NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES

INNOVATION AND KNOWLEDGE MANAGEMENT PROGRAM

THE IMPACT OF KNOWLEDGE MANAGEMENT (SECI) IN E-LEARNING ON THE STUDENTS OF NEAR EAST UNIVERSITY, NORTH CYPRUS.

FREDA FARIDA ADDO-OLUDARE

MASTER'S THESIS

NICOSIA

2021

THE IMPACT OF KNOWLEDGE MANAGEMENT (SECI) IN E-LEARNING ON THE STUDENTS OF NEAR EAST UNIVERSITY, NORTH CYPRUS.

FREDA FARIDA ADDO-OLUDARE

NEAR EAST UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
INNOVATION AND KNOWLEDGE MANAGEMENT PROGRAM

MASTER'S THESIS

THESIS SUPERVISOR
ASSOC. PROF. DR. BEHIYE TUZEL CAVUSOGLU

NICOSIA

2021

ACCEPTANCE/APPROVAL

We as the jury members certify the '**THE IMPACT OF KNOWLEDGE MANAGEMENT (SECI) IN E-LEARNING ON THE STUDENTS OF NEAR EAST UNIVERSITY, NORTH CYPRUS**' prepared by the **FREDA FARIDA ADDO-OLUDARE** defended on 20/08/2021 has been found satisfactory for the award of degree of Master.

JURY MEMBERS

.....

Assoc. Prof. Dr. Behiye Tüzel Çavuşoğlu (Supervisor)

Near East Unıversıty
Faculty of Economıcs and Admınıstratıve Scıences
Department of Innovatıon and Knowledge Management

……..……

Prof.Dr Mustafa Sağsan,
Cyprus International University,
Faculty of Economics and Administrative Sciences,
Department of Business Administration

……..……

Dr. Sameer Hamdan,
Near East University,
Faculty of Economics and Administrative Sciences,
Department of Business Administration

……..……

Prof. Dr. Hüsnü Can Başer
Institute of Graduate Studies
Director

DECLARATION

I Freda Farida Addo-Oludare hereby declare that this dissertation entitled: **THE IMPACT OF KNOWLEDGE MANAGEMENT (SECI) IN E-LEARNING ON THE STUDENTS OF NEAR EAST UNIVERSITY, NORTH CYPRUS** has been prepared myself under the guidance and supervision of 'Assoc,Prof,Dr,Behiye Tuzel Cavusoglu' in partial fulfilment of the Near East University, Graduate School of Social Sciences regulations and does not to the best of my knowledge breach and Law of Copyrights and has been tested for plagiarism and a copy of the result can be found in the Thesis.

- o The full extent of my Thesis can be accessible from anywhere.
- o My Thesis can only be accessible from Near East University.
- o My Thesis cannot be accessible for two (2) years. If I do not apply for extension at the end of this period, the full extent of my thesis will be accessible from anywhere.

Date: 13-08-2021

Signature: 

Freda Farida Addo-Oludare

DEDICATION

I dedicate this thesis to my FAMILY.

I believe that family is beyond blood relationships and I'm grateful to be surrounded with the best circle.

My God, In You I Live, Move and Have my being. Thank you for the strength, resources and courage to undertake this great feat.

To my Darling Husband, Pastor Damilola Oludare. Thank you for investing in me and my dreams and for all the sacrifices you have made for US!

To my Son, Reign. I apologize for all the times I didn't have your time. Thank you for being the best one year old mummy could ask for and for your understanding and hugs.

My family, your love and prayers have made this journey less difficult. Thank you for support.

Finally, to closest friends, thank you for all the support and encouragement. You made this journey very interesting.

ACKNOWLEDGEMENTS

I am most grateful to God almighty for His provision throughout the period of this program.

I am super thankful to my supervisor Assoc. Prof. Dr. Behiye Tuzel Cavusoglu for her patient and expert guidance throughout my research work.

Thank you, my Husband, for staying up with me, ensuring I eat and rest and taking care of all my needs.

Finally, to my teachers and colleagues in my time in the department of innovation and knowledge management, this journey has been interesting because of you.

Freda Addo-Oludare

ABSTRACT

THE IMPACT OF KNOWLEDGE MANAGEMENT (SECI) IN E-LEARNING ON THE STUDENTS OF NEAR EAST UNIVERSITY, NORTH CYPRUS

The events of the year 2020 came as a major shock to the academic world. As a result of the Coronavirus (COVID-19) pandemic, educational facilities have been forced to think out of the box to stay active and relevant.

The rapid growth and use of ICT globally has created a breakthrough that has facilitated the learning process. The scope of education has changed intensely. It is no longer necessary for both teacher and student to be in a physical classroom as there are now virtual classrooms and other technological assistants that enable learning.

This research defines e-learning as the flexible delivery of Internet and web-based content, applications, and programs that focus on sustaining the educational community and her practices for students at a distance.

The participants for the study were recruited through a non-probability sampling technique, snow-ball sampling. The survey was conducted using structured, web-based self-completable questionnaires to collect data from the students at Near East University, North Cyprus which was analysed to identify the impact of the integration of knowledge management with E-learning.

The non-probability snowball sampling is the method to be employed to collect data for this research. The researcher used Microsoft Excel and SPSS (Statistical Package for Social Sciences) software for an in-depth analysis of the responses which involved data coding to test the hypotheses in the research.

The main questions of this research are what is the relationship between experience with E-Learning and knowledge Management (SECI Model) in Near East University? How high/low is the practice of knowledge sharing in Near east university? What is the impact of demographic factors on e-learning, attitude towards knowledge sharing and SECI?

The limitations of this study are that the participants in the study is that the study is cross-sectional data and may be limited to examine the effect of e-learning on

Knowledge Sharing over a period. In addition, it is limited to collect objective performance because of confidentiality factor in Near East University.

Keywords: e-learning, Knowledge management, Knowledge Spiral, SECI Model

ÖZ

THE IMPACT OF KNOWLEDGE MANAGEMENT (SECI) IN E-LEARNING ON THE STUDENTS OF NEAR EAST UNIVERSITY, NORTH CYPRUS

2020 yılında yaşanan olaylar akademik dünyada büyük bir şok etkisi yarattı. Coronavirus (COVID-19) pandemisinin bir sonucu olarak, eğitim tesisleri aktif ve ilgili kalmak için kutunun dışında düşünmek zorunda kaldı.

ICT'nin küresel olarak hızlı büyümesi ve kullanımı, öğrenme sürecini kolaylaştıran bir atılım yarattı. Eğitimin kapsamı yoğun bir şekilde değişti. Artık sanal sınıflar ve öğrenmeyi sağlayan diğer teknolojik asistanlar olduğu için hem öğretmenin hem de öğrencinin fiziksel bir sınıfta olması gerekli değildir.

Bu araştırma, e-öğrenmeyi, eğitim topluluğunu ve öğrencilerin uzaktan eğitim uygulamalarını sürdürmeye odaklanan İnternet ve web tabanlı içeriğin, uygulamaların ve programların esnek bir şekilde sunulması olarak tanımlamaktadır.

Araştırmanın katılımcıları, olasılıksız örnekleme tekniği olan kartopu örneklemesi yoluyla seçilmiştir. Anket, Kuzey Kıbrıs'ta Yakın Doğu Üniversitesi'ndeki birinci sınıf öğrencilerinden veri toplamak için yapılandırılmış, web tabanlı, kendi kendine tamamlanabilen anketler kullanılarak yürütüldü ve bilgi yönetiminin uzaktan öğrenme ile entegrasyonunun etkisini belirlemek için analiz edildi.

Olasılıksız kartopu örneklemesi, bu araştırma için veri toplamak için kullanılacak yöntemdir. Araştırmacı, araştırmadaki hipotezleri test etmek için veri kodlamayı içeren yanıtların derinlemesine analizi için Microsoft Excel ve SPSS (Statistical Package for Social Sciences) yazılımını kullanmıştır.

Bu araştırmanın temel sorusu - Yakın Doğu Üniversitesi'nde Bilgi Yönetiminin (SECI Modeli) E-öğrenmeye etkisi nedir? e-öğrenme verimliliğini artırmanın bir yolu olarak bilgi yönetimi ve öğrenme geri bildirimi. Mevcut e-öğrenme sistemleri bilgi yönetiminin gereksinimlerini karşılıyor mu? SECI Modeli.

Bu çalışmanın sınırlılıkları, araştırmaya katılanların çalışmanın kesitsel veri olması ve e-öğrenmenin Bilgi Paylaşımı üzerindeki etkisini bir süre boyunca incelemekle sınırlı kalabilmesidir. Ayrıca Yakın Doğu Üniversitesi'nde gizlilik faktörü nedeniyle objektif performans toplamakla sınırlıdır.

Anahtar Kelimeler: e-öğrenme, Bilgi yönetimi, Uzaktan Öğrenme, SECI Modeli

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

The events of the year 2019 to 2020 came as a major shock to the entire world and the academic world was not spared. As a result of the Coronavirus (COVID-19) pandemic, educational facilities big and small, global and local have been forced to think out of the box to stay active and relevant. Some academic institutions have found themselves in a completely new situation. While some are not alien to this 'new normal', there are many institutions that have remained closed indefinitely because of the pandemic.

1.1 Background

E-learning (Distance Learning, Online Learning, Open Distance Learning), although not a completely novel concept has now become a necessary practice. According to Dhawan (2020), getting back to normal (face to face) teaching anytime soon is uncertain and unlikely. There is now an increasingly urgent need to master (or at least) improve the efficiency and effectiveness of transferring knowledge and encouraging collaboration since we now have much less face to face interaction in the classroom.

"Knowledge Management (KM) is the process of capturing, distributing, and effectively using knowledge." (Davenport T. H., 1994). Knowledge is a strategic resource that gives an organization a sustainable competitive advantage over others (Druker, 1993). Great changes in the competition have caused higher education institutions to think like businesses (Brown & Duguid, 2000) and so, because students can be considered as the clients or customers and Knowledge is considered as the finished/marketable product of a university, much attention must be given to the transfer of knowledge from a teacher to a student and vice versa, and amongst students themselves.

Knowledge management applications focus on providing tools for enriching knowledge, while E-Learning focuses on optimizing the delivery of academic knowledge. Successful integration of both practices will be an advantage to both fields, individually and as a unit.

“E-learning focuses on how to support individual learning processes through pedagogical guidance, while knowledge management takes an organizational viewpoint and practices as a more naive yet more flexible peer to peer philosophy of exchanging and transmitting knowledge,” says the author (Andreas, 2005). This shows that e-learning is a method that can be used to advance the knowledge management process and practice in an organization, rather than a knowledge management practice itself.

A problem this research will shed more light on is how to create innovative e-learning programs that outperform standard instructional models in terms of student learning and encourage student knowledge sharing and interactions. In this study, the social constructivist learning theory, as well as Knowledge Management theory of Knowledge Conversion (SECI Model) were applied as a theoretical and conceptual framework.

The SECI Model as developed by Nonaka and Takeuchi (1995) is a model for knowledge creation and sharing that posits that knowledge is created through creative tension between tacit and explicit know-how through interactions in an environment.

1.2 Statement of the Problem

This research proposes that the most significant barriers to E-learning remains problem of trust, low level of collaboration and time & space constraints. E-learning means that there are fewer social opportunities for people to participate in face-to-face meetings and interactions; where social, cultural, and linguistic disparities can be better observed and understood. Due to the distance and anonymity that e-learning brings, lack of trust, commitment and problem with sharing. Time and space constraints cause a lack of physical contact and meeting between teachers and students and between students themselves because people have not developed well establish relationships with one another. These issues can result in lack of confidence,

reluctance in information sharing and less collaboration while working with others in E-learning platforms.

There is no denying that the recent global events have given the academic world a jolt into the future by forcing those prepared and those who were not into a ‘dispersed classroom’. Although there has been significant progress in E-learning activities performed both on organizational and academic levels, a problem that some academic institutes may face is the ability to incorporate the management of knowledge into this new E-learning world.

Since e-learning has become a vital instrument for universities to communicate, the university's culture should encourage its students to use this technology to exchange information and knowledge.

As such, the main questions of this research is what is the relationship between experience with E-Learning and knowledge Management (SECI Model) in Near East University? How high/low is the practice of knowledge sharing in Near east university?

What is the impact of demographic factors on e-learning, attitude towards knowledge sharing and SECI?

The effectiveness of Experience with E-learning on Knowledge sharing requires researching in Near East university to determine the extent to which it accomplishes the objectives and methods to maximize the benefits of its use in the university.

1.3 Research Aims and Objectives

The aim of this work is to explore the integration of E-learning systems and Knowledge Management Systems through Knowledge sharing activities in Near East University. To this end, the experience, attitude and practice of the students towards the elements of the SECI model of knowledge sharing is evaluated.

To achieve this main aim, there is need to achieve the following research questions:

1. Is there any difference in Student’s Opinions about the impact of knowledge sharing on E-learning?
2. Is there a difference in impact of gender on knowledge sharing in E-learning?
3. Is there a difference in impact of age on knowledge sharing in E-learning?

4. Is there a difference in impact of educational level on knowledge sharing in E-learning?
5. Is there any relationship between experience with e-Learning attitude towards knowledge sharing and the practice of knowledge sharing?

To further analyze the relationship the following hypothesis needs to be considered.

H_1: Attitude toward Knowledge Sharing positively relates to Experience with E-Learning

H_2: Socialization positively relates to Experience with E-Learning

H_3: Externalization positively relates to Experience with E-Learning

H_4: Combination positively relates to Experience with E-Learning

H_5: Internalization positively relates to Experience with E-Learning

H6: SECI positively relates to Experience with E-Learning

CHAPTER 2

LITERATURE REVIEW

2.1 THEORETICAL FRAMEWORK

The social constructivist theory of learning states that all knowledge arises as a result of social interactions and language use and is thus a shared, rather than an individual, experience. Knowledge is also a result of various social processes and relationships, rather just simply seeing or observing the world. Based on this, we discover that constructivist learning places equal value on the learning process as it does on the acquisition of new knowledge. To put it another way, the trip is as vital as the final objective. The ideal environment is said to be one that fosters collaborative tasks through peer social interaction.

This theory proposes a switch from teacher-centricity to student-centric methods of teaching. Teachers and school administrators must adjust and modify their viewpoints in order to use social constructivism theories in the classroom. Both must transition from being "teachers" to being "facilitators of learning."

Knowledge, according to social constructivists, is a human product that is socially and culturally formed (Ernest, 1999). Individuals generate meaning by interacting with one another and the world in which they live.

Social constructivists see learning as a social process. It is not a passive evolution of behaviors affected by external stimuli, nor does it occur just within an individual. When people participate in social activities, they learn more effectively (McMahon, 1997).

In order to better achieve the objectives of this study, the attitude of students toward Knowledge Sharing/Knowledge Conversion and interaction is evaluated since constructivist learning theories require e-learning with a high level of student interaction, and simulations that are similar to the real world are the solution.

Technological innovation aids in the acceleration of knowledge transfer through many forms of explicit knowledge conversion. Technology and explicit knowledge, however, should not be the primary focus of instructors. The most important goal is to hasten the formation of tacit knowledge in each student so that they can contribute more value to society (Chow, 2014).

Communication does not occur until both the sender and the receiver have understood one another (Newstrom, 2006). In the same vein, Knowledge cannot be said to have passed from one party to another until it has been codified from human tacit form of the sending party to the explicit (physical) form of the receiving party (Jui Pattnayak, 2017).

The need for knowledge management stems from the fact that knowledge is a critical component of organizational success, as well as providing access to a consistent competitive advantage. Knowledge Management is also a growing field in organizations around the world and her importance is now becoming more apparent (Akhavan & Jafari, 2006).

The rapid growth, development, and use of ICT globally has created a breakthrough that has facilitated the learning process. The scope of education has changed immensely as it is no longer necessary for both teacher and student to be in a physical classroom and there are now virtual classrooms and other technological assistants that enable learning. In the area of learning management systems, e-learning has evolved from a radical concept to something that is commonly recognized as mainstream. (Qwaider, 2011)

2.1.1 E-Learning and E-Learning Systems

In this section, E-learning and its synonyms with the concept of E-learning Systems have been described. Types of e- learning and the Benefits of e-learning systems is also touched on.

2.1.1.1 E-Learning

The term E-learning was coined by Stephen Downes in 2005 and later given definition by Tim O'Reilly (2005) as collaborative, user-centric process of content creation and interactive content access.

Mainstream E-learning definitions tend to reveal the researcher's specialization and interest (Dublin, 2003) as a result of this, there is no one definition of E-learning. However, from the literature, certain terms are common and reoccurring in defining e-learning – the terms Electronic/electronically, internet, technological, web, remote, virtual classroom, Information, and Communications Technologies (ICT) and distance reoccur and are used interchangeably in definitions of E-learning.

Some of these definitions are:

The use of ICT in different processes of education to maintain and augment learning in institutions of higher education, as well as the usage of ICT as a supplement to traditional classrooms, online learning, or a hybrid of the two methods. (OECD, 2005).

The officially and methodically organization of teaching and learning activities in which the teacher and the learner (or learners) are geographically separated, using ICT to facilitate their communication and cooperation (Ubon & Kimble, 2002).

Training and learning over the Web – training that can be delivered over an intranet, extranet, or the Internet (Mealy & Loller, 2000).

The concept of E-learning spreads across a range of applications, learning methods, processes (Rossi, 2009) and sectors. The Evolution of E-learning has taken different paths in Business, Education, the training sector, and the military (Nicholson, 2007).

E-Learning systems refers to the network-enabled transfer of technical know-how. Some examples of e-learning systems applications include Web-based learning, computer-based learning, virtual classes, and interactive collaboration. The Internet, intranet/extranet, audio or video tape, satellite TV, and CD-ROM are all used to distribute content. E-learning focuses on an individual's acquisition of new information as well as the technical tools that can help them do so (Mihalca & Uta, 2008).

This research focuses on E-learning in the Education sector and so defines E-learning as the flexible delivery of Internet and web-based content, applications, and programs that focus on sustaining the educational community and her practices for students at

a distance. This research shall not only focus on online contexts but also include the full range of computer-based learning platforms and delivery methods, categories, structures, and media such as multimedia, educational programming, and models on fixed and mobile platforms across all disciplines.

The use of computer technology to support learning and social interactions that leads to the advancement and production of information necessitates the development of new pedagogical processes. As a result of the trend toward technology-driven growth, an emphasis on knowledge sharing and acquisition has emerged. To support knowledge growth and production, pedagogic strategies and computer-based technologies must be created based on the needs of learners (Mihalca & Uta, 2008).

Contrary to (Oblinger & Hawkins, 2005), who stated that E-learning had metamorphosed into the use of technology to deliver some aspects of a course/lecture, the opposite is now the reality. Recent happenings in the global environment (as a result of the COVID-19 pandemic) have proven that E-learning is now no longer just an option or a supplement to in-class learning, but now a necessity and primary learning model to avoid the total shutdown of the education sector.

In a model proposed by Algahtani (2011), there are three distinct models of using e-learning in education, namely, Adjunct, blended and online. They are described by: The term "adjunct e-Learning" meaning a situation in which e-Learning is used as a supplement to traditional classroom instruction, allowing learners or students to have more independence (Algahtani, 2011). Algahtani (2011) and Zeitoun (2008) characterized blended e-Learning as a form of using e-Learning in which course materials and explanations are shared between traditional learning methods and e-learning methods in the classroom setting. And finally, the third option, online learning, does not require traditional learning or classroom involvement. In this case, the e-Learning is completely self-contained, allowing the learners or students to be as independent as possible.

In further research, Zeitoun (2008) goes on to say that the online model is separated into individual and collaborative learning, with synchronous and asynchronous learning being included in the collaborative learning as seen in the image labeled Figure 1 (Zeitoun, 2008).

The classification of collaborative learning is synchronous and asynchronous, where synchronous learning refers to real-time communication between teacher and student. Some of its characteristics are that it occurs at a preset time and this allows teacher and student to collaborate and communicate actively and so there is no delay in communication and it is instructor-led. Synchronous learning occurs over virtual blackboards, google meet sessions, and chat sessions (Henderson, 2003). According to Almosa and Almubarak (2005), this form has the benefit of instantaneous feedback.

Asynchronous learning, on the other hand, allows teachers to communicate with students over the internet however, all persons are not required to be online concurrently. Students study the material provided by the teacher and interact with the teachers by leaving them messages. It is characterized by being student-led, collaborative although not in real-time and semi-scheduled since all parties are there but not at the same time (Henderson, 2003).

“Synchronous e-learning is self-paced, advanced learners are able to speed through or avoid redundant training, while novices slow their own progress through content, eliminating dissatisfaction with themselves, their fellow learners, and the course,” (Kruse, 2004). This allows students to finish the course faster and provides the opportunity for more people to participate with a variety of learning styles, interests, and needs.

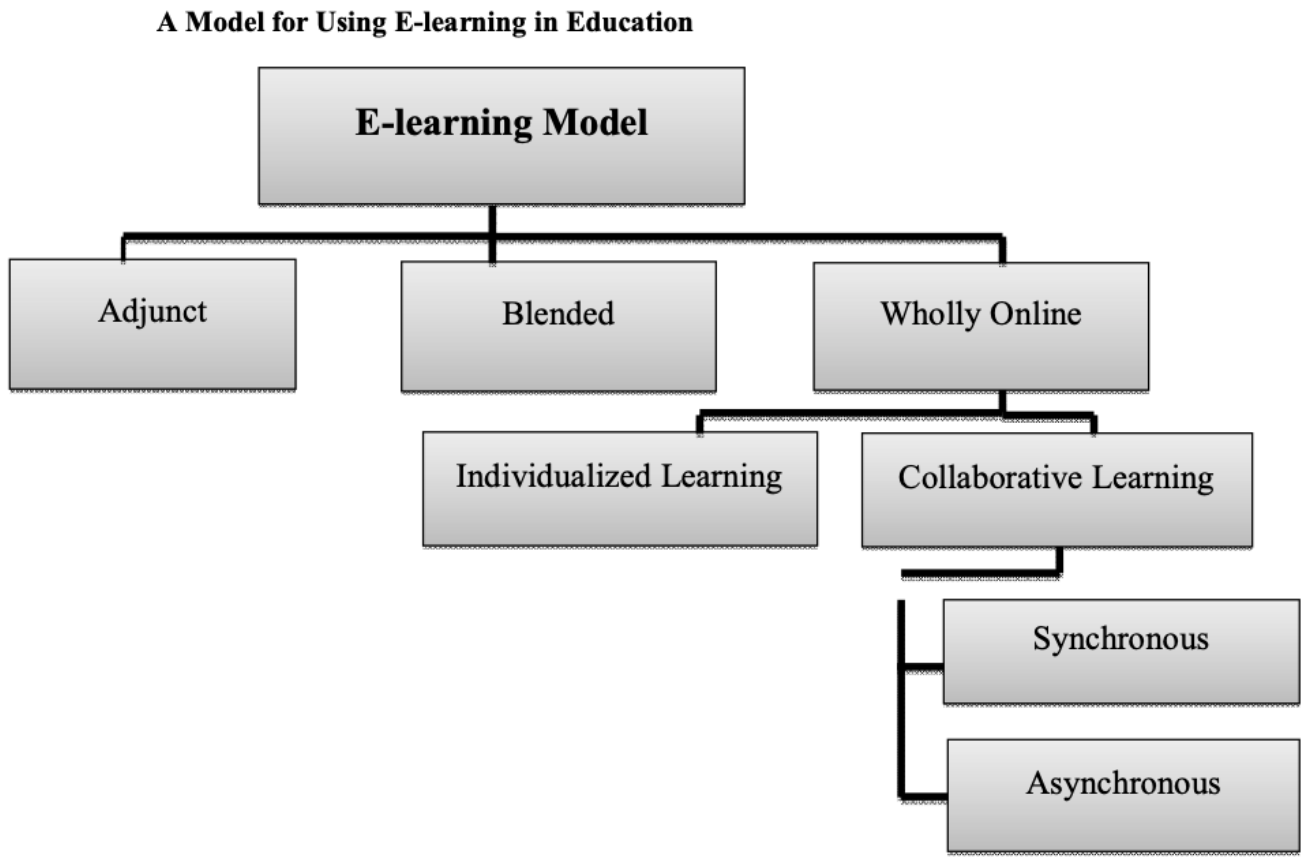


Figure 1: A Model for Using E-Learning in Education.

Source: Algahtani (2011)

E-Learning is concerned with an individual's acquisition (or rather creation) of new knowledge, as well as the technical tools that aid this process. Constructivist learning theories need contextual learning with a high degree of learner engagement, and simulations that are similar to the real world are the answer (Mihalca, Andreescu, & Intorsureanu, 2008).

The learning process can be viewed as a sequential method of

- acquiring new information →Processing the Experience→which causes a long-term shift in the learner's consciousness→ then the learner integrates these new experiences into existing knowledge base and thereby changing it→ and constructing new knowledge which is useful for him/her and this drives his/her future learning process.

Learning that transforms into an individual process of interaction between the individual and his or her surroundings, in which the learner's subjective world is actively produced. In an e-learning system, the learning process can be seen in two ways.

Benefits of E-Learning

1. E-learning offers a great deal of flexibility. When and where education is required, it is available.
2. Personalized learning is more focused on the learner and more engaging for the learner because they are studying material that they are interested in.
3. E-learning is far less expensive than learning at a regular institute because it can be done from anywhere and there are no travel expenditures.
4. E-learning improves the effectiveness of knowledge and qualifications by providing easy access to a vast amount of data.
5. It can facilitate the formation of relationships between students through the usage of discussion forums. By doing so, e-learning helps to remove barriers to involvement, such as the fear of speaking with other students. Students are encouraged to communicate with one another through e-learning, as well as to exchange and respect diverse points of view. E-learning facilitates communication and strengthens the bonds that support learning. According to Wagner et al. (2008), e-Learning provides additional opportunities for interactivity between students and teachers throughout material delivery.
6. E-learning can help substitute for a lack of academic staff, such as instructors or teachers, facilitators, lab technicians, and so on.
7. Self-pacing is possible with e-Learning. The asynchronous method, for example, allows each student to study at his or her own pace and speed, whether slow or fast. As a result, it boosts happiness while lowering stress. (Codone, 2001; Amer, 2007; Urdan and Weggen, 2000; Algahtani, 2011; Marc, 2002; Klein and Ware, 2003)

E-learning is adaptable and can be tailored to match the needs of individual students.

Disadvantages of E-Learning

Despite assertions that e-Learning can increase educational quality, Dowling et al. (2003) contend that making learning materials available online only improves learning results for certain types of collective assessment. Below are a few other proposed disadvantages of e-learning.

1. The e-learning approach may be less effective than the traditional style of learning in terms of clarifications, explanations, and interpretations. The usage of face-to-face encounters with instructors or teachers makes the learning process easier.
2. As an educational approach, e-learning causes learners to experience reflection, distance, and a lack of engagement or relation. To reduce such impacts, it is necessary to have a strong sense of inspiration as well as time management abilities.
3. Because e-learning assessments may involve the use of proxies, it will be difficult, if not impossible, to manage and regulate improper behavior such as cheating.
4. Inadequate selection abilities, as well as the simplicity with which one can copy and paste, may lead to piracy and plagiarism in e-learning.
5. There are also arguments that certain fields/disciplines cannot employ e-learning techniques in education.
6. When it comes to improving learners' communication abilities, e-learning as a strategy could have a detrimental impact on them. Even though they have exceptional academic knowledge, they may lack the necessary skills to communicate that knowledge to others.
7. E-learning has the potential to damage the socialization role of institutions as well as the role of instructors as educational process directors.

   (Collins et al. 1997; Klein and Ware, 2003; Hameed et al, 2008; Almosa, 2002; Akkoyuklu & Soylu, 2006; Lewis, 2000; Scott et al. 1999; Marc, 2002, Arkorful & Abaidoo, 2014)

The idea that E-Learning allows students to collaborate and participate in knowledge sharing and co-construction is also known as knowledge management.

2.1.2 Knowledge, Knowledge Management Concepts and Knowledge Management Systems

2.1.2.1 Knowledge

In the business sector, knowledge management (KM) has become a buzzword. Drucker (1993) says that in comparison to traditional resources such as labor, capital, and land; knowledge is todays only meaningful resource. According to Nonaka (2000), the success of Japanese corporations is due to their relentless pursuit of new knowledge, which results in ongoing innovation.

Knowledge is not something that can be easily grasped as a result of its ephemeral nature (Chow, 2014).

Prominent academics in the field of knowledge, Davenport and Prusak (1998), described knowledge as a combination of versatile and changeable experiences, values, meaningful facts, and scholars' perspectives that define a context for the evaluation and cohesion of data and new experiences.

Knowledge is what is known; it is used to describe a confident understanding of a topic, with the potential to apply it to a specific purpose. (Tiwana, 2000).

General understanding explains knowledge to be rooted in information and data. It is said to be a more advanced form of data and information that can only emerge through rules, procedures and implementations. The definition and meaning that comes out of thought processes is what we refer to as knowledge; without thought, knowledge is simply data and information. Therefore, we can deduct that student's knowledge refers to the results of thought processes after interactions and socialization.

It's critical to understand that knowledge exists at several levels in organizations: individual, group, department, and organizational. Furthermore, the amount of abstraction and type of knowledge can range from specific facts to well-organized data, interpretations and analysis, conceptualizations, theoretical models, and even wisdom (agency, 2013).

Russell Ackoff (1988) developed a hierarchy called the Knowledge Management Hierarchy, which aims to represent the relationship between data, information,

knowledge and wisdom; this hierarchy was later modified by Sagsan (2015) to include a fifth stage that take into consideration, the physical process of environmental scanning. This hierarchy helps us understand how knowledge can be organized in an organization.

In this model, the link between data, information, and knowledge is depicted as a pyramid, with data at the base, information in the middle, and knowledge at the summit. Data takes up the largest area in terms of volume, information takes up a bit less, and knowledge takes up the smallest fraction at the top.

Data and information are frequently distinguished from knowledge. Data often takes the form of measurements to describe facts. Data is placed in a relevant context by information. Knowledge is a comprehension of information gained via study, research, observation, or experience (Mihalca, Andreescu, & Intorsureanu, 2008).

Extracting knowledge entails evaluating large amounts of data and information in order to come up with concepts and guidelines that can be documented, packaged, and presented.

Polanyi (1966) classifies Knowledge into Tacit (Implicit) and Explicit (Physical). Tacit knowledge is referred to as knowledge in an individual's mind that is difficult to articulate. It is the type of knowledge that is based on personal experiences and is not easily communicated. It is affected by personal factors such as beliefs, perspectives, and culture (Yılmaz, 2012). Tacit knowledge is unconsciously understood and applied knowledge that is difficult to express, created via direct experience and action, and transmitted through highly interactive discussion, narrative, and shared experience.

Conversely, Explicit Knowledge can be easily implied, formalized, and communicated. This type of knowledge is easy to codify and capture on paper, files, and to speak out (Ubon & Kimble, 2002). Explicit information is grasped consciously and may be expressed more accurately and formally. Knowledge is easily codified, documented, transferred, and shared when it is explicit.

Explicit knowledge can be classified in several ways; Declarative knowledge (understanding of something - concepts, categories, or descriptors), Procedural knowledge (understanding of how something happens or is done) and Causal knowledge (understanding of why something happens).

By rule of thumb, the ratio of explicit to tacit knowledge is roughly 20:80. Users benefit more from explicit information since it can be shared and reused. Modern information technologies make it possible to convert tacit knowledge to explicit knowledge. However, because tacit knowledge is so elusive, even those who possess it may be unaware of what they know. As a result, conversion remains a significant hurdle and when it comes to explaining, sharing, and leveraging tacit information, knowledge management is extremely difficult.

Thus, most important move for any organization is converting personal Tacit knowledge to Companywide Explicit knowledge (Gottschalk, 2005). Jui Pattnayak (2017) said ‘Codification of tacit knowledge into explicit knowledge is the indivisible part of learning without which knowledge is of no use’. In application to the academic sector, transforming teacher’s tacit knowledge to student’s explicit knowledge through interaction and socialization of students with students and teachers with students is the only way learning can occur and will require the use of some knowledge management models.

This necessitates higher educational institutions recognizing the type of information they possess. How may this knowledge be categorized and organized? How can this knowledge be stored and disseminated among its learners, as well as the instruments needed to do so? As a result, higher education institutions are developing their own knowledge model to focus on (Al-Jedaiah, 2020).

Capturing, disseminating, and successfully applying knowledge are the key aspects of knowledge management (Davenport T. H., Saving IT's Soul: Human Centered Information Management, 1994).

Today, Knowledge Management takes numerous forms, including social media, mobile applications, cloud computing, and mobile devices, all of which play important roles in Knowledge Management activities. In education, Knowledge Management is also formalized into systematic learning procedures. E-Learning is one of them (Chow, 2014).

2.1.2.2 Knowledge Processes

N.T. Pham and F.W. Swierczek (2006) outline the mechanisms through which knowledge is accumulated, communicated, and preserved in organizations in the literature, and many refer to them as knowledge processes. Knowledge processes are defined in a variety of ways in the literature.

The more generally used and accepted definitions were categorized into one of five primary knowledge processes, as indicated below. The following are the primary knowledge processes:

(1) Knowledge acquisition and adoption;

(2) Knowledge generation and validation;

(3) Knowledge sharing and transfer;

(4) Knowledge retention and storage; and

(5) Knowledge application.

Knowledge processes are the tools that organizations use to create, manage, and use tacit and explicit knowledge in all of its forms.

2.1.2.3 Knowledge Management

The term "Knowledge management" refers to all processes and practices related to the development, acquisition, capture, sharing, and application of knowledge, skills, and expertise. Knowledge Management is a discipline that aids in the spread of person or community awareness through organizations in ways that have a direct impact on success (Qwaider, 2011)

Based on the literature, Knowledge Management is sometimes used interchangeably with Information Technology (IT) and Information System (IS) both as a support for its implementation and as a technological solution.

Knowledge management as described by the University of Texas (Austin) management faculty is a systematic process of discovery, collection, and organization, as well as the summarization and distribution of data, with the goal of improving people's knowledge in a related area. In their view, Knowledge management not only

avoids the deterioration of ideas in an organization, it also contributes to the value, assets and competitive over time.

Knowledge management assists in comprehending experiences and focuses activities on acquiring, storing, and applying knowledge in order to solve issues, strategic planning, providing active training and preparation, and decision-making (Abtahi & Salavati, 2007).

Knowledge Management involves getting the right information in the right context, to the right person at the right time for the right purpose (Davenport & Prusak, 1997).

Knowledge management is described as a set of structures, processes, and activities for identifying, creating, representing, and disseminating knowledge within an organization.

Knowledge management is a management discipline that has always gone hand in hand with information technologies, both as a cause for its need and as a technical solution for its implementation. Knowledge management takes an organizational approach to learning, with the main issue it aims to solve being a lack of knowledge exchange and sharing among members.

Despite the importance of the issue of knowledge management implementation in companies, many of them have failed due to a lack of evaluation, comprehensive, and appropriate recognition of the beneficial components in successful knowledge management implementation.

According to Wong (2005), Lack of knowledge and ignorance of these crucial and vital aspects would almost certainly lead to insanity in organizational endeavors. The activities and procedures that are required for successful Knowledge Management implementation should be reinforced if they already exist, and if they do not exist, they should be created.

The literature agrees that an organization's long-term viability is highly dependent on how successfully its knowledge is captured, communicated, or transmitted and reused between persons. Yet, Knowledge management does not completely appreciate that it is primarily concerned with promoting goal-oriented learning in companies, and that understanding how learning occurs is thus critical to consider. And, according to recent

social constructivist learning theories, learning is more than merely passing on information; it is a highly customized work of building and construction.

It is therefore interesting to note that, in higher education institutions where academicians value certain types of information, academic knowledge remains largely a "cottage industry" with both tacit and explicit knowledge kept separate inside the academician's guild (Sabri, 2012). There is gross unwillingness to share, communicate or transmit knowledge.

2.1.2.4 Knowledge Management Systems

Knowledge Management System is a term that can be used in learning organizations to describe knowledge repositories that improve knowledge access and sharing, communication through collaboration, and management of knowledge as an asset (Rusli, Shamsul, & Selamat, 2005).

A knowledge management system usually refers to any kind of Information Technology system that collects, saves and recovers knowledge to improve assimilation, teamwork, and process alignment. It refers to a tool used by organizations to document and organize frequently asked questions and vital information for easy access by stakeholders (Chait, 1999).

The mechanism by which a company generates a wealth of information is known as knowledge management (Takeuchi, 1995). Interested parties gaining access to Institutional knowledge of facts and sources of information is the essence of Knowledge Management Systems (Tiwana, 2000).

Knowledge is the only asset in any organization that is vital to the technology, strategy, and structure of the organization as a whole. Similarly, Knowledge is the ability to turn information and facts into successful action. Knowledge can be viewed as both a thing to communicate and a method to apply. For this reason, a course must be designed to comprehensively manage a sense of knowledge (Sagsan, Medeni, & Medeni, 2016) as well as the opportunity to share and exchange this knowledge. In this context, "managing knowledge" refers to providing individuals with the information and data they need to do their tasks effectively (Mihalca & Uta, 2008).

According to Awad & Ghaziri (2004), the successful implementation of Knowledge management systems results in the creation, transfer and distribution of knowledge

from person to person. Thus, an efficient knowledge management system must involve people, technology and organizational processes (Awad & Ghaziri, 2004)

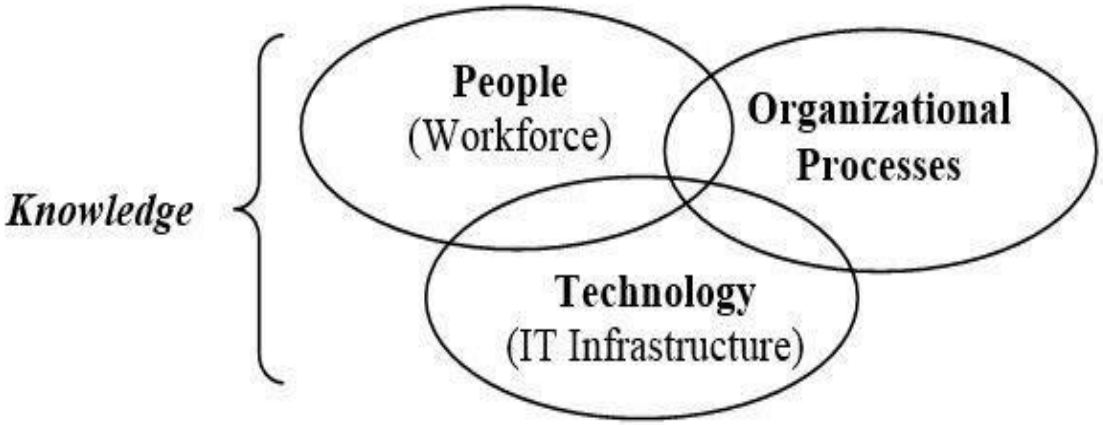


Figure 2: Overlapping Human, Organizational and Technological factors.

Source:Awad Ghaziri (2004)

Mihalca et al. (2008) state that Knowledge management implementations are centered on four primary factors: People (knowledge users, authors, and analysts), culture (a culture where knowledge sharing is normalized and encouraged), content: (creation and management of data, information, and knowledge), technology (technical structure that facilitates the capture, storage, and distribution of content to those who need it, when they need it),

Another survey identified organizational structure and procedure, technical infrastructure, teamwork, and motivation as critical criteria for Knowledge Management implementation and effectiveness (Jafari et al., 2007).

Not all software or database systems can be classified as knowledge management systems. For a software to be classified as a knowledge management system, it must possess a variety of key characteristics as proposed by Robertson (2002). These characteristics include:

- The capacity to store a wide range of data, including all forms of documents, audio and video files, photographs, and web pages.
- Personal data access with security features and privacy restrictions
- Include a search facility with a user-friendly interface and the ability to change the contents of the system and add comments

On the market, there are a variety of e-learning software technologies that organizations and business can customize to create e-learning solutions.
Software such as Moodle, Microsoft Learning Content Development System, Adobe e-learning suite, CourseLab, and Mindflash online training are just a few of the options. Other web application platforms are also utilized to create a learning environment, including Twitter, Delicious, YouTube, Google Reader, Google Docs, Wordpress, Slideshare, and PowerPoint.

Based on prementioned conditions, it is assumed that the Knowledge Management System of Near East University is the UZEMBIM Website. It is critical that businesses/organizations choose/create the right tools for their needs.

2.1.2.5 Knowledge Management Concepts

The use and application of both explicit and tacit information, the promotion of knowledge generation and sharing at all levels, and the deployment of the correct mix of Knowledge Management tools and processes are all required for a successful Knowledge Management program (Ubon & Kimble, 2002).

- **Codification Vs. Personalization**

Towards the application of both explicit and tacit knowledge in organizations, Codification or Personalization is the first technique. The “codification” and “personalization” techniques are described by (Hansen, 1999) as two techniques that can be found in today's organizations. Codification is concerned with the encoding, storage, and subsequent re-use of information. The goal of this strategy is to maximize the benefit from explicit knowledge and to allow it to be acquired, stored, and retrieved inside the organization. This method is also known as a "people-to-document" method because it mainly relies on information technology (Nottingham A. a., 1999).

Personalization, the second approach, focuses on the management of individual dialogue and social engagement, as well as the knowledge imparted during these social activities. This form of knowledge, referred to as "tacit knowledge" (Polanyi,

1966) is more difficult to describe and may be of higher value since it enables a more creative approach to knowledge application.

- **Knowledge Management Life Cycle**

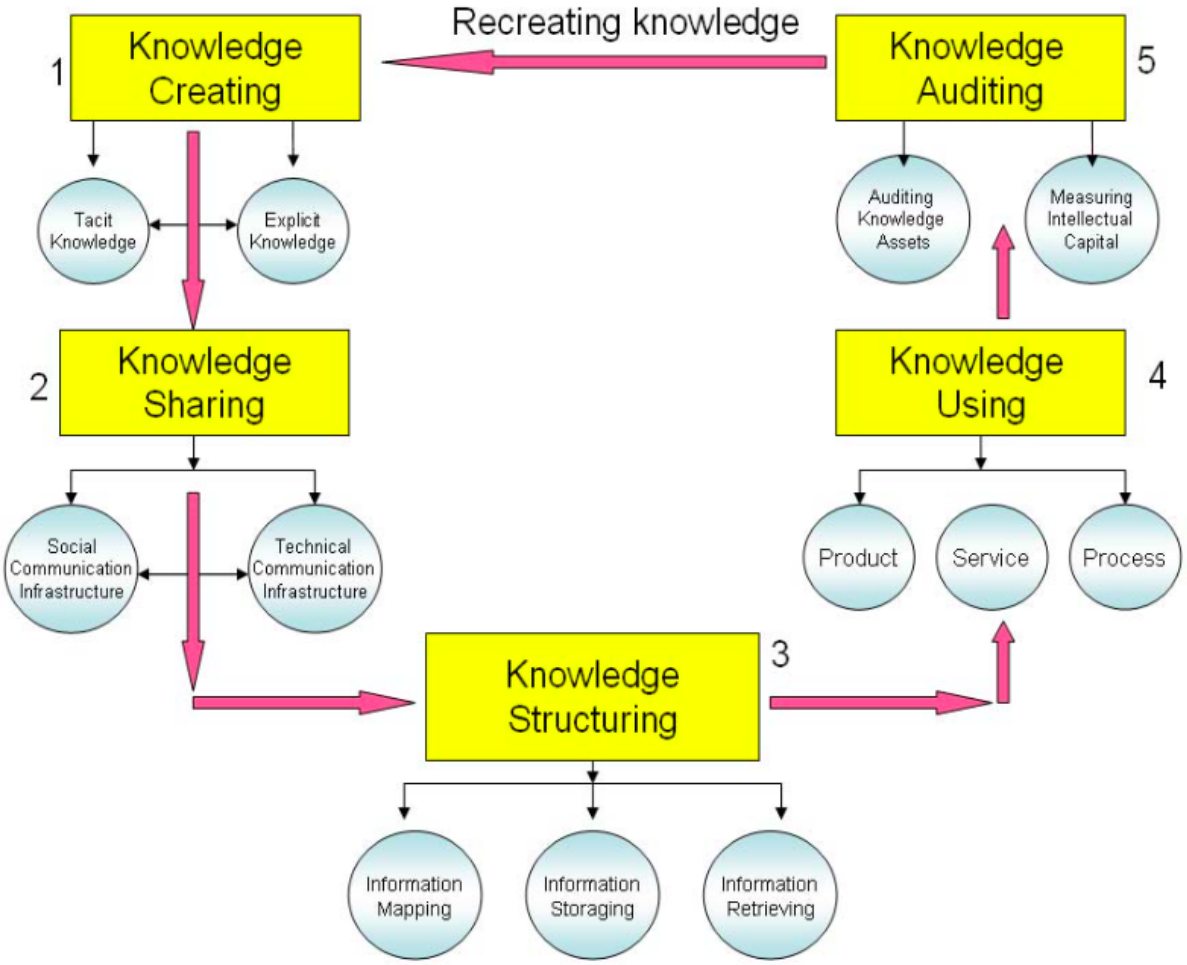


Figure 3: Knowledge Management Life Cycle.

Source: Mustafa Sagsan (2015)

As designed by Sagsan (2015), Knowledge management Life Cycle (KMLC) refers to a model that helps us understand the processes of managing knowledge in a hierarchal order in an organization. Knowledge Management Life Cycle proposes that knowledge goes through these sequential steps (5 steps) - knowledge creating, knowledge sharing, knowledge structuring, knowledge using and knowledge auditing.

Although this research focuses on Knowledge Sharing, the steps (and sub steps) of the hierarchy are explained below;

Knowledge Creating – Key players and departments play a crucial role in this first step. Because organizational knowledge cannot create itself, it needs the individuals, groups or departments to go into what is called the 'Knowledge Kitchen' where knowledge is created.

Two types of knowledge appear at the phase- Tacit knowledge and Explicit knowledge thus the objective is to convert tacit knowledge to explicit knowledge in the knowledge kitchen through interactions and following the human social information processes.

Knowledge Sharing – In this phase, it is important for the organization to have good infrastructure because it helps to develop interaction and connections with the organization. Knowledge in an organization is shared by using formal settings, informal settings, rumors, work teams etc.

There are two important infrastructures that must be in place for knowledge sharing to occur.

i. Social Communication Infrastructure where knowledge is shared using informal ways to aid the passage of information between employees from the different levels of management. Social infrastructure networks are aided through oral communication, written communication and nonverbal communication with the use of rumors and grapevine, memos, facial expressions and gestures. It is proposed that this is most effective way of knowledge sharing and organizations must encourage more social opportunities in order to facilitate sharing.
ii. Technical Communication infrastructure (aka formal communication) which depends on the information and technology systems available in the organization e.g., internet, intranet and extranet.

According to Sagsan (2015), Knowledge sharing is based on reciprocity and is voluntary and so it must be encouraged to be achieved.

Knowledge Structuring – Structuring is done by sorting, organizing, analyzing and reporting the information so that it is easily retrieved when needed. When a solid knowledge sharing infrastructure is in place, the organization must structure its data,

information and knowledge in order to form a database for future use. In order to do this, knowledge mapping, knowledge storing and knowledge retrieving is important.

- Knowledge mapping involves identifying who knows what and the sources of all organizational information to make a good knowledge inventory that will be available to the whole organization.

- Knowledge storing involves the use of databases, information centers and warehouses usually with electronic sources that form the organization's memory-base. This is where the mapped knowledge is stored.

- Knowledge retrieval is the most important factor in knowledge structuring because it involves the use of fuzzy logic, Boolean logic, user interfaces etc. to retrieve the knowledge that was mapped and stored. Knowledge that is not easily retrievable for later used by the organization is lost.

Knowledge using – Properly mapped, stored and retrieved data make it easy for data to be used when needed. Organizations use the knowledge to – gain competitive advantage,

- design and market products and

- service quality.

Knowledge using is highly dependent on information technology also and so organizations must make vast IT platforms available.

Knowledge auditing – in this phase, the knowledge is audited by evaluating the amount of knowledge that is useful in the organization’s product, service and process. By evaluating the knowledge that has been created, shared, structured and used (the previous 4 stages), we can measure the intellectual capital, estimate the information capacity and approximate the intangible assets (knowledge, skill and know-how) of the organization. Knowing these things can help create more value for the organization. This process also allows the cycle to restart with the creation of new knowledge.

The proper Mix of Knowledge Management tools and Processes

The term "technologies" is used in this research to refer to Knowledge Management tools used in the management of explicit knowledge in an organization. Technology

can facilitate collaborative work and engagement among members of the community where knowledge is created and shared. People that need to communicate knowledge over a long distance frequently use e-mail, groupware, and computer networks. While it is true that no modern organization can manage its knowledge without the use of technology, technology is only one element of the problem. As stated by Davenport & Prusak (2000), “Installing Notes, the Web, or case-based reasoning tools will not automatically result in that change. Technology alone will not compel someone with knowledge to share it with others. Technology alone will not produce a learning atmosphere, a meritocracy, or a knowledge-creating company” (Davenport & Prusak, 2000).

As a result, effective Knowledge Management necessitates a hybrid solution combining Knowledge Management tools or technology with Knowledge Management processes. The appropriate management of ‘space' and ‘process' is defined as Knowledge Management technique in this study. Space management, is concerned with the production of new working space. This space may be physical (e.g., a building), virtual (e.g., MUDs), or mental (e.g., shared experience), is a shared space where information is created, exchanged, and used. Process management, on the other hand, is concerned with the development of an organizational structure or practice that promotes individuals to easily create new knowledge. It also allows them to freely share their knowledge. Thus, Knowledge Management research concepts like "knowledge enablers," "ba" (Nonaka, Krogh, & Ichijo, 2000) "knowledge fair" (Davenport & Prusak, 2000) and "storytelling and learning discussions" (Sallis & Jones, 2002) can be used to assist these Knowledge Management strategies.

2.1.3 Knowledge Management Systems and E-Learning Systems

Before the term Knowledge Management was coined, there was E-Learning. The initial form of E-Learning was conducted via mail interaction. Due to the rise of the Internet and information technologies, it has evolved into the present version of E-learning we see today.

E-learning systems and Knowledge Management systems have evolved separately for many years. As such, the integration and implementation of Knowledge Management to E-learning is a relatively developing field.

In certain ways, educational systems are similar to knowledge management systems in that they both involve the generation of meaningful knowledge from accessible data or information.

Walid (2011), states that Knowledge Management is being used for the improvement of capturing, organization and delivery of large amounts of knowledge by proposing a model and enhancing the model with concepts from e-learning.

Mihalca, Andreescu & Intorsureanu (2008) argue that the incorporation of Knowledge Management into E-Learning provides an opportunity for shared learning to occur. While E-Learning on its own focuses on individual learning to gain information; in order to achieve the advantage, Knowledge sharing and collaboration must be done.

Some scholars in E-learning have attempted to investigate the combination of Knowledge Management and e-learning.

Amy (2004) models and analyzes online knowledge sharing interactions and supports collaborative distance learners using a probabilistic machine learning method. Hong (2005) believes that combining the two could greatly facilitate learning and improve human performance. According to Meng and Dennis (2010), creating an environment that encourages students to share their expertise can help to facilitate online learning.

For the sake of cooperation, collaboration and competitive advantage, knowledge should never be hoarded or kept but gained and exchanged. This is why Knowledge Management approaches learning from an organizational standpoint, and the key issue it seeks to solve is a lack of information sharing among employees (Carmean, 2008). In such cases, the use of technical means to facilitate the construction process is necessary. And a knowledge management system integrated with E-Learning system is the best way to assist in the acquisition of dynamic, distributed, shared, and collaborative information.

E-Learning allows users to gain and build Knowledge on a particular topic through organized learning material, whereas Knowledge Management allows users to search and filter through a variety of topics, as well as collaborate.

By this, we deduce that the key factor of successful integration of Knowledge Management with E-learning is not just the ability to learn the material, but also to collaborate and interact while using the E-learning Systems.

When E-Learning and Knowledge Management processes are combined, synergies can be created that greatly increase the development of new information and the efficiency of learning processes. However, how to integrate E-Learning with Knowledge Management is inextricably linked to the underlying Knowledge Management processes (Yılmaz, 2012).

Integration of Knowledge Management and E-Learning systems is the social nature of constructing knowledge. System designers must understand that knowledge is complex, placed, and socially constructed before they can achieve the benefits hoped for in an enterprise setting. Enterprise information must be negotiated and constructed as a group effort (Huang, 2009).

Since e-learning is a knowledge-intensive process, the quality of its content knowledge is heavily dependent on the efficacy of information capture, storage, sharing, and innovation. As a result, knowledge management principles and procedures can be applied to e-learning to improve the platform's benefits and e-learning efficacy (Hui & Grossman, 2008).

When e-learning platforms are properly applied, they can be used to organize and store knowledge learned and exchanged through the training phase; resulting in the creation of new information and knowledge sources that can be used in the organization to innovate.

The process of institutionalizing knowledge begins with providing Knowledge users with resources that enable them to collect and capture information and knowledge, analyze it, store it, organize it, structure it, exchange it, publish it, and make it available and personalized (Leezenberg, Tonningen, & Schoonhoven, 2005).

E-learning technologies may be used as a starting point for developing an organization's knowledge management system. E-learning systems are used to provide training, but they can be enhanced to information management systems by relying on the knowledge network, pointing to knowledge repositories, and collaborating with experts (Muhire, E-learning and knowledge management: The development of an e-learning system for organisational training. Masters Dissertation. Dubin Institute of Technology, 2012).

Corporate culture is vital for knowledge production and sharing among employees because it “shapes ideas about what knowledge is worth discussing; it defines linkages between individual and organizational knowledge” (Karlsen & Gottschalk, 2004). Culture is ingrained in the structure, activities, communication, sales, marketing, and products of an organization.

“When seeking to transmit tacit information between individuals or convert tacit knowledge into explicit knowledge, so changing it from the individual to the organizational level, organizations should stimulate engagement and collaboration among employees” (Gold, Malhotra, & Segars, 2001).

An organization should make it a habit to encourage employees to share their expertise through the use of knowledge management systems. Without a culture of sharing knowledge, having KM tools will be useless. In an organization, a strong knowledge management process will offer a basic assumption of what knowledge needs to be processed and handed from one person to another, as well as establish the relationship between them (Muhire, 2012).

Socio-Technical Strategy/perspective/model of knowledge management integrates the technological parts of knowledge management with the cultural aspects of the business. It is important for an organization to do this because although having all the technological tools for knowledge management is important, the human aspects of the organization must be willing to use them in problem solving.

A successful e-learning and knowledge management system must adopt the Socio-Technical Perspective. This is a method of viewing organizations that emphasizes the importance of the interrelatedness of the functions of the social and technological subsystems of an organization, and the relation of the organization itself with the environment in which it operates.

The Socio-Technical Perspective is summarized into three major elements: 1) Infrastructure, 2) Infostructure, and 3) Infoculture.

Infrastructure refers to those hardware/software tools that enables communication between network members. E.g., email, intercoms and knowledge sharing applications within the company.

Infostructure involves the formal rules which govern the exchange between the members of the organization on the network and enable people to make sense of events/ knowledge on the network. e.g., office lingua, jargon, slangs, metaphors, common language.

Infoculture encompasses the stock of background knowledge and aspect of culture that promote knowledge transfer. It is often taken for granted and is embedded in the social relations surrounding work group processes.

Organizational culture can be described as either an industrial or a knowledge culture. In a knowledge-driven organization, rather than an industrial-driven organization, knowledge management implementation functions well.

The following are characteristics of industrial and knowledge culture organizations. It has been observed (in Table 1) that the organization with a knowledge culture gives a platform for sharing information.

Table 1: Industrial culture and Knowledge Culture organization

Industrial Culture	**Knowledge Culture**
Limited information distribution	Wide information distribution
Many management levels	Few management levels
Uneven responsibility	Shared responsibility
Rules based	Principles based
Structured	Unstructured
Risk adverse	Able to take some risks
Inward orientation	Outward orientation
Occasional training	Continuous learning
Financial focus	Marketing focus
Political	Open

Source: Muhire (2012)

The industrial culture organization has a limited flow of information and more control over the organization's activities, which limits the ability to accept change, whereas the knowledge culture organization allows for an even distribution of information and continuous learning, which will make knowledge management implementation easier.

By this, we can say that for an e-learning tool to be considered integrated with Knowledge Management or to be used in a knowledge culture organization, it must fulfil the following requirements.

- Create a virtual network/e-community where experts and learners can come together. The tools should not only focus on education of new concepts but also becoming a part of the process of individual and group learning and to be a source of knowledge for the experts and learners.
- Furthermore, the E-learning tool must provide a way for users to access information provided by other users and other sources of information. Users can use the tools to generate new ideas and develop new skills, as well as to provide the requisite assistance to other users in making better use of their newly acquired skills.
- Users should be able to report their expertise and experience using the e-learning tools, which should have a user-friendly interface. This makes it easy to find someone with specific expertise or experience; the tool allows you to search by name, key word, or phrase, and it will help you find the right person.

The benefits of unifying E-learning and Knowledge Management are depicted in the Table 2 below;

Table 2: Weaknesses and Strengths of e-Learning & Knowledge Management with Benefits of Unification

	STRENGTH	WEAKNESS	BENEFITS OF UNIFICATION
E-learning	• Considers how people learn and change. • Structured and managed.	• Can be rigid. • Too focused on content.	• Increased relevance, Ownership and dynamism. • Less training required.
KM	• Current • Dynamic • Participative	• May ignore how people learn and change • May lose sight of Organizational priorities.	• Increased learning Effectiveness and direction. • Less searching and contributing required.

Source: Khdour & Salem *(2014)*

More Implications of integrating Knowledge Management and E-Learning

a) The creation of Community**:** A community is a group of individuals who are linked together by common interests, activities, and institutions. The concept of communities is important from a knowledge management viewpoint since knowledge in an organization is often built up and generated by a small, informal, self-organizing network of practitioners (Senge, 1990; Lave and Wenger, 1991; Argyris, 1993; Brown and Duguid, 2000). Furthermore, recent advancements in Information and Communication Technologies (ICT) enable new settings in which people can communicate and exchange their knowledge

beyond geographical and temporal barriers. In education, community is also seen as a model for dynamic, constructive knowledge generation and exchange.

In education, community is also seen as a model for dynamic, constructive knowledge generation and exchange. All learning, according to Lave and Wenger (1991), requires enculturation in communities. Academic communities have a similar structure to other groups, despite their subject differences.

b) Opportunities for Collaboration: Most businesses understand that if their employees work together, they may get better results – This also applies for students and the learning process. However, fostering teamwork is a difficult task. Many various tactics are used by Knowledge Management practitioners to create the type company culture that encourages teamwork and collaboration (Senge, 1990; Nonaka and Takeuchi, 1995). Meetings, forums, and conversations are frequently used to generate knowledge through the processes of social interaction and collaboration. In addition, tools like e-mail and intranets are utilized to stimulate active communication among employees. Collaboration is one of the most important aspects of education, particularly in online distance learning, when individuals and knowledge are spread across time and place. A number of educational research have looked into the link between collaboration and learning (Johnson and Johnson, 1985; Slavin, 1987; Johnson and Johnson, 1989; Sharan and Shaulov, 1990; Dobos, 1996). Collaboration, according to Christiansen and Dirckinck-Holmfeld (1995), is a means of overcoming two key obstacles in distance learning: the challenge of adapting to academic discourse and the challenge of being a part of an academic community from afar.

c) Fosters Trust and Knowledge Sharing: Trust has been highlighted as a necessary requirement for people to share their knowledge and experience in business organizations (Nottingham A. , 1998). People are hesitant to share their information because they fear losing power and control. According to Murray and Myers (1998), respondents to a recent poll on knowledge management in Europe recognize that the most valuable knowledge in their organizations is in people's brains, but they are hesitant to share their information for fear of losing power and control. As noted by Sallis and Jones (2002), this reluctance to share in schools stems from the individual

competitiveness that is fostered from an early age and although it may be a good quality, it counterbalances collaboration and sharing.

d) Content distribution and presentation that is dynamic: The portal could have a content repository that is modularized and organized to make it easier for content creators to access relevant content.

   Where a dynamic generation of Learning Objectives that are tailored to the learner group in terms of content and presentation are put out, and that are tailored to the individual learner's preferences or traits, as well as the devices they utilize (Sammour, Schreurs, Al-Zoubi, & Vanhoof, 2008).

e) Developing Shared Understanding: Individuals must have the same meaning in their communication process and converge it to shared understanding for efficient information sharing. Collaboration and fruitful knowledge transfer require a shared understanding and common ground among people in a community, according to Knowledge Management research (Lave and Wenger, 1991; Clark, 1996). Individuals will not be able to comprehend or trust one another without it (Davenport & Prusak, 2000).

   A shared understanding is critical for students' learning processes in online distant education. A shared understanding can pique students' social imaginations and motivate them to look beyond common knowledge in search of a common ground based on relevant data (Christiansen and Dirckinck-Holmfeld, 1995). Students in online learning communities can improve their capacity to communicate and collaborate by developing shared understanding.

Existing E-Learning Architectures Based on Knowledge Management

In 2018, Turkish Republic of Northern Cyprus economy minister Hasan Taçoy stated in a statement to Demirören News Agency (DHA) that TRNC made $800 million in revenue from education sector. He said that the sector contributed 10% of the economy (Press and Information Office, 2019).

Turkish Republic of Northern Cyprus places a high value on education's contribution to economic development. Education (and educational tourists) contribute not only to domestic consumption but also to the production of jobs and the development of a cheap labor force.

Turkish Republic of Northern Cyprus, being a high beneficiary from education must be concerned with providing standardized teaching/learning methods.

Jui Pattnayak (2017) Proposed Knowledge Management Framework

Jui Pattnayak (2017) proposed a structure that took into consideration the People, Processes and Tools & Technology as the features of a Knowledge Management framework that is integrated with E-Learning (Figure 3).

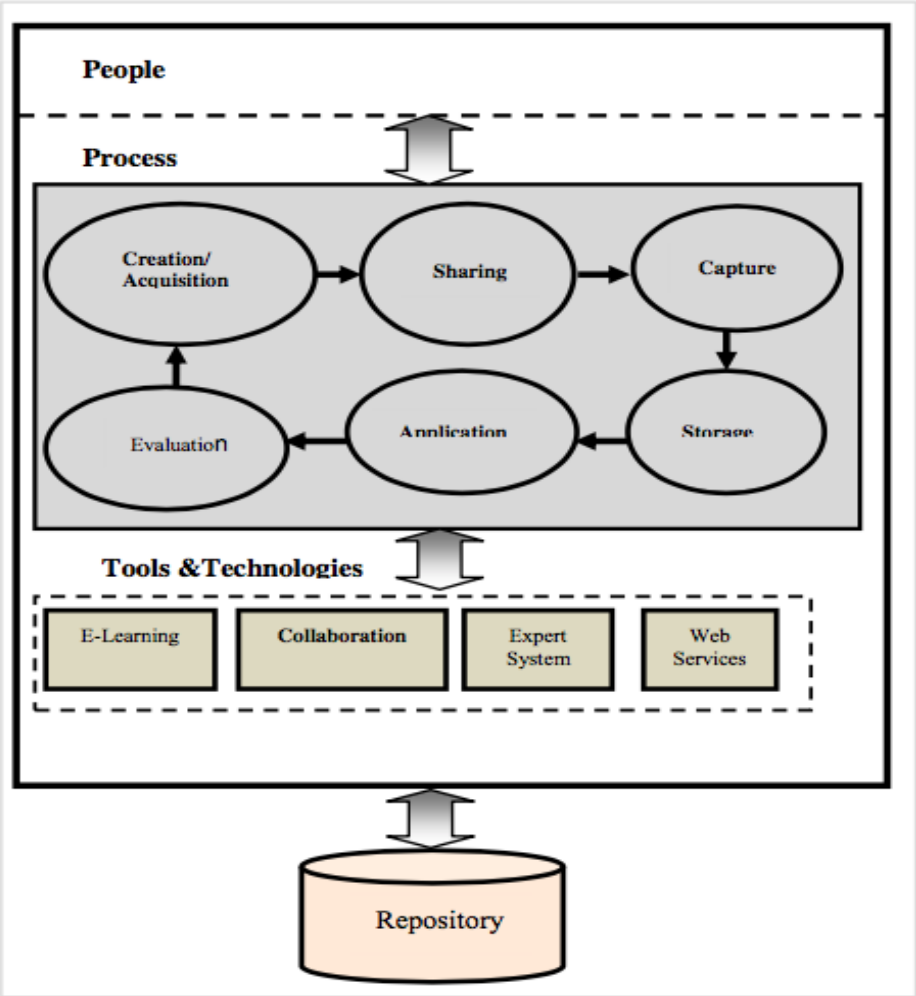


Figure 4: Knowledge Management Framework

Source: Jui Pattnayak (2017)

The structure is proposed to create 24x7 hours synchronous learning with the use of Artificial Intelligence tools such as mobile computing, semantic web, big web etc. According to the researcher, in an E-Learning environment, information is created by converting expert knowledge into content, which is then stored in a repository for learners to use. Learners gain information from the available content in this manner.

However, the researcher also noted that the structure faces the limitations of Information sharing being difficult because experts' knowledge is abstract. Furthermore, inexperienced learners can have a difficult time using the Knowledge Management feature. And also, due to financial constraints, IT-facilitated learning is difficult to introduce in developing countries.

In order for knowledge learning to be achieved, there is need for experts' knowledge codification and subsequently, collaboration amongst all parties.

Intelligent Distributed Virtual Training Environment (INVITE)

Users want an EL system that can accommodate three types of training, according to (Bourns, Triantafillou, & Tsiatsos, 2001): synchronous training (online lectures from a trainer at a specific time), asynchronous training (autonomous training using instructional material and notes from previous lectures or collaboration minutes), and collaborative training (on-line collaboration and communication among members of a user group on a specific topic). Based on these expectations, a system architecture was developed containing a virtual worlds and community through the extended API, a language server that allows for multiple user language translation aids, a voice server that enables voice communication, agent server which works as support for clients, document repository where document management, archiving and support are stored, streaming server, and avatar server for user specific access to individual avatars are all part of the system architecture.

The architect of this INVITE system stated that the first usable prototype had not yet been produced and the system does not yet allow for engaging end-users in its assessment, or soft ability training, which will become more prominent in the future.

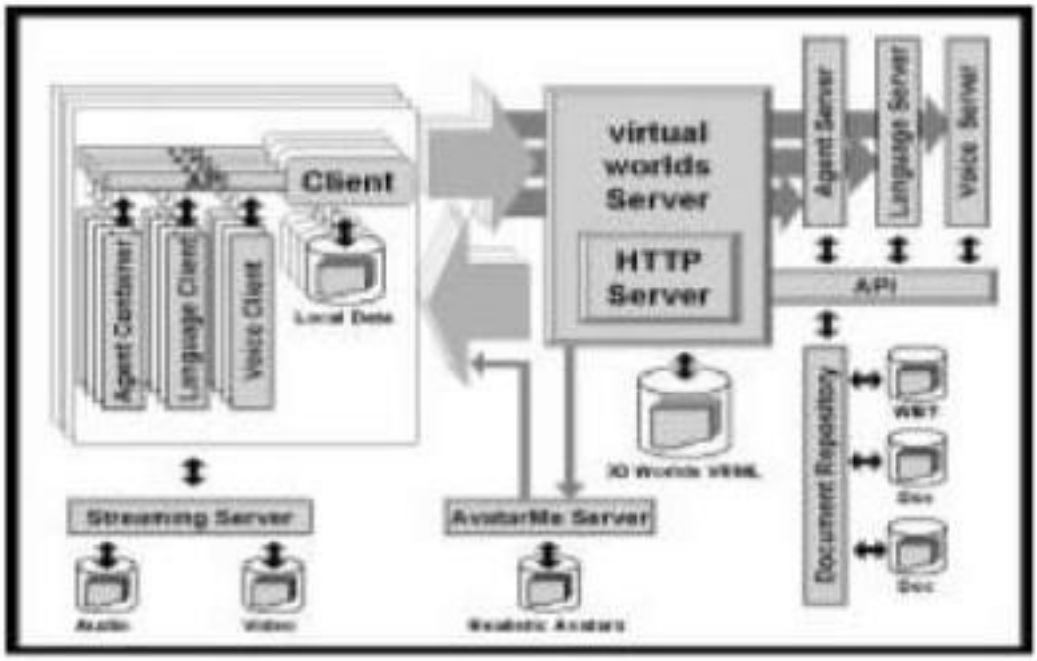


Figure 5: INVITE Architecture Knowledge Management Framework.

Source: (Bouras et al., 2001)

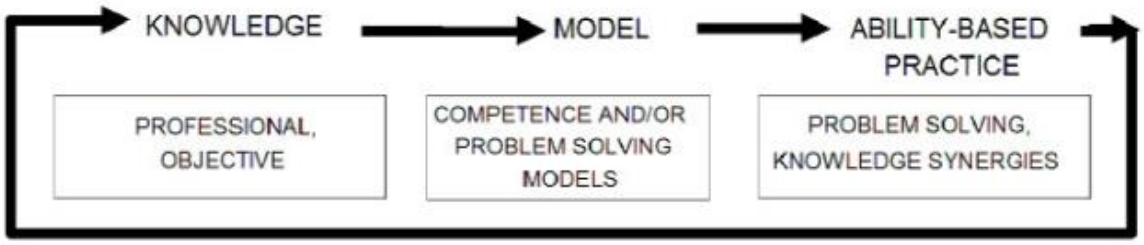


Figure 6: The Model of Knowledge Acquisition.

Source: (Kende et al., 2007)

During the design of its modules, the fundamental aspect and key to an effective e-learning framework is to clearly see and divide the educational stages constructed on top of one another (Gyorgy, Erzsebet, & Gyorgy, 2007).

This model argues that a higher institutions ability of knowledge production is the most significant issue followed by the need for a lifetime education (which is linked with Knowledge production). Lifetime education basically refers to the potential for long term success and career success for the student/learner. The authors acknowledge

the importance of knowledge transmission to modern learning because of the speedily redundant nature of knowledge. (Gyorgy, Erzsebet, & Gyorgy, 2007) propose that it is expedient to develop knowledge utilization methods that are supported with Model-like practice.

To achieve this, the authors presented diverse modules; some of which include E-pretest, conventional e-test, Knowledge-based e-tests, the e-tests online, e-tasks and the robot tutor. The robot tutor eliminated the problem of different time zones between the e-teacher and e-students that arose with the conventional e-classroom. However, the prototype robot tutor could not be available 24x7 and could only respond to the 9 questions it had been programmed to know.

CHAPTER 3

CONCEPTUAL MODEL

3.1 Knowledge Sharing Management

Knowledge Sharing is an integral factor of the knowledge creation process. Social Constructivist theory of learning states that learning occurs through social interactions.

Much of the literature suggests that no Knowledge Management Model is ultimate or universally accepted. As stated by Arvin, Akbari and Moghimnejad, many researchers have introduced and researched various models in the field of information management in order to understand and research it. Some of these models focus on the success of knowledge management, while others look at it more broadly and involve knowledge management activities. However, no consensus on a knowledge management model has yet been proposed. As a result, it is important to make use of these tools centered on the situation and related problems, as well as familiarity with the model(s) being implemented (Yılmaz, 2012).

Applying the right Knowledge Management technique (or a mix of techniques) therefore is imperative for effective E-learning.

Many studies have been conducted to present and characterize Knowledge Management techniques, such as Jordan and Jones (1997) implicit and explicit orientations. Also, (Zack, 1999) aggressive and conservative approaches, (Hansen et al., 1999) codification and personalization strategies, Hsin-Jung (2007) identified two Knowledge Management strategies: human-centered and system-centered approaches (Choi and Lee, 2002) and Nonaka and Takeuchi (1995), who defined the socialization, externalization, combination, and internalization techniques.

The combined studies of E-learning systems and Knowledge Management Systems point to a common goal: to make organizational learning easier.

Transferring knowledge is fundamentally a social activity. Understanding how people form and manage their relationships is essential for successful knowledge transfer (Raissi, 2013).

Furthermore, many researchers offered techniques for generating knowledge. (Alavi & Leidner, 2001) discuss the four basic processes of knowledge creation, storage, transfer, and application. These key operations are divided into four categories: producing internal knowledge, acquiring external knowledge, storing knowledge in documents vs routines (Teece, 1998), and updating and sharing knowledge both internally and externally.

Knowledge Sharing, Knowledge Creation, Knowledge Organization, and Knowledge Application are among the Knowledge Management processes introduced by Becerra et al. (2004). Moreover, (Turban & Aronson, 2002), citing Becerra, define knowledge management as a process that aids companies in identifying, selecting, organizing, disseminating, and transferring important information and skills.

According to Abdullah (2008), the interaction between explicit and implicit knowledge is not entirely dissimilar. This interaction is called Knowledge Conversion. The "knowledge conversion process" and the "knowledge spiral" must be built to foster knowledge creation and sharing at all levels of the community (Ubon & Kimble, 2002).

Nonaka & Takeuchi (1995) developed a knowledge management model of Knowledge Conversion and creation popularly called the SECI Model. It represents the continuous flow of information (Ba) in four (4) quadrants (Figure 6) and the Knowledge Assets. This spiral model depicts the creation and transmission of various types of knowledge. The elements of the model interact with each other in an organic and dynamic manner. This model has now become a cornerstone of knowledge creation and transfer theory. According to Lin, Lin, and Huang (2008) and Yeh, Huang, and Yeh (2011), this model, though originally intended for business organizations can easily be applied to education.

According to the SECI model, an organization's knowledge assets are mobilized and shared in 'Ba,' whilst individuals' tacit knowledge is converted and enhanced by the spiral of knowledge through Socialization, Externalization, Combination, and Internalization.

The SECI model can be used to observe E-Learning's Knowledge Sharing Management processes. The experience obtained in the continuous knowledge cycle will assist the members practicing Knowledge Management (Chow, 2014).

This model also facilitates understanding the dynamic nature of knowledge creation and efficiently managing the process of knowledge generation (Sabri, 2012).

For this reason, this SECI Model will be adopted as the method for integrating Knowledge Management and E-learning. The model proposes that organizational knowledge is created when tacit knowledge and explicit knowledge converse and interact continuously.

Although, a fifth mode is proposed by Frappaolo and Tom (1997) namely “Cognition” to account for the application of tacit knowledge to business problems and People receiving on-demand performance support by getting only the training they require at the time they require it to fulfill a business, job or task; and a sixth mode is subsequently proposed by Woelk and Agarwal (2005) namely “Feedback” to account for Assessments of how well a person has learned and applied knowledge to business, this research will adopt the original version of the SECI Model developed by Nonaka & Takeuchi (1995) because this research believes that the Internalization mode is also characterized by opportunities to test the knowledge transferred and provide feedback and application can only be seen in further studies or when the knowledge is being practiced in the work place or daily life.

Quite Importantly, the most significant aspect of the Knowledge Management process in the organization is said to be knowledge sharing and dissemination. Knowledge exchange, dissemination, and responsiveness to knowledge, according to Oxbrow (2000) and McEvily et al (2000), are the most effective ways to get a competitive advantage.

Knowledge cannot be developed, decisions cannot be made without knowledge, and innovations cannot be implemented if information is not readily exchanged.

Nonaka (1994) specifies four possible modes in the SECI model that focus on knowledge sharing through the continuous interaction of tacit and explicit knowledge. This study uses Nonaka's (1994) SECI model to analyze information sharing practices among students at Near East University, based on previous research

recommendations. The reason for this is that the Nonaka model can explain how an institution must continuously create and build up its knowledge through a process involving the sharing of explicit and implicit knowledge in order to maintain institutional competitive advantage (Lee & Choi, 2003; Lee et al., 2006).

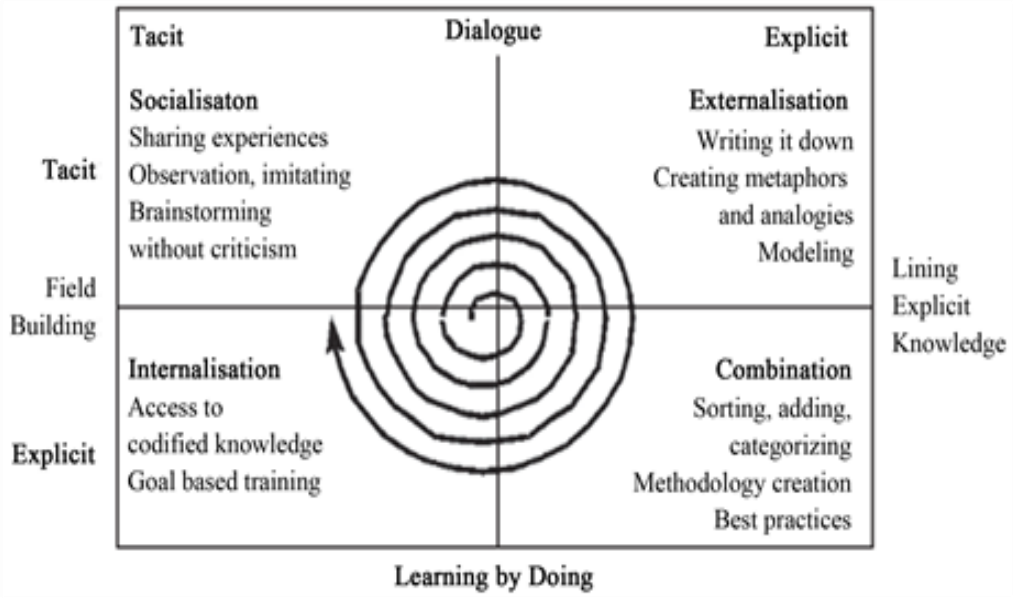


Figure 7: SECI MODEL

Source: Nonaka & Takeuchi (1995).

The Four Modes of the Model, represented by the four quadrants are:

i. Socialization: This is the process of Knowledge sharing from one person to another through discussion, shared experiences, observation, imitation, practice, and participation in formal and informal settings. This process occurs through interactions. In this mode, tacit knowledge is converted to tacit knowledge again (Yeh, Yeh, & Huang, 2011).

   The conversion of tacit information to fresh tacit knowledge through social interactions and shared experiences among organizational members is referred to as socialization (Sabri, 2012). For socialization to occur, there should be trust between the parties that are sharing knowledge usually in an informal and social environment.

In relation to e-learning, for socialization to occur, there would need to be interactions over e-learning platforms during and out of scheduled class times. This will involve video facilities, zoom/google meetings and whatsapp conversations and all interactions over social media platforms which will be stored on the e-learning tool as audio, video or text based for future reference and retrieval.

In order to improve training and stimulate interaction between tutors and learners, the training provider can also use real-time video conferencing. Furthermore, the lessons learned can be saved as text, audio, or video on the e-learning application for future reference.

This mode can be directed towards assessing how students share tacit knowledge with those who don't have it through cooperative activities, physical closeness, and/or face-to-face contact in settings such as classes, meetings, and conversations.

ii. Externalization is said to be the most difficult stage because it involves converting tacit highly internalized knowledge to explicit knowledge by writing it down, articulating, publishing, and modeling it. This process allows knowledge to be captured and shared in the absence of the owner of the knowledge (Yeh, Yeh, & Huang, 2011). In this mode, the tacit knowledge that is in people's heads/minds is deciphered into intelligible forms that can be understood by others. In E-learning, this will include the notes, videos and audio files taken from interactions. A misunderstanding/mislearning in Socialization will cause the Externalized knowledge to be faulty.

In this mode, the objective is to quantify the expression and transfer of tacit knowledge into any type of documentation or medium, such as written, audio, or video, that allows it to be shared in publicly understandable formats.

iii. Combination: In this mode, concepts articulated in 'externalization' are integrated, merged, sorted, categorized, reclassified, synthesized and organized into a knowledge system to form even more complex forms of explicit knowledge. It is a building of new explicit upon existing explicit knowledge by collecting knowledge from inside or outside the e-learning system and combining, editing, and processing them to form new knowledge. This new

knowledge is now easier to disseminate when needed. The combination involves the use of pedagogical techniques (Nonaka & Takeuchi, 1995). For example, the accumulation of knowledge from new advanced topics to the knowledge from existing introductory topics from week 1 of lecture to form the knowledge base upon which a student can be tested.

Here, the e-learning application should be able to deliver training on both existing knowledge and new innovative ideas, and learners should be able to codify and share their expertise. Trainers will be concerned with how the newly acquired knowledge will be grouped in the learner with other tiny pieces of explicit knowledge.

In this mode, the aim is to assess the conversion of explicit knowledge into more complicated sets of explicit knowledge, as well as the communication and diffusion of explicit knowledge, and the systematization of explicit knowledge through the use of a mixture of explicit knowledge elements.

iv. Internalization: is the process of encapsulating explicit knowledge into tacit knowledge. It means that a student has so owned the knowledge shared that it has now become a part of them and has modified the user's existing tacit knowledge (Nonaka & Takeuchi, 1995). In e-learning, after the knowledge had been combined and sorted, it is now practiced, tested and embodied in internalization. The learner/students/users of the e-learning system will have acquired explicit knowledge from accessing materials on the e-learning tools and will be able to transfer that knowledge and ideas into implicit knowledge, allowing them to perform actions that they were previously unable to do while also improving their current skills.

In this mode, we aim to measure the conversion of externalized knowledge into tacit knowledge. Actions, behaviors, processes, and strategic initiative that incorporate explicit knowledge. The explicit knowledge becomes part of the individual's knowledge base (e.g., mental model) and becomes an asset for the individual, which is closely tied to learning by doing.

The Knowledge Spiral

These four knowledge conversion modes are mutually complimentary and interdependent, and they shift in response to context and sequence demands. Nonaka &Takeuchi (1994) in their book state that the key to knowledge generation resides in the mobilization and conversion of tacit knowledge. They go on to discuss how the knowledge spiral works to produce organizational knowledge.

When Tacit knowledge (from teacher's mind or student's mind) completes the transformation process to Explicit knowledge and eventually back to tacit knowledge (in student's mind or teacher's mind), It will continue as a "Knowledge Spiral'. Learning depends on initiating and sustaining this spiral – It is a spiral (not a cycle) because it is continuous and dynamic and as the student "learns" around the cycle, understanding moves from deeper-to-deeper levels (Nonaka I. , 1997).

Individual thoughts or understandings provide the foundation of organizational knowledge (internalization). It then progresses upwards through Socialization, which involves individuals conversing with their teammates. The ideas are subsequently stated (externalization) and disseminated through explicit knowledge diffusion (combination). As knowledge progresses up the spiral, it becomes more broadly disseminated, and the spiral becomes wider (See Figure 8).

What happens is that the Individuals also apply and internalize the new knowledge as they get access to organizational knowledge, providing the foundation for an upgraded piece of knowledge to work its way up the spiral.

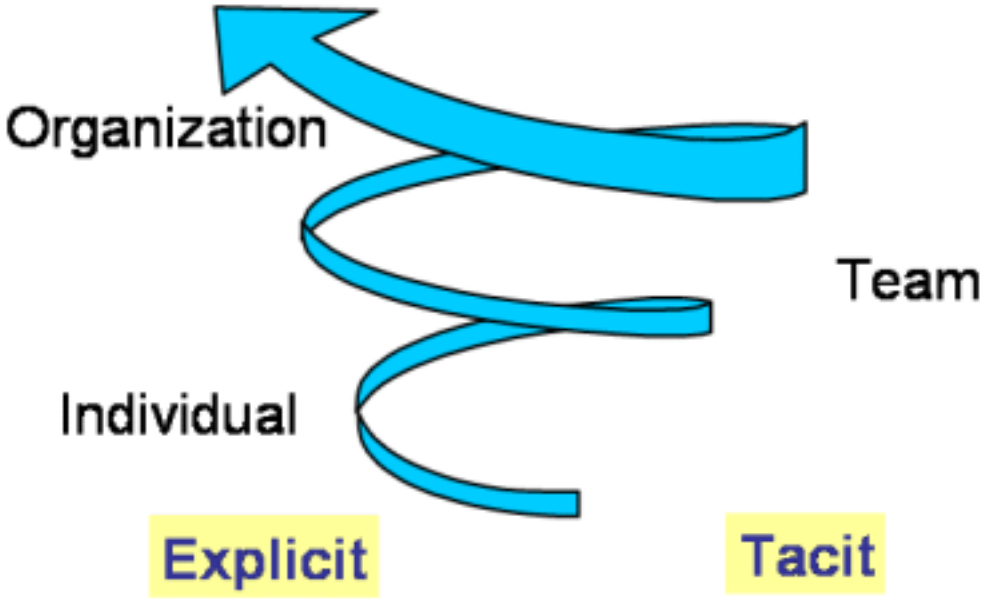


Figure 8: The Knowledge Spiral

Source: David Skyrme (2011)

In a similar research conducted by Chow (2004), a comparison was done to show the similarity between the SECI model, and the development of course work that is eventually taught to the students at Wawasan Open University, Malaysia. The researcher stated how technology had improved and accelerated the SECI Model process - by eliminating time and space and allowing 'face-to-face' Socialization (mode 1) through computer screens and mobile phones, Externalization (mode 2) through microphones, cameras, Voice recognition technology; Combination (mode 3) by editing software and hardware technologies and Internalization (mode 4) through the online exams, assessments, internet, computers and mobile devices that allow learning on eBooks and online articles (Chow, 2014). What this essentially means is that in order to develop coursework, the SECI model must be taken into consideration, The shareability of the course and increased interactions over course modules is very important.

The SECI model depicts the transformation of various types of knowledge in organizations, groups, and individuals (Gray & Densten, 2004) where various types of knowledge can be the source of others and can be expanded and developed in a spiral shape at the group, individual, and organizational levels (McAdam & McCreedy, 1999)

Knowledge is a human-based concept and so the only way new knowledge can be created is when information is shared, understood and internalized by its recipients (Creen & Kendal, 2007) and further used in creating new knowledge (Nonaka I. , Organizational Knowledge Creation, 1997). (Yılmaz, 2012) states in his research that in addition to optimizing the delivery of academic knowledge, E-learning content must be designed to provide structured and categorized information as knowledge management systems do.

The SECI knowledge generation process highlights the dynamic interaction between tacit and explicit knowledge, allowing organizations to amplify internal knowledge and transfer it into operational operations to enhance efficiency and produce value (Nonaka & Konno, 1998)

3.2 HYPOTHESIS

The study shall test the following hypotheses

H_1: Attitude toward Knowledge Sharing positively relates to Experience with E-Learning

H_2: Socialization positively relates to Experience with E-Learning

H_3: Externalization positively relates to Experience with E-Learning

H_4: Combination positively relates to Experience with E-Learning

H_5: Internalization positively relates to Experience with E-Learning

H_6: SECI positively relates to Experience with E-Learning

3.3 RESEARCH QUESTIONS

1. Is there any difference in Student's Opinions about the impact of knowledge sharing on E-learning?
2. Is there a difference in impact of gender on knowledge sharing in E-learning?
3. Is there a difference in impact of age on knowledge sharing in E-learning?
4. Is there a difference in impact of educational level on knowledge sharing in E-learning?
5. Is there any relationship between experience with e-Learning attitude towards knowledge sharing and the practice of knowledge sharing?

CHAPTER 4

METHODOLOGY

4.1 RESEARCH MODELS

This study tends to investigate the integration of E-learning systems and Knowledge Management Systems in Knowledge sharing activities in Near East University. To this end, the experience, attitude and practice of the students towards the elements of the SECI model of knowledge sharing is evaluated. As such, the research model is divided into two phases.

Phase I:

The dependent variable is the various dimensions and their corresponding items such as; Experience with e-Learning (E-LEARNING), Attitude towards knowledge sharing (ATKS), Socialization (SOC), Externalization (EXT), Combination (COM), and Internalization (INT). The independent variable includes gender, age and educational level (Figure 8).

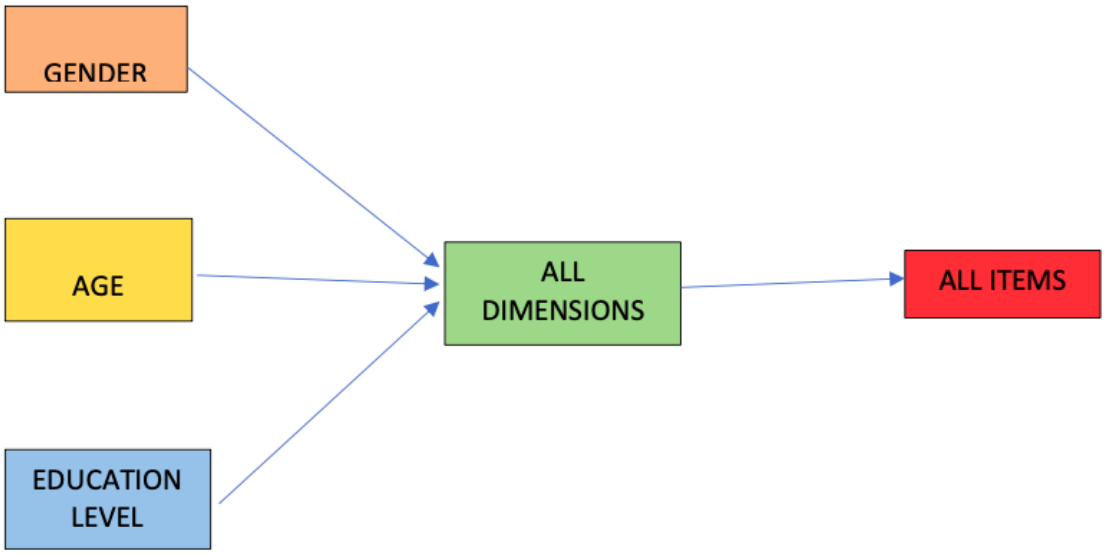


Figure 9. Research Model I

Phase II:

In order to investigate the impact of e-learning on knowledge sharing a regression model was designed (Figure 9) to test the following hypothesis. The independent variables are Attitude towards Knowledge Sharing (ATKS), Socialization (SOC), Externalization (EXT), Combination (COM) and Internalization (INT). The dependent variable is Experience with E-Learning (E-LEARNING).

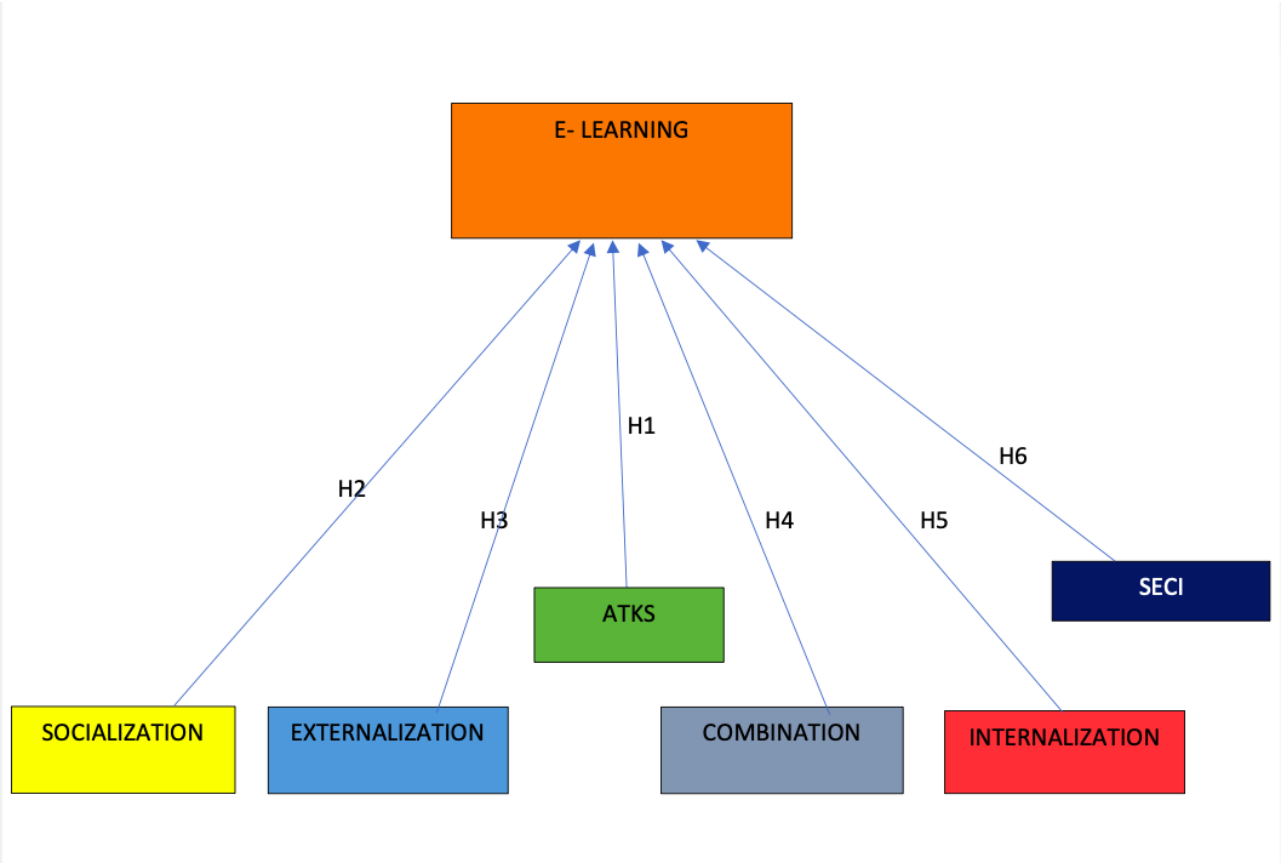


Figure 10: Research Model II

Where:

H_1: Attitude toward Knowledge Sharing positively relates to Experience with E-Learning

H_2: Socialization positively relates to Experience with E-Learning

H_3: Externalization positively relates to Experience with E-Learning

H_4: Combination positively relates to Experience with E-Learning

H_5: Internalization positively relates to Experience with E-Learning

H_6: SECI positively relates to Experience with E-Learning

4.2 RESEARCH PHILOSOPHY

The term "research philosophy" refers to a set of beliefs and assumptions about the subject of examination (Bryman, 2012). This suggests that numerous types of assumptions are made during the study, whether consciously or unconsciously. (Burrell and Morgan 2016). These assumptions include, but are not limited to, assumptions about personal experiences during the study (ontological assumptions), assumptions about human knowledge (epistemological assumptions), and the degree and manner in which personal beliefs influence the research process (axiological assumptions). These assumptions invariably influence how research questions are perceived, research methods are used, and the outcomes are analyzed and evaluated (Crotty 1998). The researcher frequently relies on "the participants' perceptions about the topic under investigation" (Creswell, 2003, p.8) and takes into account the impact of their own environment and experiences on the study.

Research Assumption- The ontological assumption of this research is that in order to integrate E-learning and Knowledge management, methods such as the SECI model are essential and that an organization with high Knowledge Sharing can be thought to have effectively integrated both factors which leads to knowledge creation.

The empirical research explores in detail the applicability of the SECI model in E-learning and knowledge management systems as well as the social constructivist theory that knowledge sharing and social interaction is the basis for knowledge formation.

4.3 RESEARCH APPROACH

This research utilised a deductive approach because it seeks to explore and explain causal relationships between variables, test hypotheses by collecting appropriate data to measure the variables and analyse them using existing literature and comparing arguments (Saunders, et al., 2019). If the results of the analysis are not consistent with the premises, the tests fail hence the theory is false and must either be rejected or modified but if the results of the analysis are consistent with the premises, the theory is validated. This approach involves the use of a highly structured methodology like

questionnaires to facilitate replication and to ensure reliability (Ketokivi and Mantere 2010; Saunders et al., 2019). It involves the use of research questions and hypothesis testing for the development of theoretical models and explanation of cause-and-effect relationships. This approach is suitable for quantitative methods as it makes use of surveys and statistical analysis which makes it very useful for this research work.

The survey involved the use of questionnaires to collect data from students of Near East University and adopted the SECI Model to explore knowledge sharing practices.

4.4 RESEARCH METHODOLOGY

The quantitative and qualitative approaches to data analysis are the most extensively utilized in research. When the goal of the research is to illustrate a phenomenon by relying on a person's experience in a specific setting, qualitative analysis is the way to go (Stake, 2010). The qualitative approach is concerned with subjective assessment of attitudes, opinions, and behaviours that is based on the researcher's insights and impressions, whereas the quantitative approach is concerned with the use of numerical data that will be subjected to extensive quantitative analysis (Kothari, 2004).

According to Creswell (2003), a quantitative approach is required when attempting to identify correlations between variables. On a philosophical level, positivists think that reality is presented objectively and that it can be assessed using parameters that are independent of the researcher and tools (Antwi & Hamza, 2015). This suggests that data is both subjective and quantitative. Positivists use scientific methods to critically evaluate the process of obtaining facts, using quantitative methods to ensure accuracy in the definition and interaction of variables. In the qualitative approach, exploratory approaches are used, whereas in the quantitative approach, a hypothesis is stated and tested with actual data to see if it is supported.

Because it uses statistical and numerical data, the quantitative approach is commonly used for data collection methodologies such as questionnaires, as well as data analysis techniques such as graphical representations and statistical methods, whereas the qualitative technique is typically used for the analysis of non-numerical data such as interviews and data categorisation (Saunders et al, 2009).

This study benefited from a quantitative approach because it employs a deductive strategy that tries to test hypotheses and explain correlations between variables (knowledge sharing management (SECI), e-learning and attitude towards knowledge sharing).

4.5 RESEARCH STRATEGY

A research strategy describes how a researcher intends to respond to the study questions. It's the link between the research philosophy and the procedures employed to gather and analyze data that follows (Denzin and Lincoln 2011).

The research strategies are mostly associated with quantitative, qualitative, and mixed methodologies study design, and may be tied to one of the research philosophies (Saunders, et al., 2016). This means that the study questions, objectives, philosophy, scope of current information, time and budget constraints, and access to potential participants and other data sources all influence the technique chosen. Qualitative research tactics include archival and documentary research, case studies, ethnography, action research, grounded theory, and narrative inquiry, whereas quantitative research strategies include experiment and survey (Saunders, et al., 2019).

For the gathering of primary data, this study used a survey strategy, which is connected with a deductive research approach. According to Check and Schutt (2012, p. 160), a survey in research is "the collecting of information from a sample of persons through their responses to questions." This enables for the use of a variety of approaches to recruit participants and collect data. This enables for the use of multiple approaches for recruiting people and collecting data, which may then be analyzed using descriptive and inferential statistics. Quantitative research strategies (e.g., using numerically rated items on questionnaires) or qualitative research strategies (e.g., utilizing open-ended questions) can be used in survey research (i.e., mixed methods). Surveys are widely utilized in social and psychological research because they are frequently used to describe and explore human behavior (Singleton and Straits, 2009).

4.6 TIME HORIZON

This research is cross-sectional, meaning it looks at a phenomenon at a specific point in time. Because experiences change over time, this type of study uses a survey technique to either explore a phenomenon or characterize the correlation of variables across a shorter period of time.

4.7 ETHICS CONSIDERATION

As shown in Appendix 2, the researcher obtained the permission of the ethics committee prior to data collections. Furthermore, throughout the course of the research, ethics remained a top priority for this research. Respondents were informed of their rights to pull out of the research and shielded from any form of risk including embarrassment, pain, physical or mental harm or any other material disadvantage. Questionnaires and responses were handled solely by the researcher and privacy of participants was respected.

Before taking part in the survey, respondents were told of the study's goals and objectives, as well as the fact that all data collected would be kept private and participants would stay anonymous. Moreover, no personal information (asides demographics) was necessary or collected for the cause of this research. Confidentiality and anonymity are vital when gaining access to an organization or respondents, and they are also important while collecting and analyzing data using quantitative and qualitative research methodologies.

The information gathered was exported from Google Forms, encrypted in Microsoft Excel, and kept on Google Drive with two-factor authentication turned on. Participants had to students of the university and had the mental capacity to participate in the research, as judged by their ability to complete responsibilities in their respective courses.

4.8 SAMPLE AND SAMPLING TECHNIQUES

The sample of this research was drawn from the population of all 27,000 students of Near East University (Undergraduate, Graduate and Postgraduate levels).

The sample size was determined by a desire to pick a sample that truly reflects the population. The required sample size in order to achieve a 95% confidence level and 4% confidence interval (margin of error) is 467 responses. The implication of this is that the larger the sample size, the higher the confidence that the responses reflect the population.

The total sample size was 554 respondents will 484 valid responses to the questionnaire. The response rate is 2.05%.

To recruit participants for this study, Snow-ball sampling, a non-probability sample technique. This technique refers to a convenience sampling equipment that is used to gather samples from a population where a standard sampling approach is either impracticable (hard-to-reach populations with no operable sampling frame) or prohibitively expensive (exorbitantly expensive populations). Participants volunteer to be a part of the study rather than being chosen in this respondent-driven sampling method (Saunders, et al., 2019). This method generates a study sample by making referrals among people who share or know of others who share the characteristics of interest to the researcher (Biernacki & Waldorf, 1981). Researchers can make unbiased estimations of their target population using this sampling technique (Baker et al., 2013). The method used to acquire data for this study was non-probability snowball sampling.

The researcher involved course mates from various course groups over time spent at the university (the first chain of volunteers), the use of social media channels that were of interest to Near East University students and emails of Near East students to amass at total of 554 responses and 484 valid responses deemed relevant for the study based on completed questionnaire. Respondents were greatly encouraged to refer others to also respond to the survey which constituted the second chain of volunteers.

4.9 VALIDITY AND RELIABILITY

In research, reliability relates to a measure's consistency (Heale and Twycross, 2015). The various types of reliability have an impact on the instrument's overall reliability and, as a result, the data obtained. Validity necessitates the presence of reliability. A

valid measure must also be dependable. It is conceivable to have a reliable measure that is not valid.

The score for the Cronbach's Alpha test was .925 (and .937 on standardized items) after excluding 4 items which were stringed questions and questions concerning Demographics. Results range from 0-1 and the larger the coefficient value the higher the consistency of the questions.

The degree to which an idea is accurately measured is referred to as validity (Heale and Twycross, 2015). The degree of certainty that observed results in an experiment are genuinely the product of the experimental treatment or condition is referred to as internal validity. External validity, on the other hand, is concerned with the extent to which research findings can be applied to different situations. The results of this research depict the responses of a 95% confidence level and 4% margin of error and therefore can be said to represent the total population of Near East University Students. The reliability statistics is seen in Table 3 Reliability Statistic.

Table 3: Reliability Statistics

Dimensions	**Cronbach's Alpha Reliability**
E-LEARNING	.833
ATKS	.761
SOC	.714
EXT	.895
COM	.844
INT	.875
Total	**.925**

4.10 DATA COLLECTION

For the purposes of this study, a single data collection method was used. For the research, this strategy entails using a single data gathering and analysis method

(Saunders, et al., 2019). In order to acquire empirical data from participants over the internet, this study used a web-based self-completed questionnaire generated on Google Forms. This method was chosen because the study uses a deductive approach and a questionnaire that is cost-effective, easy to complete, allows for broader geographic coverage, and is the best data collection tool for a survey (Saunders et al., 2019). Furthermore, considering the pandemic, this was the safest method.

In addition, the questionnaire allows for the collection of a huge amount of data, resulting in a more reliable outcome for the study. The questionnaires were delivered by a hyperlink to a chain of responders using social media platforms (WhatsApp, Facebook, and LinkedIn).

The volunteer respondents directly received the hyperlink from the researcher and were urged to recruit 2-3 other respondents from their other Near East connections as well as encourage them to do same. By the end of 5 weeks, 554 responses were received and 484 were answered appropriately.

4.13 THE QUESTIONNAIRE (Appendix 1)

The Questionnaire comprised 4 main sections with 30 questions. Section 1 focused on demographic profile of the respondents.

Section 2 held information on the respondents' experience with e-learning platforms.

Section 3 tested the attitude of students towards knowledge sharing. Section 4 evaluated the practice of knowledge sharing using the SECI model. Question in section 1 were string questions which were later carefully coded. All other questions in section 2,3 and 4 used the 5-point Likert scale to evaluate levels of experience with e-learning, attitude towards knowledge sharing and the practice of knowledge sharing. The information gathered in these sections (2,3,4) will be analyzed using descriptive statistics to determine the level of agreement of knowledge sharing practice, with a higher mean value indicating a higher level of practice. Aside from that, this study compared the practice of knowledge sharing among various groups based on the respondents' demographic level (i.e., education level, age and gender).

4.14 DATA ANALYSIS PLAN

The survey on Google Forms was designed by the researcher and adapted from (Sabri, 2012), (Muhire, 2012) and (Biasutti, 2012). The aim of the survey was to evaluate students' experience with E-Learning in Near East, attitude towards knowledge sharing and the practice of knowledge sharing (i.e., SECI Model) in Near East University.

The survey categorized respondents based on their age, gender and level of education. This highlights the generational differences in expectations and perceptions as posited by (Chi, et al., 2013).

Although Google Analytics provided a graphical depiction of replies in the form of pie charts and histograms, the researcher utilized Microsoft Excel and SPSS software to conduct a more in-depth study of the responses in order to verify the hypothesis in the research, which required data coding.

Descriptive analysis was used to represent the data, independent t-test was used to measure the impact of gender, on knowledge sharing, experience with E-learning and attitude towards knowledge sharing; one-way ANOVA was used to measure the impact of Age and Education level on the factors and Linear regression also known as regression analysis were used to indicate the importance of each independent variable towards the dependent variables and to test all hypothesis to understand the relationship of SECI process, Attitude towards Knowledge Sharing and E-learning.

The principal variable in this study is Experience with E-Learning and the predictors of this are the attitude towards knowledge sharing, practice of Knowledge Sharing (SECI), and in the attitude of students towards the SECI process.

The predicting variables are obtained from average perception scores of the questionnaire items and it is used as the dependent variables in the statistical analysis.

CHAPTER 5

RESULTS AND DISCUSSION

5.1 Demographics:

Totally, 554 students accepted the questionnaire and only 484 students filled the asked questions properly. The demographic result of the survey shows that of the 484 respondents, 45.5% were female and 54.5% were male. The age groups were 68.2% students with the age less than 29, 22.5% with age 30-39, 6.2% with age 40-49, 3.1% with age greater than 50.

The Educational Level of respondents shows 11.2% diploma students, 55.8% Bachelor Students, 27.3% Masters students, 5.8% Doctorate Students (Table 4).

Table 4: Demographic Data of Participants (N=484)

Characteristics	Frequency	%
Gender		
Male	264	54.5
Female	220	45.5
Age		
18-29	330	68.2
30-39	109	22.5
40-49	30	6.2

50+	15	3.1
Education Level		
Diploma	54	11.2
BSc	270	55.8
MSc	132	27.3
PhD	28	5.8

5.2. Students Opinion About Experience With E-Learning

Below in table 5, the mean score of Students Experience with E-Learning is 4.1335 while the standard deviation is 0.78995. Based on these results, the students of Near East University can be said to have high experience with e-learning.

Table 5: Average Experience with E-Learning

EXPERIENCE WITH E-LEARNING	MEAN	SD
1. I am able to enhance my knowledge and skills using e-learning tool	4.35	.905
2. The knowledge that I acquire from e-learning tools is effective in helping me complete tasks	4.29	.880
3. I believe that the organization of lesson and content on an e-learning system must be clear to help me learn	4.47	.830
4. I can learn more using e-learning than reading books or other online resources	3.86	1.133
5. *I can learn more using e-learning than with traditional class room and instructor techniques.*	3.70	1.278
TOTAL	4.1335	.78955

5.3 Average Attitudes of Students Towards Knowledge Sharing

Table 6 depicts that the mean score for the attitude of students towards Knowledge Sharing is 4.063 while the standard deviation is 0.874. Based on these results, it can be said that the students have positive attitude towards knowledge sharing.

Table 6: Average Attitude towards Knowledge Sharing

ATTITUDE TOWARDS KNOWLEDGE SHARING	MEAN	SD
1. I consider knowledge sharing as important to my personal knowledge development.	4.57	.706
2. I consider knowledge sharing as important to my organization knowledge growth	4.48	.781
3. I am willing to share information that I have with my colleagues.	4.52	.771
4. I am willing to share my lecture notes, power point slides and other resources with my colleagues	4.50	.779
5. My colleagues are willing to share information they have with me	4.12	.979
6. I am willing to participate in knowledge sharing activities	4.53	.729
7. Knowledge sharing activities will cause me to lose my knowledge	1.67	1.242
8. Many activities are organized in my organization to facilitate knowledge sharing activities	4.12	1.011

TOTAL	4.0628	.54563

5.4 The Practice of Knowledge Sharing

5.4.1 Socialization

Socialization refers to interactions that allow the conversion of tacit knowledge to tacit knowledge through shared experiences. In socialization, we measure the sharing of tacit knowledge by students with other people who do not have the knowledge through joint activities and communication in online classrooms, meetings and discussion panels.

The mean score is 3.785 and the standard deviation is .59369. Based on the mean, we can deduce that Socialization is moderately practiced by majority of the respondents. The standard deviation value also indicated that the score is close to the mean and the respondents agree that they have practiced the conversion of tacit-to-tacit knowledge. Table 7 shows the average descriptive statistics for items under the Socialization Variable.

Table 7: Average Agreement of Socialization

SOCIALIZATION	MEAN	SD
1. I keep my Knowledge and Experience only for my personal use	2.05	1.422
2. I participate in knowledge sharing activities conducted outside my organization	4.22	.947
3. I share information with my peers	4.40	.835
4. I support sharing information with others by the use of technological tools	4.47	.835
TOTAL	3.7862	.59369

5.4.2 Externalization

Externalization is the conversion of tacit knowledge to explicit knowledge. For this study, externalization was measured by the expression of tacit knowledge into any documented form e.g., written, video, audio which made it possible for students to communicate it for public comprehension. Measured by question 23-25 in the questionnaire, table 4.20 shows the descriptive statistics for items under the externalization variable.

The mean score is 4.1281 and the standard deviation is .91262. Based on the mean, we construe that Externalization is highly practiced by the amongst students of Near East University. The Standard Deviation tells us that the score is close to the mean value and on average, and majority of the students agree that they have practiced the conversion of tacit to explicit knowledge (Table 8).

Table 8: Average Agreement of Externalization

EXTERNALIZATION	MEAN	SD
1. I document my knowledge and experience so that my colleagues can learn from it	4.16	.978
2. I record my ideas so that my colleagues can learn from it	4.07	1.055
3. I document all my best practices and share them with my colleagues	4.15	.976
TOTAL	4.1281	.91262

5.4.3. Combination

Combination refers to conversion of knowledge from explicit into more complex forms of explicit knowledge. This is characterized by the ability to communicate,

disseminate and systemize explicit knowledge and combine various elements of explicit knowledge. Variables measuring combination can be seen in questions 26-28 in the questionnaire. Table 9 shows the descriptive statistic for items under combination variable. It indicates that Combination is highly practiced based on the mean of 4.2555 and the standard deviation of 0.79228. We can infer from that on average, the students agree that they have practiced the conversion of explicit-to-explicit knowledge.

Table 9: Average Agreement of Combination

COMBINATION	MEAN	SD
1. I categorize new information in an organized way	4.17	.982
2. I am able to relate new information to previous knowledge	4.37	.807
3. I update my knowledge repertoire consistently	4.23	.924
TOTAL	4.2555	.79228

5.4.4 Internalization

Internalization is the conversion of explicit knowledge to tacit knowledge. This is when the individual has embodied the explicit knowledge and converts them to actions, practices and processes. Sometimes referred to as learning by doing, the explicit knowledge becomes part of the individual's knowledge base (e.g., mental model) and thus an asset for the individual and future connections. The questions that addressed Internalization in the questionnaire are 29-32. The mean is 4.4075 which shows that Internalization is highly practiced amongst students and the Standard deviation of 0.71681 shows that the score is close to the mean value and on average, the students agree that they have practiced the conversion of explicit

to tacit knowledge. Table 10 shows the result of student's responses to these questions.

Table 10: Average Agreement of Internalization

INTERNALIZATION	MEAN	SD
1. I learnt from other people's experience when I talk to and listen to their stories	4.50	.792
2. I develop new ideas	4.35	.877
3. I developed new concepts	4.32	.852
TOTAL	4.4075	.71681

5.5 Impact of Gender on Knowledge Sharing in E-Learning

In order to understand the perception of students with respect to Gender on E-learning, Attitude toward knowledge sharing and the Practice of knowledge sharing (SECI), independent t-test was employed. According to table 11, statically significant differences ($p<0.05$) only existed with respect to Externalization (EXT) where $P=0.00$, while there are no statistical differences among E-learning ($p=0.86$), Attitude towards knowledge sharing ($p=0.39$), Socialization ($p=0.81$), Combination ($p= 0.08$) and Internalization ($p=0.89$). The variable with the highest p-value is Internalization.

What this means is that gender has no significant effect on Attitude Towards Knowledge Sharing, Socialization, Combination and Internalization; but gender has an effect (positive) on Externalization.

Cuadrado-García et al (2010) stated that differences in the use of e-learning depending on Gender do not exist. Previous research also states that in general, there

are no substantial differences between males and females in terms of average participation, grade, motivation, or satisfaction using e-learning platforms. Where differences may occur is in the use of certain e-learning resources by one gender more than the other.

According to Liu (2011), Gender has been linked to status, as well as a difference in social power expectations for males and females, which in turn affects knowledge sharing behaviors. Males and females have different perceptions of respect, influence, and prominence, which could influence their group sharing behaviors and attitudes. However, apart from a moderating effect, no evidence was found for gender playing any role in Knowledge Sharing practice (characterized by Performance of Knowledge management or Attitude towards knowledge sharing (characterized by Intention to involve in Knowledge Management).

Table 11: Differences between Genders

Parameters	Gender	N	Mean	SD	Mean Difference	t	P
E-LEARNING	Male	264	4.14	0.83	0.01	0.181	0.86
	Female	220	4.13	0.74			
ATKS	Male	264	4.08	0.59	0.04	0.867	0.39
	Female	220	4.04	0.48			
SOC	Male	264	3.78	0.61	-0.01	-0.237	0.81
	Female	220	3.79	0.57			
EXT	Male	264	4.24	0.89	**0.24**	**2.942**	**0.00***
	Female	220	4.00	0.92			
COM	Male	264	4.31	0.80	0.13	1.757	0.08
	Female	220	4.19	0.78			
INT	Male	264	4.40	0.78	-0.01	-0.139	0.89

Female	220	4.41	0.63

Where; Experience with E-Learning (E-LEARNING); Attitude Towards Knowledge Sharing (ATKS); Socialization (SOC); Externalization (EXT); Combination (COM); Internalization (INT): Total sampled population (N); Standard Deviation (SD) and * means $p<0.05$ (there exist statistically significant difference)

5.6. Impact Of Age on Knowledge Sharing In E-Learning

In order to understand the perception of students with respect to Age on E-learning, Attitude toward knowledge sharing and the Practice of knowledge sharing (SECI), one-way ANOVA was employed because the variables are more than two. According to table 12, statically significant differences ($p<0.05$) only existed with respect to Combination (COM) where $p=0.020$, while there are no statistical differences among other dimensions. Namely, E-Learning (0.107), ATKS (0.658), SOC (0.755), EXT (0.088) and INT (0.510). The variable with the highest p-value is Socialization.

What this means is that age has no significant effect on Attitude Towards Knowledge Sharing, Socialization, Combination and Internalization; but gender has an effect (positive) on Combination.

Fleming, Becker and Newton (2017), in their research titled “Factors for successful e-learning -does age matter?” state that the study's findings reveal that, contrary to popular belief, age has no bearing on use, future intentions or satisfaction with e-learning. Another study stated that while preferences of e-learning teaching methods may be affected by age (e.g., synchronous vs asynchronous vs hybrid), age does not affect the ease of use or experience with e-learning (Simonds & Brock, 2014). According to Osman et. al (2018) factors that may affect e-learning are the quality of the system, service, content, the perspective of the learner, attitudes of the instructor, and supportive issues.

(Lazazzara & Za, 2020) state that Employees age with a perception of themselves to be older than they actually are experience lower explicit Knowledge Sharing in the

public sector. (Burmeister & Deller, 2018) found that the age of one's colleague had a positive effect on one's knowledge receiving behavior and a negative effect on one's knowledge sharing behavior.

Table 12: Differences between Ages

GROUP	Age	N	Mean	SD	Mean Square	F	p
E-LEARNING	18-29	330	4.09	0.83	1.267	2.046	0.107
	30-39	109	4.28	0.64			
	40-49	30	4.21	0.82			
	50+	15	3.93	0.72			
	Total	484	4.13	0.79			
ATKS	18-20	330	4.05	0.56	0.160	0.535	0.658
	21-23	109	4.10	0.47			
	24-26	30	4.06	0.69			
	27+	15	4.19	0.44			
	Total	484	4.06	0.55			
SOC	18-20	330	3.78	0.59	0.140	0.397	0.755
	21-23	109	3.81	0.56			
	24-26	30	3.73	0.81			
	27+	15	3.92	0.39			
	Total	484	3.79	0.59			
EXT	18-20	330	4.07	0.95	1.812	2.192	0.088
	21-23	109	4.19	0.83			
	24-26	30	4.28	0.89			

	27+	15	4.60	0.46			
	Total	484	4.13	0.91			
COM	18-20	330	4.18	0.83	**2.056**	**3.323**	**.020***
	21-23	109	4.39	0.67			
	24-26	30	4.34	0.86			
	27+	15	4.64	0.39			
	Total	484	4.26	0.79			
INT	18-20	330	4.38	0.73	0.798	1.975	0.510
	21-23	109	4.46	0.67			
	24-26	30	4.38	0.84			
	27+	15	4.62	0.42			
	Total	484	4.41	0.72			

Where; Experience with E-Learning (E-LEARNING); Attitude Towards Knowledge Sharing (ATKS); Socialization (SOC); Externalization (EXT); Combination (COM); Internalization (INT): Total sampled population (N); Standard Deviation (SD) and * means $p<0.05$ (there exist statistically significant difference)

5.7. Impact of Educational Level on Knowledge Sharing in E-Learning

In order to understand the perceptions of students with respect to Education level on Experience with E-learning, Attitude toward knowledge sharing and the Practice of knowledge sharing, one-way ANOVA was employed. According to table 13, statically significant differences ($p<0.05$) only existed with respect to Externalization (EXT) where $p=0.024$, while there are no statistical differences among E-Learning (0.086), ATKS (0.86), SOC (0.293), COM (0.269), INT (0.660). The variable with the highest p-value is 0.86.

What this means is that Educational Level has no significant effect on Attitude Towards Knowledge Sharing, Socialization, Combination and Internalization; but gender has an effect (positive) on Externalization.

The findings of (Faith & Seeam, 2018) decisively show that incentives, attitudes, and individual expectations are critical variables in motivating students and academics to participate in knowledge sharing activities, as well as that knowledge sharing is a critical aspect in academic institutions' performance. They state that knowledge sharing among different education levels is influenced by preference of learning technique, understanding the importance of sharing to the learning process, receiving feedback, reciprocation and trust are demonstrated as boosters of knowledge sharing among students and as a motivator for individual pupils to participate.

In similar research conducted with University Lecturers, (Sabri, 2012) indicated that there is no significant difference between education level groups in knowledge sharing practice. According to (Ngampornchai & Adams, 2016), there exists no relationships between the experience using E-learning and age, school year, self-regulation, or the number of online courses taken.

Table 13: Differences between Educational level

GROUP	Age	N	Mean	SD	Mean Square	F	p
E-LEARNING	Diploma	54	4.25	0.65	1.370	2.214	0.086
	BSc	270	4.06	0.86			
	MSc	132	4.19	0.70			
	PhD	28	4.36	0.65			
	Total	484	4.13	0.79			
ATKS	Diploma	54	3.97	0.55	0.653	2.210	0.86
	BSc	270	4.03	0.59			
	MSc	132	4.15	0.46			

	PhD	28	4.13	0.38			
	Total	484	4.06	0.55			
	Diploma	54	3.75	0.60			
	BSc	270	3.75	0.59			
SOC	MSc	132	3.84	0.58	0.438	1.244	0.293
	PhD	28	3.94	0.64			
	Total	484	3.79	0.59			
	Diploma	54	4.02	1.07			
	BSc	270	4.07	0.89			
EXT	MSc	132	4.19	0.92	**2.617**	**3.185**	**0.024***
	PhD	28	4.58	0.60			
	Total	484	4.13	0.91			
	Diploma	54	4.31	0.76			
	BSc	270	4.20	0.81			
COM	MSc	132	4.31	0.78	0.824	1.315	0.269
	PhD	28	4.45	0.72			
	Total	484	4.26	0.79			
	Diploma	54	4.37	0.68			
	BSc	270	4.39	0.72			
INT	MSc	132	4.47	0.72	0.274	0.533	0.660
	PhD	28	4.36	0.74			
	Total	484	4.41	0.72			

Where; Experience with E-Learning (E-LEARNING); Attitude Towards Knowledge Sharing (ATKS); Socialization (SOC); Externalization (EXT); Combination (COM);

Internalization (INT): Total sampled population (N); Standard Deviation (SD) and * means p<0.05 (there exist statistically significant difference)

5.8. Relationship Between Experience With E-Learning, Attitude Towards Knowledge Sharing and The Practice of Knowledge Sharing

For a better understanding of the relationship between experience with e-Learning, attitude towards knowledge sharing and the practice of knowledge sharing, Pearson correlation analyses were also employed (Table 14). From ANOVA result as seen in Table 15, the F-value for the analysis is 39.246 and the is statistically significant (typically $p < .05$), the model explains a significant amount of variance in the outcome variable. Furthermore, from Table 16, the regression beta coefficients result from the analysis shows that ATKS (t-value = 3.931; $p < 0.05$), SOC (t-value = 2.036; $p < 0.05$), EXT (t-value = 2.018; $p < 0.05$), COM (t-value = 1.974; $p < 0.05$), and SECI (t-value = 1.337; $p < 0.05$) beta coefficients are positive and t-values are all statistically significant ($p < 0.05$). This shows that, where the beta coefficient is positive, the interpretation is that for every 1-unit increase in the predictor variable, the outcome variable will increase by the beta. However, for INT (t-value = -.085; $p > 0.05$), the beta coefficient is negative that means for every 1-unit increase in the predictor variable, the outcome variable will decrease by the beta coefficient value.

a) Testing the first hypothesis, H_1: Attitude toward Knowledge Sharing positively relates to Experience with E-Learning.

   The overall model is significant with P value = 0.000. A moderately strong positive correlation existed between experience with e-Learning and attitude towards knowledge sharing (r = 0.488). Hence, H1 is accepted. The result states that experience with e-Learning positively relates to attitude towards knowledge sharing.

b) Testing the second hypothesis, H_2: Socialization positively relates to Experience with E-Learning.

   The overall model is significant with P value = 0.000. A moderately strong positive correlation existed between experience with e-Learning and Socialization (r = 0.417). Hence, H2 is accepted. The result states that

experience with e-Learning positively relates to Socialization with regards to knowledge sharing in E-learning.

c) Testing the third hypothesis, H_3: Externalization positively relates to Experience with E-Learning.

   The overall model is significant with P value = 0.000. A moderately strong positive correlation existed between experience with e-Learning and Externalization (r = 0.407). Hence, H3 is accepted. The result states that experience with e-Learning positively relates to Externalization with regards to knowledge sharing in E-learning.

d) Testing the fourth hypothesis, H_4: Combination positively relates to Experience with E-Learning.

   The overall model is significant with P value = 0.000. A moderately strong positive correlation existed between experience with e-Learning and Combination (r = 0.477). Hence, H4 is accepted. The result states that experience with e-Learning positively relates to Combination with regards to knowledge sharing in E-learning.

e) Testing the fifth hypothesis, H_5: Internalization positively relates to Experience with E-Learning.

   The overall model is significant with P value = 0.000. A moderately strong positive correlation existed between experience with e-Learning and Internalization (r = 0.421). Hence, H5 is accepted. The result states that experience with e-Learning positively relates to Internalization with regards to knowledge sharing in E-learning.

f) Testing hypothesis, H_6: SECI positively relates with Experience with E-Learning.

   The overall model is significant with P value = 0.000 indicating a moderately strong positive correlation between experience with e-Learning and SECI (r = 0.509). Hence, H6 is accepted. The result states that experience with e-Learning positively relates to SECI with regards to knowledge sharing in remote learning.

Table 14: Regression Analysis Table showing the relationship between experience with e-learning, attitude towards knowledge sharing and the practice of knowledge sharing.

		E-LEARNING	ATKS	SOC	EXT	COM	INT	SECI
E-LEARNING	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	484						
ATKS	Pearson Correlation	0.488	1					
	Sig. (2-tailed)	0.000*						
	N	484	484					
SOC	Pearson Correlation	0.417	0.577	1				
	Sig. (2-tailed)	0.000*	0.000*					
	N	484	484	484				
EXT	Pearson Correlation	0.407	0.652	0.531	1			
	Sig. (2-tailed)	0.000*	0.000*	0.000*				
	N	484	484	484	484			
COM	Pearson Correlation	0.477	0.685	0.542	0.699	1		
	Sig. (2-tailed)	0.000*	0.000*	0.000*	0.000*			
	N	484	484	484	484	484		
INT	Pearson Correlation	0.421	0.666	0.551	0.578	0.755	1	
	Sig. (2-tailed)	0.000*	0.000*	0.000*	0.000*	0.000*		
	N	484	484	484	484	484	484	
SECI	Pearson Correlation	0.509	0.768	0.746	0.861	0.899	0.850	1
	Sig. (2-tailed)	0.000*	0.000*	0.000*	0.000*	0.000*	0.000*	
	N	484	484	484	484	484	484	484

Where; Experience with E-Learning (E-LEARNING); Attitude Towards Knowledge Sharing (ATKS); Socialization (SOC); Externalization (EXT); Combination (COM); Internalization (INT): Total sampled population (N); Standard Deviation (SD) and *. Correlation is significant at the 0.05 level (2-tailed).

Table 15: ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	87.633	6	17.527	39.246	.000[b]
	Residual	213.465	478	.447		
	Total	301.098	483			

a. Dependent Variable: ELEARNING

b. Predictors: (Constant), SECI, SOC, ATKS, INT, COM

Table 16: Beta Coefficients

Beta Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.972	.247		3.944	.000
	ATKS	.342	.087	.237	3.931	.000
	SOC	.182	.089	.137	2.036	.042
	EXT	.175	.081	.131	2.018	.041
	COM	.196	.099	.196	1.974	.049
	INT	-.007	.084	-.006	-.085	.933
	SECI	.167	.200	.054	1.337	.037

[a] Dependent Variable: E-LEARNING

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Summary of Findings

The aim of this research was to explore the integration of E-learning systems and Knowledge Management Systems in Knowledge sharing activities in Near East University. Thus, the experience, attitude and practice of the students towards the elements of the SECI model of knowledge sharing were investigated. The four processes of SECI (Socialization, Externalization, Combination and Internalization) and factors of E-Learning and Attitude towards Knowledge Sharing were considered in this study. Integrated scales were developed to measure the research variables in the education sector based on the literature review. The study used Quantitative data to investigate the research questions. All hypotheses were accepted because all hypotheses presented a moderately strong positive correlation. The major findings of the study are:

i. Students of Near East University appear to have high positive experience with E-learning. There appeared to be no significant difference (i.e., impact on the experience with e-learning) with respect to Gender, Age or Educational Level.
ii. Students of Near East University have a high positive attitude towards sharing knowledge. No statistically significant difference between the respondents according to demographic groups (gender, age and Education level) regarding the attitude to knowledge sharing.

    All SECI processes are highly practiced in Near East University:

iii. Students of Near East University show a moderate positive practice of Socialization. However, Socialization shows no difference with respect to age, gender and educational level.

iv. Students of Near East University have high positive practice of Externalization. Externalization also shows statistical difference across all other demographic groups (gender and education level) except for where age is concerned.

v. Students of Near East University have high positive practice of Combination. There existed no significant difference with gender and education level but difference was found with age.

vi. Students of Near East University have high positive practice of Internalization. There was no significant difference with all demographic groups and Internalization presented the highest level of agreement of positive practice.

vii. The study found that Experience with E-Learning positively relates with Attitude towards Knowledge Sharing, Socialization, Externalization, Combination and Internalization.

6.2 Theoretical and Practical Implications

The findings of the study have a number of consequences for both theory and practice. The theoretical consequences imply ideas that add to the SECI model's increasing discussion. The practical implications provide more specific advice for educational institutes, notably Near East University, to make better use of the SECI paradigm.

6.2.1 Theoretical Implications

By establishing the following points, this study contributes to the literature debate on the theoretical framework of the SECI model, its universal applicability, and its effect on student sharing, e-learning:

1. The research shows that a positive experience with E-learning correlates with a positive attitude towards knowledge sharing, socialization, externalization, combination and internalization. Actions towards improving the experience of students with e-learning systems will therefore improve the sharing of information amongst students. The SECI Model will benefit from its integration with E-Learning and opening new avenues for collaboration.

2. Since the research showed that only Socialization presented a moderately positive practice status, and based on the literature reviewed, some of the hinderances to knowledge sharing include a lack of trust, lack of openness and lack of good relationship with one's colleagues or in this case, fellow students. The research suggests actions to 'break the ice' and encourage trust among students to enhance knowledge sharing and collaboration.

3. Future more, for the corporate world, this research can be applied in the Human Resource Department of an organization. The encouragement of Knowledge sharing is very important for the success of any business venture and so, the Human Resource Department may wish to apply the findings of this research to the knowledge sharing practices of the organization.

6.2.2 Practical Implications

To the best knowledge of the author, this study is a detailed investigation of the use of the SECI model in the education sector in general, and in Near East University in particular.

Based on this context, the study provides some suggestions for Near East University to manage knowledge more effectively and maximize e-learning systems.

1. Knowledge sharing avenues should be created for the students to collaborate. Example of such activities include group projects, social gatherings and informal discussions. This act will foster trust among the students and encourage interaction which will lead to higher Sharing practices. A greater support for informal discussions between students is greatly advised. This also assists with the low regard towards socialization.

2. Offering rewards and recognition for knowledge sharing can serve as student motivation. This reduces the effect of time of learning.

3. E-learning systems should facilitate group and personal interactions to allow students access to one another and to the teacher. This will enhance knowledge sharing.

6.3 Limitations

The study is designed to perform analysis with a cross-sectional data. Hence, it is limited to examine the effect of e-learning on Knowledge Sharing over an investigated period. In addition, it is limited to collect objective performance because of confidentiality factor in Near East University.

The study was restricted by time and cost, which limited the cover of any changes after August 2021. Time and cost restrictions limited the researcher to conduct comparisons between Near East University and other universities in Cyprus or Universities in other continents or even with other institutions.

6.4 Recommendations

There are a few more categories to look into if you want to do further research. It is proposed that qualitative methods be used to supplement quantitative results because qualitative methods can acquire more detailed information from individuals. Another idea is to investigate the impact of the SECI process on many aspects of the education industry, such as innovation, organizational learning, and so on, in order to broaden the scope of the SECI process across multiple dimensions in E-learning.

The online learning community will certainly grow in size as e-teaching and e-learning become more popular. The topic of this study is unquestionably fascinating and significant, as knowledge management would improve teaching and learning processes in online distant education. More work is required, despite the fact that it is plainly intriguing and significant. We need to investigate the issues with online distance

education using real-life case studies, learn more about KM tools and methodologies, and evaluate the findings.

Recommendation for the Management of Near East University: Near East School will benefit from this study by paying attention to the Socialization Mode (since the lowest level of agreement was found here) and encouraging the starting of sharing of knowledge.

- E-Learning systems at Near East can be frequently updated with the aid of student's perception to encourage sharing.
- Students can be rewarded or recognized for knowledge sharing.

6.5 For Future Research

This study can be done with students of high school to determine if there are any differences in the knowledge sharing practices and E-Learning experiences there.

Another recommendation for future studies is for this study to be carried out with students of traditional/in-person learning system as opposed to e-learning systems.

REFERENCES

Davenport, T. H. (1994). Saving IT's Soul: Human Centered Information Management. *Harvard Business Review*, 119-131.

Druker, P. F. (1993). *Post-Capitalist Society.* New York: Harper Business.

Brown, J. S., & Duguid, P. (2000). *The Social Life of Information.* Boston, MA: Harvard Business Press School.

Andreas, S. (2005). *Bridging the Gap between Knowledge Management and E-Learning with Context-Aware Corporate Learning.*

Ernest, P. (1999). *Social Constructivism as a Philosophy of Mathematics: Radical Constructivism.* Albany, NY: State University of New York Press.

McMahon, M. (1997). Social Constructivism and the World Wide Web - A Paradigm for Learning. *ASCILITE conference.* Perth, Australia.

Chow, T. P. (2014). Open Distance Learning and Knowledge Management. *Advancing Open and Distance Learning: Research and Practices*.

Newstrom, J. (2006). *Organizational Behavior- Human Behavior at Work.* New York: McGraw-Hill Education.

Jui Pattnayak, S. P. (2017). Knowledge Management in E-Learning A Critical Analysis. *International Journal of Engineering And Computer Science*, 21528-21533.

Akhavan, P., & Jafari, M. (2006). Failure of Knowledge Management in Organizations. *Journal of Tadbir*, 84.

Qwaider, D. W. (2011). Integration of Knowledge Management and E-learning System. *International Journal of Hybrid Information Technology*, 59-70.

Dublin, L. (2003). If You Only Look Under the Street Lamps... Or Nine E- Learning Myths. *The E-Learning Developers' Journal*.

OECD. (2005, December). *E-Learning in Tertiary Education.* Retrieved from Policy Brief OECD: http://www.oecd.org/education/ceri/35991871.pdf

Ubon, A. N., & Kimble, C. (2002). Knowledge Management in Online Distance Education. *Proceedings of the 3rd International Conference Networked Learning*, (pp. 465-473). Sheffield UK.

Mealy, L., & Loller, B. (2000). *E-Learning : Expanding the Training Classroom through Technology.* Austin, Texas: Rector Duncan & Associates, Inc.

Rossi, P. G. (2009). Learning environment with artificial intelligence elements. *Journal of e-learning and knowledge society, 5(1)*, 67-75.

Nicholson, P. (2007). *A History of E-Learning. In Fernández-Manjón B., Sánchez-Pérez J.M., Gómez-Pulido J.A., Vega-Rodríguez M.A., Bravo-Rodríguez J. (eds).* Springer, Dordrecht.

Mihalca, R., & Uta, A. (2008). Knowledge Management in E-Learning Systems. *Revista Informatica Economică*, 46.

Oblinger, D. G., & Hawkins, B. (2005). The Myth about E-Learning. *EDUCAUSE Review*, 14-15.

Algahtani, A. (2011). *Evaluating the Effectiveness of the E-learning Experience in Some Universities in Saudi Arabia from Male Students' Perceptions, Durham theses.* Durham University.

Zeitoun, H. (2008). *E-learning: Concept, Issues, Application, Evaluation.* Riyadh: Dar Alsolateah publication.

Henderson, A. (2003). *The E-Learning Question and Answer Book: A Survival Guide for Trainers and Business Managers.* New York: AMACOM.

Kruse, K. (2004). *The Benefits and Drawbacks of e-Learning.* Retrieved from www.e-learningguru.com/

Mihalca, R., Andreescu, A., & Intorsureanu, I. (2008). Knowledge Management in E-Learning Systems. *Informatica Economica Journal*, 60-65.

Tiwana, A. (2000). *The Knowledge Management Toolkiy.* New Jersey: Prentice Hall.

agency, I. a. (2013). *The Impact of Knowledge Management Practices on NPP Organizational Performance — Results of a Global Survey.* Vienna: International atomic energy agency.

Yılmaz, Y. (2012). KNOWLEDGE MANAGEMENT IN E-LEARNING PRACTICES. *TOJET: The Turkish Online Journal of Educational Technology*, 150-155.

Gottschalk, P. (2005). *Strategic Knowledge Management Technology.* Idea Group Publishing.

Al-Jedaiah, M. N. (2020). Knowledge Management and E-Learning Effectiveness: Empirical Evidence from Jordanian Higher Education Institutions. *International Journal of Emerging Technologies in Learning (iJET)*, 50-62.

Abtahi, S., & Salavati, A. (2007). *Knowledge management in organization.* Tehran: Payvand noo publication.

Davenport, T. H., & Prusak, L. (1997). *Information Ecology: Mastering the Information and Knowledge Environment.* New York: Oxford Univrsity Press.

Sabri, S. M. (2012). THE KNOWLEDGE SHARING PRACTICES IN HIGHER LEARNING INSTITUTION: IMPLEMENTATION OF SECI MODEL. .

Rusli, A., Shamsul, S., & Selamat, R. A. (2005). Collaborative Knowledge Management System for Learning Organizations. *Journal of Information & Knowledge Management*, 1-9.

Chait, L. P. (1999). Creating a Successful Knowledge Management System. *Journal of Business Strategy*.

Sagsan, M., Medeni, I. T., & Medeni, T. D. (2016). Knowledge management paradigms: implementation through individual fuzzy-based education. *12th International Conference on Application of Fuzzy Systems and Soft Computing* (pp. 259-266). Vienna Austria: Elsevier B.V.

Awad, E. M., & Ghaziri, H. M. (2004). *Overlapping Human, Organisational and Technological factors.*

Hansen, M. N. (1999). What's your Strategy For Managing Knowledge? *Harvard Business Review*.

Nottingham, A. a. (1999). Knowledge Management: Reconsidering Knowledge Workers. *Proceedings of The 9th Annual BIT Conference* (p. paper no. 78). UK: Manchester Metropolitan University.

Polanyi, M. (1966). *The Tacit Dimension.* Chicago: University of Chicago Press.

Davenport, T., & Prusak, L. (2000). *Working Knowledge.* Boston, MA: Harvard Business School Press.

Nonaka, I., Krogh, G. V., & Ichijo, a. K. (2000). *Enabling Knowledge Creation.* New York, NY: Oxford University Press.

Sallis, E., & Jones, a. G. (2002). *Knowledge Management in Education.* London: Kogan Page.

Huang, K.-Y. (2009). E-Learning 2.0 for Knowledge Management in Enterprises. *9th Annual IBER & TLC Conference Proceedings.*

Hui, M.-F., & Grossman, D. L. (2008). *Improving Teacher Education through Action Research.* Routledge.

Leezenberg, P. B., Tonningen, B. R., & Schoonhoven, E. (2005, January). *Using Knowledge Management and E-learning for Strategic Change*. Retrieved from Knowledge management Article: http://www.managementsite.com/296/Using-Knowledge-Management-and- Elearning-for-Strategic-Change.aspx

Muhire, A. (2012). E-learning and knowledge management: The development of an e-learning system for organisational training. Masters Dissertation. Dubin Institute of Technology.

Karlsen, J., & Gottschalk, P. (2004). Factors Affecting Knowledge Transfer in IT Projects. *Engineering Managment Journal, 16*, 3-10.

Gold, A. H., Malhotra, A., & Segars, A. (2001). Knowledge Management: An Organizational Capabilities Perspective. *Journal of Management Systems, 18*, 185-214.

Muhire, A. (2012). *E-learning and Knowledge Management: The development of an E-Learning System for Organisational Training .* Dublin: Technological University Dublin.

Khdour, T., & Salem, S. (2014). The effects of integrating knowledge management with E- Learning systems. *Proceedings of Conference of the American Society for Engineering Education.* ASEE Zone 1.

Nottingham, A. (1998). Knowledge Management as the Next Strategic Focus. *Proceedings of The 8th Annual BIT Conference* (p. paper no. 42). Manchester, UK: Manchester Metropolitan University.

Sammour, G., Schreurs, J., Al-Zoubi, A., & Vanhoof, K. (2008). Knowledge Management and eLearning in Professional Development. *International Journal of Knowledge and Learning 4*, 465.

Press and Information Office. (2019, August 22). *Turkish Cypriot and Turkish Media Review -22.08.19*. Retrieved from https://www.pio.gov.cy/en/επισκοπηση-τουρκοκυπριακου-και-τουρκικου-τυπου-αρθρο.html&id=403#a10

Bourns, C., Triantafillou, V., & Tsiatsos, G. H. (2001). Architectures Supporting e-learning Through Collaborative Virtual Environments: the Case of INVITE. *Proceedings IEEE International Conference on Advanced Learning Technologies*, (p. 0013). Madison Wisconson.

Gyorgy, K., Erzsebet, N., & Gyorgy, S. (2007). Role of the knowledge management in modern higher education – the e-learning . *AARMS*, 559-573.

Raissi, S. (2013). The Influence of the Personalization and Codification Strategies on Successful Knowledge Management Case Study: National Iranian Oil Company. *Research Journal of Applied Sciences, Engineering and Technology*, 989-996.

Alavi, M., & Leidner, D. (2001). Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues. *MIS Quarterly*, 107-136.

Teece, D. (1998). Capturing value from knowledge assets: the new economy, markets for know-how, and intangible assets. *Calif Manage Review*, 55-79.

Turban, E., & Aronson, J. (2002). Organizational Learning and Knowledge: Concepts, Methodologies, Tools and Applications. *IGI Global snippet*.

Yeh, Y.-c., Yeh, Y.-l., & Huang, L.-y. (2011). Knowledge management in blended learning: Effects on professional development in creativity instruction. *Computers and Education*, 146-156.

Nonaka, I. (1997). Organizational Knowledge Creation. *Knowledge Advantage Conference.*

Gray, J., & Densten, I. (2004). Towards an Integrative Model of Organizational Culture and Knowledge Management. *International Journal of Organizational Behaviour*, 594-603.

McAdam, R., & McCreedy, S. (1999). A Critical Review of Knowledge Management Models. *The Learning Organization*, 91-100.

Creen, M., & Kendal, S. (2007). *An Introduction to Knowledge Engineering.* London: Springer.

Nonaka, I., & Konno, N. (1998). The concept of "ba": bulding a foundation for knowledge creation. *Calif Management Review*, 40-54.

Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Education Technology Systems*, 5-22.

Arvin, M., Akbari, M., & Moghimnejad, M. (2014). THE STUDY OF VARIOUS MODELS OF KNOWLEDGE MANAGEMENT. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 347-358.

Lin, F.-r., Lin, S.-c., & Huang, T.-p. (2008). Knowledge sharing and creation in a teachers' professional virtual community. *Computers and Education*, 742-756.

S.K. Antwi, K. H. (2015). Qualitative and Qunatitative Research Paradise. *European Journal of Business and Management*, 217-225.

Arvin, M., Akbari, M., & Moghimnejad, M. (2014). THE STUDY OF VARIOUS MODELS OF KNOWLEDGE MANAGEMENT. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 347-358.

O'Reilly, T. (2005, September 30). *What is Web 2.0: Design patterns and business models for the next generation of software.* Retrieved from O'REILLY: https://www.oreilly.com/

Downes, S. (2005). *E-learning 2.0. ACM e-Learn Magazine*. Retrieved from https://elearnmag.acm.org/index.cfm/subpage.cfm?section=articles&article=29-1

Frappaolo, C., & Toms, W. (1997). *Knowledge Management: From Terra Incognito to Terra Firma.* The Delphi Group .

Woelk, D., & Agarwal, S. (2005). *Integration of e-Learning and Knowledge Management*. Retrieved from www.elasticknowledge.com/ElearnandKM.pdf

Wong, K. Y. (2005). Critical success factors for implementing knowledge management in small and medium enterprise. *Industrial Management & Data Systems 105 (3)*, 261-279.

Jafari, M. P. (2007). Knowledge management in Iran aerospace industries: A study on critical factor. *Artifact Engineering Aerospace Technological International Journal*, 375-389.

Ikujiro, N. (2000). *Knowledge Creating Company.* Harvard Business School Publishing Press.

al., B. e. (2004). Knowledge Management Solutions.

Oxbrow, N. (2000). Skills and competencies to succeed in a knowledge economy. *Information Outlook*, 18-23.

McEvily, S., Das, S., & McCabe, K. (2000). Avoiding competence substitute through knowledge sharing. *Academy of Management Review*, 294-311.

Choi, B. a. (2002). Knowledge management strategy and its link to knowledge creation process. *Expert Systems with Applications*, 173-187.

Lee, J. K. (2006). Effects of managerial drivers and climate maturity on knowledge-management performance: empirical validation. *Information Resources Management Journal*, 48-60.

Senge, P. (1990). *The Fifth Discipline: The art and practice of the learning organization.* London: Century Business.

Lave, J., & Wenger, E. (1991). *Situated Learning.* Cambridge: Cambridge University Press.

Argyris, C. (1993). *Knowledge for Action: A Guide to overcoming barriers to organizational change.* San Francisco, CA.: Josey Bass Wiley.

Johnson, D., & Johnson, R. (1985). Motivational process in cooperative, competitive and individualistic learning situations. *In Research on Motivation in Education, eds.* Orlando, FL.: C. Ames and R. Ames, Academic Press.

Slavin, R. (1987). Developmental and motivational perspectives on cooperative learning: reconciliation. *Child Development*, 1161-1167.

Johnson, D., & Johnson, R. (1989). *Cooperation and Competition: Theory and research. .* Edina, MN: Interaction Book Company.

Sharan, S., & Shaulov, A. (1990). Cooperative learning, motivation to learn and academic achievement. *Cooperative Learning: Theory and research,*. New York: S. Sharan, Praeger.

Dobos, J. (1996). Collaborative learning: effects of student expectations and communication apprehension on student motivation. *Communication Education*, 118-134.

Clark, H. (1996). *Using Language.* Cambridge: Cambridge University Press.

Wagner, N. H. (2008). Who is responsible for E-learning in Higher Education? A Stakeholders' Analysis. *Education Technology & Society* , 26-36.

Codone, S. (2001). An E-Learning Primer. Raytheon Interactive.

Amer, T. (2007). *E-Learning and Education.* Cairo: Dar Alshehab publication.

Uran, T. A., & Weggen, C. (2000). Corporate E-Learning: Exploring a New Frontier. San Francisco, CA: WR Hambrecht and Co.

Marc, J. (2002). Book review: e-learning strategies for delivering knowledge in the digital age. *Internet and Higher Education*, 185-188.

Klein, D., & Ware, M. (2003). E-Learning new opportunities in continuing professional development. *Learned publishing, 16 (1)*, 34-46.

Collins, J., Hammond, M., & Wellington, J. (1997). Teaching and Learning with Multimedia. London: Routeledge.

Hameed, B. S., & Cullen, A. (2008). Effective e-learning integration with traditional learning in a blended learning environment. *European and Mediterranean conference on information system*, (pp. 25-26).

Almosa, A. (2002). *Use of Computer in Education, (2nd Ed).* Riyadh: Future Education Library.

Akkoyuklu, B., & Soylu, M. (2006). A study on Student's views on blended learning environment. *Turkish Online Journal of Distance Education, 7(3)*.

Lewis, N. (2000). The Five Attributes of Innovative E-learning. *Training and Development, Vol 54*, 47-51.

Scott, B., Ken, C., & Edwin, M. (1999). The Effects of Internet-Based Instruction on Student Learning. *Journal of Asynchronous Learning Network*, 98-106.

Arkorful, V., & Abaidoo, N. (2014). The role of e-learning, the advantages and disadvantages of its adoption in Higher Education. *International Journal of Education and Research, Vol 2*, 397-410.

N.T PHAM, F. S. (2006). Facilitators of organizational learning in design, , 13, 2. *The Learning Organization*, 186-201.

Liu, Y. C. (September 2011). Applying Social Capital and SECI Model to Explore Gender Differences in Knowledge Sharing Behaviors . *International Journal of Digital Society (IJDS)*, 517- 524.

Manuel Cuadrado-Garcíaa, M.-E. R.-M.-P. (2010). Are there gender differences in e-learning use and assessment? Evidence from an interuniversity online project in Europe. *Procedia Social and Behavioral Sciences*, 367-371.

Fleming, J., Becker, K., & Newton, C. (2017). Factors for successful e-learning: does age matter? *Education and Training*, 76-89.

Simonds, T. A., & Brock, B. L. (2014). Relationship Between Age, Experience, and Student Preference for Types of Learning Activities in Online Courses. *The Quarterly Review of Distance Education*, 9-26.

Osman, M. A., Wahid, K. A., & Zakaria, A. R. (2018). Assessment of Factors Affecting E-learning: Preliminary Investigation. *1st International Conference on Open Library to Open Society.* Thailand.

Faith, C. K., & Seeam, A. K. (2018). Knowledge sharing in academia: A case study using a SECI model approach. *Journal of Education*, 53-66.

Ngampornchai, A., & Adams, J. (2016). Students' acceptance and readiness for E-learning in Northeastern Thailand. *International Journal of Educational Technology in Higher Education*, 34.

Biasutti, M. &.-D. (2012). Using Wiki in teacher education: Impact on knowledge management processes and student satisfaction,. *Computers & Education*, 861-872.

Nonaka, I., & Takeuchi, H. (1995). *The Knowledge Creating Company.* Oxford University Press.

APPENDIX 1

QUESTIONNAIRE

THE IMPACT OF KNOWLEDGE MANAGEMENT (SECI) IN E-LEARNING ON THE STUDENTS OF NEAR EAST UNIVERSITY, NORTH CYPRUS.

Participant Information Sheet and Informed Consent Form

Dear Participant,

This questionnaire is part of a research study that we are carrying out in order to explore the role of E-learning systems in the transfer of tacit knowledge which will improve both the knowledge management field and the E-learning field. The data collected through this questionnaire will be used to understand how E-learning systems can be integrated with knowledge management systems in an attempt to make teaching materials for teachers take less time by using knowledge management systems. By filling in the following scale, you agree to participate in this study.

Please note that your participation in the study is voluntary and whether you agree to participate or not will have no impact on your grades for the courses you are/were enrolled in. Your identity will not be revealed in any case to third parties. The data collected during the course of this study will be used for academic research purposes only and may be presented at national/international academic meetings and/or publications. You may quit participating in this study at any time by contacting us. If you opt out of the study, your data will be deleted from our database and will not be included in any further steps of the study. In case you have any questions or concerns, please contact us using the information below.

Researcher: Freda Farida Addo-Oludare

Email: 20203792@std.neu.edu.tr

Supervisor: Assoc. Prof. Dr. Behiye Cavusoglu,
Head of Innovation and Knowledge Management Program Near East University, Near East Boulevard,
ZIP: 99138 Nicosia TRNC
Email: Behiye.cavusoglu@neu.edu.tr

SECTION 1: DEMOGRAPHIC DATA

1. Gender □ Male □ Female
2. Age □18-29 □ 30-39 □ 40-49 □50+
3. Education Level: □ Diploma □B.Sc □ Msc □ Phd.

Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
SECTION 2: EXPERIENCE WITH E-LEARNING					
4. I am able to enhance my knowledge and skills using e-learning tool					
5. The knowledge that I acquire from e-learning tools is effective in helping me complete tasks					
6. I believe that the organization of lesson and content on an e-learning system must be clear to help me learn					
7. I can learn more using e-learning than reading books or other online resources					
8. *I can learn more using e-learning than with traditional class room and instructor techniques.*					
9. How much does success in your courses depend upon understanding ideas, rather than memorizing facts					

SECTION 3: ATTITUDE TOWARDS KNOWLEDGE SHARING					
10. I consider knowledge sharing as important to my personal knowledge development.					
11. I consider knowledge sharing as important to my organization knowledge growth					
12. I am willing to share information that I have with my colleagues.					
13. I am willing to share my lecture notes, power point slides and other resources with my colleagues					
14. My colleagues are willing to share information they have with me					
15. I am willing to participate in knowledge sharing activities					
16. Knowledge sharing activities will cause me to lose my knowledge					
17. Many activities are organized in my organization to facilitate knowledge sharing activities					
SECTION 4: THE PRACTICE OF KNOWLEDGE SHARING					
SOCIALIZATION					
18. I keep my Knowledge and Experience only for my personal use					

19. I participate in knowledge sharing activities conducted outside my organization					
20. I share information with my peers					
21. I support sharing information with others by the use of technological tools					
EXTERNALIZATION					
22. I document my knowledge and experience so that my colleagues can learn from it					
23. I record my ideas so that my colleagues can learn from it					
24. I document all my best practices and share them with my colleagues					
COMBINATION					
25. I categorize new information in an organized way					
26. I am able to relate new information to previous knowledge					
27. I update my knowledge repertoire consistently					
INTERNALIZATION					
28. I learnt from other people's experience when I talk to and listen to their stories					

29. I develop new ideas					
30. I developed new concepts					

APPENDIX 2 – ETHICS COMMITTEE APPROVAL

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

09.06.2021

Dear Freda Farida Addo-Oludare

Your application titled **"The Impact of Knowledge Management in Remote Learning on the Students of Near East University, North** Cyprus**"** with the application number NEU/SS/2021/1027 has been evaluated by the Scientific Research Ethics Committee and granted approval. You can start your research on the condition that you will abide by the information provided in your application form.

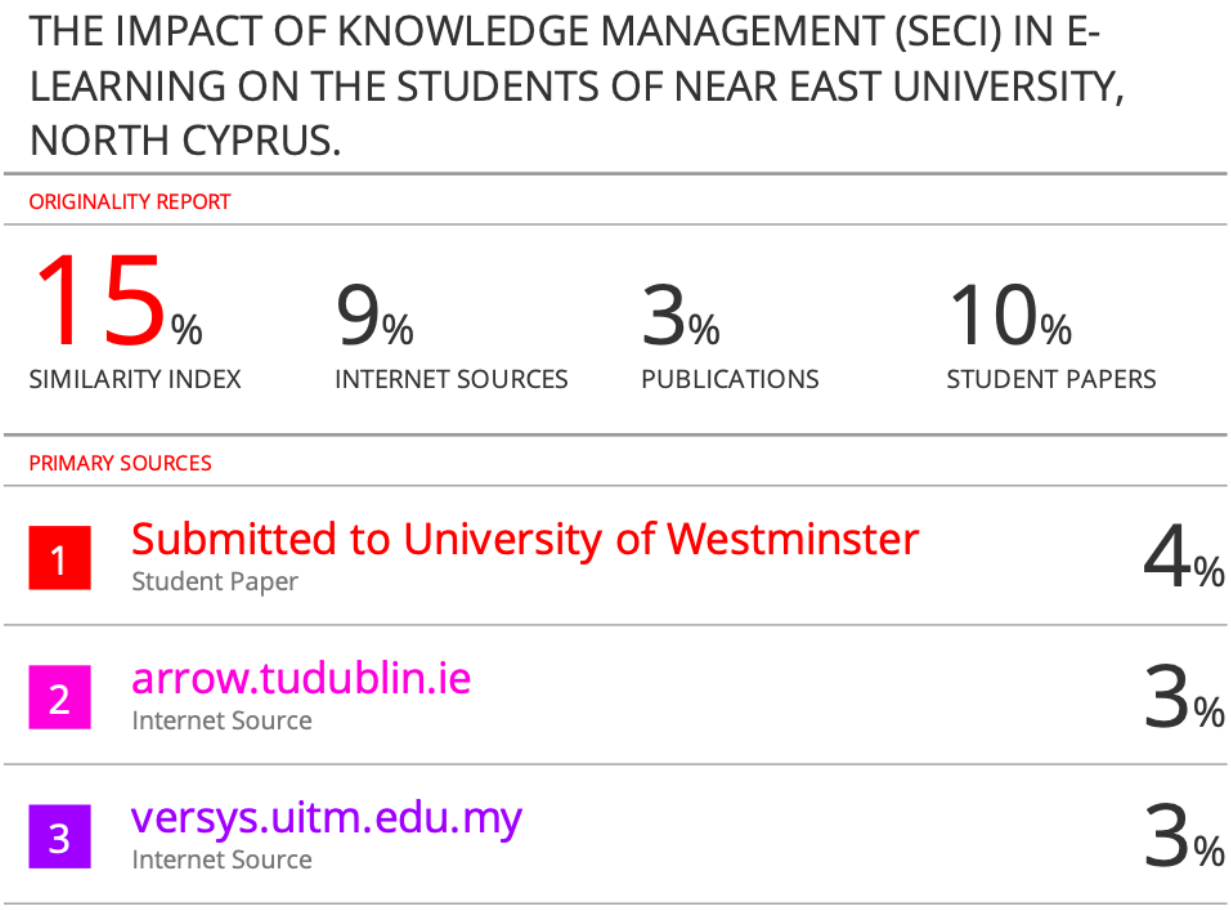
Assoc. Prof. Dr. Direnç Kanol

Rapporteur of the Scientific Research Ethics Committee

Direnç Kanol

Note: If you need to provide an official letter to an institution with the signature of the Head of NEU Scientific Research Ethics Committee, please apply to the secretariat of the ethics committee by showing this document.

APPENDIX 3 -PLAGIARISM REPORT



THE IMPACT OF KNOWLEDGE MANAGEMENT (SECI) IN E-LEARNING ON THE STUDENTS OF NEAR EAST UNIVERSITY, NORTH CYPRUS.

ORIGINALITY REPORT

15%	9%	3%	10%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to University of Westminster Student Paper	4%
2	arrow.tudublin.ie Internet Source	3%
3	versys.uitm.edu.my Internet Source	3%

APPENDIX 4

DESCRIPTIVE ANALYSIS REPORT

Question 4: Ability to enhance knowledge and skills using e-learning tools

		Frequency	Percent
Valid	Strongly Disagree	8	1.7
	Disagree	18	3.7
	Neutral	41	8.5
	Agree	149	30.8
	Strongly Agree	268	55.4
	Total	484	100.0
Mean			4.35
Standard Deviation			.905

Analysis of the responses to Question 4 showed that 55.4% (268) of the 484 students “Strongly agree” that e-learning tools can be used to enhance knowledge and skills and this was the majority opinion. Followed by 30.8% (149) students who chose “Agree”, 8.5% respondents are neutral, 3.7% “Disagree” and 1.7% of students “Strongly Disagree”. With a mean score of 4.35 and standard deviation of 0.905.

Question 5: Knowledge acquired from e-learning tools is effective in helping complete tasks

		Frequency	Percent
Valid	Strongly Disagree	4	.8
	Disagree	23	4.8
	Neutral	44	9.1

	Agree	170	35.1
	Strongly Agree	244	50.2
	Total	484	100.0
Mean			4.29
Standard Deviation			.880

The table above depicts the majority (50.2%) students “Strongly Agree” that the knowledge acquired from e-learning aids them in completing tasks. 35.1% of students selected “Agree”; 9.1% are “Neutral”; 4.8% “Disagree”, while 0.8% “Strongly Disagree” to e-learning helping to complete tasks.

The mean is 4.29 and the standard deviation is 0.880.

Question 6: The belief that the organization of lesson and content on an e-learning system must be clear to help me learn

		Frequency	Valid Percent
Valid	Strongly Disagree	5	1.0
	Disagree	17	3.5
	Neutral	25	5.2
	Agree	137	28.4
	Strongly Agree	300	61.9
	Total	484	100.0
Mean			4.47
Standard Deviation			.830

The table above depicts the majority (61.9%) students “Strongly Agree” that the clarity and organization of content must be clear in order for them to learn. 28.4% selected “Agree”; 5.2% are “Neutral”; 3.5% “Disagree”, while 1.0% “Strongly Disagree” to the importance of clarity and organization of lesson and content of e-learning facilitating learning.

The mean is 4.47 and the standard deviation is 0.830.

Question 7: Ability to learn more using e-learning than reading books or other online resources

		Frequency	Valid Percent
Valid	Strongly Disagree	19	3.4
	Disagree	46	8.5
	Neutral	97	17.5
	Agree	144	26.0
	Strongly Agree	178	32.1
	Total	484	100.0
Mean			3.86
Standard Deviation			1.135

The table above shows that 32.1% of the students “Strongly Agree” that they can learn better with e-learning than with reading books or other online sources. 26.0% selected “Agree”; 17.5% are “Neutral”; 8.5% “Disagree”, while 3.4% “Strongly Disagree” to the importance of clarity and organization of lesson and content of e-learning facilitating learning.

The mean is 3.86 and the standard deviation is 1.135.

Question 8: Able to learn more with e-learning than traditional classrooms and instructors

		Frequency	Valid Percent
Valid	Strongly Disagree	33	6.8
	Disagree	67	13.8
	Neutral	88	18.2
	Agree	118	24.3
	Strongly Agree	178	36.7
	Total	484	100.0
Mean			3.70
Standard Deviation			1.278

Descriptive analysis of question 8 shows that 36.7% of the students “Strongly Agree” that they can learn better with e-learning than with reading books or other online sources. 24.3% selected “Agree”; 18.2% are “Neutral”; 13.8% “Disagree”, while 6.8% “Strongly Disagree” to the importance of clarity and organization of lesson and content of e-learning facilitating learning.

The mean is 3.70 and the standard deviation is 1.278.

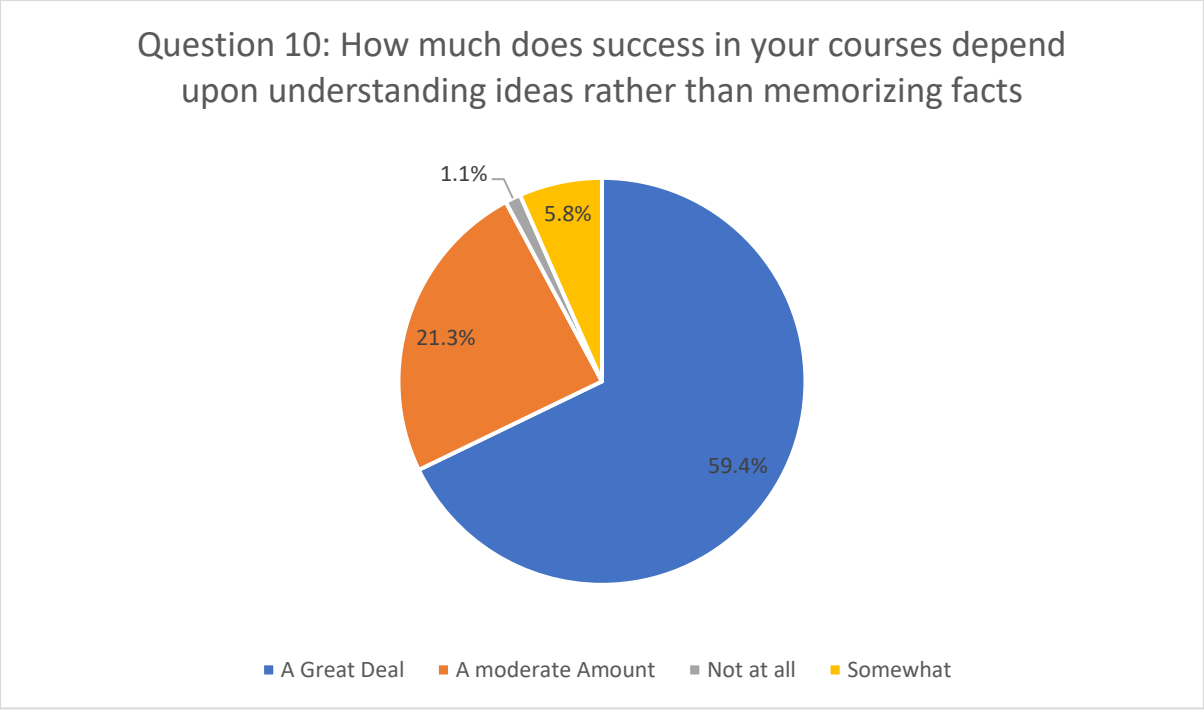
Question 9: Considers knowledge sharing as important for personal development.

		Frequency	Valid Percent
Valid	Strongly Disagree	2	.4
	Disagree	7	1.4

	Neutral	28	5.8
	Agree	125	25.8
	Strongly Agree	322	66.5
	Total	484	100.0
Mean			4.57
Standard Deviation			.706

Responses to question 9 shows that 66.5% students “Strongly Agree” that knowledge sharing plays an important role in their personal development. 25.8% “Agree”, 5.8% are “Neutral”, 1.4% “Disagree” and 0.4% “Strongly Disagree”.

The mean is 4.57 and the Standard Deviation is 0.706.



The figure above shows that the majority of students 59.4% believe that their success in courses is “A Great Deal” dependent on learning rather than memorizing facts. 21.3% voted “A moderate amount”, 5.8% voted Somewhat, while 1,1% said “Not at all”.

Question 11: Considers knowledge sharing as important for organization knowledge growth

		Frequency	Percent
Valid	Strongly Disagree	6	1.2
	Disagree	7	1.4
	Neutral	30	6.2
	Agree	148	30.6
	Strongly Agree	293	60.5
	Total	484	100.0
Mean			4.48
Standard Deviation			.781

The table above shows that 60.5% students “Strongly Agree” that knowledge sharing plays an important role in their organizations development and growth. 30.6% “Agree”, 6.2% are “Neutral”, 1.4% “Disagree” and 1.2% “Strongly Disagree”.

The mean is 4.48 and the Standard Deviation is 0.781.

Question 12: Willing to share information with colleagues

		Frequency	Valid Percent
Valid	Strongly Disagree	5	0.9
	Disagree	5	0.9
	Neutral	38	6.9
	Agree	120	21.7
	Strongly Agree	316	57.2
	Total	484	100.0

Mean		4.52
Standard Deviation		.771

Question 12 descriptive analysis shows that 57.2% students “Strongly Agree” that they are willing to share knowledge with colleagues. 21.7% “Agree”, 6.9% are “Neutral”, 0.9% “Disagree” and 0.9% “Strongly Disagree”.

The mean is 4.52 and the Standard Deviation is 0.770.

Question 13: Willing to share lecture notes, power points and ideas with colleagues

		Frequency	Valid Percent
Valid	Strongly Disagree	4	.8
	Disagree	10	2.1
	Neutral	32	6.6
	Agree	133	27.4
	Strongly Agree	305	63.0
	Total	484	100.0
Mean			4.50
Standard Deviation			.778

Question 13 results shows that 63.0% of respondents “Strongly Agree” that they are willing to share lecture notes, power point slides and other ideas with their colleagues. 247.4% “Agree”, 6.6% are “Neutral”, 2.1% “Disagree” and 0.7% “Strongly Disagree”.

The mean is 4.50 and the Standard Deviation is 0.778.

Question 14: Colleagues are willing to share information they have with me

	Frequency	Valid Percent

Valid	Strongly Disagree	10	2.1
	Disagree	20	4.1
	Neutral	86	17.7
	Agree	154	31.8
	Strongly Agree	214	44.2
	Total	485	100.0
Mean			4.12
Standard Deviation			.979

This question sought to examine students' opinions of their colleagues as regards to knowledge sharing. The above table 4.14 shows that 44.2% students "Strongly Agree" that their colleagues are willing to share knowledge with them. 31.8% "Agree", 17.7% are "Neutral", 4.1% "Disagree" and 2.1% "Strongly Disagree".

The mean is 4.12 and the Standard Deviation is 0.979

Question 15: Willing to participate in knowledge sharing activities

		Frequency	Valid Percent
Valid	Strongly Disagree	1	.2
	Disagree	10	2.1
	Neutral	32	6.6
	Agree	129	26.7
	Strongly Agree	312	64.5
	Total	484	100.0
Mean			4.53

Standard Deviation		.729

Question 15 results shows that 64.5% students “Strongly Agree” that knowledge sharing pays an important role in their personal development. 26.7% “Agree”, 6.6% are “Neutral”, 2.1% “Disagree” and 0.2% “Strongly Disagree”.

The mean is 4.53 and the Standard Deviation is 0.729.

Question 16: Knowledge sharing activities will cause me to lose my knowledge

		Frequency	Percent
Valid	Strongly Disagree	343	70.9
	Disagree	55	11.4
	Neutral	25	5.2
	Agree	24	5.0
	Strongly Agree	37	7.6
	Total	484	100.0
Mean			1.67
Standard Deviation			1.242

This question sought to evaluate how many students believed that sharing knowledge will cause them to lose knowledge. The table results show that 7.6% students “Strongly Agree” that knowledge sharing pays an important role in their personal development. 5.0% “Agree”, 5.2% are “Neutral”, 11.4% “Disagree” while the majority, 70.9% “Strongly Disagree” that knowledge sharing causes loss of knowledge.

The mean is 1.67 and the Standard Deviation is 1.242

Question 17: Near East University organizes many activities of knowledge sharing

		Frequency	Valid Percent
Valid	Strongly Disagree	8	1.4
	Disagree	24	4.3
	Neutral	102	18.6
	Agree	120	21.7
	Strongly Agree	230	41.5
	Total	484	100.0
Mean			4.12
Standard Deviation			1.011

Question 17 response shows that 41.5% students “Strongly Agree” that knowledge sharing pays an important role in their personal development. 21.7% “Agree”, 18.6% are “Neutral”, 4.3% “Disagree” and 1.4% “Strongly Disagree”.

The mean is 4.12 and the Standard Deviation is 1.011.

Question 18-21: Descriptive Statistics for Socialization

SOCIALIZATION									
		Strongly Dis	Disagree	Neutral	Agree	Strongly Agr	Total	Mean	Std. Dev
18	Frequency	257	99	34	32	62	484	2.05	1.422
	Percent	53.1	20.4	7.0	6.6	12.8	100.0		
19	Frequency	6	22	68	150	238	484	4.22	0.947
	Percent	1.4	4.5	14.0	30.9	49.1	100.0		
20	Frequency	5	10	45	147	277	484	4.40	0.835
	Percent	1.2	2.1	9.2	30.3	57.1	100.0		
21	Frequency	7	9	33	132	303	484	4.47	0.835
	Percent	1.6	1.9	6.8	27.2	62.5	100.0		
SUMMARY	**Frequency**	**69**	**35**	**45**	**115**	**220**	**484**		
	Percent	**14.3**	**7.3**	**9.3**	**23.8**	**45.4**	**100.0**	**3.7862**	**0.59369**

The table above represents the overall achievement for Socialization. The results show that 14.3% selected “Strongly Disagree”, 7.3% selected “Disagree”, 9.3% chose “Neutral”, 23.8% chose Agree and the majority of 45.4% chose “Strongly Agree”. The mean score is 3.7862 and the standard deviation is 0.59369.

The questions 18-21 are :

18. I keep my Knowledge and Experience only for my personal use

19. I participate in knowledge sharing activities conducted outside my organization
20. I share information with my peers
21. I support sharing information with others by the use of technological tools

Question 22-24: **Descriptive Statistics for Externalization**

EXTERNALIZATION									
		Strongly Dis	Disagree	Neutral	Agree	Strongly Agr	Total	Mean	Std. Dev
22	Frequency	8	22	84	140	230	484	4.16	0.978
	Percent	1.6	4.5	17.3	28.9	47.6	100.0		
23	Frequency	14	25	95	131	219	484	4.07	1.055
	Percent	2.9	5.2	19.6	27.0	45.4	100.0		
24	Frequency	9	19	88	143	225	484	4.15	0.976
	Percent	1.9	3.9	18.1	29.5	46.6	100.0		
SUMMARY	**Frequency**	**10.0**	**22**	**89**	**138**	**225.0**	**484**		
	Percent	**2.1**	**4.5**	**18.3**	**28.5**	**46.5**	**100.0**	**4.1281**	**0.91262**

The table above shows the overall achievement for externalization. 2.1% selected “Strongly Disagree”, 4.5% selected “Disagree”, 18.3% chose “Neutral”, 28.5% chose Agree and the majority of 46.5% chose “Strongly Agree”. The mean score is 4.1281 and the standard deviation is 1.0.91262.

Questions 22-24 are:

22. I document my knowledge and experience so that my colleagues can learn from it

23. I record my ideas so that my colleagues can learn from it
24. I document all my best practices and share them with my colleagues

Question 25-27: Descriptive Statistics for Combination

COMBINATION									
		Strongly Dis	Disagree	Neutral	Agree	Strongly Agr	Total	Mean	Std. Dev
25	Frequency	11	21	69	156	228	484	4.17	0.982
	Percent	2.3	4.3	14.2	32.2	47.0	100.0		
26	Frequency	3	12	47	165	258	484	4.37	0.807
	Percent	0.6	2.5	9.7	34.0	53.2	100.0		
27	Frequency	8	13	77	151	236	484	4.22	0.924
	Percent	1.6	2.7	15.9	31.1	48.7	100		
SUMMARY	**Frequency**	**7.3**	**15.3**	**64.3**	**157.3**	**240.6**	**484**		
	Percent	**1.5**	**3.16**	**13.2**	**32.4**	**49.6**	**100**	**4.2555**	**0.79228**

Summary of the combination variable are shown in the table above. From it we see that an average of 1.5% of students “Strongly Disagree”, 3.16% “Disagree”, 13.2% are “Neutral”, 32.4% “Agree” and 49.5% “Strongly Agree”.

It indicates that Combination is highly practiced based on the mean of 4.2555 and the standard deviation of 0.79228

Questions 25-27 are:

25. I categorize new information in an organized way

26. I am able to relate new information to previous knowledge

27. I update my knowledge repertoire consistently

Question 28-30: Descriptive Statistics for Internalization

INTERNALIZATION									
		Strongly Dis	Disagree	Neutral	Agree	Strongly Agr	Total	Mean	Std. Dev
28	Frequency	4	12	31	127	311	484	4.5	0.792
	Percent	0.8	2.5	6.4	26.2	64.1	100.0		
29	Frequency	10	11	39	167	258	484	4.35	0.877
	Percent	2.1	2.3	8.0	34.4	53.2	100.0		
30	Frequency	5	13	55	163	249	484	4.32	0.852
	Percent	1.0	2.7	11.3	33.6	51.3	100.0		
SUMMARY	**Frequency**	**7**	**11**	**39**	**149**	**279**	**484**		
	Percent	**2.5**	**5.7**	**18.1**	**31.4**	**42.3**	**100.0**	**4.405**	**0.71681**

The responses of the students towards the Internalization questions shows that 2.5% of students “Strongly Disagree”, 5.7 of the students “Disagree”, 18.1% were “Neutral”, 31.4% “Agree” and the majority with 42.3% “Strongly Agree”. The mean is 4.405 which shows that Internalization is highly practiced amongst students and the Standard deviation of 0.71681

Questions 28-30 are:

28. I learnt from other people’s experience when I talk to and listen to their stories

29. I develop new ideas

30. I developed new concepts