NEAR EAST UNIVERSITY

INSTITUTE OF GRADUATE STUDIES

DEPARTMENT OF INNOVATION AND KNOWLEDGE MANAGEMENT

THE IMPACT OF SOCIAL MEDIA USAGE IN KNOWLEDGE SHARING PRACTICES ON STUDENTS' ELEARNING PERFORMANCE. EVIDENCE FROM UNIVERSITIES IN TURKISH REPUBLIC OF NORTHERN CYPRUS

M.Sc. THESIS

MATILDA NKERIFAC NGWOBETA

THESIS SUPERVISOR

ASSOC. PROF. DR. BEHIYE TUZEL CAVUSOGLU

Nicosia

January, 2022

APPROVAL

We certify that we have read the thesis submitted by Matilda Nkerifac Ngwobeta, titled **"The Impact of Social Media Usage in Knowledge Sharing Practices on Students' eLearning Performance. Evidence from Universities in Turkish Republic of Northern Cyprus"** and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Social Sciences.

Examining Committee	Name-Surname	Signature
Head of the Committee:	Prof. Dr. Mustafa Sagsan	…….
Committee Member:	Dr. Sameer Hamdan	…….
Supervisor:	Assoc. Prof. Dr. Behiye Tuzel Cavusoglu	…….

Approved by the Head of the Department

..…. /1 /2022

……..

Assoc. Prof. Dr. Behiye Tuzel Cavusoglu

Head of department

Approved by the Institute of Graduate Studies

….. /1 /2022

Prof. Dr. Kemal Hüsnü Can Başer

Head of the Institute

DECLARATION

I, Matilda Nkerifac Ngwobeta hereby declare that all information, documents, analysis and results in this thesis titled **"The Impact of Social Media Usage in Knowledge Sharing Practices on Students' eLearning Performance. Evidence from Universities in Turkish Republic of Northern Cyprus"** have been collected and presented according to the academic rules and ethical guidelines of Institute of Graduate Studies, Near East University. I also declare that as required by these rules and conduct, I have fully cited and referenced information and data that are not original to this study.

Matilda Nkerifac Ngwobeta

27/01/2022

Signature …...……...

ACKNOWLEDGMENTS

First, I am eternally grateful to almighty God for strength, his grace and his provision throughout the period of my studies.

I am thankful to my supervisor Assoc. Prof. Dr. Behiye Tuzel Cavusoglu for her efforts and support throughout my research work.

Thank you to all my teachers and class mates for all the knowledge we have achieved together in the department of Innovation and Knowledge Management.

Finally, thank you to all my friends and family members for the all patience and support.

Matilda Nkerifac Ngwobeta

ABSTRACT

The world keeps on experiencing rapid growth of Internet technology, which has been beneficial to both individuals and organizations. This growth of internet technology led to the popularity of eLearning (web-based learning) over the years. eLearning was used just by some educational institutes in combination with the traditional classroom teaching system in order for both far and near students to partake in the learning process. Even though eLearning and gained much popularity, it was not put to use by all educational institutions in the world until the occurrence of the covid19 pandemic.

The covid19 pandemic took the world by surprise, not leaving out the educational sector where learning could no longer be done with the traditional face to face classroom teaching method but all educational institutions across the world had to make use to the eLearning system of eLearning to ensure the continuity of education. The truth is about this unexpected shift is that many educators and especially learners where not prepared for this and are facing some challenges with the eLearning system of education. Therefore, this study will examine the impact of social media usage in knowledge sharing on students' eLearning performance.

This research will investigate the moderating effect of the willingness to share knowledge on Social Media Usage relationship with Students' eLearning Performance, also seeks to examine the moderating effect of willingness to share knowledge on the relationship between the use social media and knowledge sharing practices.

This research used the convenience sampling technique in collecting data. A structured questionnaire was developed and administered online to collect data from students in universities in Turkish Republic of Northern Cyprus (TRNC) who are studying full time and using the eLearning system of education. A total of 394 responses were received from the students of these universities.

This study deployed the structural equation modelling analytic approach renowned for its robustness in examining multiple regression equations simultaneously. The variance-based partial least square SEM approach is utilized and uses the ADANCO software for the analysis.

The study findings show that social media usage among students in universities in the Turkish Republic of Northern Cyprus had a moderate, positive and significant effect on students' eLearning performance.

Keywords: knowledge sharing, eLearning, social media, students, eLearning performance.

ÖZ

THE IMPACT OF SOCIAL MEDIA USAGE IN KNOWLEDGE SHARING PRACTICES ON STUDENTS' ELEARNING PERFORMANCE. EVIDENCE FROM UNIVERSITIES IN TURKISH REPUBLIC OF NORTHERN CYPRUS

Dünya, hem bireyler hem de kuruluşlar için faydalı olan İnternet teknolojisinin hızlı büyümesini yaşamaya devam ediyor. İnternet teknolojisinin bu büyümesi, yıllar içinde e-Öğrenmenin (web tabanlı öğrenme) popülaritesine yol açtı ve e-Öğrenme, hem uzak hem de yakın öğrencilerin öğrenmeye katılması için geleneksel sınıf öğretim sistemi ile birlikte sadece bazı eğitim kurumları tarafından kullanıldı. işlem. E-Öğrenme çok popüler olmasına ve popülerlik kazanmasına rağmen, covid19 pandemisi ortaya çıkana kadar dünyadaki tüm eğitim kurumları tarafından kullanılmadı.

Covid19 pandemisi, geleneksel yüz yüze sınıf öğretimi yöntemiyle öğrenmenin artık yapılamadığı, ancak dünyadaki tüm eğitim kurumlarının e-Öğrenim sistemini sağlamak için e-Öğrenim sistemini kullanmak zorunda kaldığı eğitim sektörünü dışarıda bırakmayarak dünyayı şaşırttı. eğitimin sürekliliği. Gerçek şu ki, bu beklenmedik değişimle ilgili gerçek şu ki, birçok eğitimci ve özellikle buna hazırlıklı olmayan öğrenciler ve e-Öğrenim eğitim sistemiyle ilgili bazı zorluklarla karşılaşıyorlar. Bu nedenle, bu çalışma bilgi paylaşımında sosyal medya kullanımının öğrencilerin e-Öğrenme performansı üzerindeki etkisini inceleyecektir.

Bu araştırma, öğrencilerin e-Öğrenme Performansı ile Sosyal Medya Kullanımı ilişkisine ilişkin bilgi paylaşma istekliliğinin düzenleyici etkisini araştıracak, ayrıca bilgi paylaşma istekliliğinin sosyal medya kullanımı ve bilgi paylaşım uygulamaları arasındaki ilişki üzerindeki düzenleyici etkisini incelemeyi amaçlamaktadır.

Bu araştırmada veri toplamada kolayda örnekleme tekniği kullanılmıştır. Yakın Doğu Üniversitesi (YDÜ) ve Girne Amerikan Üniversitesi'nde (GAÜ) tam zamanlı eğitim gören ve e-Öğrenim sistemini kullanan öğrencilerden veri toplamak için yapılandırılmış bir anket geliştirilmiş ve çevrimiçi olarak uygulanmıştır. Bu üniversitelerin öğrencilerinden toplam 394 yanıt alınmıştır.

Bu çalışma, çoklu regresyon denklemlerini aynı anda incelemedeki sağlamlığıyla bilinen yapısal eşitlik modelleme analitik yaklaşımını kullandı. Varyans tabanlı kısmi en küçük kareler SEM yaklaşımından yararlanılır ve yalnızca uygunluk temelli analizler için ADANCO yazılımını kullanır.

Araştırma bulguları, örneklenen Kuzey Kıbrıs Türk Cumhuriyeti'ndeki her iki üniversitedeki öğrenciler arasında sosyal medya kullanımının öğrencilerin e-Öğrenme performansı üzerinde orta düzeyde, olumlu ve anlamlı bir etkiye sahip olduğunu göstermektedir.

TABLE OF CONTENTS

CHAPTER 5

CHAPTER 6

LIST OF FIGURES

LIST OF TABLES

Table 8: Support for the hypothesized paths

CHAPTER 1

INTRODUCTION

This chapter will present an introduction of this study, the background of the study, the problem statement and the purpose of the study. It also contains the research questions, the conceptual model of the study and the hypothesis.

1.1 Introduction

The corona virus pandemic came unexpectedly to the world and has greatly affected the way activities around the world are carried out. It affected governments, businesses and individuals' normal and social life. The occurrence of the corona virus pandemic caused a lot of sudden changes in the way things around the world functioned, education included. People have been forced to maintain social distancing and therefore the traditional face to face classroom system of learning had to be suspended. Although eLearning was already being practiced by some institutions before the pandemic, it has become an important source to ensure the continuity of education for safety globally. Knowledge sharing between students has been an important part of education during the traditional system of education where it was mostly done physically, and knowledge sharing is still as important now that learning has shifted to eLearning system. To keep the knowledge sharing going and still maintain social distancing, students are making use of social media platforms.

The sudden change from the traditional classroom system of learning to eLearning system was a shock to some educational institutions, lecturers and students and educational institutions have been working to see that the eLearning system are as convenient and easy to use as possible. Some students still face challenges and have not fully accepted the eLearning system of education. Any information system's success relies on the utilization of that system by users (Almaiah, 2018). Therefore, students' acceptance of eLearning is a key factor in the success of the eLearning system and the overall student eLearning performance. The use of social media for knowledge sharing amongst students creates room for students to get information and the eLearning system, understand it and accept it.

1.2 Background of the study

According to Salloum et al. (2019), eLearning known as learning with the use of electronic mechanism for learning as one of educational innovations has changed the landscape system of learning by giving students various opportunities. Given that eLearning has hugely impacted the education system over the decades, much research has been carried out to explore the adoption of eLearning systems in teaching and learning and understanding the key factors that facilitate its adoption and performance (Tarhini, et al., 2014). According to Li et al. (2012), e-learning has gotten prominent attention as a result to its flexibility, low cost and convenience as compared to the traditional learning system of learning.

The popularity of social media has kept increasing over the years, more and more people are getting acquainted with utilizing social media for different reasons like entertainment, to keep contact with friends and families, for business, for socialization, knowledge sharing and more. Social media is a term used to refer to a group of internet-based applications that makes way to create, update, analyze or link up to other generators of content (Kaplan & Haenlein, 2010; Naeem, et al., 2019). Social media applications have introduced new changes to the way people communicate, connect, associate and share content in the workplace (Ahmed, et al., 2019). Social media application is also widely use amongst students and has been used as a means of sharing knowledge about studies especially in the Covid-19 pandemic. Just as eLearning was used for the continuity of studies, so has social media applications been used for the continuity of knowledge sharing amongst students. Social media applications which have had an increasing popularity over the years has created an opportunity for students to easily be able to frequently communicate with other students and even teachers. It highly supports knowledge sharing process in institutions and amongst students as it makes room for smart and easy communication (Naeem M. 2019). Jones et al. (2009) mentioned that "Social Media" is known to be used by students as a tool for communication which enables students to participate in sharing knowledge.

Fullwood et al. (2019) referred to knowledge sharing as the process of exchanging information between groups of individuals in a network or organization.

According to Chiu et al. (2006) Implicit or explicit knowledge are the two types of knowledge that can be transferred (Almuqrin, et al.,2020). Cummings (2004) states that Sharing knowledge means helping others to learn, coming together with other people to come up with problem solutions, new ideas, or implementation of operations (Al-Shibly, et al., 2019). Students reach out to share or get knowledge from one another to address issues in their studies. The sharing of knowledge between students has always been an important part of their study process, according to Naeem (2019) "Knowledge is power". Knowledge sharing between students leads to increase awareness, better understanding and gives students a greater chance for better performances. In the traditional face to face classroom system of learning knowledge sharing amongst students was mostly done face to face. But the corona virus pandemic came with social distancing, students could no longer meet and share knowledge as before. Naeem (2019) mentioned according to Brown (1988) that students are required to be responsible of their education proactively by learning with both individual responsibility and communal sharing. This shows the relevance and the need for knowledge sharing amongst students.

1.3 Statement of the Problem

E-learning has been used to keep education going, it has either been completely employed or combined with the traditional classroom system of education worldwide. Therefore, there's no denying that eLearning has been playing an important role in the continuity of educational activities. Despite the fact that eLearning has been fully employed and used by most institutions, most students and even lecturers are still trying to adapt, accept and understand the system. The sharing of knowledge about how to go about using the eLearning system systems between students and lecturers could go a long way to increase adaptation, acceptance, and better understanding of eLearning system, hence better performance.

Knowledge sharing between students has been an important part of education in the traditional system of education where it was mostly done through physical

interactions like in social gatherings, sometimes after face-to-face class in the school premises and knowledge sharing is still as important for eLearning system of education. To keep the knowledge sharing going and still maintain social distancing, students are making use of social media platforms. Knowledge sharing amongst students facilitates their learning process and is therefore essential as it keeps students informed, improve their understanding and give them higher chances of succeeding in studies. To adapt to the change in the system of education, students and even lecturers have turned to the sharing of knowledge and keeping in touch with the use of social media.

1.4 Purpose of the Study

The aim of carrying out this research is to examine how social media platforms, through knowledge sharing can impact the performance of students in eLearning. To investigate the moderating effect of the willingness to share knowledge on the relationship between the use of Social Media and Students' eLearning Performance. It also seeks to examine the moderating effect of willingness to share knowledge on the relationship between the use social media and knowledge sharing practices.

1.5 Research Questions

In order to achieve the objective of this research, the following questions needs to be answered;

Does the use of social media affect students' eLearning performance?

What effect does the use of social media have on knowledge sharing?

Does knowledge sharing have an effect on students' eLearning performance?

What effect does willingness to share knowledge have on knowledge sharing and eLearning?

1.6 Conceptual model and hypothesis

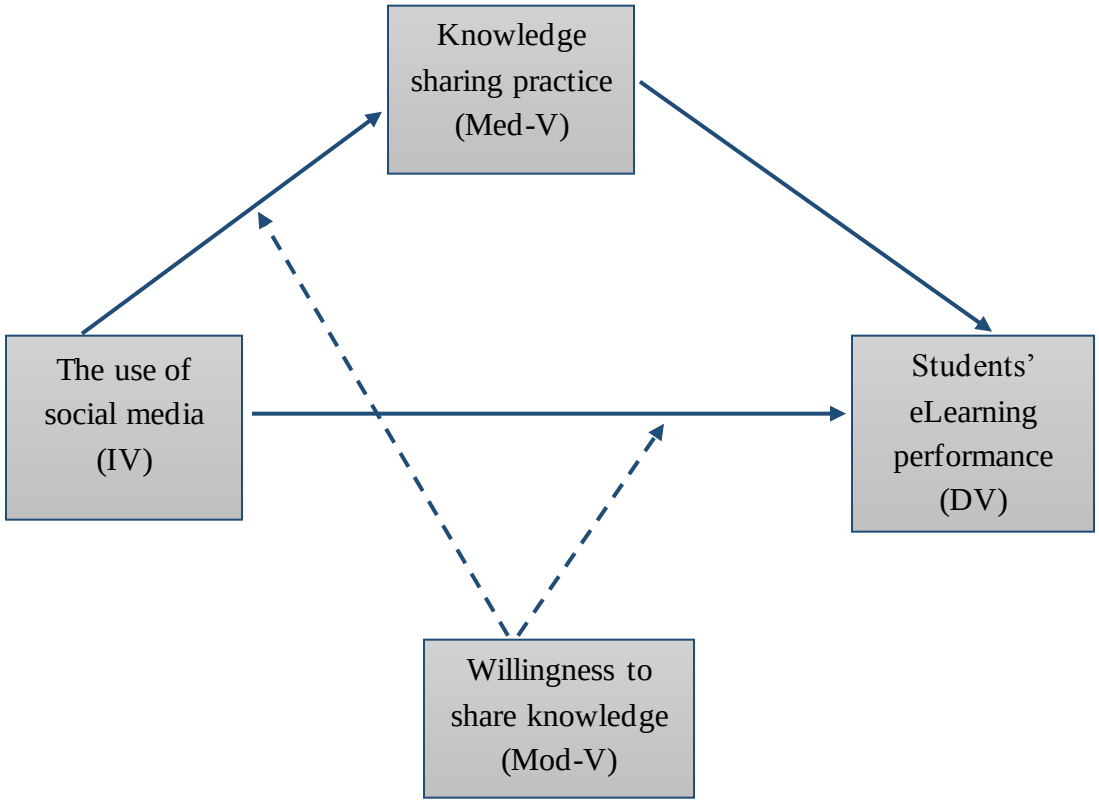


Figure 1: Conceptual model of the study.

Where;

The use of social media = Independent Variable (IV)

Knowledge sharing practice = Mediator Variable (Med-V)

Willingness to share = Moderator Variable (Mod-V)

Students' eLearning performance = (DV)

Hypothesis

H1: The use of social media has a positive effect on knowledge sharing

H2: Knowledge sharing has a positive effect on students' eLearning performance

H3: Social media usage has a positive effect on students' eLearning performance

H4: Knowledge sharing mediates the effect of social media usage on students' eLearning performance

H5: Willingness to share knowledge moderates the effect of the use of social media on students' eLearning performance

H6: Willingness to share knowledge moderates the effect of the use of social media on knowledge sharing practices

CHAPTER 2

LITERATURE REVIEW

The theoretical framework will be discussed and three main topics will be addressed in this study through research and analysis which will assist in the investigation of the impact of the use of social media in knowledge sharing practices on students' eLearning performance. These three main topics to be discussed are as follows: the concept of social media, the concept of knowledge sharing and eLearning.

2.1 Theoretical Framework

The theoretical framework could be seen as a guide and a base for the research process. This ongoing study involves the examination of the use social media for knowledge sharing and eLearning performance (Fari, 2015; Grant & Osanloo, 2014; Mbasera, 2019). Therefore, in this chapter appropriate theories that have guided previous research for the areas of this study. These theories include but are not limited to Social Exchange Theory, Diffusion of Innovation Theory and Social Constructivism Theory.

2.1.1 Social Exchange Theory

The social exchange theory which emerged in social psychology by George Homans (1959) The Social Exchange Theory has often been used as a theoretical base for exploring the knowledge sharing behaviors of individuals (Liang, et al., 2008). The Social exchange theory states that the aim of interpersonal interactions is to obtain maximum benefit and minimize costs (Mbasera, 2019). Those cost may not just be financial but may include time, efforts or even fears of how others are going to use the information they share (Mbasera, 2019). According to this theory, people compare the estimated benefits and risks or cost of social relationships and when the cost is more than the rewards, they will end or leave that relationship. The social exchange theory

explains that individuals adjust their association with others by examining the cost and benefits of associating with other people (Liang, et al., 2008; Mbasera, 2019). Therefore, according to social exchange theory individuals get into social interactions that are expected to end up in maximum benefit and minimum cost. The benefit may not just be tangible, but could also include someone wanting to gain approval, some kind of position or even respect as a result of their interaction with a particular social group (Liang, et al., 2008). It also holds that a person may not get involved in certain activities unless they believe that the outcome will be positive (Okyere & Nor, 2011). Therefore, in the view of the social exchange theory, what influences and determines if a person will get involved in a particular behavior or activity depends on what they think they will benefit and at what cost (Mbasera, 2019).

Homan made some propositions in the social exchange theory about the human behavior which includes success proposition, stimulus proposition, deprivation satiation, value proposition and rationality proposition.

The success proposition holds that for every action an individual take, as more as a specific action is being benefited from, the more likely that individual is going to keep performing that action (Emerson, 1976). The stimulus proposition states that if the occurrence of a particular stimulus or a set of stimuli has been the times when an individual's action has been rewarded, then the present stimuli will be similar with the ones in the past, the more that individual is to carry out the same action or similar action in the present (Emerson, 1976). The deprivation satiation proposition says the more often in the recent past an individual has gotten a particular benefit, the less valuable any additional amount of that benefit to that individual (Emerson, 1976). The value proposition states that the more valuable the benefit of an individual's action, the more likely it is for that person to perform that action (Emerson, 1976). The rationality proposition says in order to choose between different actions, an individual will choose one which he perceived at the time, the value of the result, multiplied by the probability of getting the result is greater (Emerson, 1976).

Social exchange theory and knowledge sharing

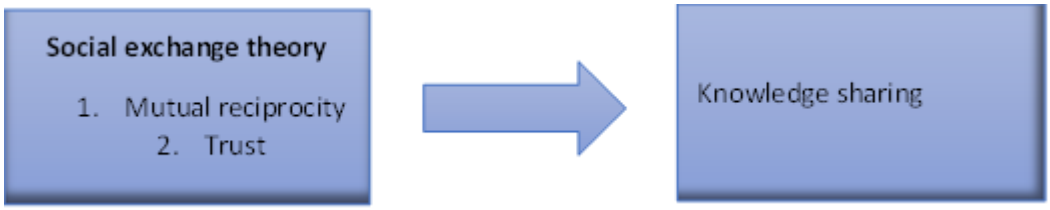


Figure 2: Social Exchange Theory, Adapted from Okyere-Kwaye & Noe (2011) (Mbasera, 2019).

The social exchange theory has commonly been used as a theoretical foundation to look into the knowledge sharing behavior of individuals (Liang, et al., 2008). The foundational contrive of the social exchange theory are mutual reciprocity and trust (Okyere & Nor, 2011). Mutual reciprocity implies that individuals are more likely to interact socially when there is the expectation of gaining some positive reward from others (Okyere & Nor, 2011). For example, a student will be motivated to make use of social media platforms, get in touch with other students and share information if they will also benefit from that action in some way. The trust concept is also a relevant consideration for social interactions in social exchange theory. Person tends to behave in a collaborative way based on the level of trust they have in a system or community, and will not be interested in an activity when they feel unsure about the future benefit of that interaction (Okyere & Nor, 2011). This implies that trust amongst people develops when they are sure that association with one another will not affect them negatively, but when a person thinks of others as not trustworthy, they will likely not associate or share information (Okyere & Nor, 2011). For instance, students or other individuals will likely associate and share knowledge with others who they can trust with information share with them.

2.1.2 The Diffusion of innovation theory

The theory of the diffusion of innovation has usually been seen as a useful change model in directing technological innovation where the same innovation is

redesigned and introduced in a manner that satisfies the needs through out all the stages of adopters (Kaminski, 2011). According to Kaminski (2011) the diffusion of innovation is the procedure that happens when individuals accept a new product, practice, idea or others. The procedure was plotted by Rogers where he indicated that, initially only a few are interested and willing to adopt the use of a new idea, the early adopters will then make it known to others and more people will be open to adopt the new idea. As time goes on, the innovation product or idea gets more diffused amongst the population until it gets to a saturation point. There has been so much interest in the diffusion of innovation, reason being that it is usually very difficult for a new idea to be adopted even if it has visible advantages and it also takes a long period of time to be fully adopted (Rogers, 2010).

According to Rogers, diffusion refers to the process through which innovation is communicated over certain channels amongst people in a social system over time. This means that for a particular innovation to be fully understood and adopted by individuals, there should be communication. Communication therefore is the process through which there is the creating and the sharing of information with each other or from person to person so as to reach a mutual understanding (Rogers, 2010). Communication is thought of as a two-way procedure of convergence and not a one-way linear action where on person tries to convey a piece of information to another person (Rogers & Kincaid, 1981; Rogers, 2010). The concept of communication in humans could perfectly explain the communication acts involves in the diffusion process, like when a change agent tries to convince a client to adopt an innovation (Rogers, 2010). This could also be applied to adoption of eLearning system of education, through communication and sharing of knowledge on how to understand how the system functions, more students can be open to adopting eLearning and getting the best out of it.

Innovation. According to Rogers (2010) an innovation refers to the object, practice or idea that a person considers new, how new an idea is for an individual will determine his or her reaction to it. The newness of an innovation is not just necessarily about new knowledge because a person may have had the knowledge about an innovation but has still not shown any positive or negative attitude towards it. Therefore, the aspect of

newness of an innovation could be illustrated in terms of knowledge persuasion or decision to adopt (Rogers, 2010).

Rogers differentiated five types of adopters of innovation which includes; first the innovators, followed by the early adopters, third is the early majority, the fourth is late majority and the fifth is the laggards but a sixth group called non-adopters is sometimes included (Kaminski, 2011). The original five groups are shown in a bell-shaped diagram below, as Rogers estimated the percentage of each type.

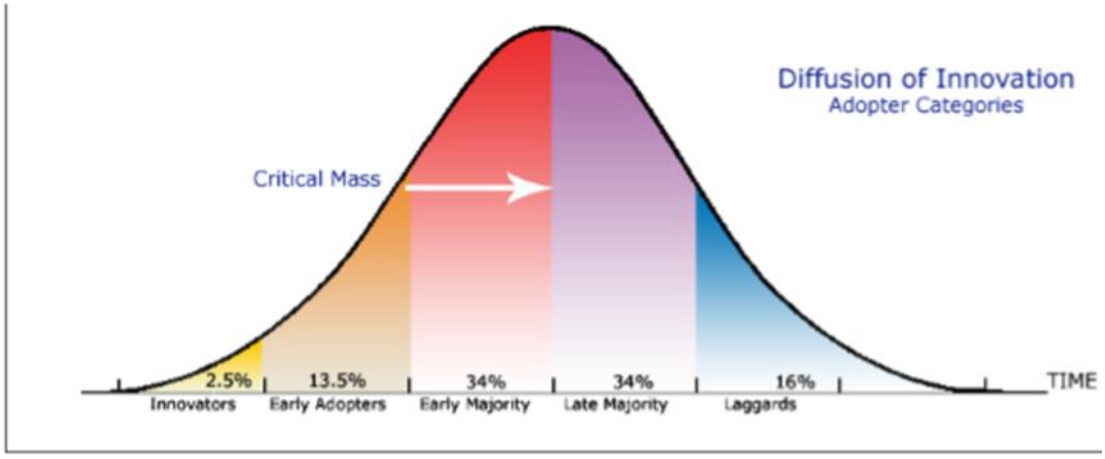


Figure 3: Diffusion of Innovation Source: Kaminski, (2011)

These five groups of adopters are used to explain the adoption of an innovation and how they affect the innovation adaption process.

The innovators also known as technology enthusiasts make up about 2.5% of the population and are adventurous risk takers who usually adopt an innovation faster than the other groups. They tend to appreciate technology, comprehend and apply complex technical knowledge to deal with any great level of uncertainty. They are motivated to be the change makers and open the way for the next group of adopters (Kaminski, 2011).

Early adopters also seen as visionaries who make up 13.5% of population are influencers, leaders of opinions and are seen to be role models who successful and respected in their social system. They want to be first and are highly adventurous as they

are attracted to high risk and high reward projects. They are not sensitive to cost; hence they serve as the perfect test subjects for the trail of an innovation (Kaminski, 2011).

The early majority which are about 34% of the population are also known as pragmatists, they are those who tend to deliberately contact and interact frequently wit peers and later serve bas as opinion leaders in the diffusion process. They are open to change in practices so as to enhance productivity; they avoid risk by only going into proven and trusted applications or technologies from trusted colleagues within the same industry. The early majority are cost sensitive, want to stay within a budget, require a simple training and make a slow steady progress (Kaminski, 2011).

The late majority with 34% of the population is also known as the conservatives, they are often technologically timid, are skeptical, cautious and very cost sensitive. They tend to respond to economic necessity, peer pressure and usually go for low-risk solutions. The late majority are only prompted by the desire to keep up with competition or a proven trend in an industry (Kaminski, 2011).

The laggards with about 16% of the population also known as skeptics are traditional and usually suspicious of innovations, they think of innovation technology as hindrance to operations. They make their reference to the past, which means they want to do things the way they have always done and usually only invest in a technology only if other alternatives are worst (Kaminski, 2011).

The goal of the theory of diffusion is to make the innovation satisfy the needs of all the five types of adopters, rather than move people within the five adopter groups.

Elements of diffusion

There are four main elements in the diffusion of innovation process. As seen in its definition it includes the innovation, communication channel (like social media platforms), time and the social system (an engaged set of interrelated units which could be individuals, organization, informal/subsystem that jointly solves problems to accomplish similar goals) (Rogers, 2010).

Stages of adoption process

There are five stages of the adoption process which includes;

First the awareness of knowledge stage, where a person learns about the innovation but does not get the full information about it. Persuasion or interest stage is the second stage when a person shows interest in the innovation and searches for additional information. Decision evaluation stage is the third where the individual applies the innovation in his brain for his present and anticipated situation in the future and then decides whether or not to give it a try. Next is the implementation or trail stage, here the individual finally makes use of the innovation. The fifth stage is the confirmation and adoption stage, where an individual makes the decision whether or not to continue or discontinue full use of the innovation (Kaminski, 2011).

Some innovations end up successful while others do not and there are reasons why. Individuals' perception of an innovation helps to explain different rates of adoption (Rogers, 2010). Rogers used five different innovation characteristics to explain their different rates.

- Relative advantage; it refers to the levels to which the innovation is perceived as better than the idea it desires to replace. The level of relative advantage could be measured in economic terms but other factors like social prestige factors, convenience and satisfaction are also usually important (Rogers, 2010). The higher the perceived relative advantage of an innovation, the more quickly the adoption rate is going to be and the lower the perceived relative advantage, the slower the adoption rate is going to be.

- Compatibility; refers to the level to which the innovation is considered to be in accordance with the existing principles, previous experiences and needs of potential adopters. An idea that is not consistent or compatible with the existing values and norms of a social system will not be adopted as quickly as a compatible innovation. For an incompatible innovation to be adopted it usually first of all requires the adoption of a new value system (Rogers, 2010).

- Complexity; it is the level to which individuals think the innovation is difficult to understand. While some innovations are easy to understand by most individuals in a social system, others are more complex and will be adopted slowly. Therefore, innovations that are easily understood will be adopted sooner than new ideas or innovations that requires an adopter to learn new skills and understandings (Rogers, 2010).

- Trialability; the level to which an innovation can be experimented on a smaller scale. Innovations that can be experimented on a limited scale will usually get adopted faster than innovations that cannot be broken down to smaller scale (Rogers, 2010).

- Observability; refers to the level to which potential adopters see the result of an innovation.

The Diffusion Process

The diffusion of innovation process is illustrated on the diagram below;

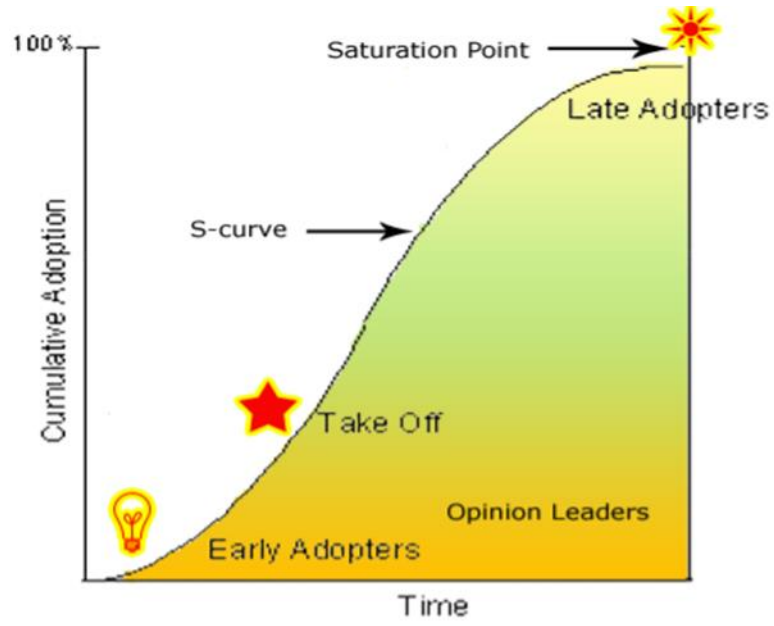


Figure 4: Diffusion Process (Kaminski, 2011).

Peer networks in diffusion of innovation theory

The concept of network is important in the diffusion of innovation theory. As seen in figure 3, after the influence of innovators and early adopters who are opinion leaders to create the critical mass, the critical mass then initiates the point of take off in the innovation adoption process. These leaders act as important change agents and influence their peers through peer-to-peer communication, they are seen as role models and involve in a lot of networking. An excellent example is how people are influenced through opinion leaders with the use of social media networks (Kaminski, 2011).

2.1.3 Social Constructivism Theory

The social constructivism theory is a learning theory by Lev Vygotsky in 1978 that sees learning as a social process where students corporate by engaging in group activities for significant learning to happen (Akpan, et al., 2020). It states that the framework through which humans experience, communicate and understand reality are language and culture. Vygotsky considered that language and culture has a significant role to play in both human intellectual development and the perception humans have on the world, that is learning concepts are transferred with the use of languages, interpreted and understood by experiences and association within a cultural system (Akpan, et al., 2020). Knowledge is viewed by a social constructivist as what students do together with other students, peers and teachers. The social constructivism theory acknowledges the interaction with others, the utilization of conversations, the social aspect of learning and knowledge application as very important in the learning process. This theory can be used as a backbone to explain the creation of opportunities for collaboration between students, teachers and peers in building understanding and knowledge (Akpan, et al., 2020). Kapur (2018) realized that social construction of knowledge happens through different means at different places, it could be through discussions in groups, coordinated interactions in an educational setting, group work, religious groups, market places or social media platforms (Akpan, et al., 2020). Collaborative learning is used as another name for social constructivism because it is focused on interaction, discussion

and sharing between students. The theory encourages a teaching method that promotes interactions, discussions and sharing amongst students which could involve small group discussions, class discussion and students working in pairs for an assignment or a project (Akpan, et al., 2020). By so doing students or learners can share ideas in groups, brainstorm together to solve problems or even create something new.

Implications of social constructivism on teaching methods

West wood (2008) viewed teaching methods as principle and techniques which teachers use to enable students to learn (Akpan, et al., 2020). The definition shows that teaching principles are ways designed to attain maximum students learning and the principles of learning can be seen in learning theories like the social constructivism theory. Since the social constructivism theory states that learning is established due to social interactions and is a shared experience rather than an individual possession. Kelly (2012) suggests that social constructivism can be put in practice in classrooms using methods such as group case studies, research projects, problem focused learning, group work and collaborative learning and others (Akpan, et al., 2020). For instance, the teacher can share the class in groups and give each a specific task which could include answering questions, brainstorming or discovering new concepts.

The social constructivism teaching methods can be grouped in two namely; discussion and activity/group work.

Discussion teaching method is a method of teaching where the students and teachers share their ideas about a specific subject. Omwirhiren (2015) explains discussion method as that which make use of guided interaction to point out a specific topic with the intension of facilitating students. Jegede (2010) pointed out that the method improves learning by giving students the chance to improve their communication skills, mental ability although it is time consuming (Akpan, et al., 2020). The teacher is the facilitator who guides students on the given task to make their discoveries. The teacher can guide students with rules on a topic to share their different views, this could be done either in small groups or as an entire class discussion. There are several advantages such as; boosting the interest of students, encourages the sharing

of ideas and make students active in the learning environment and thereby enhances their reflective thinking skills which gives them the ability to intensely analyze and understand problems (Akpan, et al., 2020). Sharing ideas can also help students to be open minded, tolerate and have respect for other people's view even if they don't support it. The discussion method could also be in ways like think-pair share, debates, role play, field trip and other social interactive method of teaching or learning which then promotes critical thinking research abilities, listening skills and knowledge improvement (Akpan, et al., 2020).

Learners Activity/group work teaching method; a method where small groups of learners work together to attain some objective. This method focuses on the reflection and reasoning of the learner to build their own learning; therefore, it involves pinpointing what they know already, that which they ought to know, including how and when to get hold of this information that can lead them to solving an issue (Akpan, et al., 2020). In this method the teacher still has the duty to enhance learning by guiding, supporting and checking the learning process in order to build the confidence in learners when handling problems while increasing their understanding. According to Akpan et al. (2020) this method of teaching and learning shows a shift in paradigm from the traditional teaching method students learn to do collative research and produce projects to show their knowledge. Bell (2010) sees this method as an innovative method of learning that teaches strategies useful for the success in the 21st century, for example a teacher can divide the class into several groups and assign specific task to each group and ten go from one group to another to monitor and guide activities.

Teacher's role in the social constructivism classroom.

According to the social constructivism theory, teachers should practice certain teaching mechanism which are;

- Centered on the learners; that is, the focus here should be on the students and not on the teachers. Students are given the opportunity to bring out their ideas, questions and actively participate in the learning process.

- Collaborative nature: this means that importance is placed on social interactions, as students work in groups to investigate, explore topics, solve problems to arrive at a conclusion. By so doing, they discover and construct their own knowledge.

- Teacher guided; this implies that the collaborative learning process of peer interaction is structured and mediated by the teacher.

Considering the above aspects, the teacher is supposed to make the classroom a social constructivist place that encourages interactions. Teachers are expected to promote the working together, sharing of experiences between students and discourage competition. The opinions, point of views or contributions of students should be seen as important whether the point is considered right or wrong. The guidance required to push the students into building knowledge in the right way as well as the needed resources are expected to be provide by the teacher. Teachers should create a learning environment where students can comfortably ask and answer questions, interact, while freely contributing to group discussions and ensure that the students learn from each other whether they are considered more or less brilliant (Akpan, et al., 2020).

The implication of social constructivism theory on students' learning

The social constructivism theory has several effects on students learning which includes the fact that students no longer only wait to be filled in by the teacher but they try to search and find the content of the lesson by themselves. As students are involved in asking questions, solving assignments and doing project work, they can work in groups formed and guided by teachers for productive collaborative learning. They learn to respect other people's opinion as they appreciate and investigate the lessons and new ideas gotten from their mates. Students should value, learn from every experience and be ready to share with other groups, thereby continuously improving their cognitive ability (Akpan, et al., 2020).

Importance of social constructivism theory on teaching and learning process

The social constructivism theory encourages active participation, corporation and interaction between students or learners, even with the teachers and others involved in

the teaching/learning process. It pushes students to build and use their own initiatives, develop their skills and improve critical thinking alongside their problem-solving ability. It encourages individual and collaborative learning in a classroom, thereby improving team spirit in students. The self-esteem of students increases as they have confidence in the self-method of learning. The teacher also encourages the students to believe in themselves by guiding the students to show that they can perform a task. It improves the active creating of knowledge where learners search and explore the available resources. There is solid learning and knowledge building due to the fact that students tend to retain facts they uncover and build on their own than the ones handed to them by their teachers (Akpan, et al., 2020).

2.2 The concept of social media

According to Jacka and Scott (2011), social media keeps on changing and so it is not easy to give a permanent definition for it, they argued that there is no fixed recognized definition of social media. Nevertheless, over the past years some scholars have given some definitions in different perspectives (Bernard & Dzandza, 2018).

The definition given by Kaplan and Haenlein (2010) referred to social media as applications which are internet based and facilitates the creation and exchange of content which is user generated. They mentioned that social media was first known in 1979 when Tom Truscott and Jim Ellis from duke university came up with the Usenet, a worldwide conversation mechanism where internet users could post public message. Also, in 1998 Bruce and Susan Abelson discovered “open dairy” which was an early social networking site where some members of certain communities distributed their daily dairy online, it was then that the word blog was used for the first time (Mowafy, 2018). Another definition of social media the oxford dictionary (2011) called social media the website applications used for social networking. Dearborn (2014) defined social media as a communication channel that is widely known, very broad and fast, proven to be highly effective, trusted by an extremely large number of people, concerns

individuals, brands, information, entertainment and knowhow, to discover and share content (Bernard & Dzandza, 2018).

Given the above definitions, one main point can be picked about social media which is the bottom line of them all that social media involves certain forms of communication among individuals over the internet. Social media according to Boyd et al. (2007) started in 1990s with "Six Degrees" as the first social media in 1997, with this technology people were enabled to create a profile and make friends. A number of community tools such as black planet, MiGente and Asian Avenue began to support a variety of combination of profiles and publicly articulated friend from 1997 to 2001 (Bernard & Dzandza, 2018). Social media has improved tremendously since that era, there exist unaccountable websites today which are developed either for specific purpose, local use or international use. Kaplan and Haenlein (2010) mentioned that before the development of the internet "Web 2.0" entered its second stage in the late 1990s, users browsed solely with the intention of getting information by reading from a variety of sources and watching videos (Mowafy, 2018). Kaplan and Haenlein (2010) also mentioned that during that period, the users at were known as consumers rather than participants. Ritzer and Jurgenson (2010) then mentioned in their study that in the development of the second stage of the internet represented by "Web 2.0", named "User Generated Content" which means the users of the internet were no longer referred to as customers or participants but "prosumers" and therefore they produce media and consume media too (Obar & Wildman, 2015). The new affordances which were made created a possibility for the dynamic interaction and the application and the of social media (Mowafy, 2018). According to Dijck (2011), for a tool to be known or regarded as a site for social networking, it has to have certain common features such as enabling the ease of communication between users for sharing of information, messages and pictures (Mowafy, 2018).

According to Mowafy (2018), Grahl (2012) explained different forms of social media as cited in Alwagait (2015) as follows;

- Social networking sites; refers to sites with services which users create a profile to connect with other users, friends and families or people with a similar

background or interest. The user's personal information is usually in the profile and the system makes available a variety of ways users can interact with each other. Examples include LinkedIn and Facebook.

- Bookmarking sites; sites with services that offers users the ability to search, save and arrange links to different internet websites and resources. It can also allow the tagging of links so that they can be shared and can easily be searched. Diigo and Delicious are examples of bookmarking sites.

- Micro blogging sites; these involves sites with services that is a combination of social networking sites and blogging but users have to subscribe to make use of the services and the exchange of messages are minimal in accordance to size. Micro blogging example includes Twitter.

- Media sharing sites; with this type, users can share media like photos and videos and also upload their own contents. Here users can also comment and tag media, for example YouTube and Flickr.

- Social news sites; here, news articles and links to external articles posted by users and users can then vote on these posts. Those links or articles with the highest number of votes are then shown on the site more. Digg and Reddit are two examples.

- Blogs and forums; forums allow users who are registered to go into discussions with other users with the use of post messages. Meanwhile blogs could be seen as online dairy of thoughts, where users are given the ability to comment on the blog postings. WordPress and Blogger are examples.

Social media classification has been beneficial to scholars and other individuals for the ease of identifying and studying a particular social media type. But today, because of the high social media expansion a difficulty may arise as one may ponder bunder which category a newly developed social media will fall (Bernard & Dzandza, 2018). According to Heyam (2014), social media is seen to be the fastest growing web application in the 21st century and this fast development is empowered by the

enhancement in technology. Social media has taken a dimension with a massive increase in the number of users especially through the use of smart phones that support social media applications (Bernard & Dzandza, 2018). It has enormously been beneficial to people and people are still benefiting from it especially when it comes to communication. Humphreys (2007), in his study called "Mobile Social Network and Social Practices" says social network applications have now moved from computer to mobile phones, the network communication and information can be unified into the public space. Mobile phone services allow users to create, grow and strengthen their social media relationships. Huge amounts of data are gathered by social media networks about the users but they also provide some kind of privacy for users (Bernard & Dzandza, 2018). LinkedIn according to Boyd and Ellison (2007), decides what contents users can post and see in relation to their subscription and the fees they paid. Meanwhile, the Facebook user's profiles can be seen by all users of that network, a profile can only be hidden if the owner changes the privacy settings (Mowafy, 2018). It is evidence that social media and its services provide has enhanced the life of millions, but despite the benefits it brings, it also has some disadvantages like separation from the reality, privacy issues and being targeted by advertisers are the common worries of social media (Mowafy, 2018).

2.2.1 Social media impact on the academic life of students

The use of social media to improve learning process could be in different ways, target different skills and use different tools (Mowafy, 2018). Since the introduction of social media networks, the students' learning experiences has taken a different turn and some studies like that of Wheeler et al. (2008) and Rifkin et al. (2009) have confirmed that social media is vital in the academic life of students of higher education. They mentioned in their study four main benefits of the usage of social media to students which includes; improving relationships, leads to motivation, gives personalized course material, develops the ability to collaborate and grow in knowledge (Bernard & Dzandza, 2018). According to Wodzicki et al. (2012) stated that social media has the potential to develop self-directed learning skills in the students, reason being that

students are able to use these platforms to explore and gather information on specific subjects by accessing data that exist online or even communicate with similar minded students to share ideas and construct knowledge with the use of formal and informal activities. But they also noted that there is little knowledge about how the opportunities informal learning are utilized, as well as the behavior of the students who go for these activities. Wodzicki et al (2012) carried out a study to investigate academic knowledge exchange on a total of 774 StudiVZ students who were all Facebook users. The study included 498 females and 276 men with ages ranging from 19 to 29 years. The result of analysis showed that the number of students who used social media as a tool to construct knowledge is one fifth, but more of them, freshmen especially, used it for socializing like getting used to the university surrounding and networking. Wodzicki et al (2012) concluded that the exchange of knowledge and the usage of social networks for social interactions ought to be seen to inter-related rather than seeing it as mutually exclusive (Mowafy, 2018).

Jain et al (2012) in their study titled "the impact of social networking in promoting education" showed that students get benefits of acquiring knowledge as a result of chatting and interacting with other students, teachers and even external sources. Social media as educational tool empowers learning by offering the opportunity for both teachers and students to connect in an exciting new way which makes room for a flexible method of learning (Bernard & Dzandza, 2018). To examine the link between social media and students' performance, Camilia et al (2013) conducted a study with students with a total response of 536 to the survey showing the number of students who use social media per day where 97%. Facebook was the most used, followed by 2go and then YouTube. A greater number (91%) of those students used below four hours on social media for a day. One quarter said that they are certain that there is a positive effect between social media and their academic performance, 32% believed it had a negative impact and the other part believed there was no effect. The number of students however who indicated that they made use of social media for learning purposes were about 75% (Mowafy, 2018).

There are however studies that points out that social media can distract students, waste their available study time and encourages procrastination. Kuppuswamy & Narayan (2010) in their study argued that social media networks act as a distraction and disrupts students' concentration in learning and pushes it towards non-educational activities like unnecessary and unproductive chatting (Bernard & Dzandza, 2018). Generally, some studies imply that students mainly use social median for socialization and not for academic reasons. A discovery was made by Raacke & Bonds (2008) about how students in college of about 20-year-old who use Facebook or Myspace, use these platforms to get in contact with friends (91.1%), or to look at and post pictures (57.4%). But the percentage that stated that they used it for academic pursuits was only 10.9% and the amount with profiles that mentioned their courses were just 12.9% (Mowafy, 2018). Alwagait et al (2015) studied social media's role on academic performance on 108 students in Saudi. The survey showed that the most known social media network was twitter and then Facebook. The respondents who agreed that too much usage of social media affected their performance negatively amounted to 60%, they pointed out that a maximum of 10 hours of the use of social media per week would create a possibility to avoid a negative effect on their performance academically. Some studies have mentioned that the hours invested on social media platforms can deprive students of enough study time (Mowafy, 2018).

According to Mowafy (2018), Kirschner & Karpinski (2010) made a point that, while being engaged in academic activities control and discipline is needed, which is not something most students have on their social media and are likely to spend more of their time on social media than studying or even resting. There are other negative effects that could affect the academic performance of students. According to Davies & Cranston (2008), some risk that comes with the use of social media could include criminal activities like fake contacts, sexual harassment and abuse, identity theft and unpleasant advertisement (Bernard & Dzandza, 2018). Also, O'Keeffe & Clarke-Pearson (2011) mentioned other concerns and challenges of social media network like Facebook depression, cyber bullying, sexting, online harassment and privacy issues (Bernard & Dzandza, 2018).

Despite the criticism of social media and that some studies see social media as a distraction to the academic life of students, some other studies have had a more positive view of social media which depends on how students interact, perceive and use these platforms. Some of these studies concluded that it is not only the time used online or on these social media platforms that can cause of poor performance but there could be other factors like the activities a student engages in when using these platforms and how the studying time is managed.

2.3 The Concept of Knowledge sharing

Tan (2009) mentioned that since the Ancient Greeks first began to learn about human knowledge, knowledge has been a disputed topic. The saying "knowledge is power", which is a well-known slogan that came from Francis Bacon (1561-1626), has been argued since the early 1990s because knowledge is a complicated, controversial and ambiguous concept. Knowledge can mean something different for each person and therefore there are various perspective of knowledge. Holsapple (2013) saw knowledge as being able to do something or to carry out a type of skill, he also thought of knowledge to be an intangible and human asset which can be exchanged through interaction between two or more (Abbas, 2018). Knowledge however could be either tacit which is knowledge in the minds of individuals rooted in action and experiences or it could be explicit which is knowledge that has been described in language. Explicit knowledge is known as precise and codifiable, while tacit knowledge is known to be more intangible and personal (Tan, 2009).

Knowledge sharing is seen to involve the communication and transfer of knowledge, in both tacit and explicit forms, between a group or groups of individuals. According to Serban and Luan (2002), knowledge sharing is an action through which knowledge like information, skills or expertise is exchanged amongst individuals or organizations (Kalu, 2019). Another definition by Lin (2007) refers to knowledge sharing as a social interactional culture that involves the exchanges of knowledge, experiences and skills between individuals or employees (Kalu, 2019). Knowledge

usually gains its value when it is shared and can sometimes be regarded as meaningless without sharing. These days, knowledge sharing has become the resource for competitive advantage and profit making in business organizations. The habit of sharing is important for enhancing and stimulating the creation and sharing of knowledge but within universities, there can usually be a pressurized research culture that often leads to individualistic patterns of doing work (Abbas, 2018). Knowledge sharing is considered to be a wide concept which involves the creation, the assimilation of new knowledge and interactions it involves, therefore this relates to a two-way action between two or more participants. The sharing process involves the gathering, arranging and conversion of knowledge from one organization to another or from one person to another, in such a way that the value increases when it is shared (Van, et al., 2004; Abbas, 2018). If knowledge sharing is properly done, it can significantly improve the quality of work done, improves decision making skills and lead to efficient problem solving (Widen-Wulff & Suomi, 2007; Yang, 2010; Abbas, 2018).

2.3.1 Channels for knowledge sharing

To have an effective knowledge sharing procedure, there need to be appropriate and efficient systems in place. According to Marshall and Novick (1995), a typical method for knowledge sharing is personal interaction that is face to face, where a verbal language alongside expressive sounds and actions or gestures such as pointing, laughing, smiling, head nodding is used by a person (Abbas, 2018). Face-to-face interactions seems to be the most effective means of passing on knowledge as feedback can be given right away, clarification and understanding of the knowledge in question can be immediately verified (Abbas, 2018). There is the possibility for misinterpretations to happen when using other forms of social interactions to share knowledge, but could be avoided when the interaction is face to face (Meherabian, 1971; Abbas, 2018). It has been debated and concluded that it would be inappropriate for face-to-face communication to be considered the most effective medium of knowledge exchange, given that the delivery of what is required may be different and depends on the situation and the available competencies (Dennis & Valacich, 1999). Van der Kleij et al. (2009) also argued that every medium has its own strengths (Abbas, 2018).

Written documents that can be made available either electronically or in physical paper form can also be used to share knowledge. According to Winter (1987), the sharing of written documents is the main appropriate way of communicating explicit knowledge. Duncan and Moriarty (1998) mentioned that written communication or messages can facilitate both two-way and one-way interactions and so can enhance improvement in relationships (Abbas, 2018). Furthermore, a written message may be less effective when compared to the other communication types without proper decoding (Abbas, 2018).

Researchers have been influenced by the rising relevance and importance of web-based and internet technologies to focus their research on social networking platforms like wikis and blogs and also how they these technologies impacts knowledge sharing in students. Just as face-to-face interactions and conversations can be an effective means for knowledge sharing, social networking platforms are also effective tools students use to share knowledge (Kalu, 2019). According to Abbas (2018), computer-mediated communication like social media has become popular in recent years and has been used in place of face-to-face interactions. Computer-mediated communication could be by email discussion and other structural information mechanism, such as discussion boards and bulletin, Weblog and computer Wikis, and other discussion platforms where there are, primarily, typewritten messages (Abbas, 2018). Some Synchronous forms of Computer-mediated communication could involve Skype video and voice calls, video conferencing, and messenger (Abbas, 2018). Computer-mediated communication has an advantage of consistent overcoming the barriers of time and distance (Dimmick, et al., 2000). Vonderwell (2003) carried out a qualitative study which examined students' experiences in taking inline courses, be argued that Computer-mediated communication tools can contribute to a knowledge foundation for the effective planning and implementation of methods for successful learning (Abbas, 2018). Chiu and Wang (2008), made a criticism on the effectiveness of the mechanisms for online learning, he argued that for the effectiveness to be certain, the web-based learning systems should not have delayed responses (Abbas, 2018).

Harley et al (1999) however explains that the type of channel used depends the type of knowledge (tacit or explicit) to be shared and added that tacit knowledge requires face-to-face communication while explicit knowledge could be transferred through electronic communication mechanisms (Kalu, 2019). According to Frost (2016) the sharing of explicit knowledge happens when available knowledge is shared between two or more people or organizations. sharing explicit sharing can be effectively and successfully done when;

- There is awareness: meaning the receiver knows that the knowledge is available.
- There is articulation: when the person sharing the knowledge can describe the information.
- Guidance: the knowledge must be defined, organized and differentiated in domains to provide access to relevant material and avoid overload.
- Completeness: knowledge sharing in the form of both self-published knowledge and centrally managed
- Access: the knowledge receiver should be to access the knowledge provider (Kalu, 2019).

Meanwhile Frost (2016) also explained that sharing tacit knowledge happens through different types of socialization. Tacit knowledge could be difficult when it comes to identification and codification but methods of sharing tacit knowledge includes informal interactions like the daily interactions between individuals within home, school or work environment, (Kalu, 2019). Also, embedded knowledge according to Serban and Luan, (2002) and Frost (2016) could be shared through processes, products routines and other ways such as debriefings and scenario planning: alongside a discussion of what took place, and how it could have gone differently (Kalu, 2019).

2.3.2 Knowledge Sharing Behavior in Academic Environment

In an academic environment there are students who are willing and open to sharing their knowledge with other students and there are also students who are less willing to practice knowledge sharing. There are several factors responsible for the knowledge sharing behavior of students and we will discuss a few below;

- Reputation: reputation is considered as one factor that increase knowledge sharing among students and academic staff. This could be explained with the theory of social exchange by Blau (1964) which states that individuals participate in social interactions with the expectation that it will lead to some kind of social reward like reputation, respect or status (Kalu 2019).
- Self-efficacy: this refers to the believe that a person has in their ability to carry out a particular task. A person might self-evaluate their efficacy and it can affect their decision on what action to take, there this can influence their knowledge sharing behavior.
- Enjoying helping others: the motivation of the students affects the success of an institution in the sharing of knowledge, students who enjoy helping others tend to be motivated to share knowledge. There is therefore a positive relationship between enjoying to help other and behavior in knowledge sharing.
- Religiosity: religiosity refers to a religious commitment or the degree of religiousness of an individual who is likely to behave in accordance with the norms, values, practices, beliefs and rules of their religion. This can be a strong influence on the knowledge sharing behavior of an individual.
- Interpersonal Trust: trust is an important element social interaction and plays an essential role in the knowledge sharing process. According to Lesser and Levin (2003) interpersonal trust can build a solid foundation for learning and knowledge transfer. There people are motivated to interact and share knowledge based on the amount of trust they have on the other person (Kalu, 2019).

2.3.3 The value of knowledge sharing among students

According to Cummings (2004), the sharing of knowledge means coming with others to solve problems, developing new ideas or implementing new ideas and helping others to learn. Miller and Chamsey (1996) mentioned that knowledge is an intangible asset that is valuable to create and sustain competitive advantage in institutions like educational institutions (Al-Shibly, 2019). Knowledge sharing is not just beneficial for the success of business organization but it is also beneficial for the success of the academic life of students. Students usually require help and assistance from peers and teachers for better performance and growth, this is usually achieved through the interaction and exchange of knowledge. This leads us to the idea of peer tutoring where Forman and Cazden (1985) pointed that it is necessary for the more knowledgeable students to tutor the less knowledgeable students, by so doing the less knowledgeable students catch up with the knowledge of the more knowledgeable ones (Kalu, 2019). Lavery et al (1999) later argued that by so doing, students might end up discussing only what they share in common and ignore the knowledge that they possess uniquely. They meant that there is sometimes the risk for students not to benefit anything from the knowledge sharing process because of the absence of new knowledge being shared. Individual students are more likely to acknowledge the importance and benefits of knowledge sharing when they place equal on knowledge sharing (Kalu, 2018). Therefore, if students place a high value on the knowledge they are expecting to receive from peers, the more likely they are to share knowledge.

2.3.4 Barriers to knowledge sharing among students

Though there a several barriers to sharing knowledge amongst students like the fear of being seen as a show of, fear of providing wrong information, lack of self-confidence or shyness, Yeung and Majid (2007) dived deeper to bring to mind the idea of social relationships. They claimed that a contributing factor to the barrier of knowledge sharing is the lack of a deep or strong student relationship. According to Yang and Chen (2008), there exist two barriers in social networking which are; the

difficulty in getting relevant participants to interact with and getting the relevant knowledge. Yeung and Majid (2007) suggest that these barriers could be as a result of the lack of social relationships amongst students (Kalu, (2019). Another recent barrier has been as a result of the Covid19 pandemic that has led to social distancing and a decrease in the ability for students to socially interact and share knowledge. The sharing of knowledge amongst students is very relevant for students and their education journey that they have relied on social media platforms to maintain some degree of social interaction and share knowledge.

2.3.5 Academic staff function in supporting sharing of knowledge

Knowledge sharing is essential in the academic environment not just for students but teachers also have a role to play in establishing a knowledge sharing culture for a successful teaching/learning environment, knowledge sharing amongst teachers can go a long way to enhance performance. According to Kuznetsov and Kuznetsova (2011) and Kelly and Moogan (2012) there is a general agreement that academic staff groups that function well in interpersonal collaboration have a positive association with better student performance or achievements and generally, a more productive higher education (Abbas, 2018). There is an assumption that more effective groups of academic staff will develop more relevant plans for improvement. Wheelan and Tilin (1999) also added that, such plans can be implemented by teachers when they have loyal support as well as individual power in both classrooms and the school as a whole (Abbas, 2018). Based on this, Wheelan and Kesselring (2005) saw that teamwork amongst academic staff is being as seen to have great importance for many higher education institutions. According to Block and Khvatova (2013) there is the perception that a group of academic staff will perform well when the individual members feel they are able to be involved in discussions and decision making (Abbas, 2018).

2.4 The concept of eLearning

Distance learning through mail became popular in 1970s and 1980s until the emergence of the usage of the internet. The digital learning environment was introduced in the late 1990s and the World Wide Web started as a distributed learning system to assist distance learners and on campus students (Bashiruddin, et al., 2010). Over the years, the use of eLearning in universities have increased tremendously, eLearning systems have been used to support the traditional method of teaching and learning. The e-learning system of education has been of great benefits to higher education institutions especially in recent times as a result of the covid19 pandemic that led to social distancing and the in ability to carry out the traditional face to face system of education.

Various ways have been used to define eLearning as learning with the use of different technologies like mobile learning, remote learning, learning management systems (LMS), advanced distributed learning (ADL), Computer Based Training (CBT), Internet-based training (IBT), distributed learning (DL), Web-based instruction (WBI), distance learning and online learning (Khan, 2005; Bashiruddin, et al, 2010). eLearning is simply known as the use of electronic technology for communication and learning. The American Society for Training and Development defines eLearning as anything delivered, enabled, or facilitated by electronic technology for explicit purpose of learning (Fee, 2009; FitzPatrick, (2012). eLearning can also be seen as the usage of information and communication technologies to carry out online learning or deliver teaching resources (Arkorful, & Abaidoo, 2015). Abbad et al (2009), saw eLearning as any learning that is carried out electronically and simplified their definition to mean learning that is empowered by the use of digital technologies (Arkorful & Abaidoo, 2015). Another definition by Fry (2000) and Rosemary et al. (2002) referred to E-learning as "Delivery of training and education through networked interactivity and distribution technologies" (Bashiruddin, et al, 2010).

Sharpe et al (2006) mentioned that eLearning has become popular in many higher education institutions for the delivery of distance learning. Mayes and De Freitas (2005) consider e-learning a cost-effective means to reach distance learning students and a tool for making effective assessment of learning outcomes (Aguti, 2015). Apparently,

e-learning mechanism enhances the instructional ability of instructors and the learning activities of students which is considered an improvement in the traditional classroom system of learning (Rosenberg, 2006; Snart, 2010; Aguti, 2015). eLearning systems enables students and teachers to interact from anywhere with different instructional material like text, pictures, video and others through Internet. According to Khan (2005), eLearning system is used for a diverse, open and flexible learning, he added that eLearning can be examined as an innovated method for delivering, learner focused, interactive and enhanced learning environment to anyplace, anyone, anytime by using the features and resources of different digital technologies along with other types of learning materials suitable for a flexible, distributed and open learning environment (Bashiruddin, et al, 2010).

2.4.1 The use of e-learning in education

According to Wang et al (2003) there has been radical changes in the traditional method of teaching and learning as a result of the development of multimedia and information technologies alongside the use internet as a new technique of teaching (Arkorful & Abaidoo, 2015). Yang and Arjomand (1999) mentioned that the development of information technology has made more choices for education today. Educational institutions and school agendas have realized that e-Learning has the prospect to transform knowledge, performance, people and skills (Arkorful & Abaidoo, 2015). Higher education institutions have increasingly considered eLearning to be of importance. Love and Fry (2006), mentioned that colleges, universities, and other higher learning institutions rush to develop online course capability in a fast-advancing online education market (Arkorful & Abaidoo, 2015). The emergence and growth a variety of eLearning mechanisms have been causing several changes in institutions of higher education, especially when it comes to the mode of delivering education and the process of support (Dublin, 2003). There are different ways of employing the methods in education as well as different types of eLearning (Arkorful & Abaidoo ,2015). Algahtani (2011), uncovered in his study of the experience and effectiveness of eLearning in Saudi

Arabia that there are three different models of eLearning usage in education which includes the "adjunct, online and blended e-Learning as explained below;

The "adjunct e-Learning mode happens when e-Learning is used to assist the traditional classroom method of learning to provide relative independence to the students (Algahtani, 2011). With the blended e-Learning mode, according to Algahtani (2011) and Zeitoun (2008) this is a way of using e-Learning where course materials are delivered and the explanations are shared between the traditional method of learning and eLearning method in the classroom setting. For the online mode is completely with the complete absence of the involvement of the traditional learning method. This form of usage focuses totally on eLearning to see that there is maximum independence of the students (Algahtani, 2011; Zeitoun, 2008; Arkorful & Abaidoo ,2015). Further, Zeitoun (2008) continued to explain that the online model could be divided into individual and collaborative learning that is made up of synchronous and asynchronous learning (Arkorful & Abaidoo ,2015)

A model for using eLearning in education

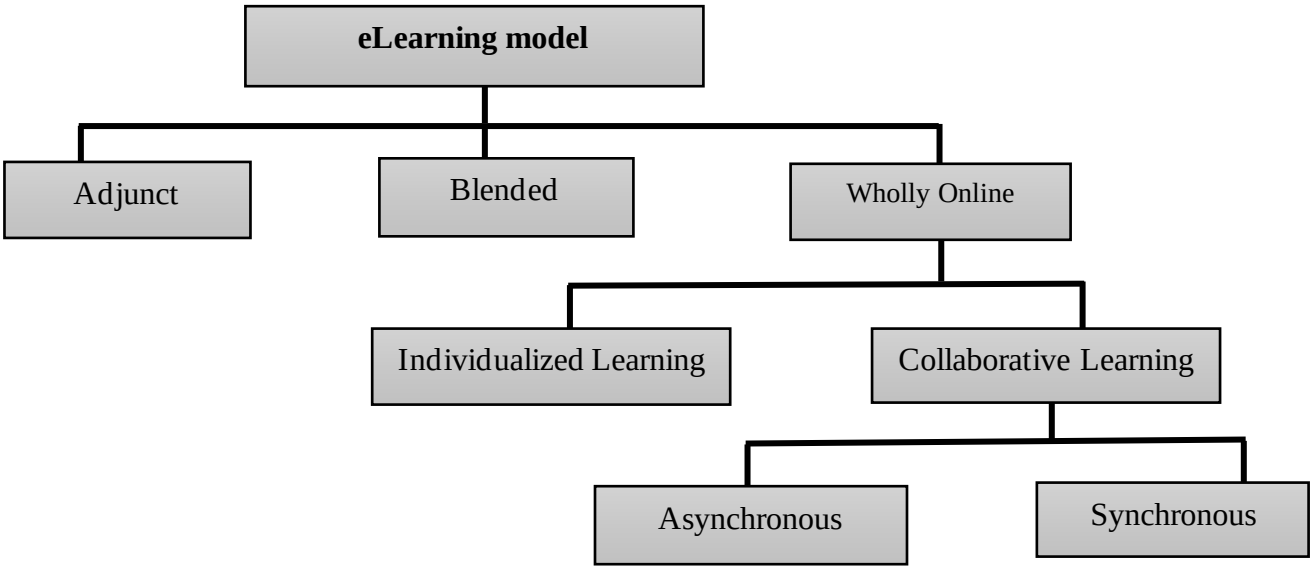


Figure 5: A model for using eLearning in education

Source: Adapted from Algahtani (2011) (Arkorful & Abaidoo ,2015)

2.4.2 E-learning modes of delivery

E-learning has been widely used to enable the exchange of information and the sharing of knowledge. E-learning delivery dependents on the processes and applications like computers, internet technologies, web technologies, social networks and new instructional technologies (Anderson, 2007; Aguti, 2015). According to Clark and Mayer (2003), eLearning modes of delivery are usually categorized as synchronous and / or asynchronous which includes interactive multimedia, social networks, educational games/simulations and internet technologies. The use of instructor-led group work sometimes joins both asynchronous and synchronous learning events (Aguti, 2015).

Synchronous e-learning: This type of eLearning happens when the students and lecturers are able to interact with the use of live online communication and discussions no matter the location of each and every one participating (Clark & Mayer, 2003, Snart, 2010; Aguti, 2015). According to Snart (2010), students benefit from this system of e-learning because they have the ability to get immediate feedback on live online interaction. Synchronous e-learning according to Clark and Mayer (2003) is enhanced by use of tools such as; audio conferencing, video conferencing, white boards and chat rooms, these are often offered through learning management systems like Moodle (Rice, 2011). For an effective Synchronous e-learning, there is need for high-quality infrastructure and live online presence (Aguti, 2015).

Asynchronous e-learning: Unlike Synchronous e-learning, Asynchronous e-learning does not demand for real-time online presence of the students and lecturers (Snart, 2010; Gagné, et al., 2005). In asynchronous e-learning students are in control of their time and learning, it is self-paced (Snart, 2010), but students are not able to get immediate feedback from the lecturers (Aguti, 2015).

2.4.3 Key success factors of eLearning in education

Soong et al (2001) conducted research to know about the key success factors of eLearning by carrying out a sample survey of students in three online courses. It was realized that the following five factors had a positive influence on results in eLearning courses (FitzPatrick 2012):

- Technical skills: the teacher as well as the student have to possess the needed skills and know how to work efficiently and effectively in an online setting
- Attitude: The teacher and student are required to have a positive behavior towards online learning.
- Human issues: The teacher or instructor needs to have the skill to create an enthusiastic online environment and motivate the online students online.
- Technical support: It is important to solve technical difficulties of any form, so that the complete purpose of the course can be achieved.
- Collaboration: The authors highlight the importance of having high levels of communication and collaboration to guarantee success.

Khan (2005) also added that one needs to fully examine the key success factors encompassing the various dimensions of eLearning environments in order to create and have a flexible, effective and distributed eLearning environment for diverse learners. He grouped and classified the key success factors into eight categories (FitzPatrick, 2012):

- Management: This has to do with managing the content, the delivery, and the maintenance of the eLearning system and making sure that there is proper management.
- Pedagogical: There is need of the analyses of the teaching method and process of teaching.
- Institutional: The availability of appropriate infrastructure is essential to add to the success of the operation of the eLearning environment.
- Interface: the ease of use and easy access of the actual site design and content navigation is important.
- Support: there should be the availability of resource support and communication support.

- Ethical: there should be the consideration of culture, political, social, geographical, and legal issues.

- Evaluation: The evaluation of the eLearning program and the assessment of the students' learning should be properly done, as well as the evaluation of the eLearning content development process

- Technological: The appropriate software and hardware should be used

Also, Peslak (2003) was able to formulate and test his key success factors of eLearning after deeper research, Peslak pointed out that an increasing level of success is achieved in eLearning by taking in consideration the following key success factors (FitzPatrick, 2012);

- Technology: A strong technical mechanism for course communication, assistance and course delivery is important for good performance and the success of any eLearning course.

- Clarity: the focus in all the phases of teaching and learning should be clear understanding with unambiguous instructions.

- Variety: The teachers need to practice multiple pedagogical methods in order to enhance different learning styles.

- Communication: communication is also essential and it should be clear, specific and concise with the use of clear written documents in course syllabus, Emails, Instant Messaging and Forums.

- Content: Course content needs to be clearly inspected. The content of the course ought to closely match the objective of the course in order to facilitate students in achieving their learning goals.

- Empathy: students face many difficulties in online education, it is therefore important that the teachers understand these problems and apply empathy in both course design and course problems.

2.4.4 Advantages of eLearning

The adoption of eLearning has several advantage and benefits; some may even consider it to be the best system of education. Some studies have stated the ability to focus on individual need as an advantage of eLearning. Like Marc (2000) noted in his book "review on e-learning strategies for delivering knowledge in digital age" that the focus on the individual needs of learners as an important factor in the process of learning, rather than on the instructors' or educational institutions' needs is an advantage of eLearning (Arkorful & Abaidoo, 2015). Below are other advantages identified by Callan et al (2010) and Garrison (2011), according to Kattoua and Alrowwad (2016).

- eLearning enables Students to able to track their learning progress.
- Students get the opportunity to learn by the means of different learning activities that has to do with various learning systems that students have in eLearning.
- eLearning makes room for excellent interaction amongst instructors and students by using chat room, discussion boards and emails.
- eLearning presents students with the chance of getting general resources and information to match up the level students' interest and knowledge.
- eLearning is affordable, less expensive to deliver and not time consuming.
- Students can set the pace of their studies, both slow and quick learners can set the pace according to their ability and leads to increases retention, satisfaction and reduces stress.
- It enables learners to grow knowledge by using current technologies and the Internet.
- It makes flexibility possible, that is course material is available anytime anywhere and the students can access the materials anywhere and at any time.
- eLearning supports the face-to-face teaching method and can improvement in the quality of teaching and learning.

Khan (2005) mentioned that the impact of eLearning on the ethics of education are guaranteed because environments for e-learning are more tolerant and offers equal access to information irrespective of the learners' locations, their ethnic origins, races and ages (Arkorful & Abaidoo, 2015). According to Singh (2001), e-learning system of education enables students to achieve improved communication with other students and faculty staff or instructors. Hemsley (2002) pointed that eLearning offers students who relocate or travel accessible resources to continue learning and gives the chance for both full time and part students to participate in their chosen courses from any place (Arkorful & Abaidoo, 2015). Sadler-Smith (2000) and Standen et al (2001) examined that adoption and implementation of e-learning provides the opportunity for disabled people to further their education from any location (Arkorful & Abaidoo, 2015).

2.4.5 Disadvantages of eLearning

Despite the advantages and benefits of eLearning, there are also some disadvantages like no or little contact with instructors, issues of how to navigate within the system with a difficult learning curve, students need to be actively involved in the learning process, technological problems and the need for increased lead time to get feedbacks on assignments (Holmes & Gardner, 2006; Masa'deh, et al., 2013; Kanaan, et al., 2013; Tarhini, et al., 2013b; Kattoua & Alrowwad, 2016). According to Wagner (2008), developing countries difficulties with eLearning in aspects like the resistance of students to use eLearning systems, staff members' training, inadequate eLearning strategies, lack of sufficient fund to acquire new technology (Kattoua & Alrowwad, 2016). Bouhnik and Marcus (2006) stated the following problems with using eLearning (Kattoua & Alrowwad, 2016):

- It requires a high degree of self-discipline, therefore students who have little incentives or unhealthy study practices may not meet up with their studies.
- eLearning systems usually have the absence of a learning atmosphere.
- With eLearning students usually lack a strong study structure to push learners to study and learn.

- Unlike the traditional physical classroom learning method, eLearning method could be less productive when it comes to clarifications, explanations, and interpretations.

- There is a lower contact level with eLearning system, there is low direct interactions and limited interpersonal relationship among students and instructors.

Arkorful & Abaidoo (2015) mentioned other disadvantages from some other authors (Collins, et al. 2002; Klein & Ware, 2003; Hameed, et al, 2008; Almosa, 2002; Akkoyuklu & Soylu, 2006; Lewis, 2000; Wegner, et al. 1999) includes;

- eLearning may not have a positive effect on improving the communication skills of the students, learners may acquire a good academic knowledge but they might not get the needed skills to share the knowledge they acquired with others.

- It may be difficult or impossible, regulate learners' activities like cheating because examinations and assessments in e-learning are often supervised by proxy.

- Inappropriate use of copy and paste, plagiarism, piracy, cheating and inadequate selection of skills are some issues of eLearning.

- eLearning may also cause heavy use of some websites and lead to congestion which may cause unexpected costs in both time and money.

- eLearning cannot be efficiently used by all disciplines in education. Scientific fields for instance that requires hands-on practical experiences face difficulties with using e-learning.

- E-learning may limit the role of instructors as being in charge or control of the educational process and also negatively impact socialization skills.

CHAPTER 3

METHODOLOGY

The explanation and justification of the philosophical approach will be seen in this chapter with the procedures and the methods that were employed in carrying out this research in order to get answers to the research questions and attain the aim of the research

3.1 Philosophical Assumptions

Guba and Lincoln (1994), described research philosophies as the group of feelings related to the way people study the world (methodology), the way the world functions (ontology) and the way it ought to be recognized (epistemology). Methodology as mentioned by Mingers (2003), Orlikowski and Baroudi (1991), Blaikie (2000), refers to the general principles that highlights how we illustrate that the knowledge created is reliable. Meanwhile ontology ask questions concerning the from and type of the reality to be known and epistemology ask questions concerning what can be known and the relationship of the knower. The four schools or thoughts as mentioned by Lincoln et al. (2011), Guba and Lincoln (1994) that highlights the main paradigms that structure the social science research are critical theory, constructivism or interpretivism, positivism and post positivism.

In critical research Myers and Avison (1997) saw it to presume that "social reality is historically constituted and it is produced and reproduced by people. Critical researchers recognized that although people deliberate actions to change their social and economic situations, the ability for them to do so is restricted by different forms of political, ethnic and social domination". According to Bryman and Bell (2011), there are two major techniques of exploration in crucial studies which are observation and interview method. The positivist approach is seen to be more useful for our research unlike the critical approach and interpretivist approach.

With constructivism or interpretivism research according to Bryman and Bell (2011), constructions and social actors can be used to get access to reality. Kaplan and

Maxwell (2005) mentioned that unlike the positivist method, constructivism method presets no independent variable as well as dependent variable. According to Struab et al (2005) constructivism provides profound understanding of social circumstance, therefore the method for data collection it makes use of is qualitative but according Winfield (1991) it does not have the ability to generalize the findings to a larger population, hence it is seen as less suitable as compared to positivist approach for our research.

Orlikowski & Baroudi, 1991 stated that the positivist shows the prove of measures of variables that are quantifiable, formal propositions, testing of hypothesis, and presenting a pictorial presentation of conclusions concerning a situation with sample from a certain population. According to Straub et al (2005) the statistical point of reasoning was used for the explanation of positivism, where there was an argument that falsify the null hypothesis is the aim of statistics and in case the null hypothesis is rejected then the theoretical hypothesis is supported (Struab et al 2005). This research makes use of the positivist approach because it includes research hypothesis testing, quantifiable measures of variables towards students' eLearning performance and also provides evidence of propositions. Additional discussion about the selection of this method is available in the upcoming section.

For the post-positivist approach, it is placed in the middle of positivism and interpretivism (Lincoln, et al., 2011). According to Creswell (2008) post-positivists acknowledges that when studying human behavior and human actions, those carrying out the research cannot be confident with their argument of knowledge. The findings obtained in the post-positivist research by researchers are focused on monitoring and measuring the objective that is often existence in the world. This school of thought was not chosen and according to Onwuegbuzie (2002) this approach fails to explain the unpredictability of human nature.

Choosing the Positivism Paradigm for Our Research

After explaining and differentiating all the fundamental approaches and given the type of this study, the positivist approach was selected (Hall & Howard, 2008). The following points are justifications for using this approach.

- Among all the approaches, the positivist approach was the most superior one and this approach has been used by greater than 75% research (Mingers, 2003).

- This research intends to examine the impact of social media usage on students' eLearning performance, the moderating effect of the willingness to share knowledge on the relationship between Social Media Usage on Students' eLearning Performance, also seeks to examine the moderating effect of willingness to share knowledge on the relationship between the use social media and knowledge sharing practices. Therefore, this research concerns the examination of social subjects involving the measurement of student's behavior. And demands that the researcher is taken out or isolated from the study's aim (Saunders, et al., 2009).

- The study puts forward different hypothesized relationships to be tested and measured quantitatively in the situation of students' eLearning performance. According to Bryman (2008) positivist method is usually connected with methodology that is quantitative, and then makes use of a deductive approach. It thereby justified this research from the methodological point.

- The research's purpose needs a good established conceptual framework and clearly stipulate the relationships between the constructs. (Chapter 1)

- The Structural Equation Modelling will be used in this study so as to test hypotheses, mediator and moderator. According to (Struab, et al., 2005) the statistical packages used describes the positivist approach.

3.2 Strategy of Inquiry (Quantitative /Qualitative)

The decision on whether to use a quantitative or qualitative methodology affects how the data for a study will be gathered. The differences between the two approaches will be discussed in this section so as to explain the employment of the quantitative method in this study. Quantitative research methods as Bryman (2008) stated aims to gather data numerically and find out the link between variables that can be measurable in a general way of cause and effect. Meanwhile, qualitative research method is known to examine

and uncover meanings and patterns rather than numbers (Creswell, 2008). According to Punch (2005) and Creswell (2008), qualitative type of research uses inductive approach to get through the process of collecting and analyzing the data. According to Johnson and Onwuegbuzie (2010) and Lichtman (2006), the following are the accepted differences of between qualitative and quantitative;

- The aim or purpose of qualitative research is to comprehend and explain social interactions and present a complete description. Meanwhile for quantitative, the aim is to test hypotheses, examine cause and effect, and generalize results.
- Qualitative research studies smaller groups which are not randomly selected, while quantitative research studies larger groups which are randomly selected.
- The type of data collected for qualitative research are usually in Words, pictures, or objects meanwhile that of quantitative are statistical and numerical.
- The type of data analysis for qualitative research has to do with identifying patterns, features, themes. And the type for quantitative involves identifying statistical relationships.
- In qualitative research the researcher may influence the participants. Meanwhile with the use of quantitative it is not possible for the researcher to have an effect on the participants, the participants' attributes are deliberately kept from the researcher.
- The results in qualitative research are usually not generalizable, and findings are usually specific and specialized to a specific subject. For quantitative research, the findings can be more generalized and applied to different situations and different populations.
- The scientific approach for qualitative research is bottom–up or explanatory. Meanwhile scientific method for quantitative research is top-down or confirmatory.

- The research objectives for qualitative research tends to explore, discover, and construct. While the research objective of quantitative research tends to describe, explain, and predict.

The aim of this study is to investigate and test hypothesized relationships in the situation of students' eLearning performance in objectively with the researcher kept apart from the purpose of the research. The method of data survey was used for data collection from a big size of participants for the analyses of the data with the use of Structured equation modeling. Normally, this data is shown numerically and is therefore classified under the quantitative method and not qualitative method (Bryman, 2008; Creswell, 2008). Therefore, a quantitative method was used for this study in both the collection and analysis of data.

3.3 Survey Research method

The researcher used the survey approach for this research so as to collect data from the participants in Turkish Republic of Northern Cyprus for the following reasons;

- The objective of this study is to examine the students' eLearning performance within which includes the collection of data from a significant number of participants particularly with the utilization SEM for the data analysis, that being said the use of a different research approach will costlier and consuming more time (Hair, et al., 2011).

- In this study, a number of research hypotheses requires empirical testing of the suggested conceptual model and is thereby appropriate that the survey research approach is used.

- According to Saunders et al., 2009, a research making use of positivist quantitative methodologies works with the survey approach.

- When carrying out survey research, the approach a big amount of data is gathered and it enables the generalization of the findings to the general population.

- This research involves the measurement of student's behavior which are social subjects where is measured with the aim of the study completely secluded from researcher (Saunders, et al., 2009); thus, as compared to the other approaches, the survey approach is more relevant and appropriate.

Data is often gathered through a number of methods within the survey research approach, such as telephone interview, mail, self-administered questionnaire and email (Zikmund, 2009). The study made use of self-administered questionnaire for the data collection for the following reasons:

- According to Zikmund (2009), Bryman (2008), Sekaran and Bougie (2011), data can be collected from a great number of participants simultaneously in an easy, quick, economical and efficient manner in comparison to other methods like interviews.

- Self-administered questionnaire is established with ease and administered. For instance, some amount administrative skills are often needed for interviews (Sekaran & Bougie, 2011).

- There is increased participants' privacy, because concerns like confidentiality issues and anonymity issues were handled in the brief letter before the questionnaire.

- Collection of the questionnaires as soon as it has been answered will ensure a response rate that is greater (Sekaran & Bougie, 2011).

- Respondents will be able to comprehend the concepts on the different questions they are giving answers to, by seeking clarity, this in turn minimizes the study exception (Aaker, et al., 2009).

- For data collection method, questionnaire has generally been employed in research studies with contexts that is like that of this study.

3.4 Research Design

A research design gives general direction and structure for the collection of data and the analysis, according to Bryman and Bell (2011). The use and type of data collection, the budget and sampling techniques will be influenced by the choice of an appropriate research design (Hair, et al., 2011). When creating the study, the researcher ought to produce a series of logical decisions concerning the researcher's role, the study's aim, the investigation category, the place of the study, the data analysis degree and time horizon (Sekaran & Bougie, 2011). Considering the directions according to Sekaran and Bougie (2011) concerning the research design, the aim of this study is the testing of the hypotheses formulated using the conceptual model. Hypothesis testing can be used to easily understand the relationships that exist among variables; thus, studies often examine and describes the characteristics of specific relationships between variables.

This study is like all other studies that make use of a correlation category of investigation because it is carried out in a non-contrived setting. Due to the fact that the method of collecting employed in this research was centered on survey and no interference of researcher was involved. Making use of SEM needs a relatively big respondent quantity and a cross sectional design was chosen in this study as data can be gathered only one time and across a specific period of time.

3.5 Participants/Population and Sample

As mentioned by Bryman and Bell 2011, Russ-Eft and Preskill 2009, before moving to the stage of the data collection procedure, an important concern of the study so as to represent the intended population is the technique for sampling. Four critical issues according to Fowler (2009) when scheming the sample to be taken in consideration includes; the size of sample, the decision of either non-probability sample or probability sampling method, the response rate and the sample frame.

The Sampling choice

Researchers usually acknowledge the relevance of gathering data from the participants that takes the place of the general population as a result of time and financial constraints. when designing a sample according to Blumberg et al (2008), the researcher should take into consideration several decisions, consider the type of research problem and the particular questions that were established from the objectives, budget and time. According to Bryman and Bell (2011), the two types of sampling techniques are probability and non-probability.

The base of the concept in probability sampling is a random selection of the sample. According to Groves et al. (2009) and Blumberg et al. 2008 this gives assurance for a guided process to guarantee that every individual within the population has the possibility of being selected (Groves, et al., 2009; Blumberg, et al., 2008). The simple random, systematic, stratified and cluster sampling are part of the random probability technique.

There is an equal probability of selection of every element of the population in the sample in Simple Random Sample (SRS), a completed numbered list of the population is needed in this method. Just like the simple random sample method, systematic sampling requires the population's full list. The researcher uses the set skip interval from beginning element to select the subjects and uses add skip interval for the next elements to be. It is a quicker, cheaper and simpler method than SRS. A process with two steps is needed in stratified random sampling, the person carrying out the study is likely to divide the population either equally or unequally into incompatible and inclusively comprehensive subgroups in the first step. Meanwhile the SRS method is used by the researcher in order to choose from each subgroup in the second step. In adding the precision without adding the cost, sampling error is being reduced in Stratified sampling (Blumberg, et al., 2008; Bryman & Bell, 2011). By choosing the intended population's sample from a number of little geographic region in cluster sampling, researchers will likely deduct the cost of collecting data.

First of all, the researcher divides the population into exhaustive and exclusive clusters and then make use of SRS to choose a random sample of groups. Later, the subjects' probability sample is either chosen from every cluster or subgroup in the sample or for every chosen cluster, every participant among every subgroup in the sample are involved. This method is less statistically efficient but more cost efficient than other random methods. The non-probability sampling technique includes convenience sampling methods, quota, judgmental and snowball. From the intended population, the choice of units is based on the researcher's professional judgment and knowledge which is also known as purposive sampling. The attributes of the subjects usually needed in this method already are visible to the researcher and to verify if they are relevant to meeting up with the what is needed in the research, then the researcher will target the prospective sample members. The intended population as control groups is being shared by Quota sampling and the sample selection is established on judgment methods or convenience to ensure same depiction of subjects. The researcher gets the chance with convenient sampling to choose the sample subjects from the intended population in accordance with subjects who want to and are reachable with ease to be employed and be part of the study. The convenience sampling method is least time-consuming and requires the lowest cost when compared to all the other methods. Convenience sampling technique is generally the highest employed technique particularly in social and behavioral science studies according to Stangor (2014).

The reason for the use of Convenience sampling for this study

As earlier said, the most frequently used sampling technique in social and behavioral sciences study is the convenience sampling technique. The researcher gets the chance with convenient sampling to choose the sample subjects from the intended population in accordance with subjects who want to and are reachable with ease to be employed and be part of the study. The technique is known to be that which consumes the lowest time and the least expensive as compared to all the other methods.

It was not practical in this study, to reach for data to enable random sampling to be carried out with the limited budget and time which led to the choice to make use of the non-random technique with the possibility of relevantly collecting the sample size

required for the analysis. The population targeted are students in universities in Turkish Republic of Northern Cyprus (TRNC) studying full time with the use the eLearning system. This research used the convenience sampling method to collect the data which presumes a homogeneous population, hence generalizing the results and using the sample to represents the general population which should be done with caution.

Furthermore, in the effort to not limit the collection of data to one or two universities in Turkish Republic of Northern Cyprus and for the increment of the reliability of the findings in this research, the targeted participants were not limited to one or two but with all universities in Turkish Republic of Northern Cyprus. As a result of the large target population for this research, this thesis adopted the convenience sampling method, also as a result of limited time and limited finances.

Population

As Zikmund et al (2009) stated, the target or intended population is the whole group of participants or subjects from which the researcher intends to recruit in the study to investigate and answer the research questions and achieve its objectives. Regarding the population for this study, the population of students in Turkish Republic of Northern Cyprus is difficult to determine. The most recent and only source found was from DailySabah newspaper, in 2019, which citing official Turkish Republic of Northern Cyprus government sources, estimating the population of students at 102,000 (*https://www.dailysabah.com/business/2019/08/22/northern-cyprus-expects-to-generate-1b-in-education-revenue-this-year*).

Sample Size

For a study within the targeted population, it is important to state and justify the sample size. Using a large sample within the study according to Bryman (2011) cannot assure accuracy and will therefore waste time and money. Contrary to that, making use of a little sample size particularly when making use of statistical data analysis like SEM, will lead to reduced reliability in the results of the study (Hair, et al., 2011). Saunders et al (2009) stated that the following rule of thumb ought to be taken into consideration when determining the sample size for a specific target population, for a target population

>100000 and ≤ 1000000 given a 95% confidence level for 5% margin of error, the appropriate sample size is 383.

Implementation of the sampling process

Participant selection for this study from Turkish Republic of Northern Cyprus was according to the ability of the researcher to reach participants and the participants' availability. Based on this selection method the ability of the results to be generalized to the whole population might be affected because of the unequal opportunity for every other student to take part in the study.

3.6 Non-response bias and Methods to Achieve High Rates of Response

The intention of the sample is to represent the entire population, therefore there is a need for relatively high rate of response to attain a big sample will add the confidence level along with reducing the collected data's bias (Saunders, et al., 2009). Several reasons may affect the response rate according to Manfreda et al (2002), which can lead to the refusal from potential participants in filling the questionnaire. Factors like difficult or sensitive questions, the questionnaire length and asking long and boring questions. In this research the following efforts were made to increase the rate of response and do away with non-response bias. The questionnaire was measured on an ordinal 5-point Likert scale so that participants pay more attention to the questions. The questionnaire was designed in simple and easy language and did not use of open-ended questions. An introduction explaining the aim and reason for the study was provided at the beginning of the questionnaire for participants to see prior to his/her participation in to motivate them to participate. It also clearly states that personal information about them will not be asked and will not be shared with third parties strictly confidential.

The questionnaire was constructed using google form and distributed by sharing the link with potential responders through social media platforms like WhatsApp, Facebook, LinkedIn and Instagram. The researcher sent the link to the questionnaire

directly to respondents and urged them to recruit other respondents from their other student contacts as well as encourage them to fill and share the questionnaire too with other students they know. Within 8 weeks, a total of 394 responses were received. It was not feasible to calculate response rate because of the mode of the collection of data.

3.7 Validity and Reliability

To examine the internal consistency, construct reliability and convergent validity of the constructs, this study examines the Cronbach's alpha values, Dijkstra-Henseler's rho, Jöreskog's rho and the Average Variance Extracted (AVE) values. More details can be seen in chapter 4.

3.8 Data Collection Tools/Materials

A structured questionnaire was developed and administered online, below is an explanation on how the questionnaire of the study was developed and structured.

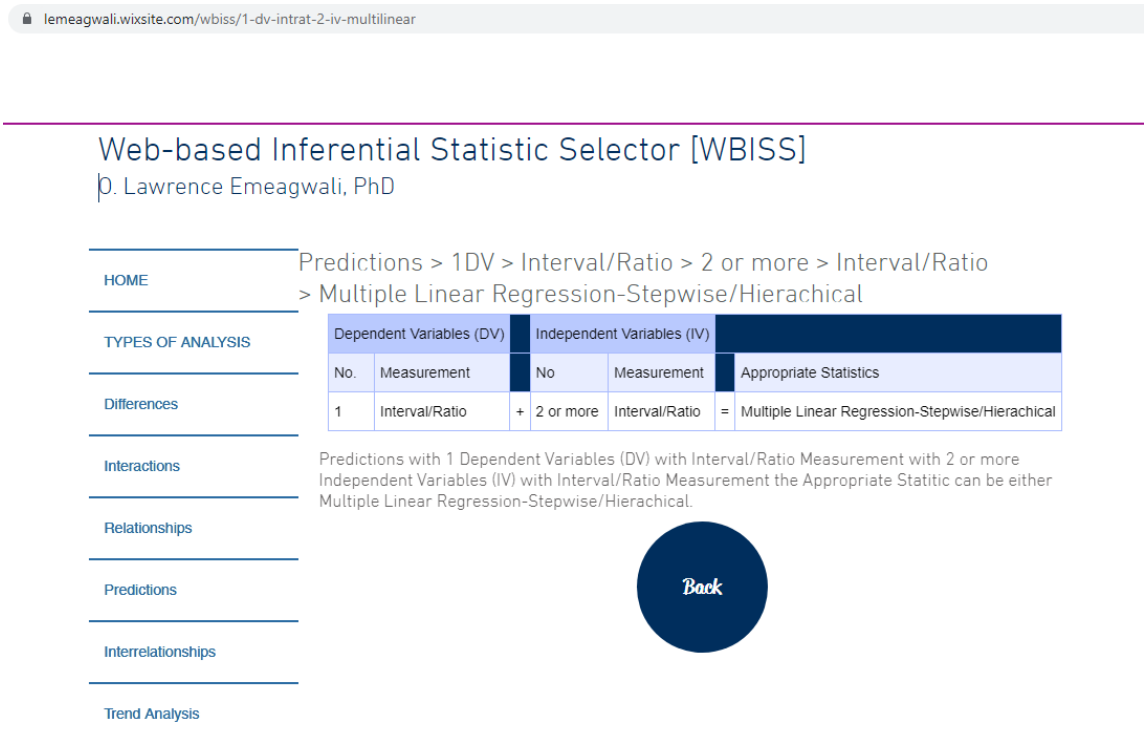
Questionnaire forming and Design

There was an establishment of a questionnaire to gather the needed data needed to get answers to the questions of this research and attain the underlining aim of the research (Saunders, et al., 2009). Elements of the questionnaire ultimately were gotten from the literature review concerning social media usage, knowledge share, willingness to share knowledge and eLearning performance which was focused on the suggested framework and the hypotheses of the study. For procedures to develop a questionnaire, this research followed Gupta et al (2018) and Alamri et al (2020) for the use of social media, Alamri et al (2020) for students' eLearning performance, Shava et al (2018) and Alamri et al (2020) for knowledge sharing practices and Zhang et al (2020) for willingness to share knowledge. Therefore, the questionnaire consists of 5 sections with 30 questions. The first sections include the demographic attributes of respondents. The second section includes students' use of social media, the third section involves students' eLearning

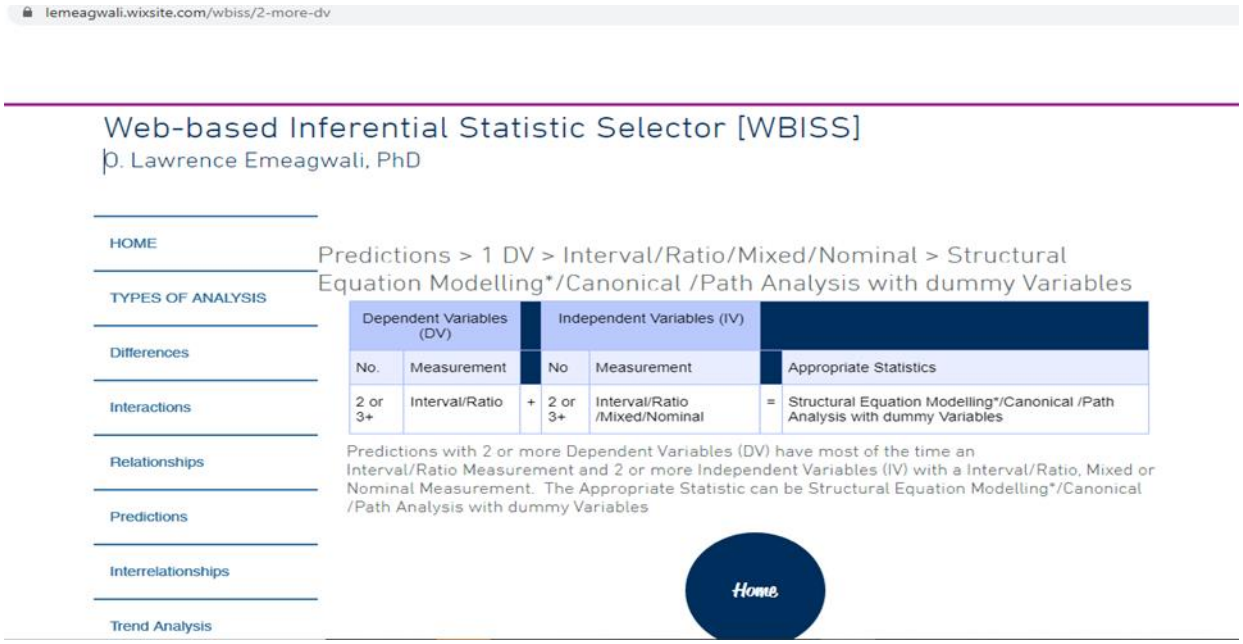
performance, the fourth was based on students' knowledge sharing practices and the fifth section handled students' willingness to share knowledge. The measurement of the questionnaire was done using the five-point Likert scale, where (1) strongly disagree (2) disagree (3) uncertain (4) agree and (5) strongly agree.

3.9 Data Analysis Procedures

The research model has one dependent variable, one independent variable, one mediator and one moderator. All of these variables are measured on an ordinal scale using a Likert scale, because it has one dependent variable and one independent variable Normally according to Emeagwali (2015), what should be use for the analysis is simple linear regression or multiple regression.



But because of the presence of secondary variables, a mediator and a moderator, the researcher has decided to use structural equation modeling because according to Emeagwali (2015) and hair et al (2011), it is the most robust technique for analyzing models with both primary (Independent variable and Dependent Variable) and secondary (Moderator and Mediator) variables.



For the above-mentioned reasons, data for this study will be analyzed using the structural equation modeling technique via the SMART PLS or ADANCO PLS software. The type of structural equation modeling that would be carried out is the variance-based structural equation modeling approach, it is known to be better than the covariance at predicting outcome variables than covariance-based approach which is better at confirming theories (Hair, et al., 2011). The SEM analysis will be carried out using the two-stage approach which entails the assessment of the mensuration model after which an evaluation of the structural model is carried out. More details about the SEM procedure will be provided during the actual thesis development phase.

3.10 Ethical considerations

According to Hesse-Biber and Leavy (2010), the ethical issue is very important in any study or research, most importantly studies that aim to be carried out on the social behavior of participants. For this study permission and approval was received from the Near East University ethical committee before data collection and the principle of ethics was kept on top priority throughout the study. Respondents were informed that they do not have the obligation in any way to participate and can pull out of participating if they want to. Furthermore, the questionnaire and collected data was handles solely by the researcher to respect the participant's privacy. A cover letter was provided for the participants to disclose basic details about the study such as the title reason and purpose of the study, the estimated time of answering the questionnaire.

CHAPTER 4

RESULTS AND FINDINGS

This chapter presents a description of the data analytic procedure – structural equation modeling (SEM) deployed in examining the variables under study. It begins with a reiteration of the analytic procedure, then the demographic description of the study Participants, followed by analysing the measurement model and then analysing the structural model.

4.1 The Analytic Process

In particular, this study deployed the structural equation modelling analytic approach renowned for its robustness in examining multiple regression equations simultaneously. Broadly, two types of structural equation models can be conducted: variance-based SEM – typically based on the partial least square statistical technique and appropriate when the aim of a study is to predict changes in the levels of one or more outcome variables, or covariance-based SEM – usually based on the maximum likelihood statistical technique and appropriate when the aim of the study is to test theories (Hair et al., 2017). Also, multi-level SEM is a variant of the SEM family of analyses which allows researchers examine phenomena across multiple levels. However, because the primary aim of this study is the examination of the predictive impact of the predictor variable: social media usage on levels of the outcome variable: students' eLearning performance, as well as the effect of secondary mediating (knowledge sharing practices) and moderating (willingness to share knowledge) variables on the primary effect, the variance-based partial least square SEM approach is utilized. Moreover, while two popular PLS SEM software regularly feature in partial least square research – Smart PLS and ADANCO; this study uses the ADANCO software for the analysis based solely on convenience. Prior to a detailed outline of the SEM analytic procedure and findings, it is pertinent that a description of the participants is first of all presented. This is carried out in the ensuing section.

4.2 Demographic Description of the Study Participants

All in all, 394 students participated in this study and as seen in the descriptive statistics table below, the majority of the participants were female students (N=199; 50.50%) aged between 20 and 29 (N=202; 51.30%) and holding master's degrees (N=173; 43.90%).

Table 1: Demographic Description of the Study Participants

		Total		**M**	**SD**
Demographic Variables	**Categories**	**N**	**%**		
Gender	Male	195	49.50	1.51	0.501
	Female	199	50.50		
Age	Below 20	51	12.90	2.36	0.895
	20 – 29	202	51.30		
	30 – 39	100	25.40		
	40 – 49	31	7.90		
	50 and above	10	2.50		
Education Level	PhD	68	17.3	2.46	1.130
	Masters	173	43.90		
	Bachelors	95	24.10		
	Diploma	20	5.10		
	Others	38	9.60		

4.3 Analyzing the Measurement Model

Prior to the evaluation of the structural model of the hypothesized paths, it is pertinent that the psychometric properties of the measurement instruments administered – as reflected in the data collected are tested. To do this, this study adopts the recommendations of Hair et al., (2017) composite and item reliability, convergent validity as well as discriminant validity tests were carried out. Since the type of psychometric tests depend to a large extent on the nature of the constructs themselves, it is important to state at this juncture, that all of the hypothesized variables were measured using a reflective scale and no formative construct was included in the study.

Determining Construct Reliability

To examine the measurement model's reliability, this study examined the factor structure of the measurement model by observing the magnitude to which items load unto their constructs. Following the recommendations of such prominent SEM scholars such as Hair et al., (2017) and Gaskin, (2018) that the extraction and examination of factor loadings for all of the hypothesized constructs be carried out and values above 0.5 indicate adequate item or indicator reliability. Observations of the factor loadings for the hypothesized constructs in this study are presented in table 2. As observable, all of the items adequately loaded onto their construct because all factor loadings were above 0.5. Thus, we confirm that the underlying indicators in the measurement model are reliable.

Table 2: Indicator Reliability and Factor Loadings

Indicators		Load
Use of Social Media *[Gupta et al., (2018), Alamri et al., (2020)]*		
UoSM1	I use social media applications to solve my academic problem.	0.7029
UoSM2	I use social media applications to do research work.	0.6963
UoSM3	I use social media applications for online academic group discussion.	0.7094
UoSM4	I communicate with my friends via social media applications for preparation of exam.	0.7840
UoSM5	I use social media applications for collaborative learning.	0.8518
UoSM6	I use social media applications to learn about my curricular aspect.	0.7451
UoSM7	I use social media applications to seek help from my teachers.	0.8056
UoSM8	I feel that using social media applications makes it easy to reach classmates and teachers.	0.8229
UoSM9	Social media applications do not require a lot of my mental effort	0.5255
Students' eLearning Performance *[Alamri et al., (2020)]*		
SELP1	The use of social media applications has improved my comprehension of the concepts studied.	0.8366
SELP2	The use of social media applications as led to a better learning experience in eLearning.	0.8115
SELP3	Social media applications have allowed me to better understand my studies.	0.8789
SELP4	Social media applications are helpful in my studies and make it easy to learn.	0.8972
SELP5	Social media applications improve my academic performance.	0.8966
SELP6	I feel that using social media applications will be easy in my studies.	0.8562
SELP7	I believe that using social media applications enhances my effectiveness.	0.8689
SELP8	Social media applications enable me to accomplish tasks more quickly.	0.8296
SELP9	Social media applications enhance effectiveness in my studies.	0.8957
Knowledge Sharing Practices *[Shava et al., (2018), Alamri et al., (2020)]*		
KSP1	I enjoy sharing knowledge with my classmates via social media applications	0.8412
KSP2	It seems to me that my classmates enjoy sharing their knowledge with others via social media applications.	0.7846
KSP3	It seems to me that social media applications facilitate sharing knowledge among people.	0.8226
KSP4	It seems to me that my classmates share the best knowledge that they have via social media applications.	0.8206
KSP5	I go to my social media applications to share knowledge I know about a particular subject.	0.8233
KSP6	I come to my social media to share my skills.	0.7932
KSP7	I use social media applications to share new ideas.	0.8582
KSP8	Social media applications allow the exchange of information with peers.	0.7123
KSP9	Social media applications allow the exchange of information with lecturers.	0.8183
Willingness to Share Knowledge *[Zhang et al., (2020)]*		
WTSK1	I intend to share knowledge with my classmates more frequently in the future	0.8497
WTSK2	I will provide my knowledge at the request of other students.	0.8406
WTSK3	I will try to share my knowledge with classmates.	0.8756
WTSK4	I enjoy helping classmates by sharing my knowledge.	0.8552

Similarly, to examine the internal consistency, construct reliability and convergent validity of the constructs, this study examines the Cronbach's alpha values, Dijkstra-Henseler's rho, Jöreskog's rho and the Average Variance Extracted (AVE) values. According to Saunder's et al., (2002), Hair et. Al., (2017), Fornell & Lacker, (1981) and Henseler, Ringle & Sinkovics, (2009), Cronbach Alpha values should be above 0.60, AVE values should be above 0.50 while Dijkstra-Henseler's rho and Jöreskog's rho should both be above 0.70. As seen in table 3, all alpha values were above 0.60, all AVE values were above 0.5 while all Dijkstra-Henseler's rho and Jöreskog's rho values were above 0.70. Thus, the findings confirm the overall construct reliability and convergent validity of the measurement model.

Table 3: Construct Reliability and Convergent Validity

Construct	(ρ_A)	rho (ρ_c)	(α)	AVE
Use of Social Media	0.9033	0.9165	0.8960	0.5533
Student's eLearning Performance	0.9577	0.9636	0.9574	0.7465
Knowledge Sharing Practices	0.9366	0.9446	0.9337	0.6549
Willingness to Share Knowledge	0.8839	0.9160	0.8782	0.7316

Notes: ρA = Dijkstra-Henseler's rho; ρc =Jöreskog's rho; AVE=average variance extracted; and α=Cronbach's alpha.

Determining Construct Validity

Next, to examine the validity of the measurement model, we first of all deploy the Fornell and Larcker criterion for the determination of discriminant validity. This criterion requires that all inter-construct correlations for each construct must be lower in value compared to the square root of AVE for that construct (Fornell & Larcker, 1981). From the table below, it is obvious that all square root of AVE values (in bold on the diagonal) are higher that all of the inter-construct correlations for all of the hypothesized

constructs within the study, hence, using the Fornell and Larcker criterion, this study establishes the discriminant validity of the measurement model.

Table 4: Discriminant Validity – Fornell & Lacker's Criterion

Construct	1	2	3	4
Use of Social Media	0.7440			
Student's eLearning Performance	0.6683	0.8640		
Knowledge Sharing Practices	0.7281	0.6553	0.8092	
Willingness to Share Knowledge	0.4001	0.3630	0.5562	0.8553

Notes: Squared correlations; square root of AVE in the diagonal.

More recently however, a new method for the evaluation of discriminant validity of measurement models was introduced. This method known as the Heterotrait-Monotrait ratio also known as HTMT ratio was introduced as a better technique for the evaluation of the presence of discriminant validity (Henseler et al., 2015). The criteria suggest that measurement models whose HTMT values are below the threshold of 1, exhibit discriminant validity while measurement models with HTMT values above the threshold of 1 do not exhibit discriminant validity (Henseler et al., 2015). As observable in the HTMT table below, the measurement model used in this study has all of the hypothesized constructs exhibiting HTMT values below the threshold of 1 thus confirming the presence of discriminant validity.

Table 5: Discriminant Validity – Heterotrait - Monotrait (HTMT) Criteria

Construct	1	2	3	4
Use of Social Media				
Student's eLearning Performance	0.8796			
Knowledge Sharing Practices	0.9292	0.8505		
Willingness to Share Knowledge	0.7084	0.6519	0.8162	

Determining Indicator Multicollinearity

The final psychometric property of the measurement model examined is the presence of multicollinearity especially among the items of each construct. Multicollinearity is an undesirable property of measurement models and where present may indicate that two or more indicators or constructs are too closely correlated with one another that it might be difficult to discriminate or differentiate one indicator from another or one construct from another. Hair et al., (2017) recommends that multicollinearity values (usually reflected in variance inflation factor (VIF)) below 5 indicate the absence of multicollinearity while values between 5 and 10 indicate the presence of a moderate level of multicollinearity, while values higher than 10 indicate a chronic incidence of multicollinearity. As observable in the table below, all of the indicators of the constructs in this study's measurement model all have VIF values below 5, indicating the absence of multicollinearity.

Table 6: Indicator Multicollinearity

	VIF Values			
Indicator	UoSM	SELP	KSP	WTSK
I use social media applications to solve my academic problem.	2.1845			
I use social media applications to do research work.	2.1165			
I use social media applications for online academic group discussion.	1.7969			
I communicate with my friends via social media applications for preparation of exam.	2.6610			
I use social media applications for collaborative learning.	3.0761			
I use social media applications to learn about my curricular aspect.	1.9835			
I use social media applications to seek help from my teachers.	2.4720			
I feel that using social media applications makes it easy to reach classmates and teachers.	3.0682			
Social media applications do not require a lot of my mental effort	1.3786			
The use of social media applications has improved my comprehension of the concepts studied.		3.1154		
The use of social media applications as led to a better learning experience in eLearning.		2.6165		
Social media applications have allowed me to better understand my studies.		3.7700		
Social media applications are helpful in my studies and make it easy to learn.		4.5200		
Social media applications improve my academic performance.		4.8061		
I feel that using social media applications will be easy in my studies.		3.2325		
I believe that using social media applications enhances my effectiveness.		3.8254		
Social media applications enable me to accomplish tasks more quickly.		2.9758		
Social media applications enhance effectiveness in my studies.		4.4078		
I enjoy sharing knowledge with my classmates via social media applications			3.0516	
It seems to me that my classmates enjoy sharing their knowledge with others via social media applications.			2.2572	
It seems to me that social media applications facilitate sharing knowledge among people.			2.5300	
It seems to me that my classmates share the best knowledge that they have via social media applications.			3.0812	
I go to my social media applications to share knowledge I know about a particular subject.			2.9975	
I come to my social media to share my skills.			2.9478	
I use social media applications to share new ideas.			3.6766	
Social media applications allow the exchange of information with peers.			2.1673	
Social media applications allow the exchange of information with lecturers.			2.6138	
I intend to share knowledge with my classmates more frequently in the future				2.0436
I will provide my knowledge at the request of other students.				2.2687
I will try to share my knowledge with classmates.				2.5076
I enjoy helping classmates by sharing my knowledge.				2.3187

Notes: *Variance inflation factors (VIF)*

4.4 Analyzing the Structural Model

Having evaluated the psychometric properties of the measurement model and established the reliability and validity of the underlying constructs, the second stage of the structural equation model analysis is the examination of the structural model. This was done in two categorical phases (Please see model 1, 2a and 2b blow). In the first phase, the structural model is examined without the moderating variable, while in the second phase, the structural model is conducted with the moderating variable present. This phased analysis of the structural model is solely to structurally accommodate the computation of the interaction effect of the moderating variable. In the results table below, results of the final structural model assessment conducted as reflected in model 2b are presented.

Table 7: Path Coefficients

Effect	β	M	SE	t-value	p-value	f^2	R^2
Direct Effects							
UoSM -> SELP	0.4697	0.4711	0.0677	6.9407	0.0000	0.2025	0.7115
UoSM -> KSP	0.6449	0.6432	0.0352	18.3248	0.0000	1.2648	0.8033
KSP -> SELP	0.4070	0.4043	0.0710	5.7310	0.0000	0.1133	
WTSK -> SELP	0.0136	0.0125	0.0492	0.2775	0.7815	0.0002	
WTSK -> KSP	0.3942	0.3937	0.0446	8.8307	0.0000	0.3530	
Indirect Effects: Mediating							
UoSM -> KSP -> SELP	0.2625	0.2602	0.0490	5.3537	0.0000	0.2025	
Indirect Effects: Moderating							
Mod-WTSK*UoSM -> SELP	0.0182	0.0168	0.0304	0.5979	0.5500	0.0007	
Mod-WTSK*UoSM -> KSP	0.0857	0.0825	0.0287	2.9829	0.0029	0.0217	

Note;

UoSM = use of social media SELP = students' eLearning performance

WTSK = willingness to share knowledge KSP = knowledge sharing practice

Direct Effects

From the results table above, findings show that the use of social media among students in TRNC universities sampled had a moderate, positive and significant effect on students' eLearning performance ($\beta = 0.4697$; $p < 0.05$). Similarly, their use of social media was also seen to strongly and positively impact their knowledge sharing practices ($\beta = 0.6449$; $p < 0.05$). Student's knowledge sharing practices were similarly found to moderately and positively impact their eLearning performance ($\beta = 0.4070$; $p < 0.05$). In addition, the predictor variables were all seen to explain about 71% of the variance in students' eLearning performance ($R^2 = 0.7115$) and over 80% of the variance observed in knowledge sharing practices ($R^2 = 0.8033$).

Indirect Effects: The mediating effect of knowledge sharing practices

As hypothesized, the mediating effect of knowledge sharing practices on the effect of use of social media on students' eLearning performance was found to be both positive and significant ($\beta = 0.2625$; $p < 0.05$). Since an effect already exists between use of social media and student's eLearning performance, it follows that the mediating effect observed in the finding is that of a partial mediation and not full mediation. Thus, knowledge sharing practices only partially explains how the effect of use of social media on students' eLearning performance occurs.

Indirect Effects: The moderating effect of willingness to share knowledge

To examine the hypothesized moderating effect of willingness to share knowledge on the on the use of social media and knowledge sharing path as well as on the use of social media and students' eLearning performance path; an interaction variable was first created. This was done by running the structural model with the willingness to share knowledge variable first (please refer to model 2a) to examine its direct effect on knowledge sharing practices and students' eLearning performance. Next, standardized scores of the main predictor (independent) variable: use of social media and the

moderator: knowledge sharing practices were obtained and multiplied with each other (UoSM x WTSK) to generate a new interaction variable which was then used to examine the moderation effect (please refer to model 2b). Results from the first phase of examining the moderation effect which involves the examination of the direct effects of willingness to share knowledge on knowledge sharing practices and students eLearning performance (please refer to the main results table above) showed that willingness to share knowledge had a moderately positive and significant effect on knowledge sharing practices ($\beta = 0.3942$; $p < 0.05$). However, its effect on students' eLearning performance was found to non-significant ($\beta = 0.0136$; $p = 0.7815$). This direct effect finding further influenced the observed moderation effect of willingness to share knowledge as represented by the interaction variable (UoSM x WTSK). Again, from the results table it can be seen that willingness to share knowledge positively and significantly moderated the effect of use of social media on knowledge sharing practices ($\beta = 0.0857$; $p < 0.05$), even though the magnitude of the observed effect was small. However, similar to its direct effect on students' eLearning performance, willingness to share knowledge was not found to exhibit any significant moderating effect on the relationship that exist between social media usage and students' eLearning performance ($\beta = 0.0182$; $p = 0.5500$). Thus, in summary, willingness to share knowledge only moderates the effect of use of social media on knowledge sharing practices, by positively amplifying or strengthening the effect. However, it is observed to have no moderation effect on the relationship between the use of social media and students' eLearning performance.

Examining the magnitude of effect (Cohen's f^2)

Cohen's f^2 statistic is used to quantify the magnitude of effect (or effect size) for all observed paths. By convention, $f2$ effect sizes of 0.1, 0.25 and 0.4 are interpreted to be small, medium and large respectively. It is thus clear from the results table above, that the magnitude of effect for all of the hypothesized paths were small (between 0.1 and 0.20) with the exception of the effect of the use of social media on knowledge sharing practices ($f^2 = 1.2648$) which is considerably large.

Overview of support or lack thereof of the hypothesized paths.

Table 8: Support for the hypothesized paths

Hypotheses	**β**	**p-value**	**Support**
Direct Effects			
UoSM -> SELP **(H3)**	0.4697	0.0000	*Supported*
UoSM -> KSP **(H1)**	0.6449	0.0000	*Supported*
KSP -> SELP **(H2)**	0.4070	0.0000	*Supported*
Indirect Effects: Mediating			
UoSM -> KSP -> SELP **(H4)**	0.2625	0.0000	*Supported*
Indirect Effects: Moderating			
Mod-WTSK*UoSM -> SELP **(H5)**	0.0182	0.5500	*Not Supported*
Mod-WTSK*UoSM -> KSP **(H6)**	0.0857	0.0029	*Supported*

From the table above it is observable that the study's findings found support for all of the stated hypotheses with the exception of hypothesis 5. in which it is observed that no significant moderation effect of willingness to share knowledge on the use of social media and students eLearning performance nexus was recorded.

Figure 6: model 1

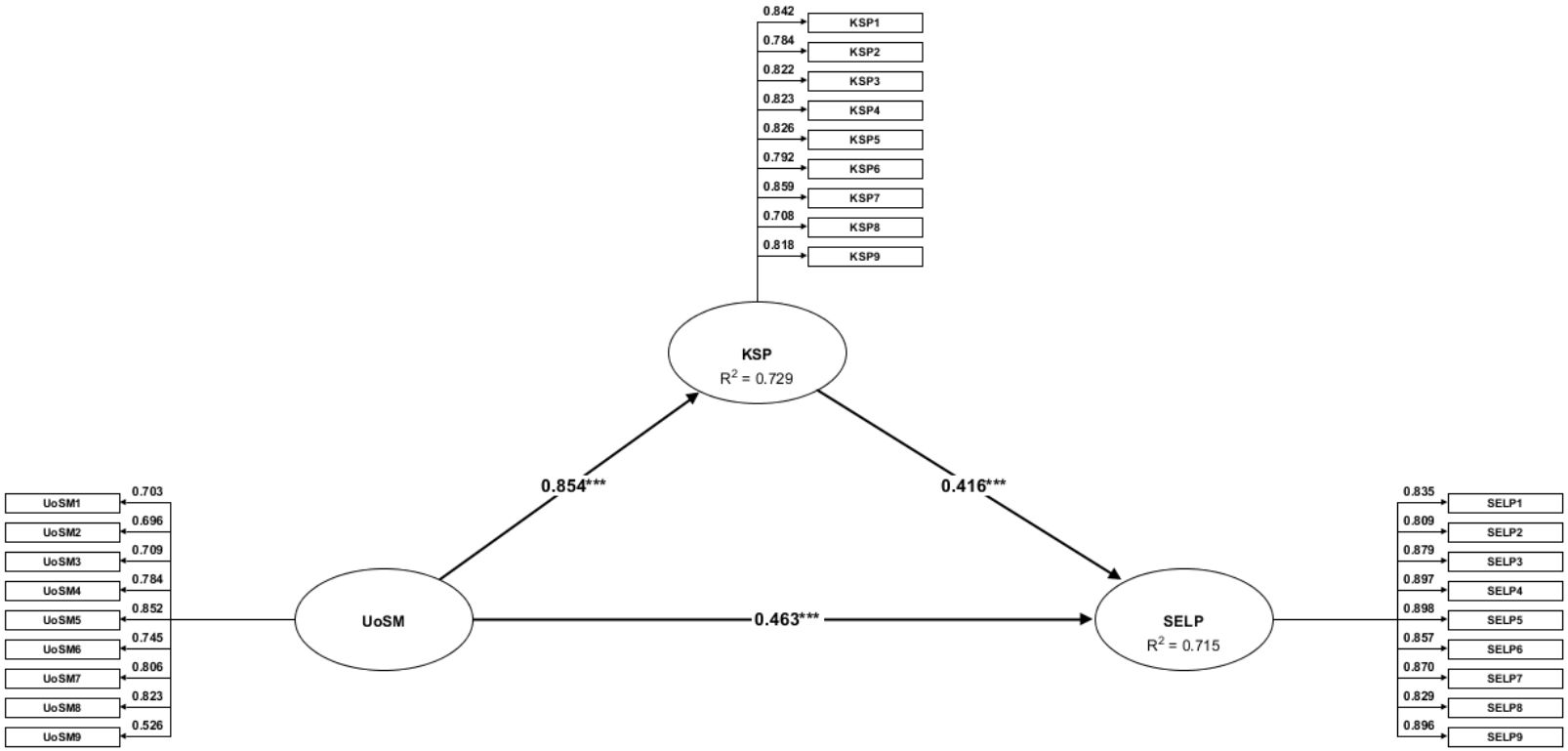


Figure 7: Model 2a

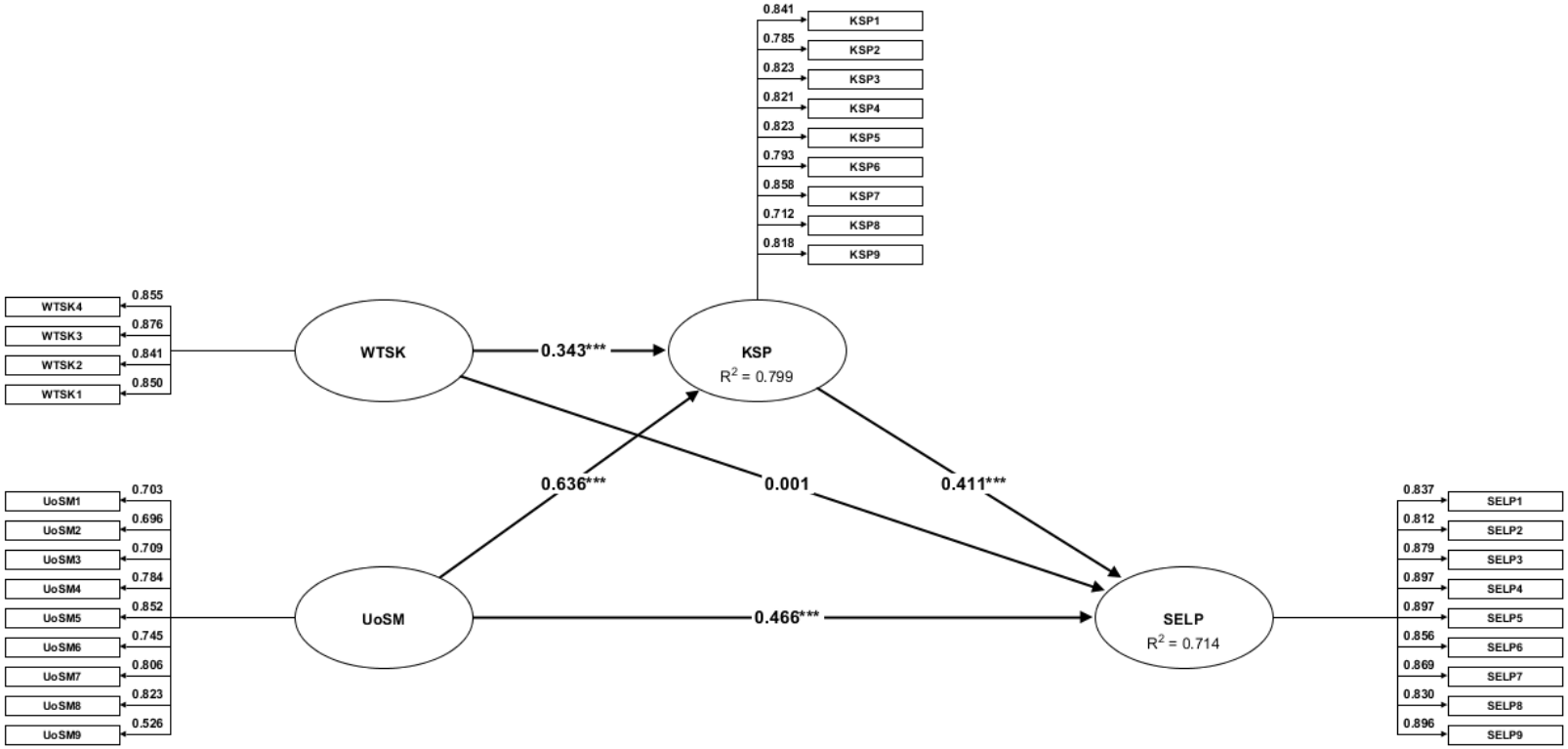
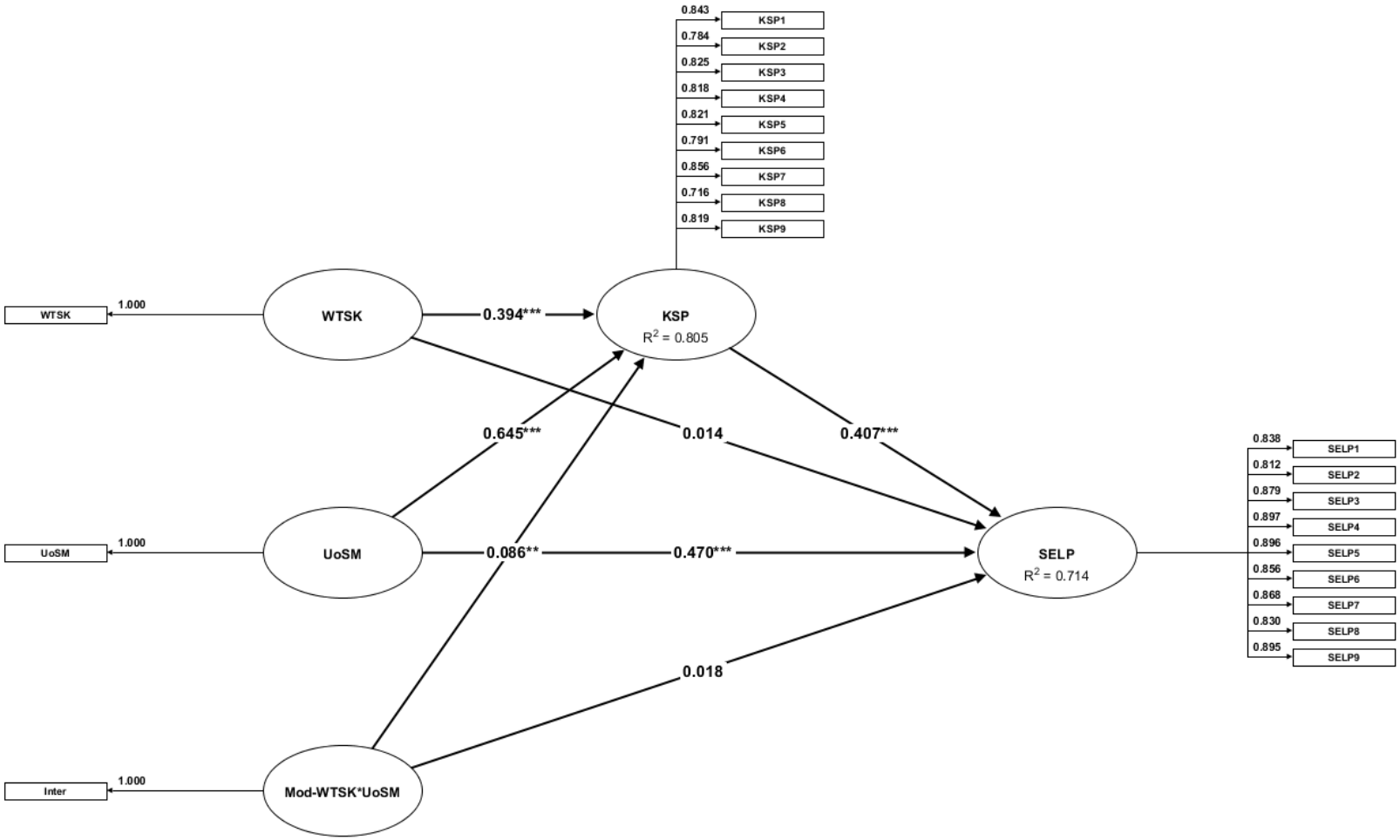


Figure 8: Model 2b



CHAPTER 5

DISCUSSION

The novelty of the primary aim of this study with respect to its examination of the impact of social media usage on students' eLearning performance as opposed to student's general academic performance is unique not only in its approach, but also in its findings and in the propensity to discuss its findings vis-à-vis an extant body of research. In other words, since no tangible extant body of research exists on the social media-eLearning performance path, the comparative approach usually necessary for a discussion section will be difficult to implement since one may stand the risk of comparing apples with oranges. However, irrespective of the resulting temptation to discuss the findings by solely reiterating them, this study takes a two-pronged approach. First of all, it reiterates the findings and then comparatively discusses them vis-à-vis the teeming body of literature on the usage of social media general academic performance path.

5.1 Use of social media and students' eLearning Performance

This study found that student's social media usage positively affected their performance on eLearning platforms. While no extant research examining this path exists, contrasting the findings with previous studies which examined the impact social media has on the general academic performance of students, reveals that a majority of studies found that the usage of social media had a negative effect on student's general learning performance (Kolhar, et al., 2021; Pa, et al., 2021). This thus imply that students may find eLearning based academic activities to be more engaging as compared to traditional academic activities since most electronic learning management systems (LMS) may provide the look and feel of social networking sites which students have become increasingly and positively more familiar with. Also, it may also be as a result of the highly interactive and collaborative nature of most courses delivered through eLearning platforms, that drive the engagement necessary to aid student's retention of knowledge and hence performance. However, an opposing argument exists on the reason

for the difference in results. This argument regarding reasons for observing a positive effect of social media usage on students' eLearning performance especially during the current Covid-19 pandemic may not be unrelated to the allegation that the propensity for exam malpractices is much higher on eLearning platforms than through traditional testing mechanisms. While this allegation has significant merit, empirical evidence in support of it needs to be further explored.

5.2 Use of social media and knowledge sharing practices

With regard to the use of social media and knowledge sharing practices this study finds that a strong effect exists. This is in line with extant studies which found that social media usage affords students the opportunities to interact with their colleagues, teachers and mentors, build meaningful learning connections and collaborations as well as social ones and ultimately facilitate the sharing of knowledge across these online networking platforms (Cain, 2008; Wankel, 2009; Bogdanov et. al., 2012 and Ansari & Khan, 2020). As a result of these online connections and collaborations for knowledge sharing, individual students can easily get solutions to problems they might encounter in the eLearning systems, hence ease their learning process and improve performance. This can also take us back to the social constructivism theory which has to do with a system of learning that involves discussions and collaborations. Its importance to teaching and learning process which involves students valuing, learning from every experience and being ready to share with other students, thereby continuously improving their cognitive ability. In the case of eLearning, this cognitive ability goes a long way to improve knowledge on how to make the most out of the eLearning system of education and get better performance.

5.3 Knowledge sharing practices and students' eLearning performance

The study also finds that increased knowledge sharing practices leads to an increase in levels of student eLearning performance. This is intuitive because, as

mentioned above, the increase in collaboration and interaction avenues provided via the usage of social media networks will facilitate an increase in the transfer of knowledge via knowledge sharing activities horizontally and vertically, and most importantly in diverse ways that provides the average learner with multiple knowledge delivery mechanisms (audio, visual and kinetic) invariably meeting the learning needs and styles of a more diverse array of learners than traditional methods can, which ultimately has a multifaceted and more comprehensive impact on students' overall performance via eLearning modes. This finding also find support in extant literature which corroborate the fact that online knowledge sharing practices have a positive effect on student's overall academic performance (Cain, 2008; Wankel, 2009; Bogdanov et. al., 2012 and Ansari & Khan, 2020).

5.4 The mediating role of knowledge sharing practices

At a deeper level, this study sought to examine whether knowledge sharing practices explained how the use of social media affects student's eLearning performance, and if so, to what extent. Our findings show that for social media usage to possess a significant effect on students' eLearning performance, that knowledge sharing activities among these students must be present. In other words, knowledge sharing practices mediate the effect of social media usage on students' eLearning performance. With regard to the extent to which knowledge sharing practices (via interactions, collaborations with colleagues, teachers and mentors) mediates this relationship, it is important to know that this study's findings found a partial mediation effect which means that while knowledge sharing practices provide some explanation with regard to how the use of social media affects students' eLearning practices, it does not fully explain why and how this primary relationship occurs, which implies that there might be other variables or factors that can help in explaining why social media usage affects students' eLearning performance. These findings and arguments are also corroborated by Ansari and Khan (2020).

5.5 The moderating effect of willingness to share knowledge

Since it is clear that increased levels of knowledge sharing practices facilitates the impact of social media usage on students' eLearning performance, it is logical to assume that willingness to share knowledge will impact the levels of knowledge sharing and thus influence its ability to mediate the social media usage-eLearning performance path. Upon empirically testing this assumption, the study finds that whereas willingness to share knowledge moderated the effect of social media usage on knowledge sharing practices (i.e., it increased the effect), it however, did not significantly moderate the effect of social media usage on students' eLearning performance. This implies that students' eLearning performance is not sensitive to whether students are willing to share knowledge or not, but is only sensitive to presence of knowledge sharing practices irrespective of how they are brought about. In other words, willingness to share knowledge, is only effective at increasing the levels of knowledge sharing practices when students use social media, but has no influence on whether those practices would eventually lead to increases or decreases in levels of student's eLearning performance.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Summary of Findings

The aim of this research was to examine how the use of social media for knowledge sharing impacts students' eLearning performance with evidence from universities in Turkish Republic of North Cyprus. The study investigated the research questions with the use of quantitative data. The study's findings found support for all of the stated hypotheses with the exception of hypothesis 5 which was observed that no significant moderation effect of willingness to share knowledge on the use of social media and students eLearning performance was recorded. The main findings of the study include;

The use of social media among students in TRNC universities had a moderate, positive and significant effect on students' eLearning performance. Their use of social media was also seen to strongly and positively impact their knowledge sharing practices.

Student's knowledge sharing practices were similarly found to moderately and positively impact their eLearning performance.

The mediating effect of knowledge sharing practices on the effect of use of social media on students' eLearning performance was found to be both positive and significant. Since an effect already exists between use of social media and student's eLearning performance, it shows that the mediating effect observed in the finding is that of a partial mediation and not full mediation. Thus, knowledge sharing practices only partially explains how the effect of use of social media on students' eLearning performance occurs.

For the moderation of willingness to share knowledge, it had a moderately positive and significant effect on knowledge sharing practices. Therefore, willingness to share knowledge positively and significantly moderated the effect of use of social media on knowledge sharing practices, though the magnitude of the observed effect was small.

However, similar to its direct effect on students' eLearning performance, willingness to share knowledge had no effect on students' eLearning performance. Willingness to share knowledge was not found to exhibit any significant moderating effect on the relationship between the use of social media and students' eLearning performance.

6.2 Implications of the study

Implications for Research

While a review of the majority of extant literature reveals a negative effect of the usage of social media on the academic performance of students, this study finds that a moderately positive effect exists between the usage of social media and students' eLearning performance. The difference between this study's findings and those of extant research is the fact that unlike previous research, this study focused on student's eLearning performance rather than on student's general academic performance. Our findings point to the fact that the collaborative and interactive nature of social media usage and the similarities students encounter during while studying via eLearning platforms increase levels of engagement and knowledge sharing which then produces positive learning outcomes for the students. Similarly, the study found that knowledge sharing practices are a vital ingredient for the facilitation of the desirable eLearning outcome. However, while the willingness to share information was found to be crucial in raising the levels of knowledge sharing practices when social media is in use, it had no influence on how social media usage affects the eventual eLearning performance of students. These findings provide an important contribution to extant literature by introducing eLearning performance as a possible learning outcome measurement metric – one that is apt for the current pandemic times where most institutions of higher learning have had to shift to online learning platforms. Secondly, since it is still yet to be determined if the positive effect of social media usage is as a result of the hypothesized effects or as some may argue, the lax nature of online testing systems, this study stirs up

further questions that may need to be explored in future research on the practicalities and antecedents of eLearning performance.

Implications for Practice

The findings of this study have significant implications for practice. First of all, it shows social media usage has a positive effect on student' eLearning performance. Thus, it follows that education administrators should be encouraged to incorporate activities which facilitate the productive use of social media by students, through the design of programs that facilitate student-student, student-teacher and student-mentor interactions and collaborations. It is however not sufficient to increase the levels of student's use of social media. It is important during the curriculum design process, to ensure that those activities that would effectively prompt students to share information and knowledge across board be encouraged, as increased levels of knowledge sharing were shown to not only have a significant effect on eLearning performance outcomes, but also facilitate the effect of social media usage on eLearning performance itself. Finally, education administrators should incorporate orientation programs and workshops geared towards the intimation of students on the importance of being willing to share information with peers, not just for the sole purpose of increasing the levels of knowledge shared, but also for the beneficial effect it has for student themselves: evidence exists to show that the more students share knowledge, the more they benefit from the shared knowledge network themselves but most importantly the more they participate in giving and taking knowledge, the more their overall performance via eLearning mechanisms improve positively.

6.3 Limitations of the study and Recommendation for Future Research

As common with all empirical investigations, this study is not without its inherent limitations which could also provide ample opportunities for future researchers on the subject matter. First of all, this study focuses on evaluating the relationships among social media usage, knowledge sharing practices, willingness to share knowledge and students' eLearning performance. It however, does not lend itself to examining the

different types of social media usage that exists, but focuses on general social media usage. Similarly, with regard to the outcome variable, a composite measurement of students' eLearning performance was used and no attempt was made to examine the impact of the predictor variables on different types of eLearning performance. Future researchers should examine the effect of different forms of social media usage on the different categories of eLearning performance to further deepen our understanding of the phenomenon.

Secondly, the sampling technique deployed in this study is of the non-probability type, specifically, convenience sampling. This sampling technique while convenient, makes it difficult to ensure the equal inclusion of all members of the study population hence limiting the representativeness of the study data and by extension the probability of generalizing its findings to the larger student population. Future researchers should use the probability sampling techniques especially random sampling to obtain a more representative data set and further enhance the generalizability of findings to the population.

Finally, a quantitative design involving the collection of data using surveys was used in this study. While this is an appropriate methodology for examining the hypothesized effects, a qualitative approach could expand the depth and breadth of insights extracted from the responses. In fact, a more desirable approach would have been the mixed methods approach which could allow for triangulation and allow the researcher both examine constructs of interest as well as uncover new variables, patterns or insights. It is therefore recommended that future researchers should examine the relationships concerned from a qualitative or mixed methods approach.

REFERENCES

Emerson, R. M. (1976). Social Exchange Theory. *Annual Review of Sociology, 2*, 335–362. http://www.jstor.org/stable/2946096

Mbasera, S. F. (2019). *Exploring knowledge sharing through social media among members of the African Community of Practice* (Doctoral dissertation).

Liang, T. P., Liu, C. C., & Wu, C. H. (2008). Can social exchange theory explain individual knowledge-sharing behavior? *A meta-analysis. ICIS*.

Fari, S. (2015). Applying Social Capital Theory and the Technology Acceptance Model in information and knowledge sharing research. Inkanyiso: Journal of Humanities and Social Sciences. Forum Press. Retrieved from http://www.ajol.info/index.php/ijhss/article/view/118780

Grant, C., & Osanloo, A. (2014). Understanding, selecting, and integrating a theoretical framework in dissertation research: creating the blueprint for your "house." Administrative Issues Journal: Connecting Education, Practice, and Research, 4(2). Retrieved from https://submissions.scholasticahq.com/supporting_files/248864/attachment_versions/249104

Okyere-Kwaye, E., & Nor, K. M. (2011). Individual factors and knowledge sharing. American Journal of Economics and Business Administration, 3(1), 66–72.

Kaminski, J. (2011). Diffusion of innovation theory. *Canadian Journal of Nursing Informatics, 6*(2), 1-6

Rogers, E. M. (2010). *Diffusion of innovations*. Simon and Schuster.

Rogers, E. M., & Kincaid, D. L. (1981). *Communication networks: Toward a new paradigm for research*. Free Press.

Akpan, V. I., Igwe, U. A., Mpamah, I. B. I., & Okor, C. O. (2020). Social constructivism: implications on teaching and learning. *Br J Educ*, *8*(8), 49-56.

Westwood, P. S. (2008). *What teachers need to know about teaching methods*. Aust Council for Ed Research.

Kapur, R. (2018). The Significance of Social Constructivism in Education.

Kelly, J. (2012) Learning theories.

Omwirhiren, E. M. (2015). Enhancing Academic Achievement and Retention in Senior Secondary School Chemistry through Discussion and Lecture Methods: A Case Study of Some Selected Secondary Schools in Gboko, Benue State, Nigeria. *Journal of Education and Practice, 6*(21), 155-161.

Jegede, S. A. (2010). Nigerian students' perception of technical words in senior secondary school chemistry curriculum. *Pakistan Journal of Social Sciences, 7*(2), 109-111.

Bell, S. (2010). Project-based learning for the 21st century: Skills for the future. *The clearing house, 83*(2), 39-43.

Bernard, K. J., & Dzandza, P. E. (2018). Effect of social media on academic performance of students in Ghanaian Universities: A case study of University of Ghana. *Library Philosophy and Practice, Legon*.

Mowafy, G. A. M. (2018). *The effects of social media on the academic performance of Nile university students* (Doctoral dissertation, American University in Cairo).

Scott, P. R., & Jacka, J. M. (2011). *Auditing social media: A governance and risk guide*. John Wiley & Sons.

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business horizons, 53*(1), 59-68.

Dearborn, E. (2014). My official definition of social media. *Prospect Heights, Ill: Waveland*.

Obar, J. A., & Wildman, S. S. (2015). Social media definition and the governance challenge-an introduction to the special issue. *Obar, JA and Wildman, S.(2015). Social media definition and the governance challenge: An introduction to the special issue. Telecommunications policy, 39*(9), 745-750.

Alwagait, E., Shahzad, B., & Alim, S. (2015). Impact of social media usage on students academic performance in Saudi Arabia. *Computers in Human Behavior*, *51*, 1092-1097.

Heyam, A. (2014). The influence of social networks on students' performance. *Journal of Emerging Trends in Computing and Information Sciences*, *5*(3), 200-205.

Humphreys, L. (2007). Mobile social networks and social practice: A case study of Dodgeball. *Journal of Computer-Mediated Communication*, *13*(1), 341-360.

Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of computer-mediated Communication*, *13*(1), 210-230.

Wheeler, S., Yeomans, P., & Wheeler, D. (2008). The good, the bad and the wiki: Evaluating student-generated content for collaborative learning. *British journal of educational technology*, *39*(6), 987-995.

Rifkin, W., Longnecker, N., Leach, J., & Ortia, L. (2009). Motivate students by having them publish in new media: an invitation to Science Lecturers to share and test. A paper presented at the motivating Science Undergraduates: Ideas and Interventions.

Wodzicki, K., Schwämmlein, E., & Moskaliuk, J. (2012). "Actually, I Wanted to Learn": Study-related knowledge exchange on social networking sites. *The Internet and Higher Education*, *15*(1), 9-14.

Jain, N. K., Verma, A., Verma, R. S., & Tiwari, P. (2012). Going Social: The Impact of Social Networking in Promoting Education. *Online Submission*, *9*(3), 483-485.

Camilia, O. N., Ibrahim, S. D., & Dalhatu, B. L. (2013). The effect of social networking sites usage on the studies of Nigerian students. *The International Journal of Engineering and Science*, *2*(7), 39-46.

Kuppuswamy, S., & Narayan, P. S. (2010). The impact of social networking websites on the education of youth. *International journal of virtual communities and social networking (IJVCSN)*, *2*(1), 67-79.

Raacke, J., & Bonds-Raacke, J. (2008). MySpace and Facebook: Applying the uses and gratifications theory to exploring friend-networking sites. *Cyberpsychology & behavior, 11*(2), 169-174.

Alwagait, E., Shahzad, B., & Alim, S. (2015). Impact of social media usage on students academic performance in Saudi Arabia. *Computers in Human Behavior, 51*, 1092-1097.

Kirschner, P. A., & Karpinski, A. C. (2010). Facebook® and academic performance. *Computers in human behavior, 26*(6), 1237-1245.

Davies, T., & Cranston, P. (2008). Youth work and social networking. *Interim Report, The National Youth Agency: Leicester, UK*.

O'Keeffe, G. S., Clarke-Pearson, K., & Council on Communications and Media. (2011). The impact of social media on children, adolescents, and families. *Pediatrics, 127*(4), 800-804.

Kalu, C. O., & USIEDO, B. A. (2019). Knowledge Sharing Behaviours and Patterns Among Academic Students: A Case Study Of Electrical Engineering Technology Students of National Institute of Construction Technology (NICT), Uromi, Edo State.

Tan, J. (2009). *Higher education students' learning and knowledge sharing: a grounded theory study of blog use* (Doctoral dissertation, University of Sheffield).

Abbas, K. (2018). *Knowledge-sharing behaviour intentions of academics and their determinants.* Liverpool John Moores University (United Kingdom).

Holsapple, C. (Ed.). (2013). *Handbook on knowledge management 1: Knowledge matters* (Vol. 1). Springer Science & Business Media.

Serban, A. M., & Luan, J. (2002). Overview of knowledge management. *New directions for institutional research, 2002*(113), 5-16.

Van den Hooff, B., & de Leeuw van Weenen, F. (2004). Committed to share: commitment and CMC use as antecedents of knowledge sharing. *Knowledge and process management, 11*(1), 13-24.

Widen-Wulff, G., & Suomi, R. (2007). Utilization of information resources for business success: The knowledge sharing model. *Information Resources Management Journal (IRMJ)*, *20*(1), 46-67.

Yang, J. T. (2010). Antecedents and consequences of knowledge sharing in international tourist hotels. *International Journal of Hospitality Management*, *29*(1), 42-52.

Marshall, C. R., & Novick, D. G. (1995). Conversational effectiveness in multimedia communications. *Information Technology & People*.

Mehrabian, A. (1971). *Silent messages* (Vol. 8, No. 152, p. 30). Belmont, CA: Wadsworth.

Dennis, A. R., & Valacich, J. S. (1999, January). Rethinking media richness: Towards a theory of media synchronicity. In *Proceedings of the 32nd Annual Hawaii International Conference on Systems Sciences. 1999. HICSS-32. Abstracts and CD-ROM of Full Papers* (pp. 10-pp). IEEE.

Van der Kleij, R., Lijkwan, J. T., Rasker, P. C., & De Dreu, C. K. (2009). Effects of time pressure and communication environment on team processes and outcomes in dyadic planning. *International Journal of Human-Computer Studies*, *67*(5), 411-423.

Dimmick, J., Kline, S., & Stafford, L. (2000). The gratification niches of personal e-mail and the telephone: Competition, displacement, and complementarity. *Communication research*, *27*(2), 227-248.

Vonderwell, S. (2003). An examination of asynchronous communication experiences and perspectives of students in an online course: A case study. *The Internet and higher education*, *6*(1), 77-90.

Chiu, C. M., & Wang, E. T. (2008). Understanding Web-based learning continuance intention: The role of subjective task value. *Information & Management*, *45*(3), 194-201.

Winter, S. G. (1987). Knowledge and competence as strategic assets. DJ Teece, ed. The Competitive Challenge: Strategies for Industrial Innovation and Renewal. *Cambridge Ma.: Ballinger*.

Duncan, T., & Moriarty, S. E. (1998). A communication-based marketing model for managing relationships. *Journal of marketing*, *62*(2), 1-13.

Harley, D., Newall, S., Scarbrough, H. and Swan, J. (1999). Knowledge management and innovation: networks and networking. Journal of Knowledge Management, 3(4), 262-265.

Frost, A. (2016). An educational KM site—knowledge sharing.

Blau, P. (1964). Power and exchange in social life.

Forman, E. A., & Cazden, C. B. (1985). Exploring Vygotskian Perspectives in Education: The Cognitive Value of Peer Collaboration. *Culture, Communication and Cognition: Vygotskian Perspectives Cambridge: Cambridge University Press*, *323*, 347.

Lavery, T. A., Lavery, T. A., Franz, T. M., Lavery, T. A., Franz, T. M., Winquist, J. R., & Larson, J. R. (1999). The role of information exchange in predicting group accuracy on a multiple judgment task. *Basic and Applied Social Psychology*, *21*(4), 281-289.

Yuen, T. J., & Majid, M. S. (2007). Knowledge-sharing patterns of undergraduate students in Singapore. *Library Review*.

Yang, S. J., & Chen, I. Y. (2008). A social network-based system for supporting interactive collaboration in knowledge sharing over peer-to-peer network. *International Journal of Human-Computer Studies*, *66*(1), 36-50.

Kuznetsov, A., & Kuznetsova, O. (2011). Looking for ways to increase student motivation: internationalisation and value innovation. *Higher Education Quarterly*, *65*(4), 353-367.

Kelly, P., & Moogan, Y. (2012). Culture shock and higher education performance: Implications for teaching. *Higher Education Quarterly*, *66*(1), 24-46.

Wheelan, S. A., & Tilin, F. (1999). The relationship between faculty group development and school productivity. *Small group research*, *30*(1), 59-81.

Wheelan, S. A., & Kesselring, J. (2005). Link between faculty group: Development and elementary student performance on standardized tests. *The journal of educational research*, *98*(6), 323-330.

Block, M., & Khvatova, T. (2013, September). Intra-organisational knowledge sharing: Scenarios and Corresponding Strategies. In *Proceedings of the 14th European Conference on Knowledge Management, Kaunas. Academic Conferences International (Ed.)* (pp. 52-60).

Al-Shibly, M. S. (2019). The use of social media in knowledge sharing case study undergraduate students in major british universities. *International Journal of Online Marketing (IJOM)*, *9*(4), 19-32.

Cummings, J. N. (2004). Work groups, structural diversity, and knowledge sharing in a global organization. *Management science*, *50*(3), 352-364.

Miller, D., & Shamsie, J. (1996). The resource-based view of the firm in two environments: The Hollywood film studios from 1936 to 1965. *Academy of management journal*, *39*(3), 519-543.

Bashiruddin, M., Basit, A., & Naeem, M. (2010). Barriers to the implementation of E-learning system with focus on organizational culture.

Aguti, B. (2015). *A Model to facilitate effective E-learning in technology-enhanced learning environments within universities* (Doctoral dissertation, University of Southampton).

FitzPatrick, T. (2012). Key Success Factors of eLearning in Education: A Professional Development Model to Evaluate and Support eLearning. *Online Submission*.

Kattoua, T., Al-Lozi, M., & Alrowwad, A. A. (2016). A review of literature on E-learning systems in higher education. *International Journal of Business Management & Economic Research*, *7*(5), 754-762.

Arkorful, V., & Abaidoo, N. (2015). The role of e-learning, advantages and disadvantages of its adoption in higher education. *International Journal of Instructional Technology and Distance Learning*, *12*(1), 29-42.

Khan, B. H. (Ed.). (2005). *Managing e-learning: Design, delivery, implementation, and evaluation*. IGI *Global.

Fee, K. (2013). Delivering e-learning. A complete strategy for design, application and assessment. *Development and Learning in Organizations: An International Journal*.

Abbad, M. M., Morris, D., & De Nahlik, C. (2009). Looking under the bonnet: Factors affecting student adoption of e-learning systems in Jordan. *International Review of Research in Open and Distributed Learning*, *10*(2).

Fry, K. (2000). Forum focus and Overview. *The Business of E-Learning: Bringing your Organisation in the Knowledge E-conomy, Telcam Group, University of Technology, Sydney*.

Rosemary, H. W., Kenneth, A. G., & Tanya, D. (2002). A framework for e-learning as a tool for knowledge management. *Industrial Management & Data Systems*, *102*(7), 371-380.

Sharpe, R., Benfield, G., Roberts, G., & Francis, R. (2006). The undergraduate experience of blended e-learning: a review of UK literature and practice. *The higher education academy*, 1-103.

Mayes, T., & de Freitas, S. (2005). JISC e-learning models desk study. Stage 2: Review of e-learning theories, frameworks and models. Retrieved 13 February, 2008.

Rosenberg, M. J. (2005). *Beyond e-learning: Approaches and technologies to enhance organizational knowledge, learning, and performance*. John Wiley & Sons.

Snart, J. A. (2010). Hybrid learning. *The perils and promise of blending online and face-to-face instruction in higher education. California: ABC CLIO*.

Wang, Y. S., Wang, Y. M., Lin, H. H., & Tang, T. I. (2003). Determinants of user acceptance of Internet banking: an empirical study. *International journal of service industry management*.

Yang, N., & Arjomand, L. H. (1999, July). Opportunities and Challenges in Computer-Mediated Business Education: An Exploratory Investigation of Online Programs.

In *Allied Academies International Conference. Academy of Educational Leadership. Proceedings* (Vol. 4, No. 2, p. 64). Jordan Whitney Enterprises, Inc.

Love, N., & Fry, N. (2006). Accounting students' perceptions of a virtual learning environment: Springboard or safety net?. *Accounting Education: an international journal*, *15*(2), 151-166.

Dublin, L. (2003). If you only look under the street lamps... or nine e-learning myths. *The e-Learning developer's journal*, 1-7.

ALGAHTANI, A. (2011). *Evaluating the effectiveness of the e-learning experience in some universities in Saudi Arabia from male students' perceptions* (Doctoral dissertation, Durham University).

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

Anderson, P. (2007). *What is Web 2.0?: ideas, technologies and implications for education* (Vol. 1, No. 1, pp. 1-64). Bristol: JISC.

Clark, R. C., & Mayer, R. E. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. john Wiley & sons.

Rice, W. (2011). *Moodle 2.0 E-Learning Course Development*. Packt Publishing Ltd.

Gagne, R. M., Wager, W. W., Golas, K. C., Keller, J. M., & Russell, J. D. (2005). Principles of instructional design.

Soong, M. B., Chan, H. C., Chua, B. C., & Loh, K. F. (2001). Critical success factors for on-line course resources. *Computers & education*, *36*(2), 101-120.

Peslak, A. R. (2003). Teaching computer information systems via distance education: a researched and personal perspective. *Information Systems Education Journal*, *1*(12), 1-18.

Callan, V., & Bowman, K. (2010). Sustaining E-learning Innovations: A review of the evidence and future directions. *Canberra: The Australian Flexible Learning Framework, DEEWR, Commonwealth of Australia*.

Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice*. Routledge.

Singh, H. (2021). Building effective blended learning programs. In *Challenges and Opportunities for the Global Implementation of E-Learning Frameworks* (pp. 15-23). IGI Global.

Hemsley, C. (2002). Jones International University's focus on quality eLearning opens doors for students worldwide. *Business Media*, *39*(9), 26-29.

Sadler-Smith, E., Down, S., & Lean, J. (2000). "Modern" learning methods: rhetoric and reality. *Personnel Review*.

Standen, P. J., Brown, D. J., & Cromby, J. J. (2001). The effective use of virtual environments in the education and rehabilitation of students with intellectual disabilities. *British Journal of Educational Technology*, *32*(3), 289-299.

Holmes, B., & Gardner, J. (2006). *E-learning: Concepts and practice*. Sage.

Masa'deh, R. E. M. (2013). The impact of information technology infrastructure flexibility on firm performance: An empirical study of Jordanian public shareholding firms. *Jordan Journal of Business Administration*, *153*(954), 1-42.

Kanaan, R. (2013). The impact of knowledge sharing enablers on knowledge sharing capability: An empirical study on Jordanian telecommunication firms. *European Scientific Journal*, *9*(22).

Tarhini, A., Hone, K. S., & Liu, X. (2013). Factors affecting students' acceptance of e-learning environments in developing countries: a structural equation modeling approach.

Wagner, E. D. (2008). Minding the Gap: Sustaining eLearning Innovation. In *E-Learn: World Conference on E-Learning.*. Association for the Advancement of Computing in Education (AACE).

Bouhnik, D., & Marcus, T. (2006). Interaction in distance-learning courses. *Journal of the American Society for Information Science and Technology*, *57*(3), 299-305.

Collins, J., Hammond, M., & Wellington, J. (2002). *Teaching and learning with multimedia*. Routledge.

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

Hameed, S., Badii, A., & Cullen, A. J. (2008, May). Effective e-learning integration with traditional learning in a blended learning environment. In *European and Mediterranean Conference on Information Systems* (Vol. 60, p. 14).

Almosa, A. (2002). Use of computer in education. *Future Education Library: Riyadh, Saudi Arabia*.

Akkoyunlu, B., & Soylu, M. Y. (2006). A study on students' views on blended learning environment. *Turkish Online Journal of Distance Education*, *7*(3), 43-56.

Lewis, N. J., & Orton, P. (2000). The five attributes of I innovative e-learning. *Training & Development*, *54*(6), 47-47.

Wegner, S. B., Holloway, K. C., & Garton, E. M. (1999). The effects of Internet-based instruction on student learning. *Journal of Asynchronous Learning Networks*, *3*(2), 98-106.

Al-Emran, M., & Teo, T. (2020). Do knowledge acquisition and knowledge sharing really affect e-learning adoption? An empirical study. *Education and Information Technologies*, *25*(3), 1983-1998.

Salloum, S. A., Al-Emran, M., Shaalan, K., & Tarhini, A. (2019). Factors affecting the E-learning acceptance: A case study from UAE. *Education and Information Technologies*, *24*(1), 509-530.

Tarhini, A., Hone, K., & Liu, X. (2014). The effects of individual differences on e-learning users' behaviour in developing countries: A structural equation model. *Computers in human behavior*, *41*, 153-163.

Almaiah, M. A. (2018). Acceptance and usage of a mobile information system services in University of Jordan. *Education and Information Technologies*, *23*(5), 1873-1895.

Alghizzawi, M., Habes, M., Salloum, S. A., Ghani, M. A., Mhamdi, C., & Shaalan, K. (2019). The effect of social media usage on students'e-learning acceptance in higher education: A case study from the United Arab Emirates. *Int. J. Inf. Technol. Lang. Stud*, *3*(3), 13-26.

Li, Y., Duan, Y., Fu, Z., & Alford, P. (2012). An empirical study on behavioural intention to reuse e-learning systems in rural China. *British Journal of Educational Technology*, *43*(6), 933-948.

Naeem, M. (2019). Uncovering the role of social media and cross-platform applications as tools for knowledge sharing. *VINE Journal of Information and Knowledge Management Systems*.

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business horizons*, *53*(1), 59-68.

Ahmed, Y. A., Ahmad, M. N., Ahmad, N., & Zakaria, N. H. (2019). Social media for knowledge-sharing: A systematic literature review. *Telematics and informatics*, *37*, 72-112.

Jones, B., Temperley, J., & Lima, A. (2009). Corporate reputation in the era of Web 2.0: the case of Primark. *Journal of marketing management*, *25*(9-10), 927-939.

Fullwood, R., Rowley, J., & McLean, J. (2019). Exploring the factors that influence knowledge sharing between academics. *Journal of Further and Higher Education*, *43*(8), 1051-1063.

Chiu, C. M., Hsu, M. H., & Wang, E. T. (2006). Understanding knowledge sharing in virtual communities: An integration of social capital and social cognitive theories. *Decision support systems*, *42*(3), 1872-1888.

Almuqrin, A., Zhang, Z. J., Alzamil, A., Mutambik, I., & Alhabeeb, A. (2020). The explanatory power of social capital in determining knowledge sharing in higher education: A case from Saudi Arabia. *Malaysian Journal of Library & Information Science*, *25*(3), 71-90.

Cummings, J. N. (2004). Work groups, structural diversity, and knowledge sharing in a global organization. *Management science*, *50*(3), 352-364.

Al-Shibly, M. S. (2019). The use of social media in knowledge sharing case study undergraduate students in major british universities. *International Journal of Online Marketing (IJOM)*, *9*(4), 19-32.

Emeagwali, O. L. (2015). WBISS: Web-based Inferential Statistic Selector [Web Application].

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing theory and Practice*, *19*(2), 139-152.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The Sage handbook of qualitative research*. sage.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research*, *2*(163-194), 105.

Blaikie, N. (2000). Designing social research. Cambridge. *Polity*.

Mingers, J. (2003). A classification of the philosophical assumptions of management science methods. *Journal of the operational research society*, *54*(6), 559-570.

Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. *The Sage handbook of qualitative research*, *4*(2), 97-128.

Myers, M. D. (1997). Critical ethnography in information systems. In *Information systems and qualitative research* (pp. 276-300). Springer, Boston, MA.

Bryman, A., & Bell, E. (2011). Ethics in business research. *Business Research Methods*, *7*(5), 23-56.

Kaplan, B., & Maxwell, J. A. (2005). Qualitative research methods for evaluating computer information systems. In *Evaluating the organizational impact of healthcare information systems* (pp. 30-55). Springer, New York, NY.

Straub, D. W., Gefen, D., & Boudreau, M. C. (2005). Quantitative research. *Research in information systems: a handbook for research supervisors and their students*, *1*.

Winfield, I. (1991). Organisations and Information Technology: Systems. *Power and Job Design, Blackwell, Carlton*.

Orlikowski, W. J., & Baroudi, J. J. (1991). Studying information technology in organizations: Research approaches and assumptions. *Information systems research*, *2*(1), 1-28.

Lincoln, Y. S., Lynham, S. A., & Guba, E. G. (2011). Paradigmatic controversies, contradictions, and emerging confluences, revisited. *The Sage handbook of qualitative research*, *4*(2), 97-128.

Creswell, J. W. (2008). The selection of a research design. *Research Design-Qualitative, Quantitative, and Mixed Method Approaches-*, 3-22.

Onweugbuzie, A. J. (2002). WHY CAN'T WE ALL GET ALONG? TOWARDS A FRAMEWORK FOR UNIFYING RESEARCH PARADIGMS. *Education*, *122*(3).

Hall, B., & Howard, K. (2008). A synergistic approach: Conducting mixed methods research with typological and systemic design considerations. *Journal of mixed methods research*, *2*(3), 248-269.

Mingers, J. (2003). A classification of the philosophical assumptions of management science methods. *Journal of the operational research society*, *54*(6), 559-570.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.

Bryman, A. (2008). The end of the paradigm wars. *The SAGE handbook of social research methods*, 13-25.

David, M., & Sutton, C. D. (2004). *Social research: The basics* (Vol. 74, No. 3). Sage.

Punch, K. F. (2005). The analysis of qualitative data. *Introduction to Social Research, Quantitative and Qualitative Approaches, 2nd Edition, by Keith F Punch*, 197-216.

Johnson, R. B., & Onwuegbuzie, A. J. (2010). Mixed research. *RB Johnson & LB Christensen, Educational research: Quantitative, qualitative, and mixed approaches*, 439-459.

White, J. (2006). Qualitative Research in Education: A User's Guide. *Qualitative Research Journal*, *6*(1), 146-149.

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2009). Business Research Methods: South-Western Pub.

Sekaran, U., & Bougie, R. (2011). Business Research Methods: A skill-building approach. *Chichester: John Wiley& Sons Ltd*.

Aaker, D. A., Kumar, V., Day, G. S., & Leone, R. (2009). Marketing Research (7th edn., p. 816). *NY: John Wiley and Sons*.

Nachmias, C. F., & Nachmias, D. (2008). Research methods in the social sciences. London: St.

Russ-Eft, D., & Preskill, H. (2009). *Evaluation in organizations: A systematic approach to enhancing learning, performance, and change*. Basic Books.

Fowler, F. J. (2009). Methods of data collection. In *Survey research methods* (pp. 69-86). Thousand Oaks, CA: Sage Publications.

Blumberg, B., Cooper, D. R., & Schindler, P. S. (2008). Quantitative and qualitative research. *M. Hill, Business Research Methods*, *2008*, 191-222.

Groves, R. M., Fowler, F. J., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau, R. (2009). Methods of data collection. *Survey methodology*, 149-181.

Stangor, C. (2014). *Research methods for the behavioral sciences*. Cengage Learning.

Manfreda, K. L., Batagelj, Z., & Vehovar, V. (2002). Design of web survey questionnaires: Three basic experiments. *Journal of computer-mediated communication*, *7*(3), JCMC731.

Gupta, S., & Bashir, L. (2018). Social networking usage questionnaire: development and validation in an Indian higher education context. *Turkish Online Journal of Distance Education*, *19*(4), 214-227.

Alamri, M. M., Almaiah, M. A., & Al-Rahmi, W. M. (2020). Social media applications affecting Students' academic performance: A model developed for sustainability in higher education. *Sustainability*, *12*(16), 6471.

Shava, H., & Chinyamurindi, W. T. (2018). Determinants of social media usage among a sample of rural South African youth. *South African Journal of Information Management*, *20*(1), 1-8.

Zhang, X., Jinpeng, X., & Khan, F. (2020). The influence of social media on employee's knowledge sharing motivation: A two-factor theory perspective. *SAGE Open*, *10*(3), 2158244020942495.

Hesse-Biber, S. N., & Leavy, P. (2010). *The practice of qualitative research*. Sage.

Cain, J. (2008). Online social networking issues within academia and pharmacy education. American Journal of Pharmaceutical Education. https://doi.org/10.5688/aj720110.

Bogdanov, E., Limpens, F., Li, N., El Helou, S., Salzmann, C., & Gillet, D. (2012). A social media platform in higher education. In Proceedings of the 2012 IEEE Global Engineering Education Conference (EDUCON) (pp. 1–8). IEEE.

Wankel, C. (2009). Management education using social media. Organization Management Journal, 6(4), 251–262.

Kolhar, M., Kazi, R. N. A., & Alameen, A. (2021). Effect of social media use on learning, social interactions, and sleep duration among university students. *Saudi Journal of Biological Sciences*, *28*(4), 2216-2222.

Pa, W. A. M. W., Mahmud, M. S., & Zainal, M. S. (2021). Implications of Social Media Addiction on Academic Performance among Generation Z Student-athletes during COVID-19 Lockdown. *International Journal of Learning, Teaching and Educational Research*, *20*(8).

Lowry, P. B., & Gaskin, J. (2014). Partial least squares (PLS) structural equation modeling (SEM) for building and testing behavioral causal theory: When to choose it and how to use it. IEEE transactions on professional communication, 57(2), 123-146.

APPENDIX 1- QUESTIONNAIRE

THE IMPACT OF SOCIAL MEDIA USAGE IN KNOWLEDGE SHARING PRACTICES ON STUDENTS' ELEARNING PERFORMANCE. EVIDENCE FROM UNIVERSITIES IN NORTH CYPRUS

Dear Participants,

I am inviting you to be part of my research study titled the impact of impact of social media usage in knowledge sharing practices on students' eLearning performance. evidence from universities in North Cyprus. This study is being conducted for the successful completion of a master's thesis dissertation.

The sole intend of this questionnaire is the collection empirical, quantitative to facilitate the researcher's investigation of the impact of social media usage in knowledge sharing practices on students' eLearning performance.

This questionnaire should take about five minutes to complete and your participation will be appreciated.

Please note;

This questionnaire is only for Near East University and Girne American University students in eLearning. You are not under any obligation to complete the survey. Participation is totally voluntary. All your responses will be confidential

The information gathered by this survey will only be used for the purpose of this research. Your personal information will not be asked and will not be shared with third parties. If you happen to have any questions or doubts, please contact us using the information below.

Researcher: Matilda Nkerifac Ngwobeta Email: 20203896@std.neu.edu.tr

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

Demographic Questions

1. AGE

Below 20 ☐ 20 – 29 ☐ 30 – 39 ☐ 40 – 49 ☐ 50+ ☐

2. GENDER

Male ☐ Female ☐

3. EDUCATION LEVEL

PhD ☐ Masters ☐ Bachelor's ☐ Diploma ☐ others ☐

Likert Scale (1) strongly disagree (2) disagree (3) uncertain (4) agree (5) strongly agree	**1**	**2**	**3**	**4**	**5**
THE USE OF SOCIAL MEDIA					
1. I use social media applications to solve my academic problem.					
2. I use social media applications to do research work.					
3. I use social media applications for online academic group discussion.					
4. I communicate with my friends via social media applications for preparation of exam.					
5. I use social media applications for collaborative learning.					
6. I use social media applications to learn about my curricular aspect.					
7. I use social media applications to seek help from my teachers.					
8. I feel that using social media applications makes it easy to reach classmates and teachers.					
9. Social media applications do not require a lot of my mental effort					
STUDENTS' ELEARNING PERFORMANCE					
1. The use of social media applications has improved my comprehension of the concepts studied.					
2. The use of social media applications as led to a better learning experience in eLearning.					
3. Social media applications have allowed me to better understand my studies.					

4. Social media applications are helpful in my studies and make it easy to learn.					
5. Social media applications improve my academic performance.					
6. I feel that using social media applications will be easy in my studies.					
7. I believe that using social media applications enhances my effectiveness.					
8. Social media applications enable me to accomplish tasks more quickly.					
9. Social media applications enhance effectiveness in my studies.					
KNOWLEDGE SHARING PRACTICES					
1. I enjoy sharing knowledge with my classmates via social media applications					
2. It seems to me that my classmates enjoy sharing their knowledge with others via social media applications.					
3. It seems to me that social media applications facilitate sharing knowledge among people.					
4. It seems to me that my classmates share the best knowledge that they have via social media applications.					
5. I go to my social media applications to share knowledge I know about a particular subject.					
6. I come to my social media to share my skills.					
7. I use social media applications to share new ideas.					
8. Social media applications allow the exchange of information with peers.					
9. Social media applications allow the exchange of information with lecturers.					
WILLINGNESS TO SHARE KNOWLEDGE					
1. I intend to share knowledge with my classmates more frequently in the future					
2. I will provide my knowledge at the request of other students.					
3. I will try to share my knowledge with classmates.					
4. I enjoy helping classmates by sharing my knowledge.					

APPENDIX 2- ETHICS COMMITTEE APPROVAL

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

05.10.2021

Dear Matilda Nkerifac Ngwobeta

Your application titled **"The Impact of Social Media Usage in Knowledge Sharing Practices on Students' e-Learning Performance: Evidence From Universities in North Cyprus"** with the application number NEU/SS/2021/1090 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

Direnc 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

thesis

ORIGINALITY REPORT

6%	4%	1%	2%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	researchonline.ljmu.ac.uk Internet Source	1%
2	www.itdl.org Internet Source	1%
3	researchspace.ukzn.ac.za Internet Source	1%
4	eprints.soton.ac.uk Internet Source	1%
5	Submitted to The University of the South Pacific Student Paper	1%
6	Submitted to Amman Arab University for Graduate Studies Student Paper	1%
7	Submitted to University of Birmingham Student Paper	1%
8	Alwagait, Esam, Basit Shahzad, and Sophia Alim. "Impact of social media usage on students academic performance in Saudi Arabia", Computers in Human Behavior, 2015. Publication	1%