and conceptualized by knowledge creation theory and organizational epistemology theory. The knowledge creation theory aims to understand how knowledge is dynamically created within an organization (Nonaka & Takeuchi, 1995). This theory relies on an assumption that knowledge is created through social interactions between tacit and explicit knowledge. Tacit knowledge has a cognitive dimension such as mental models and conceptual frameworks (Nonaka, 1994). It can be described as experiences, know-how, competencies, or skills. Tacit knowledge is difficult to document. In contrast, explicit knowledge comes in the form of documents, formulas, contracts, process diagrams, and manuals (O'Dell & Hubert, 2011). In this regard, the theory of organizational epistemology provides a theoretical cornerstone for a systematic and organization-wide KM model used in organizations. This theory involves interactions of individualized and socialized organizational knowledge as well as impediments to organizational knowledge (Dalkir, 2005).

In this regard, higher educational institutions aim to produce, generate, share, disseminate new knowledge, concepts and ideas to drive innovation. It is widely acknowledged that implementation of appropriate knowledge management strategies supports this process (Adhikari, 2010; Hasani & Boroujerdi, 2013; Hasani & Sheikhesmaeili, 2016) in academia. The following sections contain the predictors of knowledge management.

Predictors of Knowledge Management: They are Contextual

This study reflected the predictors of knowledge management practices by the faculty members in HEIs and considers the knowledge creation and organizational epistemology theory as a major stance. It further identified seven predictors of knowledge management such as utilization, acquisition, generation, dissemination, transfer, creation, and presentation in the context of Nepali higher educational institutions. Wiig (1993) also proposed the creation, manifestation, use and transfer in a similar study, where three indicators, namely creation, use and transfer were observed in my findings as well. The scholar kept manifestation as the knowledge acquisition process which in the case of present study was found as the predictor of knowledge acquisition. Furthermore, Wiig emphasized knowledge as the principal force that determines and drives the ability to act intelligently to determine the dimensions.

In a study, Nonaka and Takeuchi (1995) mentioned knowledge management as sharing tacit knowledge, creating concepts, justifying concepts, building archetype, and cross levelling knowledge. Pentland (1995) agreed on the three predictors; acquiring, storing, sharing and implementation. The concept of knowledge management developed by Nonaka and Takeuchi (1995) is considered through product innovation. In the same line, Spender (1996) mentioned KM as creation, transfer and use. For the line of Meyer and Zack (1996), KM is acquisition, refinement, storage/retrieval, distribution, and presentation. The scholars proposed KM based on the technologies, facilities, and processes for manufacturing products and services to identify the dimensions of knowledge management.

Laurie (1997) indicated KM as creation, acquisition, and utilization. In the line of my finding, Davenport and Prusak (1998) proposed four processes of knowledge management as 1) knowledge creation and generation; 2) knowledge codification and retrieval; 3) knowledge transfer; and 4) knowledge application. Similar to these four processes, the codification and retrieval could be contextual and these variables could be quite similar to the presentation of the knowledge in institutional context with regard to the present research. Davenport and Prusak developed the predictors of knowledge management based on the operational perspectives of information in the industry. McElroy (1999) contended that knowledge management includes learning, validation, acquisition, and integration. McElroy emphasized that organizational knowledge is held both subjectively in the minds of individuals and groups and objectively in explicit forms to identify the dimensions of knowledge management.

In the similar study of Teece (2000) KM is creation, transfer, assembly, integration, and exploitation. For Bukowitz and Williams (2000), KM is the process of getting, using, learning, contributing, access, building/sustaining, and divesting knowledge. The dimensions identified by Bukowitz and Williams are triggered by market-driven opportunities or demands and typically result in day-to-day use of knowledge. In a study, Filius, De Jong, and Roefs (2000) identified five predictors of knowledge management; transfer, documentation, creation, acquisition, and application. It reflects that during the process of dissemination and creation the documented knowledge is required. So, the findings of Filius et al. (2000) also resonated with the predictors identified by this study. In the same manner, Alavi and Leidner (2001) proposed six processes of knowledge management: acquisition (comprising knowledge creation and development), indexing, filtering, linking, distributing, and application.

In the line of Gold et al. (2001), KM is acquisition, conversion, sharing, and protection. Another study by Bhatt (2001) also suggested five predictors of knowledge management such as knowledge creation, validation, presentation, distribution, and application, where the distribution is a process of disseminating the information to the peers and validation measures the validation of the finding similar to the utilization of the knowledge. Rollet (2003) explored planning, creating, integration, organization, transferring, maintaining, and accessing as predictors of knowledge management.

Another study of Kaivanpanah and Alavi (2008) outlined creating, storage/retrieval, transferring, and applying are the processes of knowledge management in institutions. The findings of the present research are also different from the previous research studies as Yang et al. (2009) proposed nine processes of knowledge management as socialization, systematization, transformation, formalization, routinization, evaluation, orientation, deliberation, and realization.In the view of Becerra-Fernandez and Sabherwal (2010), KM is the process of acquisition, creation, refinement, storage, transfer, sharing, and utilization of knowledge in institution. In a study, Sokhanvar, Mathews, and Yarlagadda (2014) mentioned that KM is creation, capture, transfer, and reuse. In the line of Chang and Lin (2015), knowledge management can be defined as a process of capturing, storing, sharing and using knowledge. Similarly, to this, Costa and Monteiro (2016) view that knowledge management is creation, application, codification, sharing, and storage.

The findings of the different studies presented above indicate that the dimensions and practices of the knowledge management are being changed and they particularly depend upon the context from where they developed and put into practices. Based on these arguments the predictors identified by this study are contextual and they are different than the previous one. The cultural and contextual influences further increased the practices of knowledge management and its impacts on its predictors by the users.

The day to day practices and contextual social dynamics added some additional predictors in this study. The discussion of the previous section reflects that in the Nepali context, it is found that the knowledge presented is the new dimension. Perhaps this is found in the other research studies as well but my claim is that the academicians do present their knowledge very well either in classroom or during research process or during the process of consultancy services. The predictors of knowledge management identified by the study are discussed under the following headings.

Knowledge Utilization: A Significant Way to Problem Solving

This research has considered that knowledge utilization is a key predictor in determining the knowledge management practices in HEIs by academic staff. Academics and researchers make use of established theories and practices to solve social issues. Education, culture of the society and socialization have important roles to construct values and behaviours of a person (Hemsley & Mason, 2013) and these qualities determine the way individuals apply their knowledge for societal change. We assume that teachers are change agents of a society. Our social traditions have high regard to teachers; he/she is assumed to be all-knowing person, who can solve our everyday problems like health problem, issues of development, issues of agriculture, sanitation, farming, and so on. This is because teachers utilize the available knowledge to solve any problem of individuals and societies. On the other hand, equipped with the knowledge and their lived experiences and problem-solving capacity, teachers generate new knowledge.

Teachers use the existing repertoire of knowledge to create new knowledge (Omerzel, 2009) through research activity. In this study, the concept of knowledge utilization is understood the way individuals utilize or apply their knowledge to solve problems of their daily lives and individuals generate new knowledge through research activities.

Knowledge utilization practices of teachers have direct impacts on the problem-solving capacity in the society. The study of (Dhamdhere, 2015; Kneale et al., 2016) focused on knowledge utilization as the process of decision making, problem solving, and coordination by individuals and groups in organizations. This study also explored the knowledge utilization process of faculty members that were identified by the improved efficiency, research activities, increasing level of thinking, and the way of solving daily life issues and problems.

Knowledge Acquisition: Enhancing through Interaction and Discussion

Knowledge acquisition also determines a key predictor of knowledge management practices in HEIs by academic staff. Knowledge acquisition is another predictor of knowledge management identified by this study. The knowledge acquisition is concerned with how university faculties in Nepal acquire knowledge. The process of acquiring knowledge in this study includes interaction, discussion, usage of modern technology, and conduction of trainings. As mentioned by Quagraine (2010), staff participation in the decision-making process signifies the existence of interaction among the staff, and that enhances knowledge acquisition, creation and innovation in institution.

Appropriate use of technology is instrumental in acquiring knowledge. Through technology employees' access, collect and assimilate existing internal knowledge within an organization and/or external knowledge from outside (Watcharadamrongkun, 2012; Dalkir, 2013). In educational context, technology plays a vital role to acquire knowledge. Willingness and ability of a recipient is crucial element in knowledge management to acquire and use knowledge (Gupta & Govindarajan, 2000; Alavi & Leidner, 2001). Faculty members acquire knowledge through participation in training sessions. In case of educational context, teachers are the main source of information to students. Interactions in class and with colleagues and discussions on emerging issues of interests enhance the process of knowledge acquisition.

Knowledge Generation: A Matter of by External Professional Network

Knowledge generation is another key predictor of knowledge management practice in HEIs by academic staff determined by this study. Knowledge generation is concerned with the way individuals generate new knowledge. Knowledge generation, in this study, refers to the process of constructing needed knowledge, particularly a know-how that fits in the context of an institution (Shoham & Perry, 2009; Ramachandran et al., 2013). An individual can generate knowledge through measuring work performances and enhancing leadership capacity (Aragon-Correa et al., 2007; Al Saifi, Dillon, & McQueen, 2016). Involving oneself in seminars, conferences and discussions in professional networks, an individual enhances his/her level of knowledge generation capacity.

Higher educational institutions are expected to develop knowledge by means of study and research (Bui & Baruch, 2010; Blackmore et al., 2016). Universities are taken as centres or hubs of knowledge production or generation. The faculty members can present the produced knowledge and ideas to students in classrooms and to wider audience in conferences and seminars. The generated knowledge of universities helps faculty members to drive the society and the nation as well. By virtue of this, knowledge generation process caters for important activities in the context of educational institutions.

Knowledge Dissemination: Recent Impacts of Social Media

Knowledge dissemination is another predictor of knowledge management practice in HEIs determined by this study. Knowledge dissemination is concerned with how an individual disseminates and shares knowledge, ideas, concepts, and thoughts among peers, colleagues, and students. Effective knowledge sharing practices enable the reuse of knowledge at an individual and organizational level (Lee & Al-Hawamdeh, 2002; Ismail & Yusof, 2009; Wall, 2013). In educational context, university teachers transfer knowledge through different activities such as teaching, research, publications, presenting in conferences, social media, etc.

Chaudhry (2005) argued that embedding knowledge sharing in the individuals' work processes enhances their capabilities. From the learning perspectives, Kumaraswamy and Chitale (2012) opined that effective knowledge sharing enhances individual and group learning. These days, social media also have an impact on group learning activities. Collaboration, team work and processes of socialization promote and enhance knowledge sharing in organizations to achieve the goal of organization (Handzic, 2012; Chigada & Ngulube, 2015).

Organizational effectiveness and efficiency can be achieved through knowledge sharing process. Tan and Noor (2013) argued that organizational rewards have a strong positive influence on knowledge sharing. Knowledge sharing habits of an individual help other scholars enhance the thinking ability and technological awareness of individuals in the changing social context. In this age of technology, social media play a vital role in enhancing capabilities of faculty members and disseminating knowledge to peers and students in educational contexts.

Knowledge Transfer: Role of e-Portal

Knowledge transfer is another predictor of knowledge management practice in HEIs determined by this study. Knowledge transfer in this study represents the distribution of knowledge among members of an organization (Shoham & Perry, 2009; Aujirapongpan et al., 2010; Haywood, Woodgate, & Dewhurst, 2015). Knowledge transfer is concerned with how individuals transfer the acquired knowledge either tacitly or explicitly to the audience. The tacit knowledge can be transferred through training sessions, teaching and learning processes and accessing to e-portals. The academic output can be visited through the e-portals in the forms of articles/reports/blogs, etc. In the classroom contexts, teaching and learning is an effective way of transferring tacit knowledge to learners. Since the knowledge creation concept of Takeuchi and Nonaka (2004) emphasized the knowledge creation by individual and institutional transferred to system to produce new knowledge. The process of knowledge transfer in this study is guided and supported by this theory.

Technology allows employees to assimilate existing internal knowledge within an organization and/or external knowledge from outside (Watcharadamrongkun, 2012; Dalkir, 2013). Technology facilitates to store huge amount of information produced by interactions, discussions, research and other activities in the form of blogs, websites, repositories, fora, etc. in databases. Modern technology provides knowledge databases and repositories to transfer organizational knowledge to audience. Knowledge transfer is key to understand the concepts of individuals by other. This is guided by learning by doing in all contexts and technology helps us access required ideas and concepts from the databases to get required notion of knowledge easily.

Knowledge Creation: Through Projects and Conferences

Knowledge creation is also a predictor of knowledge management practice identified by this study. Anduvare (2015) argued that knowledge creation is one of the principal roles of universities. The knowledge creation process argued by this study is mentorship, joint projects, workshop and conferences, and purchasing of required e-sources by the institution. The main sources of knowledge creation are the faculty members of universities (Ngulube & Lwoga, 2007; Numair, 2012). While performing mentorship to new faculty members in educational context, they produce new knowledge.

The joint projects involving faculties give opportunities to faculties to run projects efficiently. The process of knowledge creation begins when staff meet to exchange experience to each other. This includes insights, skills, ideas, know-how and so forth. The daily interaction among members of the universities serves as a perfect platform for knowledge creation. It is a self-evident function of universities that the created knowledge is stored and reproduced through education and training.

Creation of new knowledge and effectively exploiting the existing knowledge is an important process in knowledge management.

Sambell, McDowell, and Montgomery (2012) claimed that universities need to offer research grants, rewards and promotions, training and seminars for staff to encourage knowledge creation among themselves. Furthermore, the findings revealed that less experienced staff work with more experienced ones for efficient mentorship. Likewise, Tseng (2009) argued that knowledge management explores the conversion process between tacit and explicit knowledge based on Polanyi's (1966) theory of personal knowledge.

In this way the process of the knowledge creation in universities is guided by knowledge creation theory of Nonaka (1994) and the organizational epistemology theory. In case of knowledge creation theory, the tacit knowledge of an individual transfers into other learners and practitioners. On the other hand, the organizational epistemology theory enhances internal and external environment to produce knowledge to enhance the organizational effectiveness and efficiency.

Knowledge Presentation: Enhance Personal Capacity

The final predictor of knowledge management identified by this study is knowledge presentation. Knowledge presentation refers to planning, preparation and presentation of knowledge (Niess, 2011). This study claimed that knowledge presentation takes place in the context of educational institutions through training sessions, developing simulators, and providing consultancy services via institutions.

Process of knowledge presentation through exchange of information, building alliances, disputing ideas and working in group is a distinct academic culture to achieve a common goal (Hyland, 2012). On this account, this dimension is concerned with the process of faculty members' presentation of their knowledge, skills, ideas among peers and students. Furthermore, this predictor of knowledge management helps teachers and students to foster individual capability. Conducting training sessions and development of simulators enhance the personal capacity as an institutional wealth. Additionally, providing consultancy services through institution also enhances human capital of individuals enriching organizational memory and efficiency. The next section discusses the predictors of academic performance identified by this study.

The predictors of the knowledge management in this study claim that the organizational learning behaviours and search of knowledge motivated the faculty members of HEIs and it developed the systematic approaches of the knowledge management practices in the Nepali society. As we know the teachers are the change agent of society and their reflection is determined by what they learn and perceive in their daily life which displays the path to society and motivates others to create knowledge in changing global context.

Predictors of Academic Performance: Academic Activities and Discourses

This study reflects the predictors of academic performance by the faculty members in HEIs. The academic performance enhances the academic capacity of individuals. According to Steinberger (1993), academic performance is a multidimensional concept related to human growth and cognitive, emotional, social, and physical development. This study analyzed four predictors of academic performance as (1) research and publications, (2) innovation, (3) interactive learning, and (4) capacity building. Teaching and research outputs of teachers determine the academic performance of a higher educational institute (Fairweather, 1996; Asif et al., 2017). Bringing the experience of research to the context of classroom increases the opportunities of learning to students.

Since the UGC, Nepal had not developed and defined the concrete framework of the academic performance for faculty members of higher educational institutions. Some of the researched studies have focused on this framework and indicator to enhances the academic activities and discourses in academia. UGC, India (2010) mentioned the academic performance indicator (API) into three categories as (1) teaching, learning and evaluation related activities, (2) co-curricular, extension and professional development related activities, and (3) research and academic contributions. The framework developed by the UGC, India (2010) highlighted both on lecturing in classroom and conduction of research activities outside the classroom. The main objective of academic output is measured as to prepare both faculty members and students to the research activities. Besides delivering the ideas and concepts of research inside classroom and development of new concept, these days, the innovation helps to develop new knowledge. Further, it enhances the capacity of individuals in the context of educational institutions.

Hilman and Abubakar (2017) argued that academic performance incorporates both student related academic achievement and non-student related academic achievement. Student's related academic attainment contains students' academic status, graduation rates, and job market as indicators for assessing university performance and non-students related academic achievement consists of having competitive positions, innovation, organizational agility, sustainability, and market share. The major objectives of the university are to teach, make active participation of the learner along with faculty members to the research activities, produce new knowledge which is required to the society and the nation, and enhance individual and organizational capacity.

Hazelkorn (2015) stated that most of the higher educational institutions used peer review and accreditation as their performance assessment. It shows that research is highly prioritized in academia rather than other activities. Furthermore, Pinilla and Munoz (2005) extended graduation rate as a variable for assessing university performance. However, in the context of Nepal, only research and graduation rate of the university are not enough to measure the academic performance of the academic institutions because universities are involved in many other activities such as teaching, learning, research, publication, generation of new knowledge, capability of solving problems, etc. These entire activities are covered under four categories as discussed below:

Research and Publications: Work and their Priority

The first predictor identified by this study under academic performance is research and publications. Knowledge management enhances research collaboration across universities, resulting in an increase in the number of research projects and publications (Chumjit, 2012). This study highlights research as a key component of the university that measures its success. The key component identified to measure the research and publications for this study are: involvement in research, bringing knowledge of research in classroom, mentoring through technology, conversion of theoretical knowledge into practical one, number of publications, and interaction in the classroom. Universities play a major role in encouraging and supporting their staff to create knowledge. In addition, it is required to support academic staff to promote research activities.

The National ICT Policy prioritizes ICT in education, research and development. Identical to this, the National Planning Commission (2016) prioritized research as, “Make the higher education be accessible, competitive, and researchablep" (p. 132). It indicates that the National ICT policies (2015) and the National Planning Commission (2017) along with Ministry of Education, Science, and Technology (2019) highly prioritized research activities in universities. Unless the universities involve and engage the students and faculty members in research activities, the growth of intellectual property and human capital is impossible.

Tan and Noor (2013) claimed that technology influences the achievement of knowledge management in research universities in Malaysia. They illustrated that knowledge is well-embedded in the values and work practices of the well-established research universities. Knowledge management enhances research collaboration across a university, resulting in an increase in the number of research projects and publications (Chumjit, 2012). Knowledge management brings practical benefits to higher education achievement. Patel, Ashrafian, Almoudaris, Makanjuola, and Bucciarelli-Ducci (2013) highlighted a number of publications, number of citations, impact factor, research funding, degree of co-authorship, and index as common research performance indicators.

Research activities help academic staff generate new knowledge and this process is imposed by how knowledge is dynamically created within an organization. In some context, we need extra resources to generate and produce knowledge through research like e-sources, technological equipment, books, etc. and organization plays a vital role in this situation. Since the teaching and learning process of Nepali higher educational institutions is mostly guided by lecturing method, so we claim that the research activities fall under low priority in the academic institutions of Nepal.

Innovation: An Emerging Dimension

Another predictor of academic performance identified by this study is innovation. Herkema (2003) mentioned innovation as the process whereby knowledge is acquired, shared and assimilated with an aim to create new knowledge. The key objectives of innovation are to produce new knowledge to solve and address problems of daily life. This study exposed innovative process of educational institutions that can be enhanced by quality information inside the classroom, learning environment, case-based learning, and focus on the activities inside classroom.

This study claimed that innovative ideas of faculty members help to accelerate the classroom activities effectively. Lee et al. (2013) emphasized knowledge managementas an antecedent and foundation for organizational innovation. Odumeru (2013) was also of the same opinion when saying that innovation is a key determinant of organizational performance. Innovation is the process of creating new knowledge (Plessis, 2007).

The faculty members generate and bring new concepts and valuable information inside classrooms so that the students can feel the worth of academic excellence. To foster capabilities of students, the faculty members focus on the case-based learning rather than lecturing methods. The case-based learning demands activities inside classrooms and brings the theoretical knowledge into practical one. The process of innovation within educational context is guided by the knowledge creation theory, and it is also highlighted by the policy of higher education of Nepal. As stated by Herkema (2003), innovation is the adoption of an idea or behaviour that is new to the organization. If the leadership of institution feels that one is new for the institution, they adopt ideas to achieve the goal of an organization. The market and society demand the incremental innovation to produce innovative ideas, concepts, and thoughts, and that help to produce competitive human capitals for the societies. In this regard, the innovation produced new knowledge and that knowledge sometimes contributes to existing theory and in some cases produces new theory as well.

Interactive Learning: Newly Adopted Method

Interactive learning is also a predictor of the academic performance identified by this study. Birdsall (2002) stated that obtaining feedback and ensuring students' participation in large classes are impossible without interactive learning system. This statement concerns with how faculty members of higher educational institutions make their class more effective and interactive. Faculty members develop their lesson plans before starting classes and use e-portal to capture new methodology of teaching and learning. As viewed by Chumjit (2012), teaching enhances through knowledge sharing processes among faculty members and students. Thus, teaching is the best way of disseminating ideas and concepts of any subject matter to the audience. For most cases, the audiences are students. For some cases, faculty members or peer could be the participants while learning through mentorship.

Interaction in colleges and universities definitely makes a shift to some novel learning technology including interactive that is oriented towards personal development and self-development of each participant in the learning process including both the instructor and the student (Abykanova et al., 2016). The National Education Policy demands the integration of technology to increase the employability of human resoruces produced by the higher educational institutions. Exposure to information and communication enhances teaching and learning processes such as online learning or e-learning. These days, students have high demand for e-learning from universities and higher educational institutions. Nepali educational institutions are also adopting this process, and the information processing theory plays a vital role to access to required information from databases of information system.

Capacity Building: A Contextual Dimension

The final predictor of academic performance identified by this study is capacity building. Research activities refer to the creation of new knowledge or utilization of existing knowledge to bring about innovative applications directed towards specific practical aims and objectives (Creswell, 2005), and enhances the capacity of an individual. In this study, the capacity of an individual can be achieved through generating new knowledge through research activities, involving students in research work, and managing technology in classroom environment.

According to Egbo (2011), overall objectives of a university are to foster the capacity of teachers through development programs, growth and excellences of educational system. This statement indicates that overall development of institutions depends on the development of individuals working there. The capacity and capabilities of individuals reflect institutional development. Capacity building is crucial in institutional development and it is possible through the development of competitive human resources in universities (Sharma et al., 2011).

The academic performance discussed by the different researchers incorporates both the academic and administrative performance of higher educational institutions. The core function of the university is to enhance academic activities through teaching and research. The National Educationa Policy also highlighted the need of the productivity of the human resoruces to be competitive in global market. In this context, I have dugout only the academic activities and discourses of academic performance. The healthy environment or institution including positive role of leadership and technological advancement changes the way of conducting academic activities and forming the different dimensions of academic performance in higher educational institutions. The ultimate goal of educational institutions is to produce highly demanded human capitals for the society and the nations. The knowledge creation process of individual reflects the capabilities of producing new knowledge and that motivates the peer as well. The following sections tell about the level of knowledge management and academic performance perceived by faculty members of higher educational institutions in Nepal.

Level of Knowledge Management and Academic Performance

The level of knowledge management and academic performance defines how the academic staff of universities are using and practicing knowledge management to enhance academic activities in academia. This study identified three types of level of knowledge management practices, namely low, medium and high as mentioned in chapter five, level of knowledge management section. The high level of knowledge utilization reflects that the faculty members of higher educational institutions apply their knowledge for academic excellence. It also discloses that the pace of knowledge generation process of faculty members of higher educational institutions falls in the medium level. Rest of knowledge management processes such as knowledge acquisition, dissemination, transfer, creation, and presentation are high which make the level of knowledge management of faculty members also high.

A research conducted by Dei (2017) explored that there was high level of knowledge management processes in Ghanian universities. The contextual similarities of Ghanian universities and Nepali universities, this context supports this study to find the level of KM practices as high to the faculty members of Nepali higher educational institutions. Darvish, Ahmadnia, and Qryshyan (2013) suggest that there was no statistical difference between males and females with respect to their level of knowledge management.

Pertaining to the high level of knowledge management possesses in the context of Nepali higher educational institutions, it seems that the knowledge utilization process (mainly guided by the problem solving capacity), knowledge acquiring process (guided by the accessing of technology and engaging in interaction and discussion process), knowledge generation process (guided by the organizational leadership and professional networks), knowledge dissemination process indicated by usage of social media, and research through institutions, knowledge transfer process (through e-portals, and participation in training sessions), knowledge creation process (guided and fostered by joint projects, workshop/seminars) and knowledge presentation process (guided by consultancy services and development of simulators) behaviour of faculty members are enhancing the capability of knowledge management practices remarkably in educational institutions of Nepal.

The research also explored that the level of knowledge management practices of the faculty members of higher educational institutions seem high. This may be due to the access to information technology, knowledge sharing culture, emerging trends of research activities within organization. Knowledge acquisition was found to be one of the practices of knowledge management with a high mean score indicating that higher education institutions tend to focus on acquiring knowledge (Turyasingura, 2011). Obeidat, Masa’deh, and Ab-dallah (2014) establish that high level of knowledge workers’ commitment is critical to the knowledge creation.

A study conducted by Paez-Logreira, Zamora-Musa, and Velez-Zapata (2016) unveiled that the commitment of organization with knowledge management practices in the changing global context and scenario is high. This might have occurred by the enforcement policies of higher education to produce competent human resources in the global context and the policy adopted by the NPC to make higher education accessible, competitive, and researchable. In another way, the learning behaviour of faculty members is increasing because of the technological advancement in recent decades. Academic consulting and research services, conducting joint projects, using e-portals, participating in workshops, seminars, training sessions and conferences are enhancing knowledge management practices behaviour of faculty members in HEIs.

The level of academic performance of the faculty members of higher education institution is categorized as low, medium, and high. The research findings as explained in chapter six, related to academic performance of faculty members section discovered that overall academic performance including the dimensions of academic performance research and publications, innovation, and interactive learning is high. But in case of capacity building, the level of academic performance is medium. The pace of knowledge management in capacity building is medium level. This may be the cause of low access to technology and low rate of research activities in the context of higher educational institutions.

In this context, leadership determines the practices of knowledge management defining knowledge vision regarding the nature of knowledge sought and created (Al Saifi et al., 2016) in academia. The knowledge creation process also takes place in e-learning and web-based environments (Samoila, Ursutiu, & Jinga, 2014; Mustapha, Sayed, & Mohamad, 2017) and it impacts the knowledge management practices to enhance academic activities. Consequently, the efficiency of faculty members increases and the higher level of productivity is achieved (Laloux, 2014). The next section carries the relationship and impacts of knowledge management practices along with demographic variables of the faculty members of the educational institutions.

Relations of Knowledge Management with Demographic Variables

This section identifies the relationship and significance of knowledge management practices with the demographic variables as defined in chapter five. The result of the test statistics of knowledge management with demographic variables is explained as follows:

Among thirteen demographic variables, the test statistics identifies the significance of academic position with knowledge acquisition and dissemination; age with knowledge acquisition and dissemination; qualification with knowledge acquisition, generation and dissemination; experiences with knowledge acquisition and dissemination; university with knowledge acquisition and creation; department with knowledge generation; participation in conferences with knowledge acquisition and dissemination; and engaged in other university with knowledge generation in the context of faculty members.

There exist certain effects of these personal factors (age, qualification, and experiences) on managing knowledge (Boondao, 2013; Marosi & Katona, 2015) in organizations and this applies to this study as well. A study conducted by Mazhar and Akhtar (2018) showed that there is significance differences of knowledge management practices in university in terms of designation, qualification, and university type. The personal attitude, feelings, behaviour, and characters imply the knowledge management processes in any institution. The thoughts, feelings and behaviours of individuals are different from each other and imply that the use and access to behaviour in search of knowledge is different.

Since the result displays that there was a significant difference between knowledge acquisition and knowledge dissemination process among professors, associate professors/readers and assistant professors/lecturers. This may happen due to interaction among different academic groups; maybe they are engaged in the discussion differently; the ways of using technology are different among different groups. On the other hand, the engagement in the training may affect the knowledge acquiring process of different academic groups. Likewise, the usage and engagement in social media, involvement in teaching and research activities cause difference in the knowledge dissemination process of different academic positions. The internalization process of the knowledge creation is different from each other.

Macfarlane (2012) argued that becoming a professor is not only about getting a promotion to a higher career grade but more precisely it is a new role that carries important generalized responsibilities for intellectual leadership. This shows that the professors' role is beyond teaching, learning, and researching. Professors are expected to undertake a range of leadership and professional support not only on research activities but also in teaching (Tight, 2002). The studies mentioned above showed that the role of a professor is to take a leadership role in the institutions.

The assistant professors/lecturers engage more in teaching comparing to the professors and associate professors/readers as amount of teaching hours matters in academia (Graham, 2015). The study of Dysart and Weckerle (2015) showed that most of the teaching depends upon the modern technology. Thus, being involve in teaching and learning activity and use of technology impacts on enhancing KM activities in academia. In the same way, the associate professors/readers are focuses on their career comparing to professors. The learning behaviors of the associate professors/readers makes them difference in practicing knowledge management. The involvement of knowledge workers in KM is different in academia (Razi, Habibullah & Hussin, 2019). To be a professor some academic contribution like as, articles, research required which engage them in the social interaction and research work. Being involved in social interaction and research work, the way of disseminating knowledge is emphasized.

In this study, there was a significant difference between different age group in knowledge acquisition and dissemination process in the context of higher educational institutions in Nepal. Young are more familiar to technology (Wall, 2013) which makes differences in acquisition and dissemination knowledge among peers. In this regard, the learning behaviour of the different age group is different in the context of higher educational institutions.

This study examined that there were differences among the faculty members who had different academic qualifications mainly in the knowledge acquisition, generation and dissemination process in the context of higher educational institutions. There is also a difference among the means of the rate of creativity among faculty members in terms of academic degree in the university faculty members (Rahimi et al., 2011). As established by Ismail and Yusof (2009), lower the academic degree, the less likely persons are to appreciate knowledge creation and sharing. Gibbon and Kabaki (2002) suggested that PhD and Master's degree are the indicators of capacity at universities, and the primary requirement for teaching. However, this differs from one faculty to another. The Higher Education Quality Committee (HEQC) highlighted that academic degree of faculty members matters for those who are teaching in undergraduate level (Higher Education Quality Committee, 2004) and the qualification of administrative staff is increase institutional capacity. Amongst others, the number and qualifications of full-time academic staff are important inputs (Mammen, 2003) that have an impact on quality in higher education. The learning behaviour of the faculty members having different educational level affects their knowledge management practices.

Knowledge acquisition and dissemination process is affected by the experiences of the faculty members in the context of university. Ismail and Yusof (2009) indicated that the positions of employees have some impact on knowledge creation and sharing such as senior staff who often serve as mentors and coach junior and less experienced staff. The experience of senior staff enables them to analyze the situation effectively and it becomes an effective way of acquiring knowledge for them, and disseminating required knowledge for the audience as well. The internalization process of the SECI model helps to analyze being individual and contextualize the required knowledge.

The faculty members' association in the university plays a significant role in knowledge creation and acquiring process in the context of Nepali universities. Institutions in urban areas have an ability to attract and retain highly qualified staff than rural areas (Gibbon & Kabaki, 2002). The social context of the organization, and environment plays a vital role to create and acquire knowledge for an individual. The physical resources, for example, IT track KM and people track KM may be different from each other and that impacts the KM behaviour of the faculty members of higher educational institutions. IT track KM enables academic staff to access to the IT resources such as e-journals, e-sources, databases, etc. at any time; and people track KM provides wider platforms for the researchers and practitioners to enhance knowledge management activities within institutions.

The study found that there was a relationship between department of the university and knowledge generation process. A research by Ismail and Yusof (2009) identified that there was significant difference between knowledge sharing behaviour and workplace or department of government employees in Malaysia. Departmental evaluation in higher education can be defined as a practical effort to determine the worth and merit of an academic department by judging among other things, whether it has been successful in attaining its fundamental objectives (Hugo, 1994).

Departmental evaluation is also suggested by Al-Turki and Duffuaa (2003); Bornman (2004). For this, IT track KM enables groupware, intranets, and extranets to access the required knowledge by the faculty members of higher educational institutions and people track KM guided them as per requirements.

Participating in international conferences is extremely important, especially for the academicians. This is because it serves as an excellent platform to learn from one another as we present, share and disseminate the findings of studies undertaken in country-specific cases or situations. Attendance of academic conferences is very useful for researchers to communicate, discuss and exchange views and experiences with others from all over the world to update oneself with latest scientific developments in the area of specialization. They can benefit from the presentation of their research and discuss the results with researchers before publishing it in any prestigious international journal. The business and academic holidays are getting popular to participate in conferences, engagement in research works, taking class to other universities, and development of co-curricular activities. Therefore, the joy of attending conferences enhances the opportunities for improvement and incremental growth perceiving the things in a broader manner, and living with the international diverse community of scholars, carrying out research, writing and publishing, and presenting papers at conferences (Grobgeld, 2016).

The research discovers that there is a significant relationship between knowledge generation process and engagement in other universities. The findings of this study indicate that engaging in research and teaching in other universities increase the academic performance of individuals and professional networks. The external environment plays a vital role to enhance the knowledge management initiatives within organizations. Wenger, Robert, and William (2002) believed that communities of practice play an important role in knowledge management by connecting isolated pockets of expertise across the organizations. Hence, the individual learning behaviour, organizational environment, culture, infrastructure of IT and ICT including e-sources matters to practices of knowledge management by academic staff in the context of higher educational institutions.

Association of Knowledge Management and Academic Performance

This research indicates association between knowledge management and academic performance in HEIs. The association of knowledge management practices on academic performance is determined by the results of the correlation analysis and the regression analysis presented in chapter six. Each of the knowledge management practices, namely knowledge utilization, acquisition, generation, dissemination, transfer, creation and presentation were correlated and regressed on each of the four dimensions of academic performance (research and publications, innovation, interactive learning, and capacity building). The influence of knowledge management on the different dimensions of academic performance is analyzed as the test statistics presented in chapter six which presents that there existed linear relationship between knowledge management and research and publications. In the same chapter, the regression analysis identified the linear relationship of research and publications only with three dimensions of knowledge management, namely knowledge utilization, knowledge acquisition, and knowledge creation.

Mainly interaction, group discussion, conduction of training activities, usage of modern technology, mentorship to the new faculty, conduction of joint projects, accessing of e-sources, participation in the workshop and conferences help to enhance the personal efficiency to conduct research activities in the educational context. Knowledge management enhances research collaboration across universities, resulting an increase in the number of research projects and publications (Cranfield, 2011; Chumjit, 2012; Tan & Noor, 2013). New methods for research are created, and that facilitates researchers to develop research proposals that are matched with private sector's needs, including receiving extra funding from the private sector (Chumjit, 2012). For this, technology allows employees to access, collect, and assimilate existing internal knowledge within an organization and/or external knowledge from outside (Watcharadamrongkun, 2012; Dalkir, 2013) and helps to generate new knowledge.

The systems and facilities of institution such as internet, e-mail, intranet, groupware, telecommunication, memorandum, weblogs, mobile technology, online and web-based learning system including compact disc, digital versatile disc, and video compact disc (Fanghanel, Pritchard, Potter, & Wisker, 2016) motivate the faculties to use information to facilitate application of knowledge management in universities for different research activities. Knowledge management behaviour of an individual enhances research activities within educational institutions. Thereupon, by practicing activities of knowledge utilization, creation, and acquisition, the faculty members enrich the capability of research and publications.

The test statistics presented in chapter six depicted that there existed linear relationship between knowledge management and innovation. In the same chapter, the regression analysis identified the linear relationship of innovation only with three dimensions of knowledge management, namely knowledge utilization, knowledge dissemination, and knowledge presentation. It was found that consultancy services, development of simulators, conducting training sessions, use of social media, problem solving capacity, involvement and participation affect problem seeking and solving in higher education (Mohamad, 2012; Kneale et al., 2016). These factors are also enhancing innovation within educational context mainly in the higher educational institutions of Nepal. The knowledge disseminating and presenting behaviour of faculty members increases the process of innovation of faculty members in generating knowledge. Involvement and participation in different academic research activities affect knowledge sharing in higher education (Mohamad, 2012).

Knowledge management supports innovation in two ways (Maqsood & Finegan, 2009). First, it helps organizations locate innovative knowledge in the outside world that brings knowledge inside the organization and incorporates it into work practices effectively. Second, knowledge management supports innovation by helping organizations to perform more productively. This can be accomplished through knowledge management processes, which help organizations to obtain, assimilate and use external innovative knowledge. The innovation is guided by the theory of knowledge creation (Nonaka & Takeuchi, 1995). According to Petrides and Nodine (2003), the entire objective of knowledge management in education is to augment and ensure that students get the right knowledge through the quality of materials or instructions in institution. Bhusry and Ranjan (2012); Jacob, Xiong, and Ye (2015) stated that usage of knowledge management in teaching and learning process in tertiary educational institutions makes the classroom more interactive and meaningful. It implies that the knowledge management behaviour of an individual affects his/her innovative process. Thus, faculty members' capability of innovation enhances by practicing of activities of knowledge utilization, dissemination, and presentation.

The test statistics presented in chapter six presented that there was linear relationship between knowledge management and interactive learning. In the same chapter, the regression analysis identified the linear relationship of interactive learning only with three dimensions of knowledge management, namely knowledge utilization, knowledge generation, and knowledge dissemination. Gopal and Shobha (2012) argued that knowledge management in university enhances the teaching and learning process. Chumjit (2012) explored the application of knowledge management in the higher educational institutions of Thailand for improving teaching, research, administration, and strategic planning within various sections and departments. In these days, interactive learning is the impact of technology in academia.

The modern tools of IT and ICT are playing a vital role to enhance the interactive learning process in the educational context. Universities obtain new methods for teaching which encourage students to pay more attention to their studies (Chumjit, 2012). Higher education intended to promote learning at institutional level implementing practices related to the generation of knowledge by means of research, training, and documentation (Turyasingura, 2011). By practicing of activities of knowledge utilization, generation, and dissemination, the faculty members' capability of interactive learning enhances. Thus, the knowledge management influences the interactive learning process in the context of higher educational institutions.

Another test statistic presented in chapter six verified that there was linear relationship between knowledge management and capacity building. In the same chapter, the regression analysis identified the linear relationship of capacity building with five dimensions of knowledge management, namely knowledge utilization, knowledge acquisition, knowledge generation, knowledge transfer, and knowledge creation. The ultimate goal of university is to build up capacity of the faculty members. They can enhance the capacity of the faculty members by conducting training activities, seminars and workshops, engagement in the research activities, etc. The ICT Policy of Nepal (2015) emphasizes the ICT in education, research and development. The influence of knowledge management in academic performance is in the same line of the previous finding of (Chumjit, 2012; Blackmore et al., 2016; Kim & Kim, 2018) as he believed that the universities are able to identify their core competencies and improve their abilities in teaching, research, and administrative systems.

The section that follows incorporates the interdependencies of the knowledge management and academic performance in the context of higher educational institutions perceived by the faculty members in Nepal.

Discourse of Knowledge Management and Academic Performance

The discourse of the knowledge management and academic performance in HEIs is explained through interdependent relationship among them in this study. To explore the interdependence of relation between dimensions of knowledge management and academic performance, the canonical correlation analysis procedure was conducted. The results discussed in chapter six evidenced four significant canonical correlations and three covariates of canonical correlations which predict the interdependent relationship between dimensions of knowledge management and academic performance.

The first canonical covariates establish the interdependent relationship between dimensions of knowledge management; knowledge utilization, acquisition, generation, and dissemination with the dimensions of academic performance; research and publications, and capacity building. The findings from the first canonical variate seem to confirm the assertion that knowledge management is an implementation strategy for academic performance, which implies that, in order to succeed in academic activities along with research, publication and capacity building, knowledge management strategies have to be implemented. More specifically, however, such findings show that knowledge utilization, knowledge acquisition, knowledge generation, and knowledge dissemination are highly prioritized in educational context to enhance academic excellences (particularly, research and publications and capacity building). This justifies that problem-solving capacity (Mohamad, 2012; Kneale et al., 2016), interaction and discussion (Quagraine, 2010; Jacob, Xiong, & Ye, 2015), external professional network and social media impact on the research, publication and capacity building activities of the faculty members in academia.

The second covariate explored the interdependence of knowledge creation with innovation. With respect to the second variate of knowledge creation, institutions embed innovative activities into the educational institutions. The knowledge creation behaviours of the faculty members of higher education enhance the capabilities of the innovative process of the individuals. It can be argued that the knowledge creation theory of knowledge management directly impacts on the innovative process of the individuals. This can link through the practices of the eastern concept of knowledge. The Veda (Swami Abhayananda, 1991), simply means “knowledge,” or “wisdom”; and so, the real meaning of Vedanta is “the end of knowledge”, “the ultimate wisdom” (p. 11) is the ultimate integration of the creation and innovation to enhance the productivity of individual and institutional. In this regard, (Gyani, 1997; Saksena, 2003, Khaptadababa, 2002) highlighted the concept and ideas which can be generated from self-actualization and further it is concerned with the development of individuals' thought and knowledge.

The growing demands of society can be fulfilled only by conducting projects and carrying out the finding to the society as a product of knowledge as an intellectual capital (Wiig, 1993). It furthermore, supports to build the knowledge-based society and enhances the overall knowledge economy of a society and a country. Similarly, the third canonical covariates establish interdependent relationship between knowledge transfer, and presentation with interactive learning. For the third variate of knowledge transfer and knowledge presentation, institutions which fail to embed individual knowledge into academic routines, processes and systems may exhibit low levels of academic output.

The learning environment of institutions is directly guided and practiced by the well standards and procedures of the knowledge presentation and transfer behaviour of the individuals. The innovation combined new idea, thought and concept (Manhart & Thalmann, 2015) to produce new knowledge in academia. The data indicate that the changing technology impacts on the teaching and learning process of the faculty members and that helps the faculty members to be aware regarding the teaching and learning methodology of the 21st century which makes their graduates internationally competent and capable. The following section details the model of knowledge management and academic performance identified by this study.

Leadership Matters to Enhance KM and AP in Academia

The academic institutions of the 21st century strive for innovations and production of new knowledge. To achieve these goals integration of Knowledge Management in academic activities is crucial to enhance the intellectual capital of an individual. This is one of the most demanding aspects of HEIs. In universities and higher educational institutions, the Vice Chancellor, Deans, and Head of Departments lead the entire team of intellectuals and they play vital roles to transform the operational, managerial as well as strategic activities in order to enhance KM activities. As a result, the leaders become the focal persons to drive the institution to highest possible performance. University knowledge management process, in this context, offers a strategic tool in improving the productivity of the university, particularly college-level teaching, learning, and administration (Kalkan, 2017). Knowledge management is, therefore, an influential factor in helping organizations survive and gain success in the present-day competitive environment where wide-ranging information is prevalent.

The 21st century organizations are responsible for creating new knowledge and increase the intellectual capital to achieve their goals and objectives to be competitive. Exploring leadership qualities of organizations and identifying characteristics of effective leaders with many approaches of leadership have emerged (Aragon-Correa et al., 2007) to increase the performance of organization. In this regard, KM includes the managerial efforts to enhance the performances of the institutions (Elrehail et al., 2018) and also create, store, share, and develop knowledge by individuals and groups (Zheng, Yang, & Mclean, 2010). The academic institutions like university and college the Government institutions such as Ministry of Education, Science, and Technology along with National Planning Commission are the main concerned authorities to implement KM to enhance the performane of individual and institutional. Knowledge management is responsible for the selection, implementation, and evaluation of knowledge-oriented strategies on the way the organization handles internal and external knowledge organization in order to improve organizational performance (Ronald, 2007). Likewise, knowledge management is a tool to increase the intellectual capital that is an intangible asset, which in turn ensures tangible assets in the form of financial success in the future (Pasher & Ronen 2011). The available literature has recently begun to address the role of leadership in KM (Lakshman, 2009). Nguyen and Mohamed (2011) strongly suggested that leaders are highly influential in KM practices. Likewise, leadership affects organizational learning and knowledge sharing behavior in institution (Park & Kim, 2018). The organizational creativity and performance enhanced through integration of KM (Soon & Zainol, 2011) in organizational activities.

Chawla and Joshi (2010) highlighted that leadership plays a crucial role in creating, developing, and managing the organizational capabilities by creating effective teams within a diverse workforce. According to Jayasingam, Jantan, Ansari, and Raman (2010), leadership can influence and motivate knowledge-workers to contribute and participate actively in creating, sharing, and using knowledge effectively. Leaders' role is emphasized by stimulating employees to share and apply their skills and experience willingly to create new knowledge, which then leads to the competitive advantage of organizations (Yang & Chen, 2007).

The leadership of academic institutions is responsible to manage required resources of KM to enhance the academic performance among the faculty members working in the academic institutions. Co-creation is important for knowledge innovation, knowledge transfer and knowledge integration (Ramaswamy & Ozcan, 2014). Co-creation involves working together to promote knowledge processes and innovation (Johannessen, 2017). KM has been seen as logical and reasonable continuation of the management of data and information resources in universities (Zhou, Zijlstra, & Lu, 2017). Leadership and available technology are the most important concerns of university administration (Mohamad, Manning, & Tatnall, 2012). The research shows that KM is essential to enhance the organizational efficiency along with innovation in educational context.

According to Nonaka et al. (2006), leadership plays various roles in the knowledge creation process, such as; providing knowledge vision (managerial mindset); developing, promoting, and sharing of knowledge assets; role-modelling and empowerment; and enabling continuous spiral of knowledge creation. The organizational environment, culture and technological infrastructure matter to produce new knowledge in academia. The leadership of an academic institution can align with other institutions to enhance academic activities to achieve the academic excellence of the both students and faculty members. The innovation requires both intra-organizational and inter-organizational knowledge management (Kurniawati, Samadhi, Wiratmadja, Sunaryo, & Rizana, 2018). The leadership also prepares necessary policies and planning of academic activities to produce highly qualified graduates for the universities, i.e., from HEIs.

The leadership also needs to align and cope with governmental bodies like MOE, NPC, and UGC to make necessary amendment in the existing policies and update to the HEIs policies. The changing global environment also demands to enhance the intellectual capital of individual and institutional to enhance the knowledge economy of the country as well which is directly depends upon the policies of, HE and the leadership of institution in some matters. In this way, the leadership of the academic institution matters to change the academic activities, practices of KM in academia to enhance overall academic performance of institutions.

The leadership of the academic institutions also manages the healthy environment of academic institution to enhance the academia activities and knowledge management practices. In this regard, leadership determines the knowledge vision regarding what kind of knowledge is sought and created (Magnier-Watanabe, Benton, & Senoo, 2011; Al Saifi et al., 2016) in institutions. Furthermore, the leadership of the institutions provides the environments for knowledge sharing and knowledge infrastructure (Merlo, 2016) knowledge Grid (Akinnuwesi, Odumabo & Aribisala, 2020), and organizational database (Abbass, 2017) to renew and produce new knowledge in academic environment. The model of the academic system adopted by the head of institution matters to link the graduates with the job market.

The most common model of the higher education system 'Humboldt' and 'Neoliberalism' are in practice (Reiners, 2014). The researcher further analyzes that 'Humboldt' is associated with various ideals such as the unity of teaching and research, the freedom to teach and to learn, to create the community of teachers and students, and to stand for a unified idea of the university. Likewise, it is used in current developments and changes like spreading participation and in the marketization of higher education related to the emergence of 'Neoliberalism'. In this regard, the leadership of the academic institutions analyze the context and apply either 'Neoliberalism' or 'Humboldtian' academic model to enhance the intellectual capital of individual and overall knowledge economy of a country. So, the role of the leadership is vital to harness KM discourses in academia through intellectual capital of individual to enhance the knowledge economy.

Model of Knowledge Management and Academic Performance in HEIs

The existing research on knowledge management to date have focused on industrial and business settings (Berraies, Chaher, & Yahia,2014). The model of knowledge creation, sharing and utilization developed by Nonaka and other researchers is employed to improve organizational innovation (Nonaka,1994; Nonaka & Takeuchi, 1995; Ramirez & Kumpikaite, 2012; Sankowska, 2013) has been difficult to transform into practice due to contextual variation among organizations (Alshahrani, Dadich, & Klikauer, 2016). Researchers have identified many relevant factors that justify the success of KM strategy within an organization or social entity (Berraies, Chaher, & Yahia, 2014) but to date there has been minimal investigation of KM in the context of higher education (Hasani & Sheikhesmaeili, 2016). While various strategies of KM have been employed in a variety of industries (Akhavan & Zahedi, 2014; Anggia, Sensuse, Sucahyo, & Rohaawati, 2013), a very few studies have empirically investigated the knowledge management implementation in higher education.

Many researchers view HEIs as knowledge-creating entities and argue that effective implementation of KM is a crucial factor for ensuring the competitive advantage and sustainability of these organizations (Hameed & Badii, 2012). Based on this argument, the model of knowledge management is developed to enhance the academic activities and discourses in higher educational institutions.

The model of knowledge management and academic performance was developed based on the findings and hypotheses of this study. The theories of knowledge creation and organizational epistemology along with social capital, social network, leadership, culture, environment, and infrastructure of higher educational institutions are taken as key components to design and develop this model. The model of knowledge management and academic performance in higher educational institutions presents the theoretical and practical philosophical construct to establish knowledge economy in the era of knowledge-based society. The model of knowledge management and academic performance for higher educational institutions is presented in Figure 7. The model describes the meaningful relationship of knowledge management behaviour of faculty members by their individual and personal characteristics such as academic position, age, qualification, experiences, university, department, participation in conferences, and engagement in other universities and knowledge management practices by the faculty members of the higher educational institutions.

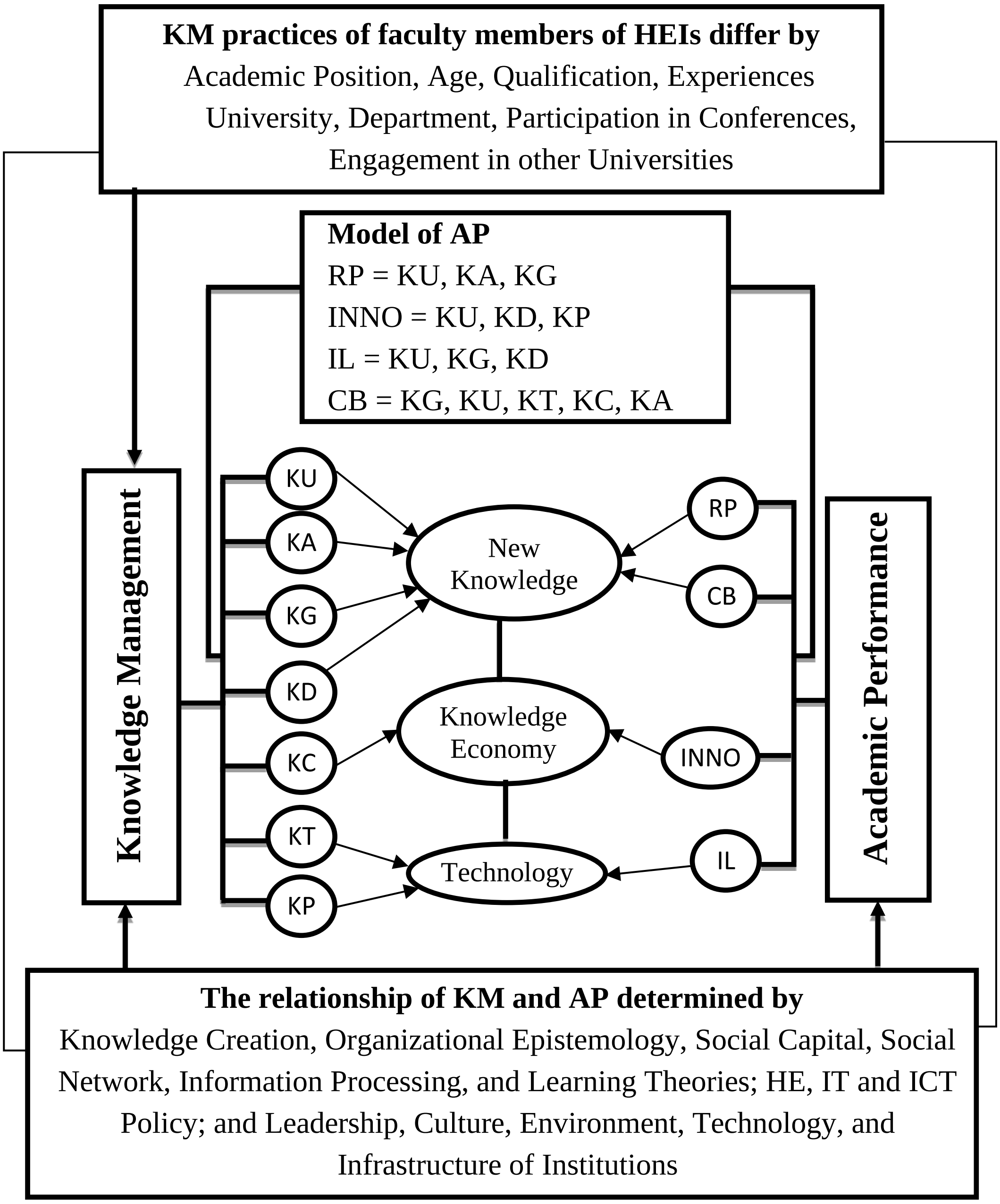


Figure 7. Model of Knowledge Management and Academic Performance in HEIs

KM = Knowledge Management, RP = Research and Publications, INNO = Innovation, IL = Interactive Learning, CB = Capacity Building, KU = Knowledge

Utilization, KA = Knowledge Acquisition, KG = Knowledge Generation, KD = Knowledge Dissemination, KC = Knowledge Creation, KT = Knowledge Transfer, KP = Knowledge Presentation, AP = Academic Performance, HE = Higher Education, IT = Information Technology, ICT = Information and Communication Technology

Furthermore, this model displays an association between dimensions of knowledge management and academic performance. The research and publications are mostly related with the acquisition of knowledge to solve the academic problem and generate new knowledge; by virtue of this research and publications is mostly related with knowledge utilization, acquisition, and generation. Research is recognized as an important component of the university's mission and a key indicator of its performance (Bai, Millwater, & Hudson, 2008). In the same line, innovation brings new concepts, ideas and practices and brings those concepts to society, in this way innovation is highly correlated with knowledge utilization, dissemination, and presentation. The study of Hussein and Nassuora (2011) highlighted that a university critically links with knowledge and ideas preservation through key processes, including teaching, research, and publication. This showed that the individual characteristics of the faculty member emphasize practicing KM in academia.

Moreover, interactive learning brings new concepts and ideas to disseminate such ideas among students and peers, and interactive learning is highly correlated with knowledge utilization, generation, and dissemination process. In the same line, capacity building brings new concepts, ideas, and knowledge to transfer such knowledge to its stakeholder. The university research has become highly competitive in a nation's capacity to deliver knowledge in the world market (Bai et al., 2008). Hence, capacity building is highly correlated with knowledge generation, utilization, transfer, creation, and acquisition process.

The model also presents the interdependent relationship of dimensions of academic performance and knowledge management. The research activity of institution enhances the individual capacity and produces the new knowledge. The changing technology is enabling individual to audit their knowledge individually and gives the information of their presence in academia. Social capital theory as a dynamic, and reciprocal interaction of personal factors, behavior, and the social network (Chiu, Hsu, & Wang, 2006) enhances the individuals' perceptions about the consequences and enhances social networks in institutions.

In the same way, the social network theory impacts on knowledge dissemination process within an organization (Dyer & Nobeoka, 2000). That is why, both social capital and social network theories embedded the stakeholders of the institutions in a social-networks. Hence, the model demands the integration of knowledge (Vidya), creation (Srsti) as explained by (Swami Abhayananda, 1991) to enhance the capacity of thinking level of individual to establish the knowledge-based society, ultimately, to enhance the knowledge economy of a country.

The integration of the new knowledge and technology as such emphasizes the development and enhances the knowledge capital of individual and institutional as well. As a consequence, the model claims that production of new knowledge by the research activities by the higher educational institutions establish a knowledge-based society and that enhances to contribute to knowledge-based economy of a country.

Chapter Summary

This chapter presented the discussion on the results obtained from the quantitative analysis of received data form the academic staff of higher educational institutions. In particular, the chapter demonstrated how knowledge management practices and academic performance could be contextualized. This chapter describes what affects to make the level of knowledge management and academic performance high and medium for the faculty members of HEIs. This chapter also discussed how the demographic variables of academic staff impacts on practicing knowledge management in academia. It also showed the relationship, associations and interdependencies of knowledge management on the academic performance in higher educational context. It further highlighted how the leadership matters to enhance knowledge management and academic performance in academia along with international practices. Further, this study shows the environment to enhance the knowledge economy through integration of knowledge management and academic performane in higher educational context. The chapter ended with proposing a re-conceptualization of the linkages between knowledge management and academic performance with the development of its model in order to focus on knowledge management for enhancing faculty members' innovativeness to produce new knowledge.

CHAPTER VIII

SUMMARY, CONCLUSION AND IMPLICATIONS

This chapter resonates with dimensions of knowledge management and academic performance identified and discussed in chapter four. Chapter V compared and illustrated the knowledge management practices by the faculty members of higher educational institutions. Chapter VI discussed the relationships and dependencies of academic performance in relation to knowledge management. Chapter VII discussed the findings of this study. This chapter summarizes the thesis by relating the research problem with the overall findings and at the end, it draws a theoretical, practical as well as the policy level implications along with final remarks.

Summary

The way faculty members of the higher education institution in Nepal practise knowledge management may differ from one to another. The dimension of knowledge management that is being practiced internationally may not be applicable to the Nepali context. Knowledge management is an emerging concept in the fields of business, engineering and education these days. The employees of business sector and academic field in Nepal have been using and practising knowledge management differently according to their needs and accessibility. However, no systematic study has been carried out to measure knowledge management practices and academic performance of the faculty members in the context of Nepal. Therefore, this study bridges this gap in this regard.

I developed tools to measure knowledge management and academic performance of the faculty members of the universities in order to identify the predictive relationship between knowledge management and academic performance.

The following four questions guided this research: (a) What predicts knowledge management and academic performance of faculty members in higher educational institutions? (b) What is the level of knowledge management and academic performance of faculty members in higher educational institutions? (c) To what extent is knowledge management differed by the individual personal characteristics, and personal engagement in academia? (d) To what extent does knowledge management constitute academic performance of faculty members in higher education institutions? In seeking answers to these questions, a thorough review of literature related to the topic was carried out. The literature review was employed for examination of the status of knowledge management practices, associated variables, policies, and theories related to knowledge management. Based on comprehensive review of literature, the research was carried out following the principles of post positivist stance and quantitative research method. Informed with the relevant literature and interactions in field, the survey questionnaire was developed through the Delphi method. The research hypotheses were tested based on the data surveyed. The respondents of this study were faculty members of four different universities of Nepal representing schools of Arts and Humanities, Education, Management, and Science.

The study identified seven dimensions of knowledge management; knowledge utilization, acquisition, generation, dissemination, transfer, creation, and knowledge presentation. Four dimensions of academic performance were identified; research and publications, innovation, interactive learning, and capacity building. Further, the study examined the correlations between the dimensions of knowledge management and academic performance.

Both the descriptive and inferential statistics techniques were used to analyze data. In the descriptive statistics, frequency and percentage as per data type was used to expose the status of knowledge management practices among the faculty members of higher educational institutions in Nepal. The relationship between dimensions of knowledge management and the major determinants of the faculty members such as individual personal characteristics, and personal engagement in academia was tested by chi-square test. In general, the research examined a significant relationship of academic position with knowledge acquisition and dissemination; age with knowledge acquisition and dissemination, qualification with knowledge utilization, acquisition, generation, and dissemination; and experiences with knowledge acquisition and dissemination; university with knowledge acquisition and creation; department with knowledge generation; participation in conferences with knowledge acquisition and dissemination; and engaged in other university with knowledge generation in the context of faculty members of higher educational institutions in Nepal.

The study indicated high pace of knowledge management practices in all of the dimensions of knowledge management practiced except knowledge generation behaviour of the faculty members in the context of higher educational institutions. Likewise, the pace and level of academic performance of faculty members was high except in the dimension of capacity building attributes.

Moreover, the extent of correlation between knowledge management and academic performance was carried out by correlation analysis, multiple regression analysis and canonical correlation analysis. The regression analysis identified the relationship of all dimensions of academic performance with knowledge management although the linear relationship of research and publications with knowledge utilization, acquisition, and creation; innovation with knowledge utilization, dissemination, and presentation; interactive learning with knowledge utilization, generation, and dissemination; and capacity building with knowledge utilization, acquisition, generation, transfer, and creation.

Finally, the canonical correlation analysis analysed three variates of dimensions of knowledge management and academic performance. The analysis suggests that knowledge utilization, acquisition, generation, and dissemination were mostly associated with research and publications, and capacity building; knowledge creation was associated with innovation; and knowledge transfer and presentation was associated with interactive learning.

Conclusion

Faculty members of higher educational institution of Nepal have seven predictors of knowledge management; knowledge utilization, acquisition, generation, dissemination, transfer, creation, and presentation. The organizational leadership, culture, environment, distinct academic culture, notion of knowledge creation activities and readiness to accept and adopt technology in academic institutions rely on the practicing behaviour of knowledge management. Furthermore, the study identifies four predictors of academic performance; research and publications, innovation, interactive learning, and capacity building.

The pace of knowledge management practices among faculty members is high. The study explored that faculty members in Nepali higher education institutes were keen on using available advanced technology; they realized the need for knowledge management by organizational leadership, emphasizing knowledge sharing culture among themselves, participation in the seminars, workshops and conferences, and getting associated with professional networks that enhance the knowledge management activities. Faculty members understand the importance of engagement in research activities, writing to national and international journals, publishing academic output in the forms of articles, conducting seminars, development of simulators, mentoring the students, and faculty members for their career development.

Academic position, age, qualification, experiences, university, department, participation in conferences, and engagement in other universities influenced personal characteristics and engagement in academia of faculty members. It is because of the differences in practices of knowledge management among faculty members due to their professional networks, learning behaviour, organizational leadership, motivation towards profession, learning environment, their way of thinking, their academic background, age, experiences, their knowledge sharing culture, mentorship, awareness regarding technology, eagerness of learning, and adaptation of change.

The practices of knowledge management and their academic performance of faculty members are interrelated. Involvement in different academic activities such as carrying out research, presenting papers in conferences, organizing workshops and seminars, publishing research papers in national and international journals, and using interactive methods in classrooms makes faculty members innovative. Innovative ideas and concepts have their importance to generate new knowledge crucial to solve problems of academic institutions and society.

This interdependence of knowledge management and academic performance establishes a relationship of knowledge utilization, acquisition, generation, and dissemination with research and publications, and capacity building. This relationship is very important to create new knowledge in academic institutions. At the same time, the knowledge utilization process, acquiring activities, generation process and dissemination process closely relate to carrying out research, disseminating the research findings, enhancing the capacity and doing publication of such academic output to the journals. The relationship boosts the academic innovativeness. The innovation enhances the intellectual capital of individual and institution. Consequently, the usage of technology, interactive learning process and pedagogy helps to build an innovative environment for academic excellence.

Implications of the Research

The knowledge management practices of faculty members of higher educational institutions have direct implications on professional development. Current academic position, age, academic qualifications, national and international exposure through workshops, seminars and conferences, and the working culture in workplaces determine the promotion of faculty members to a large context. Understanding such complex interdependence of knowledge management and academic performance can have wider implications to policy makers, universities and individual faculty members.

Implications to Policy Makers

The faculty members are key agents of change of universities because all sorts of academic policies get implemented through them. In the era of knowledge economy, the very existence of a social institute such as a university depends on the creation of new knowledge and its dissemination, and application. With the process of knowledge creation, dissemination and application, universities function as driving force for the innovations among youths. This research concludes that knowledge management is the key component to enhance academic excellences of the universities with positive impacts on knowledge economy. In a context of this sort, universities need policies that encourage faculty members for the maximum utilization of the practices of knowledge management. This study also concludes that there is a strong association between knowledge management and the individual characteristics of the faculty members. In this regard, policy makers can consider for the development of appropriate infrastructure including human capital of knowledge management in universities for academic excellences.

Implications to Universities

This research points out that practices of knowledge management vary according to strengths and priorities of universities. Universities can identify their strengths and prioritize their area of research along with appropriate process of knowledge management to increase academic excellence of the faculty members. Appropriate practices of knowledge management encourage to build up favourable environment for research activities and to implement the research output for the benefit of universities and the society as a whole. Enhancing academic excellence of the faculty members leads to high academic performance of graduates leading to better economic status of the society and the nation as well. The study also indicates that faculty members empowered with high academic excellence have positive impact on the effectiveness of learning in classrooms transferring the new knowledge to students. For disseminating to wider audience, universities can organize workshops, seminars, and conferences.

The research identified that modern technology plays a vital role to enhance the capability of knowledge management practices of the faculty members. In this regard, the management team of the university can invest in infrastructure of the IT and ICT to make techno friendly environment for both students and faculty members. For achieving excellent academic outcome, the team of university can develop research and innovation centre to conduct more research so that the experts can mentor new faculty members and students to transfer explicit knowledge.

The research emphasizes e-sources as key components to create new knowledge, and the university could purchase different types of e-portals and their access to enhance learning behaviour of both students and faculty members. The leaders of university may conduct knowledge audit; make availability of human networks or forum of experts so that staff can adopt appropriate training and workshop to enhance their teaching and learning activities inside and outside the classroom. In these days, well equipped lab, technology, required e-sources, and other fundamental equipment are considered as a basis to teach inside classroom. So, the management team is responsible for developing and building up such things inside the classrooms. Policy for self-assessment and knowledge audit are mostly required these days.

Implications to Future Researchers

The research will be a reference for potential future researchers to explore interdependence of knowledge management and academic performance. This research was conducted among the faculty members of centrally located constituent colleges of universities which are running general education courses of humanities, education, management and science. Ultimately, the research avenues are open for all the streams of education. Furthermore, as this research has focused mostly on the individual characteristics of the faculty members; other researchers can continue this study in other aspects in wider contexts.

Theoretical Implications

The theoretical perspectives applied to this study were based on knowledge creation and organizational epistemology. With the changing context of global practices in academia, the thought and organizational structure are changing rapidly. So, it demands the practical aspects of transferring tacit knowledge to explicit one. In this regard, the economic, cognative and information management perspectives of knowledge management play a vital role to enhance the intellectual capital of individual and institutional. In this regard, the social capital, and the social theory, including organizational learning theory need to be aligned with knowledge creation and organizational epistemology to enhance the knowledge economy of a country.

Implications to Quantative Methods

The post-positivist lens observes the objective reality from objectives phenomenon. The quantitative methods demand the statistical tools to justify the objective phenomenon observed by the post-positivist perspectives. In some contexts, it demands the case study to support the result or finding to observe the objective reality.

Delimitation of the Study

The findings of the current study were drawn from four different universities, particularly Tribhuvan University, Kathmandu University, Purvanchal University, and Pokhara University. Respondents were taken from the four different departments/schools, i.e., Arts/Humanities, Education, Management, and Science. The other types of academic programs/schools such as Medicine, Engineering, Nursing, Agriculture, and Law were not taken for this study. The method applied for this study was the quantitative approach. Likewise, the respondents selected were considered as the faculties, although some of them had leadership roles in their universities. Although there is evidence of the knowledge management and academic performance concerning individual faculty members' day to day activities and discourses in higher educational institutions, the perspectives of such cases were taken into considerations.

Concluding the Chapter and Final Remarks

This chapter began with a summary of this research, where I concluded my entire research. At the end of this chapter, I pointed out the implications of the research. Now at the end of this journey, I must say that this thesis was a huge learning experience for me. I started this thesis from studying the literature on knowledge and knowledge management, which has been developed in western countries, but as I progressed, I realized that knowledge has also been one of the key constructs in the Nepali society. The tacit/explicit mobilization (in the epistemological dimension) and the individual, group, and organizational sharing and diffusion (in the ontological dimension) have to take place to create knowledge and produce innovation. Therefore, the existing knowledge and created knowledge play a vital role in enhancing the overall intellectual capital of individuals along with institutional. This, further impacts on enhancing the knowledge economy of a country.

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ANNEXES

Annex 1: Tools for Data Collection

काठमाण्डौं विश्वविद्यालय स्कुल अफ एजुकेसन
(KATHMANDU UNIVERSITY SCHOOL OF EDUCATION)

पिएचडी अध्ययनका लागि प्रश्नावली – २०१६ (Questionnaire for PhD Study – 2016)

विश्वविद्यालयका शिक्षकको कार्य सम्पादनमा ज्ञान व्यवस्थापनको भूमिका : नेपालको उच्च शिक्षण संस्थाको एक सर्वेक्षण
(KNOWLEDGE MANAGEMENT AND ACADEMIC PERFORMANCE OF HIGHER EDUCATIONAL INSTITUTION IN NEPAL)

प्रिय प्रतिक्रियादाताहरू,
यो प्रश्नावली उच्च शिक्षाका सन्दर्भमा शैक्षिक कार्य सम्पादन र ज्ञान व्यवस्थापन एक-अर्कामा अन्तर्निहित छन् भन्ने कुराको विस्तारमा केन्द्रित छ। तपाईं यस अध्ययनका लागि एउटा उत्तरदाताका रूपमा छनोट हुनुभएको छ। यो प्रश्नावली इमान्दारिताका साथ भर्नु हुनेछ भन्ने मैले अपेक्षा गरेको छु। तपाईंले व्यक्त गरेका प्रतिक्रियाले यो अध्ययन सफल बनाउन मद्दत गर्नेछ। तपाईंले व्यक्त गरेका सूचना तथा जानकारीहरूको गोपनीयता कायम गर्न कुनै कसर बाँकी राखिने छैन। म यसलाई यो अध्ययन बाहेक अन्य कुनै प्रयोजनका लागि प्रयोग गर्ने छैन। तपाईं यस अनुसन्धानमा सहभागी नहुन पनि सक्नु हुन्छ।

कृष्ण प्रसाद पौडेल
पिएचडी छात्र
काठमाण्डौं विश्वविद्यालय

Dear Respondents,
This questionnaire is intended to determine the extent to which knowledge management and academic performance are interdependent and correlated to each other in higher educational context. You have been selected as one of the respondents in this study. Please complete this questionnaire as honestly as possible. Your response to the questionnaire below will assist in making this study a success and will be treated with utmost confidentiality. I will not use it for any other purpose except this study. You are free not to take part in this research.

Regards,
Krishna Prasad Paudel
PhD Student
Kathmandu University

भाग एक : तपाईं र तपाईंको संस्थाबारे जानकारी

(SECTION ONE: INFORMATION ABOUT YOU AND YOUR INSTITUTION**)**

तल सोधिए बमोजिम तपाई र तपाईको संस्थाको बारेमा जानकारी दिनुहोला।

(Please give information about you and your institution)

१. तपाईको लिङ्ग कुन हो ?(What is your gender?)

क. पुरुष (Male) ☐ **ख.** महिला (Female) ☐

२. तपाई कति बर्षको हुनु भयो ? (What is your age?): ☐

३. तपाई कुन जातको हुनुहुन्छ ? (Tick on your ethnicity)

क. ब्राह्मण/क्षेत्री (Brahman/Chhetri) ☐

ख. आदिवासी/जनजाति (Indigenous Nationalities) ☐

ग. मधेसी (Madheshi) ☐

घ. दलित (Dalit) ☐

ङ. अन्य (Others) ………………….

४. तपाई कार्यरत विश्वविद्यालयकोनाम उल्लेख गर्नुहोस (Mention the name of your University you belong):

……………………………………………………………………..

५. तपाई कार्यरत संकाय/विभाग (Your working Faculty/Department/School):

……………………………………………………..

६. तपाई कार्यरत संस्थाको नाम (Name of your working Institution):

……………………………………………………….

७. तपाईको शैक्षीक पद (What is your academic position)

क. प्राध्यापक (Professors) ☐

ख. सहप्राध्यापक (Associate Professors/Readers) ☐

ग. उपप्राध्यापक (Asst. Professors/Lecturers) ☐

८. संस्थामा आवद्ध भएको मिति, वि.सं. मा) (Date of joining): ☐

९. अनुभवको अवधि (Year of experience): ☐

१०. पछिल्लो उच्चतम शैक्षिक उपाधि (Latest highest academic degree):

क. पिएचडी (PhD) ☐ **ख.** एमफिल (MPhil) ☐

ग. स्नातोकोत्तर (Master) ☐

११. गोष्ठी, सेमीनार र सम्मेलनमा सहभागीहुनु भएको छ वा छैन

(Have you participatedin Conferences/Seminars):

क. छ (Yes) ☐ ख. छैन (No) ☐

१२. तपाई भिजिटिङ् फ्याकल्टी हो ? (Are you a visiting faculty?):

क. हो (Yes) ☐ ख. हैन(No) ☐

१३. तपाईले आफ्नो लेख रचनाहरु गर्नु प्रकाशनभएको छ

(Have you published your academic articles?)

क. छ (Yes) ☐ ख. छैन (No) ☐

यदि छ भने (If Yes),

क. पुस्तकको संख्या (No. of books): ☐

ख. स्थलगत भ्रमण प्रतिवेदनको संख्या (No. of field visit reports): ☐

ग. प्राज्ञिक लेख रचनाहरूको संख्या (No. of articles in academic journals) : ☐

घ. नेपाल, हिमाल जस्ता म्यागाजिनहरूमाप्रकाशित लेख रचनाहरूको संख्या

(No. of articles in magazine, like Nepal, Himal, etc.) : ☐

ङ. प्रोसिडिङ्गमा प्रकाशित लेखहरूको संख्या (No. of articles in proceedings): ☐

च. दैनिकवा साप्ताहिक समाचारपत्रमाप्रकाशित लेख रचनाहरूको संख्या

(No. of articles published in daily and weekly Newspapers) : ☐

१४. तपाईले Thesis/Dissertation गाइड गर्नुभएको छ ?

(Have you supervisedthesis/dissertation of different academic levels?)

क. छ (Yes) ☐ ख. छैन (No) ☐

यदि छ भने (If Yes), सख्यामा उल्लेख गर्नुहोस।

(Mention the number of thesis/dissertation guided number)

क. पीएचडी (PhD) ☐

ख. एमफिल (MPhil) ☐

ग. स्नातोकोत्तर (Masters) ☐

१५. प्रतिदिन औसत अध्ययन घण्टा (Average study hour per day): ☐

भाग दुईः ज्ञान व्यवस्थापनका तरिकाहरू

(SECTION TWO: KNOWLEDGE MANAGEMENT PRACTICES)

भाग दुईका प्रत्येक प्रश्नहरूमा तपाईंका प्रत्येक अभिव्यक्तिका लागि सङ्ख्यात्मक परिमाण दिएर तल उल्लिखित प्रश्नहरूको उत्तर दिनुहोस्। संख्यात्मक परिमाणहरूका अर्थ यस प्रकार छन् :

१ = मेरा लागि धेरै असत्य　　२ = मेरा लागिअसत्य　　३ = मेरा लागि केहीअसत्य
४ = तटस्थ　　५ = मेरा लागि केही सत्य
६ = मेरा लागि सत्य　　७ = मेरा लागि धेरै सत्य

मेरा लागि धेरै असत्य **मेरा लागि धेरै सत्य**

|___________|___________|__________|__________|__________|__________|
१ २ ३ ४ ५ ६ ७

For the questions in section two**,** please complete the following questionnaire by assigning numerical value to each of the statements where the meaning of the value is as follows:

1 = Very untrue for me　　2 = Untrue for me　　3 = Somewhat untrue for me
4 = Neutral　　5 = Somewhat true for me
6 = True for me　　7 = Very true for me

Very untrue for me **Very true for me**

|___________|___________|__________|__________|__________|__________|
1 2 3 4 5 6 7

१	मैले स्व-सिकाई द्वारा ज्ञान आर्जनगर्छु। (I acquire knowledge from self-learning.)	
२	मेरो अनुभव नै मेरो ज्ञानको स्रोत हो। (The source of my knowledge is my experience.)	
३	अन्तरक्रियाले मलाई सजिलै ज्ञान आर्जन गर्न मद्धत गर्छ। (Interaction helps me acquire knowledge easily.)	
४	म छलफलद्वारा ज्ञान आर्जन गर्छु। (I acquire knowledge through discussions.)	

५	मलाई आधुनिकप्रविधिले सजिलै ज्ञान आर्जन गर्न मद्धत गर्दैन । (Modern technology is not much helping me to acquire knowledge.)	
६	म बाहिरी पेशागत संजालद्वारा ज्ञान आर्जन गर्छु, उदाहरणका लागिप्राध्यापक संघ/संगठन, विशेषज्ञ मञ्च, पिएचडी संघ, छलफल मञ्चआदि। (I acquire knowledge through external professional networks, e.g. Professors' Associations, Experts Forum and PhD associations, etc.)	
७	मैले तलिममा सहभागी भएर प्रभावकारी रूपमा ज्ञान आर्जन गर्छु। (Participating in the training sessions helps me acquire knowledge effectively.)	
८	संघ संस्था भित्र विदेशी शैक्षिक विशेषज्ञ वा प्राज्ञहरूबाट प्राप्त जानकारीले ज्ञान आर्जन गर्न अहम्भूमिका खेल्छ। (Inputs from external experts such as foreign educational expert, academicians, etc. play a vital role to acquire knowledge within institutions.)	
९	सिकाइ वातावरण भन्दा व्यक्तिको लगावले ज्ञान आर्जन प्रक्रियालाई प्रभाव पार्छ। (Learning environment plays less role compared to individual's tendency in influencing the acquiring process of knowledge.)	
१०	संगठनात्मक नेतृत्व गुणले मलाई सजिलै ज्ञान आर्जन गर्न मद्धत गर्छ। (Organizational leadership quality helps me to acquire knowledge easily.)	
११	यदि महत्वपूर्ण ज्ञानका स्रोतहरू जस्तै पत्रपत्रिका, अनुसन्धान रिपोर्ट, किताब आदि उपलब्ध छैनन् भने मेरो संस्थाले ती स्रोतहरू किन्दछ। (If the important sources of knowledge e.g. Journals, Research Report, Books etc. are not available, my institution buys them.)	
१२	म विश्वविद्यालयमा शिक्षण गर्न आएका नया साथिहरूलाई सरसल्लाह दिएर विचार र ज्ञान हस्तान्तरण गर्दछु। (By mentoring new faculty members, I transfer ideas and knowledge.)	
१३	ज्ञानको स्तर बढाउनका लागि मेरो संस्थामा नियमित रूपमा व्यक्तिगत कार्य सम्पादन मुल्याङ्कन गरिन्छ । (Individual work performance is assessed regularly to increase the knowledge level of individual.)	
१४	मलाई अनौपचारिक छलफलले ज्ञान बाँड्न महत्वपूर्ण भूमिका खेल्दछ। (Informal discussion plays a vital role to share my knowledge.)	
१५	मलाई कार्यशाला र सम्मेलनले ज्ञान बाँड्न सहयोग गर्छन्। (Workshop and conferences help me to disseminate the knowledge.)	

१६	भाइवर, स्काइप, फेसबुक र टुवीटर जस्ता सामाजिक संजालले मलाई सुचना तथा जानकारीहरू हस्तान्तरण गर्न मद्धत गर्दछन । (Social media like Viber, Skype, Twitterand Facebook, etc. help me to transfer information.)	
१७	ज्ञानको खोजी गर्नेहरूलाई ज्ञान बाँड्ने उपयुक्तमाध्यम शिक्षण हो । (Teaching is the best way to distribute knowledge to the seekers of knowledge.)	
१८	मैले आफ्नो पेशासंग सम्बन्धित जर्नलहरूमा अनुसन्धानमुलक लेख रचनाहरू प्रकाशन गरेर ज्ञानको प्रसार गर्दछु । (I disseminate knowledge through publishing in professional journals.)	
१९	मलाई संयुक्त रूपमा गरिने परियोजनाहरूले साथीहरू बीच आफ्ना विचार र अवधारणाहरू बाँड्न सहयोग गर्छन । (Joint projects help me share the idea and concept among peers.)	
२०	ज्ञान बाँड्न र त्यसको प्रसार गर्न म प्रायः IT र ICT उपकरणहरू प्रयोग गर्छु । (I frequently use IT and ICT devices to share and disseminate knowledge.)	
२१	म आफैले तलिमसत्रहरू संचालन गरेर साथीहरू बीच ज्ञान बाँड्ने गरेको छैन । (I have not shared knowledge among peers by conducting training sessions by myself.)	
२२	म अनुसन्धान कार्यमा संलग्न भएर ज्ञान प्राप्त गर्छु । (I generate knowledge by involving in the research work.)	
२३	म ज्ञान हस्तान्तरण गर्ने नमुनाको निर्माणमा खासै संलग्न छैन । (I have not been successful in developing simulators to transfer knowledge.)	
२४	मैले सम्मेलनहरूमा कार्यपत्र प्रस्तुत गरेर ज्ञान बाँड्छु । (I share knowledge by presenting the paper at the conferences.)	
२५	सहपाठी साथीहरू सँगको अन्तक्रियाले मलाई सजिलै ज्ञान र विचार प्रसार गर्न मद्धत गर्दछ । (Interaction with peers helps me to disseminate the knowledge and ideas easily.)	
२६	तालिम संञ्चालन गर्दा मैले ज्ञानको प्रयोग गर्छु । (I apply knowledge while conducting trainings.)	
२७	ज्ञानले मलाई दैनिक जिवनमा आइपर्ने समस्याहरूको सामना गर्न मद्धत गर्छ । (Knowledge helps me to face the issues, problems that I face in my daily life.)	

२८	म मेरो दक्षता सुधार गर्न ज्ञानको प्रयोग गर्दछु । (I use knowledge to improve my efficiency.)	
२९	मैले अनुसन्धान कियाकलापहरू सञ्चालन गरी ज्ञान आर्जन गर्दछु जसले मलाई दैनिक जीवनका समस्याहरू समाधान गर्न सहयोग गर्दछ । (I conduct research activities to produce knowledge that helps me address the issues of everyday life.)	
३०	मैले मेरो कार्यसम्पादन क्षमतामा सुधार गर्ने अनुसन्धान कार्य संञ्चालन गर्न आर्जित ज्ञानको उपयोग गर्दछु । (I apply acquired knowledge to conduct research activities that enhance my capability to perform my work better.)	
३१	ज्ञानको प्रयोगले मलाई मेरो विचारको स्तर बढाउन मद्धत गर्दछ । (Knowledge application helps me to increase the level of my thought.)	
३२	ज्ञानको प्रयोगले मलाई कोर्षको विकास गर्नु भन्दा पहिला बजार अनुसन्धान गर्न सहयोग गर्दछ । (Knowledge application helps me conduct market research before developing the courses.)	
३३	म व्यक्तिले गरेको भन्दा संस्थाले गरेको अनुसन्धान मन पुराउछु किनभने संस्थाले ज्ञान प्रसार गर्न/बाँड्न बृहत मञ्च प्रदान गर्दछ । (I prefer research conducted through institutions rather than the research conducted by individuals because institutions provide wider platform for dissemination/sharing.)	
३४	पेशागत जर्नलहरूमा लेख रचना प्रकाशित गरेमा पेशागत समुदाय सम्म पुग्न सकिन्छ । (Publishing in professional journals enables individuals to reach the professional communities.)	
३५	परामर्श दिने संस्थामार्फत् ज्ञानको बिक्री गर्दा व्यक्ति र संस्थाहरूको महत्व खासै बढ्दैन । (Selling knowledge through consultancydoesnot increase the value of individuals and institutions.)	
३६	मैले साथीहरूलाई महत्त्वपूर्ण सूचना तथा जानकारीहरू प्राप्त गर्नका लागि विभिन्न ई–पोर्टलहरू प्रयोग गर्न सुझाउँछु । (I encourage colleagues to use different types of e-portals to get valuable information.)	

भाग तीन : प्राज्ञिक कार्य सम्पादन

(SECTION THREE: ACADEMIC PERFORMANCE)

भाग तीनका प्रत्येक प्रश्नहरूमा तपाईंका प्रत्येक अभिव्यक्तिका लागि सङ्ख्यात्मक परिमाण दिएर तल उल्लिखित प्रश्नहरूको उत्तर दिनुहोस् । संख्यात्मक परिमाणहरूका अर्थ यस प्रकार छन् :

१ = मेरा लागि धेरै असत्य   २ = मेरा लागिअसत्य   ३ = मेरा लागि केहीअसत्य
४ = तटस्थ   ५ = मेरा लागि केही सत्य
६ = मेरा लागि सत्य   ७ = मेरा लागि धेरै सत्य

मेरा लागि धेरै असत्य **मेरा लागि धेरै सत्य**

|___________|___________|__________|__________|__________|__________|
१ २ ३ ४ ५ ६ ७

For the questions in section two, please complete the following questionnaire by assigning numerical value to each of the statements where the meaning of the value is as follows:

1 = Very untrue for me   2 = Untrue for me   3 = Somewhat untrue for me
4 = Neutral   5 = Somewhat true for me
6 = True for me   7 = Very true for me

Very untrue for me **Very true for me**

|___________|___________|__________|__________|__________|__________|
1 2 3 4 5 6 7

१	म शैक्षिक क्यालेण्डर लागू हुनु भन्दा पहिला प्रत्येक सेमेस्टर/वर्षका लागि पाठ तथा योजना तयार गर्दछु । (I prepare lesson plans for each Semester/Year before the commencement of academic calendar.)	
२	म कक्षामा प्रवेश गर्नु भन्दा पहिले मेरो पाठ तयार गर्दछु । (I prepare my lessons before entering the classroom.)	
३	म विद्यार्थीहरूलाई शिक्षण र सिकाइ सम्बन्धी विश्वमा प्रयोग भएका नयाँ तरीकाहरू सँग अभ्यस्त हुनका लागि विभिन्न ई-पोर्टलहरूको प्रयोग गर्न सुझाउँछु । (I encourage students to use different e-portals to familiarize them with global trends of teaching and learning.)	
४	म कक्षामा विद्यार्थीहरूलाई अन्तर्क्रिया गर्न लगाउँछु । (During the class time, I manage interaction sessions among students.)	

५	म मेरो शिक्षण प्रभावकारी बनाउन विभिन्न प्रकारका सूचना प्रविधिहरूको प्रयोग गर्दछु । (I use different types of information technology to make my lessons effective.)	
६	म क्रियाकलापहरू निर्माण गरेर सैद्धान्तिक ज्ञानलाई व्यावहारिक ज्ञानमा रूपान्तरण गर्दछु । (I convert theoretical knowledge into the practical by designing activities.)	
७	मेरा सम्पूर्ण प्रकाशनहरू अनुसन्धानमाआधारित छन् । (All my publications are based on my research studies.)	
८	कक्षाकोठाको वातावरणले विद्यार्थीहरूमा ज्ञान बाँड्न खासै भूमिका खेल्दैन । (The classroom environment doesn't play a vital role in sharing knowledge among learners.)	
९	मैले कक्षा कोठाभित्र प्रदान गर्ने सूचना तथा जानकारीहरू गुणस्तरीय हुन्छन । (I maintain quality information inside the classroom.)	
१०	म प्रायःव्याख्यानविधिभन्दाकुनै घटनामा आधारित सिकाई विधिको प्रयोग गर्दछु । (I frequently use case-based learning method rather than lecturing.)	
११	विद्यार्थीहरूका लागि कोर्षको विकास गर्नु भन्दा पहिला बजार अनुसन्धान गर्नु जरुरी छ । (Market research is essential before developing thecourses for students.)	
१२	आधुनिक प्रविधिले विद्यार्थीलाई परामर्श तथा सरसल्लाह प्रदान गर्न सहयोग गर्दछ । (Modern technology helps to mentor students easily.)	
१३	कक्षाकोठाको अन्तरर्कियाले मलाई ज्ञान र विचार सजिलै प्रसार गर्न मद्धत गर्दछ । (Interaction in the classroom helps me disseminate knowledge and ideas easily.)	
१४	प्रविधिको प्रयोग नभएको कक्षाकोठामा विद्यार्थीहरू सक्रिय रूपमा सहभागी हुन सक्दैनन् । (Classroom without technology cannot make active participation of learners.)	
१५	अनुसन्धानले मलाई नयाँ ज्ञान विकास गर्न सहयोग गर्दछ । (Research helps me to generate new knowledge.)	
१६	अनुसन्धानको माध्यमबाट म सैद्धान्तिक ज्ञानलाई व्यावहारिक ज्ञानमा परिवर्तन गर्दछु । (I convert theoretical knowledge into practical through research.)	
१७	म मेरो अनुसन्धानमा मेरा विद्यार्थीलाई संलग्न गराउछु । (I involve my students in my research activities.)	

१८	म व्यवसायमा आधारित अनुसन्धानमा संलग्न छु । (I am involved in industry-based research.)	
१९	अनुसन्धान क्रियाकलापमा हुने संलग्नताले मलाई समस्या समाधान गर्ने क्षमता विकास गर्न सहयोग गर्दछ । (Involving in research activities helps me increase my problem-solving capacity.)	
२०	मेरो कक्षाकोठामा सञ्चालन गरिने क्रियाकलापहरू विद्यार्थी केन्द्रित हुन्छन् । (My classroom activities are student centric.)	
२१	एउटा प्राज्ञिक व्यक्तिका प्राज्ञिक उत्कृष्टताका लागि प्रकाशनको सङ्ख्याले प्रभाव पार्दैन । (Number of publications doesn't matter much for the academic excellence of an academician.)	
२२	अनुसन्धानद्धारा म ज्ञान आर्जन गर्दछु, र त्यो ज्ञान कक्षाकोठामा प्रयोग गर्दछु । (Through research I generate knowledge, bring that knowledge to classroom.)	
२३	म जर्नल र समाचा्र पत्रहरूमा लेख रचनाहरू छापेर समुदायसम्म ज्ञानको प्रसार गर्दछु । (I transfer knowledge to the community by publishing articles in the journals and newspapers.)	

भाग चार : आफ्नो विचार लेख्नुहोस्

(SECTION FOUR: WRITE YOUR OPINION)

उच्च शिक्षण संस्थामा ज्ञानको व्यवस्थापनमा कसरी वृद्धि गर्न सकिन्छ ?

(How can knowledge management be enhanced in Higher Education Institutions?)

तपाईंको समय र जानकारीका लागि धन्यवाद!

Thank you for your time and information!

Annex 2: Factor Loading of Knowledge Management

Table 1: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.840
Bartlett's Test of Sphericity	Approx. Chi-Square	4826.385
	df	630
	Sig.	0.000

Table 2: Communalities

Communalities			
Name of Item	**Description of Items**	**Initial**	**Extraction**
KM_1	I acquire knowledge from self- learning.	1.000	0.672
KM_2	The source of my knowledge is my experience.	1.000	0.611
KM_3	Interaction helps me acquire knowledge easily.	1.000	0.719
KM_4	I acquire knowledge through discussions.	1.000	0.679
KM_5	Modern technology is helping me to acquire knowledge.	1.000	0.646
KM_6	I acquire knowledge through external professional networks e.g. Professors' Associations, Experts Forum and PhD associations, etc.	1.000	0.642
KM_7	Participating in the training sessions helps me acquire knowledge effectively.	1.000	0.564
KM_8	Inputs from external experts such as foreign educational expert, academicians etc. play vital role to acquire knowledge within institutions.	1.000	0.607
KM_9	Learning environment plays less role compared Individual's tendency in influencing the acquiring process of knowledge.	1.000	0.618
KM_10	Organizational leadership quality helps me to acquire knowledge easily.	1.000	0.543
KM_11	If the important sources of knowledge – e.g. Journals, Research Report, Books etc. – are not available, my institution buys them.	1.000	0.594
KM_12	By mentoring new faculty members, I transfer ideas and knowledge.	1.000	0.622
KM_13	Individual work performance is assessed regularly to increase the knowledge level of individual.	1.000	0.690

KM_14	Informal discussion plays vital role to share my knowledge.	1.000	0.641
KM_15	Workshop and conferences help me to disseminate the knowledge.	1.000	0.577
KM_16	Social media like Viber, Skype, Twitter and Facebook help me to transfer information.	1.000	0.650
KM_17	Teaching is the best way to distribute knowledge to the seekers of knowledge.	1.000	0.684
KM_18	I disseminate knowledge through publishing in professional journals.	1.000	0.589
KM_19	Joint projects help me share the idea and concept among peers.	1.000	0.579
KM_20	I frequently use IT and ICT devices to share and disseminate knowledge.	1.000	0.644
KM_21	I have shared knowledge among peers by conducting training sessions by myself.	1.000	0.622
KM_22	I generate knowledge by involving in the research work.	1.000	0.608
KM_23	I have been successful in developing simulators to transfer knowledge.	1.000	0.520
KM_24	I share knowledge by presenting the paper at the conferences.	1.000	0.618
KM_25	Interaction with peers helps me to disseminate the knowledge and ideas easily.	1.000	0.657
KM_26	I apply knowledge while conducting trainings.	1.000	0.594
KM_27	Knowledge helps me to face the issues, problems that I face in my daily life.	1.000	0.608
KM_28	I use knowledge to improve my efficiency.	1.000	0.605
KM_29	I conduct research activities to produce knowledge that helps me address the issues of everyday life.	1.000	0.635
KM_30	I apply acquired knowledge to conduct research activities that enhance my capability to perform my work better.	1.000	0.623
KM_31	Knowledge application helps me to increase the level of my thought.	1.000	0.575
KM_32	Knowledge application helps me conduct market research before developing the courses.	1.000	0.443
KM_33	I prefer research conducted through institutions rather than the research conducted by individuals because institutions provide wider platform for dissemination/sharing.	1.000	0.605
KM_34	Publishing in professional journals enables individuals to reach to the professional communities.	1.000	0.572
KM_35	Selling knowledge through consultancy increase the value of individuals and institutions.	1.000	0.591
KM_36	I encourage colleagues to use different types of e-portals to get valuable information.	1.000	0.608
		Total Extraction	22.056
		Average Extraction	0.613
Extraction Method: Principal Component Analysis.			

Table 3: Total Variance Explained

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.844	21.789	21.789	7.844	21.789	21.789	3.245	9.014	9.014
2	2.278	6.327	28.116	2.278	6.327	28.116	2.805	7.793	16.807
3	1.741	4.837	32.953	1.741	4.837	32.953	2.098	5.827	22.634
4	1.547	4.296	37.249	1.547	4.296	37.249	2.068	5.745	28.379
5	1.440	4.000	41.249	1.440	4.000	41.249	1.968	5.467	33.845
6	1.350	3.749	44.998	1.350	3.749	44.998	1.939	5.386	39.231
7	1.299	3.607	48.605	1.299	3.607	48.605	1.918	5.329	44.560
8	1.275	3.540	52.145	1.275	3.540	52.145	1.817	5.047	49.607
9	1.148	3.189	55.335	1.148	3.189	55.335	1.610	4.473	54.080
10	1.082	3.005	58.340	1.082	3.005	58.340	1.361	3.781	57.861
11	1.054	2.927	61.267	1.054	2.927	61.267	1.226	3.406	61.267
12	0.955	2.654	63.920						
13	0.946	2.627	66.548						
14	0.867	2.409	68.957						
15	0.811	2.254	71.211						
16	0.794	2.206	73.417						
17	0.748	2.077	75.494						
18	0.702	1.951	77.445						
19	0.695	1.930	79.376						
20	0.667	1.852	81.227						
21	0.651	1.807	83.034						
22	0.571	1.586	84.620						
23	0.555	1.542	86.162						
24	0.536	1.489	87.651						

25	0.488	1.356	89.006						
26	0.479	1.330	90.336						
27	0.471	1.309	91.644						
28	0.428	1.190	92.835						
29	0.417	1.159	93.993						
30	0.364	1.011	95.004						
31	0.356	0.988	95.992						
32	0.322	0.894	96.886						
33	0.305	0.848	97.734						
34	0.287	0.797	98.531						
35	0.277	0.771	99.302						
36	0.251	0.698	100.000						
Extraction Method: Principal Component Analysis.									

Table 4: Rotated Component Matrix (First Rotation)

Rotated Component Matrix[a] (First Time Rotation)												
		1	2	3	4	5	6	7	8	9	10	11
KM_3	Interaction helps me acquire knowledge easily.	0.730										
KM_17	Teaching is the best way to distribute knowledge to the seekers of knowledge.	0.698										
KM_16	Social media like Viber, Skype, Twitter and Facebook help me to transfer information.	0.684										
KM_5	Modern technology is helping me to acquire knowledge.	0.659										
KM_4	I acquire knowledge through discussions.	0.552					0.462					
KM_26	I apply knowledge while conducting trainings.	0.511										
KM_33	I prefer research conducted through institutions rather than the research conducted by individuals because institutions provide wider platform for dissemination/sharing.	0.447										
KM_10	Organizational leadership quality helps me to acquire knowledge easily.	0.403										
KM_28	I use knowledge to improve my efficiency.		0.719									

KM_30	I apply acquired knowledge to conduct research activities that enhance my capability to perform my work better.		0.665									
KM_29	I conduct research activities to produce knowledge that helps me address the issues of everyday life.		0.621									
KM_27	Knowledge helps me to face the issues, problems that I face in my daily life.		0.552									
KM_31	Knowledge application helps me to increase the level of my thought.		0.528									
KM_13	Individual work performance is assessed regularly to increase the knowledge level of individual.			0.775								
KM_11	If the important sources of knowledge – e.g. Journals, Research Report, Books etc. – are not available, my institution buys them.			0.577								
KM_24	I share knowledge by presenting the paper at the conferences.			0.431					0.421			
KM_6	I acquire knowledge through external professional networks e.g. Professors' Associations, Experts Forum and PhD associations, etc.											
KM_20	I frequently use IT and ICT devices to share and disseminate knowledge.				0.778							
KM_22	I generate knowledge by involving in the research work.				0.524							
KM_18	I disseminate knowledge through publishing in professional journals.				0.515							
KM_9	Learning environment plays less role compared Individual's tendency in influencing the acquiring process of knowledge.					0.751						
KM_36	I encourage colleagues to use different types of e-portals to get valuable information.				0.426	0.615						
KM_7	Participating in the training sessions helps me acquire knowledge effectively.					0.533						
KM_25	Interaction with peers helps me to disseminate the knowledge and ideas easily.						0.725					
KM_14	Informal discussion plays vital role to share my knowledge.						0.523		0.412			
KM_12	By mentoring new faculty member, I transfer ideas and knowledge.							0.749				
KM_19	Joint projects help me share the idea and concept among peers.							0.538				
KM_15	Workshop and conferences help me to disseminate the knowledge.							0.469				
KM_1	I acquire knowledge from self- learning.								0.794			
KM_2	The source of my knowledge is my experience.								0.606			
KM_21	I have shared knowledge among peers by conducting training sessions by myself.									0.702		
KM_23	I have been successful in developing simulators to transfer knowledge.									0.654		

KM_35	Selling knowledge through consultancy increase the value of individuals and institutions.								0.547			
KM_34	Publishing in professional journals enables individuals to reach to the professional communities.									0.595		
KM_8	Inputs from external experts such as foreign educational expert, academicians etc. play vital role to acquire knowledge within institutions.										0.727	
KM_32	Knowledge application helps me conduct market research before developing the courses.										-0.468	
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]												
a. Rotation converged in 14 iterations.												

Table 5: Rotated Component Matrix (Final Rotation)

Rotated Component Matrix[a]								
Name of Items	**Description of Items**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
KM_28	I use knowledge to improve my efficiency.	0.723						
KM_30	I apply acquired knowledge to conduct research activities that enhance my capability to perform my work better.	0.718						
KM_31	Knowledge application helps me to increase the level of my thought.	0.645						
KM_29	I conduct research activities to produce knowledge that helps me address the issues of everyday life.	0.595						
KM_27	Knowledge helps me to face the issues, problems that I face in my daily life.	0.552						
KM_3	Interaction helps me acquire knowledge easily.		0.724					
KM_4	I acquire knowledge through discussions.		0.723					
KM_5	Modern technology is helping me to acquire knowledge.		0.671					
KM_26	I apply knowledge while conducting trainings.		0.460					
KM_13	Individual work performance is assessed regularly to increase the knowledge level of individual.			0.734				
KM_10	Organizational leadership quality helps me to acquire knowledge easily.			0.616				
KM_6	I acquire knowledge through external professional networks e.g. Professors' Associations, Experts Forum and PhD associations, etc.			0.606				
KM_24	I share knowledge by presenting the paper at the conferences.			0.514				
KM_17	Teaching is the best way to distribute knowledge to the seekers of knowledge.				0.697			
KM_16	Social media like Viber, Skype, Twitter and Facebook help me to transfer information.				0.682			

KM_33	I prefer research conducted through institutions rather than the research conducted by individuals because institutions provide wider platform for dissemination/sharing.				0.580			
KM_36	I encourage colleagues to use different types of e-portals to get valuable information.					0.718		
KM_9	Learning environment plays less role compared Individual’s tendency in influencing the acquiring process of knowledge.					0.715		
KM_7	Participating in the training sessions helps me acquire knowledge effectively.					0.571		
KM_12	By mentoring new faculty member, I transfer ideas and knowledge.						0.748	
KM_19	Joint projects help me share the idea and concept among peers.						0.563	
KM_15	Workshop and conferences help me to disseminate the knowledge.						0.532	
KM_11	If the important sources of knowledge – e.g. Journals, Research Report, Books etc. – are not available, my institution buys them.						0.411	
KM_21	I have shared knowledge among peers by conducting training sessions by myself.							0.730
KM_23	I have been successful in developing simulators to transfer knowledge.							0.693
KM_35	Selling knowledge through consultancy increase the value of individuals and institutions.							0.515
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]								
a. Rotation converged in 13 iterations.								

Annex 3: Factor Loading of Academic Performance

Table 1: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.790
Bartlett's Test of Sphericity	Approx. Chi-Square	8467.198
	df	253
	Sig.	0.000

Table 2: Communalities

Communalities			
Items	**Description of Items**	**Initial**	**Extraction**
AP_1	I prepare lesson plans for each Semester/Year before the commencement of academic calendar.	1.000	0.568
AP_2	I prepare my lessons before entering the classroom.	1.000	0.525
AP_3	I encourage students to use different e-portals to familiarize them with global trends of teaching and learning.	1.000	0.478
AP_4	During the class time I manage interaction sessions among students.	1.000	0.411
AP_5	I use different types of information technology to make my lessons effective.	1.000	0.500
AP_6	I convert theoretical knowledge into the practical by designing activities.	1.000	0.504
AP_7	All my publications are based on my research studies.	1.000	0.547
AP_8	The classroom environment plays a vital role in sharing knowledge among learners.	1.000	0.656
AP_9	I maintain quality information inside the classroom.	1.000	0.740
AP_10	I frequently use case-based learning method rather than lecturing.	1.000	0.631
AP_11	Market research is essential before developing the courses for students.	1.000	0.267
AP_12	Modern technology helps to mentor students easily.	1.000	0.574
AP_13	Interaction in the classroom helps me disseminate knowledge and ideas easily.	1.000	0.563
AP_14	Classroom without technology cannot make active participation of learners.	1.000	0.594
AP_15	Research helps me to generate new knowledge.	1.000	0.605
AP_16	I convert theoretical knowledge into practical through research.	1.000	0.540
AP_17	I involve my students in my research activities.	1.000	0.507
AP_18	I am involved in industry-based research.	1.000	0.937

AP_19	Involving in research activities helps me increase my problem-solving capacity.	1.000	0.829
AP_20	My classroom activities are student centric.	1.000	0.975
AP_21	Number of publications matters much for the academic excellence of an academician.	1.000	0.936
AP_22	Through research I generate knowledge, bring that knowledge to classroom.	1.000	0.819
AP_23	I transfer knowledge to the community by publishing articles in the journals and newspapers.	1.000	0.972
		Total Extraction	14.697
		Average Extraction	0.638
Extraction Method: Principal Component Analysis.			

Table 3: Total Variance Explained

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.642	28.878	28.878	6.642	28.878	28.878	3.077	13.379	13.379
2	2.387	10.379	39.257	2.387	10.379	39.257	2.762	12.011	25.390
3	1.860	8.089	47.346	1.860	8.089	47.346	2.536	11.027	36.417
4	1.360	5.913	53.259	1.360	5.913	53.259	2.165	9.413	45.830
5	1.247	5.421	58.680	1.247	5.421	58.680	2.158	9.384	55.215
6	1.182	5.140	63.820	1.182	5.140	63.820	1.979	8.606	63.820
7	0.982	4.272	68.092						
8	0.890	3.871	71.963						
9	0.848	3.685	75.648						
10	0.741	3.220	78.868						
11	0.669	2.911	81.778						
12	0.638	2.773	84.552						
13	0.601	2.612	87.163						
14	0.562	2.445	89.609						
15	0.519	2.255	91.863						
16	0.432	1.880	93.744						
17	0.423	1.840	95.583						

18	0.374	1.628	97.211						
19	0.332	1.442	98.653						
20	0.288	1.254	99.907						
21	0.012	0.052	99.958						
22	0.007	0.029	99.988						
23	0.003	0.012	100.000						
Extraction Method: Principal Component Analysis.									

Table 4: Rotated Component Matrix (First Rotation)

Rotated Component Matrix[a]							
		1	2	3	4	5	6
AP_19	Involving in research activities helps me increase my problem-solving capacity.	0.845					
AP_22	Through research I generate knowledge, bring that knowledge to classroom.	0.839					
AP_12	Modern technology helps to mentor students easily.	0.682					
AP_16	I convert theoretical knowledge into practical through research.	0.561					
AP_13	Interaction in the classroom helps me disseminate knowledge and ideas easily.	0.544					
AP_9	I maintain quality information inside the classroom.		0.828				
AP_8	The classroom environment plays a vital role in sharing knowledge among learners.		0.741				
AP_10	I frequently use case-based learning method rather than lecturing.		0.688				
AP_5	I use different types of information technology to make my lessons effective.		0.564				
AP_7	All my publications are based on my research studies.			0.707			
AP_1	I prepare lesson plans for each Semester/Year before the commencement of academic calendar.			0.682			
AP_2	I prepare my lessons before entering the classroom.			0.596			
AP_3	I encourage students to use different e-portals to familiarize them with global trends of teaching and learning.			0.557			
AP_6	I convert theoretical knowledge into the practical by designing activities.		0.432	0.476			
AP_4	During the class time I manage interaction sessions among students.						
AP_18	I am involved in industry-based research.				0.940		
AP_21	Number of publications matters much for the academic excellence of an academician.				0.938		
AP_23	I transfer knowledge to the community by publishing articles in the journals and newspapers.					0.957	

AP_20	My classroom activities are student centric.					0.956	
AP_11	Market research is essential before developing the courses for students.						
AP_15	Research helps me to generate new knowledge.						0.699
AP_17	I involve my students in my research activities.						0.652
AP_14	Classroom without technology cannot make active participation of learners.						0.642
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]							
a. Rotation converged in 6 iterations.							

Table 5: Rotated Component Matrix (Final Rotation)

Rotated Component Matrix[a]					
		1	2	3	4
AP_19	Involving in research activities helps me increase my problem-solving capacity.	0.879			
AP_22	Through research I generate knowledge, bring that knowledge to classroom.	0.875			
AP_12	Modern technology helps to mentor students easily.	0.600			
AP_16	I convert theoretical knowledge into practical through research.	0.530			
AP_21	Number of publications matters much for the academic excellence of an academician.	0.515			
AP_13	Interaction in the classroom helps me disseminate knowledge and ideas easily.	0.433			
AP_9	I maintain quality information inside the classroom.		0.844		
AP_8	The classroom environment plays a vital role in sharing knowledge among learners.		0.783		
AP_10	I frequently use case-based learning method rather than lecturing.		0.702		
AP_6	I convert theoretical knowledge into the practical by designing activities.		0.430		
AP_1	I prepare lesson plans for each Semester/Year before the commencement of academic calendar.			0.790	
AP_2	I prepare my lessons before entering the classroom.			0.755	
AP_3	I encourage students to use different e-portals to familiarize them with global trends of teaching and learning.			0.613	
AP_15	Research helps me to generate new knowledge.				0.715
AP_17	I involve my students in my research activities.				0.700
AP_14	Classroom without technology cannot make active participation of learners.				0.673
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.[a]					
a. Rotation converged in 5 iterations.					

Annex 4: Correlations between KM and AP with Dimensions

	KM	AP	KU	KA	KG	KD	KT	KC	KP	RP	INNO	IL	CB
KM	1												
AP	.635**	1											
KU	.703**	.574**	1										
KA	.666**	.447**	.474**	1									
KG	.734**	.518**	.433**	.286**	1								
KD	.714**	.463**	.446**	.552**	.382**	1							
KT	.628**	.300**	.337**	.241**	.403**	.290**	1						
KC	.612**	.297**	.307**	.235**	.458**	.288**	.344**	1					
KP	.489**	.279**	.285**	.262**	.261**	.173**	.209**	.228**	1				
RP	.484**	.741**	.438**	.362**	.331**	.318**	.195**	.362**	.238**	1			
INNO	.413**	.740**	.389**	.334**	.259**	.372**	.115*	.180**	.248**	.442**	1		
IL	.430**	.743**	.375**	.296**	.411**	.331**	.173**	.221**	.109*	.467**	.399**	1	
CB	.579**	.808**	.522**	.365**	.531**	.375**	.381**	.180**	.244**	.454**	.416**	.448**	1

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

*. Correlation is significant at the 0.05 level (2-tailed).

Annex 5: Q-Q Plot of Dimensions of KM and AP

Figure 1: Normal Q-Q Plot of KU

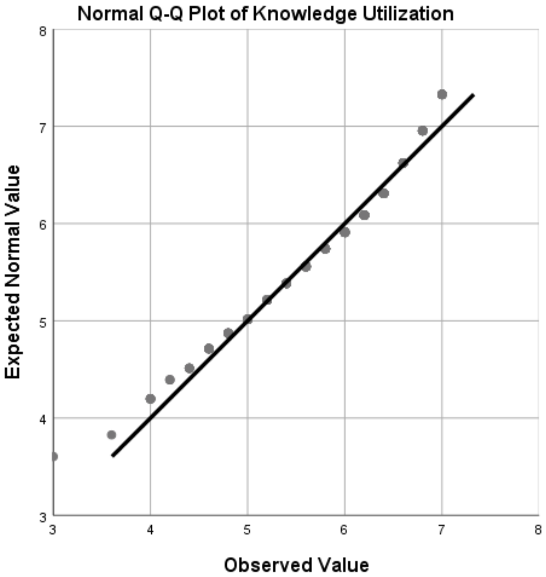


Figure 2: Normal Q-Q Plot of KA

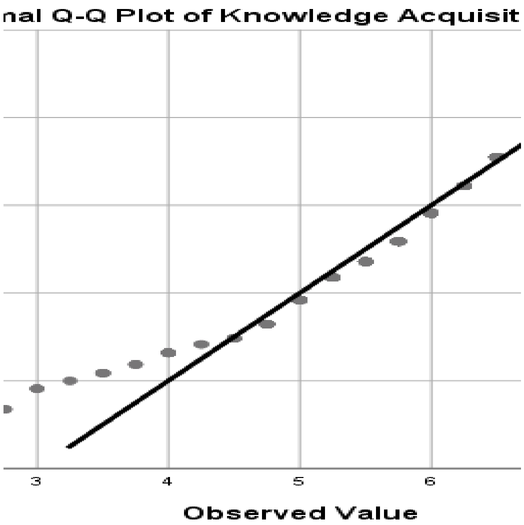


Figure 3: Normal Q-Q Plot of KG

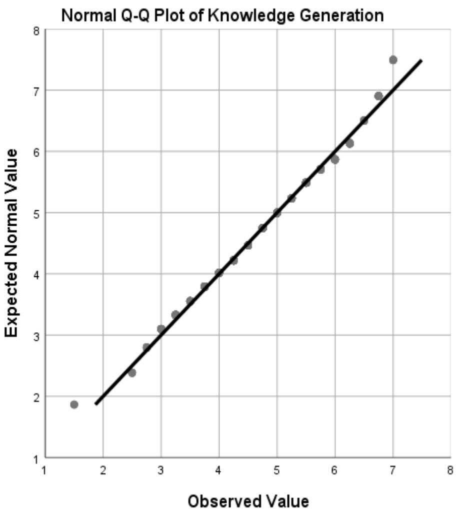


Figure 4: Normal Q-Q Plot of KD

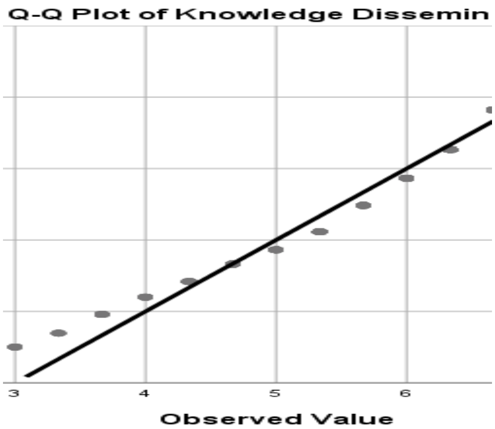


Figure 5: Normal Q-Q Plot of KT

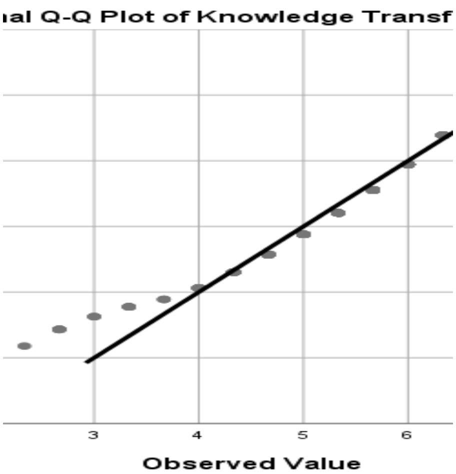


Figure 6: Normal Q-Q Plot of KC

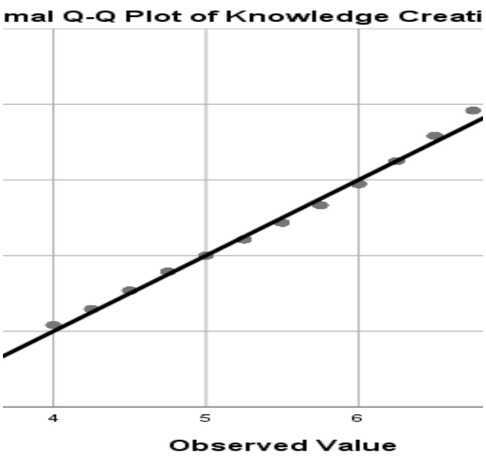


Figure 7: Normal Q-Q Plot of KP

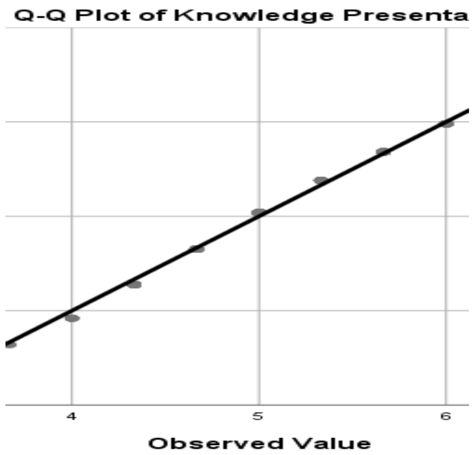


Figure 8: Normal Q-Q Plot of RP

Figure 9: Normal Q-Q Plot of Innovation

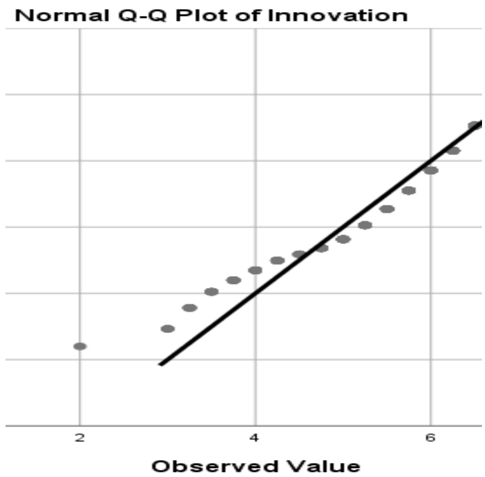


Figure 10: Normal Q-Q IL

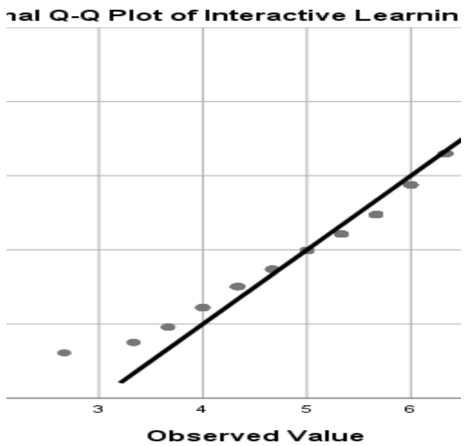
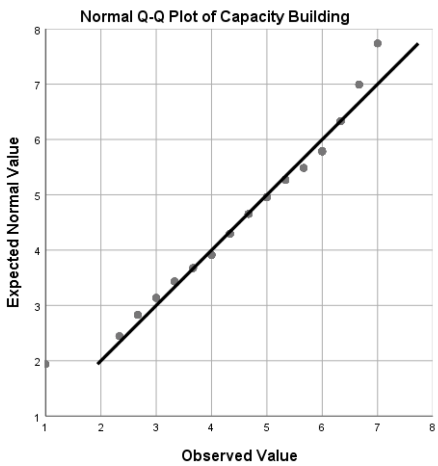


Figure 11: Normal Q-Q Plot of Capacity Building



Annex 6: Significance of KM with Demographic Variable

Table 1: Academic Position and Knowledge Management Practices in HEI

KM Construct		N	Mean	SD	F-Value	P-Value
	Professor	19	5.8000	0.40552		
Knowledge Utilization	Associate Professor	53	5.9019	0.79481	0.814	0.444
	Assistant Professor	373	5.7657	0.73214		
	Professor	19	3.8289	1.35926		
Knowledge Acquisition	Associate Professor	53	5.7736	0.57651	66.186	0.000
	Assistant Professor	373	5.8023	0.70564		
	Professor	19	5.1711	0.80817		
Knowledge Generation	Associate Professor	53	5.0472	1.13622	2.515	0.082
	Assistant Professor	373	4.7815	1.05248		
	Professor	19	3.8070	1.37579		
Knowledge Dissemination	Associate Professor	53	5.7233	0.90046	30.227	0.000
	Assistant Professor	373	5.5049	0.94994		
	Professor	19	5.8246	0.42117		
Knowledge Transfer	Associate Professor	53	5.5660	0.69671	2.411	0.091
	Assistant Professor	373	5.4129	0.93960		
	Professor	19	5.7895	0.39320		
Knowledge Creation	Associate Professor	53	5.5000	0.72556	1.464	0.232
	Assistant Professor	373	5.4920	0.75442		
	Professor	19	5.6491	0.89217		
Knowledge Presentation	Associate Professor	53	5.4528	0.67335	0.630	0.533
	Assistant Professor	373	5.4745	0.67669		

Table 2: Gender and Knowledge Management Practices

KM Construct		N	Mean	SD	*t-Value*	*p-Value*
Knowledge Utilization	Male	399	5.7739	0.71826	0.646	0.422
	Female	46	5.8652	0.82198		
Knowledge Acquisition	Male	399	5.7312	0.82114	1.543	0.215
	Female	46	5.5707	0.90625		
Knowledge Generation	Male	399	4.8321	1.03821	0.018	0.892
	Female	46	4.8098	1.22495		
Knowledge Dissemination	Male	399	5.4645	1.01127	0.134	0.714
	Female	46	5.4058	1.16516		
Knowledge Transfer	Male	399	5.4520	0.88625	0.051	0.822
	Female	46	5.4203	1.03383		
Knowledge Creation	Male	399	5.5144	0.72397	0.544	0.461
	Female	46	5.4293	0.87665		
Knowledge Presentation	Male	399	5.4645	0.67854	1.827	0.177
	Female	46	5.6087	0.74138		

Table 3: Age Group and Knowledge Management Practices

KM Construct		N	Mean	SD	*F-Value*	*p-Value*
Knowledge Utilization	< 40 Years	180	5.7089	0.76438	1.596	0.204
	40 to 50 Years	252	5.8357	0.70637		
	>50 Years	13	5.8000	0.61644		
Knowledge Acquisition	< 40 Years	180	5.7681	0.70811	6.737	0.001
	40 to 50 Years	252	5.7183	0.86602		
	>50 Years	13	4.9038	1.26877		
Knowledge Generation	< 40 Years	180	4.7042	1.10783	2.354	0.096
	40 to 50 Years	252	4.9246	1.01496		
	>50 Years	13	4.7308	1.04314		
Knowledge Dissemination	< 40 Years	180	5.5704	0.87626	4.295	0.014
	40 to 50 Years	252	5.4140	1.08885		
	>50 Years	13	4.7692	1.42325		
Knowledge Transfer	< 40 Years	180	5.4630	0.91500	0.121	0.886
	40 to 50 Years	252	5.4339	0.90375		
	>50 Years	13	5.5385	0.68770		
Knowledge Creation	< 40 Years	180	5.5000	0.72611	0.847	0.429
	40 to 50 Years	252	5.5228	0.75495		
	>50 Years	13	5.2500	0.65352		
Knowledge Presentation	< 40 Years	180	5.4037	0.65254	1.953	0.143
	40 to 50 Years	252	5.5265	0.70833		
	>50 Years	13	5.6154	0.63605		

Table 4: Ethnicity and Knowledge Management Practices

KM Construct		N	Mean	SD	*F-Value*	*p-Value*
Knowledge Utilization	Brahman/Chhetri	342	5.7819	0.72251	0.605	0.612
	Indigenous Ethnic	56	5.7321	0.76589		
	Madhesi	39	5.8051	0.76294		
	Dalit	8	6.1000	0.62335		
Knowledge Acquisition	Brahman/Chhetri	342	5.6988	0.83210	0.676	0.567
	Indigenous Ethnic	56	5.6830	0.85744		
	Madhesi	39	5.8397	0.74447		
	Dalit	8	6.0000	1.02644		
Knowledge Generation	Brahman/Chhetri	342	4.7829	1.01592	1.494	0.215
	Indigenous Ethnic	56	5.0089	1.19179		
	Madhesi	39	4.8718	1.18359		
	Dalit	8	5.3750	1.08562		
Knowledge Dissemination	Brahman/Chhetri	342	5.4474	1.01808	0.318	0.812
	Indigenous Ethnic	56	5.4167	1.12860		
	Madhesi	39	5.6068	0.93306		
	Dalit	8	5.5000	1.23443		
Knowledge Transfer	Brahman/Chhetri	342	5.4201	0.91543	0.587	0.624
	Indigenous Ethnic	56	5.5595	0.89241		
	Madhesi	39	5.4957	0.81245		
	Dalit	8	5.6667	0.81650		
Knowledge Creation	Brahman/Chhetri	342	5.4956	0.75644	0.460	0.710
	Indigenous Ethnic	56	5.4911	0.72920		

	Madhesi	39	5.5577	0.63728		
	Dalit	8	5.7813	0.64694		
Knowledge Presentation	Brahman/Chhetri	342	5.4376	0.67818	2.119	0.097
	Indigenous Ethnic	56	5.6488	0.73421		
	Madhesi	39	5.5470	0.69873		
	Dalit	8	5.7500	0.34503		

Table 5: Qualification and Knowledge Management Practices

KM Construct		**N**	**Mean**	**SD**	***F-Value***	***p-Value***
Knowledge Utilization	PhD	69	5.8841	0.68891	3.372	0.035
	MPhil	32	6.0438	0.60904		
	Masters	344	5.7390	0.74183		
Knowledge Acquisition	PhD	69	5.4203	1.20621	8.053	0.000
	MPhil	32	6.0938	0.45237		
	Masters	344	5.7384	0.74491		
Knowledge Generation	PhD	69	5.0543	1.12693	7.428	0.001
	MPhil	32	5.3750	0.85194		
	Masters	344	4.7340	1.04077		
Knowledge Dissemination	PhD	69	5.3140	1.29716	3.230	0.041
	MPhil	32	5.8646	0.71772		
	Masters	344	5.4496	0.98254		
Knowledge Transfer	PhD	69	5.6715	0.65553	2.593	0.076
	MPhil	32	5.4688	0.82895		
	Masters	344	5.4021	0.94458		
Knowledge Creation	PhD	69	5.6159	0.59189	1.230	0.293
	MPhil	32	5.5859	0.65257		
	Masters	344	5.4760	0.77331		
Knowledge Presentation	PhD	69	5.4879	0.80355	1.056	0.349
	MPhil	32	5.6458	0.64999		
	Masters	344	5.4622	0.66315		

Table 6: Experiences and Knowledge Management Practices

KM Construct		**N**	**Mean**	**SD**	***F-Value***	***p-Value***
Knowledge Utilization	<10 Years	175	5.7543	0.79378	0.302	0.824
	10 to 19 Years	183	5.8131	0.68343		
	20 to 29 Years	82	5.7683	0.69742		
	>= 30 Years	5	5.9600	0.62290		
Knowledge Acquisition	<10 Years	175	5.8329	0.69397	9.096	0.000
	10 to 19 Years	183	5.7937	0.74688		
	20 to 29 Years	82	5.3049	1.11321		
	>= 30 Years	5	5.4000	0.84039		
Knowledge Generation	<10 Years	175	4.7171	1.05896	1.314	0.269
	10 to 19 Years	183	4.8675	1.05475		
	20 to 29 Years	82	4.9817	1.07854		
	>= 30 Years	5	4.9000	0.28504		
Knowledge Dissemination	<10 Years	175	5.6229	0.92571	3.280	0.021
	10 to 19 Years	183	5.4171	0.99462		
	20 to 29 Years	82	5.2154	1.22879		

	>= 30 Years	5	5.2000	1.28236		
Knowledge Transfer	<10 Years	175	5.4076	0.96699	0.568	0.636
	10 to 19 Years	183	5.4590	0.89121		
	20 to 29 Years	82	5.5325	0.80099		
	>= 30 Years	5	5.1333	0.18257		
Knowledge Creation	<10 Years	175	5.4514	0.76691	0.621	0.602
	10 to 19 Years	183	5.5232	0.75078		
	20 to 29 Years	82	5.5762	0.67436		
	>= 30 Years	5	5.6000	0.41833		
Knowledge Presentation	<10 Years	175	5.4171	0.61740	1.163	0.324
	10 to 19 Years	183	5.5064	0.75337		
	20 to 29 Years	82	5.5650	0.67218		
	>= 30 Years	5	5.2667	0.49441		

Table 7: University and Knowledge Management Practices

KM Construct		**N**	**Mean**	**SD**	***F-Value***	***p-Value***
Knowledge Utilization	A	232	5.8543	0.71325	2.227	0.084
	B	108	5.7704	0.70978		
	C	63	5.6063	0.82694		
	D	42	5.6905	0.67600		
Knowledge Acquisition	A	232	5.7015	0.91054	3.925	0.009
	B	108	5.9167	0.64489		
	C	63	5.5675	0.82697		
	D	42	5.4881	0.69833		
Knowledge Generation	A	232	4.7877	1.06546	0.518	0.670
	B	108	4.8542	1.04966		
	C	63	4.9683	1.04967		
	D	42	4.7917	1.06341		
Knowledge Dissemination	A	232	5.4727	1.00849	1.948	0.121
	B	108	5.6080	1.00861		
	C	63	5.2910	1.09821		
	D	42	5.2460	1.03085		
Knowledge Transfer	A	232	5.4339	0.93689	0.663	0.575
	B	108	5.4846	0.83459		
	C	63	5.5397	0.93791		
	D	42	5.3016	0.81586		
Knowledge Creation	A	232	5.3966	0.82773	4.317	0.005
	B	108	5.6505	0.63663		
	C	63	5.6786	0.60646		
	D	42	5.4762	0.54328		
Knowledge Presentation	A	232	5.4842	0.69405	1.346	0.259
	B	108	5.4938	0.72699		
	C	63	5.5608	0.65535		
	D	42	5.2937	0.55192		

Table 8: Department and Knowledge Management Practices

KM Construct		N	Mean	SD	*F-Value*	*p-Value*
Knowledge Utilization	Arts/Humanities	191	5.7990	0.76736	0.207	0.892
	Education	57	5.7614	0.72549		
	Management	78	5.8179	0.74568		
	Science	119	5.7462	0.66112		
Knowledge Acquisition	Arts/Humanities	191	5.7487	0.81495	0.790	0.500
	Education	57	5.6053	0.88760		
	Management	78	5.6378	0.96417		
	Science	119	5.7626	0.72985		
Knowledge Generation	Arts/Humanities	191	4.7435	1.09227	6.659	0.000
	Education	57	4.6754	0.83180		
	Management	78	5.3045	1.09874		
	Science	119	4.7311	0.99424		
Knowledge Dissemination	Arts/Humanities	191	5.4887	0.99635	1.213	0.305
	Education	57	5.6316	0.72835		
	Management	78	5.4530	1.23323		
	Science	119	5.3305	1.04557		
Knowledge Transfer	Arts/Humanities	191	5.5166	0.86696	1.885	0.131
	Education	57	5.2982	0.76813		
	Management	78	5.5598	1.01289		
	Science	119	5.3389	0.92667		
Knowledge Creation	Arts/Humanities	191	5.4594	0.77586	2.307	0.076
	Education	57	5.3772	0.74421		
	Management	78	5.6795	0.57250		
	Science	119	5.5273	0.76523		
Knowledge Presentation	Arts/Humanities	191	5.4171	0.67449	1.772	0.152
	Education	57	5.5556	0.67062		
	Management	78	5.6111	0.71556		
	Science	119	5.4566	0.68460		

Table 9: Participation in Conferences and Knowledge Management Practices

KM Construct		N	Mean	SD	*t-Value*	*p-Value*
Knowledge Utilization	Yes	364	5.7698	0.72823	0.694	0.405
	No	81	5.8444	0.73485		
Knowledge Acquisition	Yes	364	5.6751	0.85707	4.551	0.033
	No	81	5.8920	0.67655		
Knowledge Generation	Yes	364	4.8592	1.03199	1.550	0.214
	No	81	4.6975	1.16305		
Knowledge Dissemination	Yes	364	5.3984	1.06207	6.935	0.009
	No	81	5.7284	0.80297		
Knowledge Transfer	Yes	364	5.4441	0.87070	0.051	0.822
	No	81	5.4691	1.03384		
Knowledge Creation	Yes	364	5.5240	0.73007	1.238	0.266
	No	81	5.4228	0.78526		
Knowledge Presentation	Yes	364	5.4936	0.68988	0.856	0.355
	No	81	5.4156	0.66777		

Table 10: Publication and Knowledge Management Practices

KM Construct		N	Mean	SD	*t-Value*	*p-Value*
Knowledge Utilization	Yes	385	5.7803	0.73812	0.052	0.820
	No	60	5.8033	0.67447		
Knowledge Acquisition	Yes	385	5.6929	0.85409	1.962	0.162
	No	60	5.8542	0.64979		
Knowledge Generation	Yes	385	4.8409	1.05320	0.316	0.574
	No	60	4.7583	1.09115		
Knowledge Dissemination	Yes	385	5.4312	1.05489	2.016	0.156
	No	60	5.6333	0.81117		
Knowledge Transfer	Yes	385	5.4675	0.86679	1.249	0.264
	No	60	5.3278	1.09869		
Knowledge Creation	Yes	385	5.5266	0.72289	2.304	0.130
	No	60	5.3708	0.83930		
Knowledge Presentation	Yes	385	5.4900	0.68969	0.687	0.408
	No	60	5.4111	0.66204		

Table 11: dissertation Guidance and Knowledge Management Practices

KM Construct		N	Mean	SD	*t-Value*	*p-Value*
Knowledge Utilization	Yes	390	5.7769	0.73038	0.246	0.620
	No	55	5.8291	0.72563		
Knowledge Acquisition	Yes	390	5.6885	0.84863	3.141	0.077
	No	55	5.9000	0.66771		
Knowledge Generation	Yes	390	4.8391	1.04797	0.245	0.621
	No	55	4.7636	1.13082		
Knowledge Dissemination	Yes	390	5.4299	1.05277	2.440	0.119
	No	55	5.6606	0.79993		
Knowledge Transfer	Yes	390	5.4607	0.87068	0.558	0.455
	No	55	5.3636	1.10045		
Knowledge Creation	Yes	390	5.5263	0.72801	2.465	0.117
	No	55	5.3591	0.81616		
Knowledge Presentation	Yes	390	5.4846	0.68540	0.182	0.670
	No	55	5.4424	0.69405		

Table 12: Engaged in Other University and Knowledge Management Practices

KM Construct		N	Mean	SD	*t-Value*	*p-Value*
Knowledge Utilization	Yes	96	5.8083	0.76937	0.143	0.705
	No	349	5.7765	0.71873		
Knowledge Acquisition	Yes	96	5.5833	0.98118	3.071	0.080
	No	349	5.7507	0.78200		
Knowledge Generation	Yes	96	5.0625	0.89000	5.995	0.015
	No	349	4.7658	1.09159		
Knowledge Dissemination	Yes	96	5.4340	1.09237	0.069	0.793

	No	349	5.4651	1.00976		
Knowledge Transfer	Yes	96	5.4028	0.88907	0.317	0.574
	No	349	5.4613	0.90559		
Knowledge Creation	Yes	96	5.5625	0.78472	0.722	0.396
	No	349	5.4900	0.72831		
Knowledge Presentation	Yes	96	5.5000	0.74142	0.110	0.740
	No	349	5.4737	0.67074		

Table 13: Study Hour per Day and Knowledge Management Practices

KM Construct		**N**	**Mean**	**SD**	***F-Value***	***p-Value***
	< 3 Hours	129	5.7473	0.77238		
Knowledge Utilization	3 to 4 Hours	282	5.7986	0.71982	0.222	0.801
	> 4 Hours	34	5.7941	0.64851		
	< 3 Hours	129	5.6609	0.88377		
Knowledge Acquisition	3 to 4 Hours	282	5.7376	0.81431	0.381	0.683
	> 4 Hours	34	5.7279	0.76961		
	< 3 Hours	129	4.7287	1.18298		
Knowledge Generation	3 to 4 Hours	282	4.8555	0.98349	1.114	0.329
	> 4 Hours	34	5.0000	1.14316		
	< 3 Hours	129	5.4083	1.03686		
Knowledge Dissemination	3 to 4 Hours	282	5.4752	1.01490	0.233	0.792
	> 4 Hours	34	5.5098	1.11081		
	< 3 Hours	129	5.4315	0.98725		
Knowledge Transfer	3 to 4 Hours	282	5.4563	0.84684	0.033	0.967
	> 4 Hours	34	5.4510	1.02126		
	< 3 Hours	129	5.4787	0.80224		
Knowledge Creation	3 to 4 Hours	282	5.5009	0.71973	0.710	0.492
	> 4 Hours	34	5.6471	0.66889		
	< 3 Hours	129	5.5168	0.71073		
Knowledge Presentation	3 to 4 Hours	282	5.4350	0.68474	2.657	0.071
	> 4 Hours	34	5.7059	0.54904		

Annex 7: Analysis of Variance through Canonical Correlation Analysis

Canonical Correlations Settings	
Set	Values
Set 1 Variables	KU, KA, KG, KD, KT, KC, KP
Set 2 Variables	RP, INNO, IL, CB
Centered Dataset	None
Scoring Syntax	None
Correlations Used for Scoring	4

Canonical Correlations							
	Correlation	Eigenvalue	Wilks Statistic	F	Num D. F	Denom D.F.	Sig.
1	0.697	0.944	0.404	15.982	28.000	1566.231	0.000
2	0.387	0.176	0.786	6.090	18.000	1230.851	0.000
3	0.212	0.047	0.924	3.533	10.000	872.000	0.000
4	0.181	0.034	0.967	3.705	4.000	437.000	0.006
H0 for Wilks test is that the correlations in the current and following rows are zero							

Set 1 Canonical Loadings				
Variable	1	2	3	4
KU	-0.832	-0.203	0.039	0.164
KA	-0.621	-0.331	0.093	0.008
KG	-0.795	0.231	-0.326	-0.215
KD	-0.639	-0.245	0.356	-0.340
KT	-0.505	0.303	-0.218	0.538
KC	-0.383	-0.561	-0.603	0.067
KP	-0.392	-0.277	0.363	0.510

Set 2 Canonical Loadings				
Variable	1	2	3	4
RP	-0.666	-0.629	-0.358	0.179
INNO	-0.607	-0.461	0.626	-0.163
IL	-0.675	-0.079	-0.254	-0.689
CB	-0.929	0.301	0.040	0.211