The Effect of Using Technology and Blended Learning on Students at Private International schools in the UAE.
(In classrooms and beyond)

أثر استخدام التكنولوجيا والتعليم المدمج على الطلاب في المدارس الدولية الخاصة بدولة الإمارات العربية المتحدة. (داخل الصف وخارجه)

by

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ABSTRACT

Aim: The main objective of this study is to estimate the impacts of e-learning and teaching on the academic performance of the students in Dubai and Abu Dhabi.

Methodology: A Cross-sectional Data through close-ended self-administered questionnaire was collected. The sample size of the study was 300, among them there were 50 teachers, 50 parents and 100 students.

Results: The reliability of the data was tested by Cronbach's Alpha, which was found in normal range with the value of 0.937 and the values of other variables are AC=0.933, BL=0.908, TM=0.886, WE=0.900, CEL=0.632 and UBL=0.926. The Descriptive statistics of the variables are: the mean value of the AC is 19.88, BL is 21.26, TM is 10.46, WE is 11.42, CEL is 13.86 and UBL is 11.13. Furthermore, the standard deviation of AC is 12.13, BL is 11.20, TM is 5.76, WE is 5.66, CEL is 7.54 and UBL is 7.68. In addition to this, the minimum value of AC is 5, BL is 7, TM is 2, WE is 2, CEL is 4 and UBL is 2. At the same times, the maximum values of AC is 44, BL is 49, TM is 21, WE is 23, CEL is 60 and UBL is 29. Pearson's Correlation Matrix estimates the association of the variables and its estimations are: the relationship between AC and TM is 0.879. The relationship between AC and WE is 0.89. The relationship between AC and CEL is 0.627. The relationship between AC and UBL is 0.903. Moreover, the Pearson's Correlation Matrix represents that the relationship between BL and TM is 0.822. The relationship between BL and WE is 0.878. The relationship between BL and CEL is 0.593. And the relationship between BL and UBL is 0.899. At the same times,

the relationship between TM and WE is 0.866. The relationship between TM and CEL is 0.595. The relationship between TM and UBL is 0.844. The relationship between WE and CEL is 0.539. The relationship between WE and UBL is 0.86. And the CEL and UBL is 0.625.

Conclusion: The study found strong association of the blended learning, usage of website and the concept of e-learning, the usage of technology with the academic performance of the students.

ملخص الرسالة

الهدف: الهدف الأساسي من هذه الدراسة هو قياس أثر التعليم والتعلم باستخدام التكنولوجيا على الأداء الأكاديمي للطلاب بمدارس دبي وأبو ظبي.

المنهجية: تم جميع بيانات مقطعية من خلال استبيان ذاتي الإدارة ذي أسئلة قصيرة. وكان حجم العينة من الدراسة 300 ، من بينهم 50 معلماً و 50 من أولياء الأمور، و 100 من الطلاب.

النتائج: تم اختبار موثوقية البيانات باستخدام مقياس ألفا كرونباخ، ووضحت النتائج مستوىً طبيعياً يقدر ب 0.937 وقيم المتغيرات الأخرى هي: الأداء الأكاديمي = 0.933 ، التعلم المدمج = 0.908 ، والأسلوب التقليدي = 0.886 ، وتأثير المواقع الإلكترونية = 0.900 ، ومفهوم التعلم الإلكتروني = 0.632 ، واستخدام التعليم المدمج = 0.926.

الإحصاءات الوصفية للمتغيرات هي: متوسط قيمة الأداء الأكاديمي هو 19.88، و التعلم المدمج هو 21.26، الأسلوب التقليدي هو 10.46، وتأثير المواقع الإلكترونية هو 11.42، ومفهوم التعلم الإلكتروني هو 13.86، واستخدام التعلم المدمج هو 11.13.

وعلاوة على ذلك، فإن الانحراف المعياري للأداء الأكاديمي هو 12.13، والتعلم المدمج هو 11.20، والأسلوب التقليدي هو 5.76، وتأثير المواقع الإلكترونية هو 5.66، ومفهوم التعلم الإلكتروني هو 7.54 واستخدام التعلم المدمج هو 7.68. بالإضافة إلى ذلك، فإن الحد الأدنى لمستوى الأداء الأكاديمي هو 5، التعلم المدمج هو 7، والتعليم باستخدام الأسلوب التقليدي هو 2، وتأثير المواقع الإلكترونية هو 2، ومفهوم التعلم الإلكتروني المدمج هو 4 واستخدام التعلم المدمج هو 2. في نفس الوقت، الحد الأقصى لمستوى الأداء الأكاديمي هو 44، والتعلم المدمج هو 49، والأسلوب التقليدي هو 21، وتأثير المواقع الإلكترونية هو 23، ومفهوم التعلم المدمج هو 60 واستخدام التعلم المدمج هو 29.

تقدر مصفوفة الارتباط الخاصة ببيرسون ارتباط المتغيرات وتقديراتها بما يلي: (العلاقة بين الأداء الأكاديمي والتعلم باستخدام الأسلوب التقليدي 0.879)، و (العلاقة بين الأداء الأكاديمي وتأثير المواقع الإلكترونية 0.89)، و (العلاقة بين الأداء الأكاديمي ومفهوم التعلم الإلكتروني 0.627)، و (العلاقة بين الأداء الأكاديمي واستخدام التعلم المدمج 0.903). وعلاوة على ذلك، فإن مصفوفة الارتباط الخاصة ببيرسون تشير إلى أن العلاقة بين التعلم المدمج والأسلوب التقليدي تقدر بمستوى 0.822، والعلاقة بين التعلم المدمج وتأثير المواقع الإلكترونية هي 0.878، والعلاقة بين التعلم المدمج ومفهوم التعلم الإلكتروني هي 0.593، وأن العلاقة بين التعلم المدمج واستخدام التعلم المدمج هي 0.899.

وفي الوقت نفسه، تكون العلاقة بين الأسلوب التقليدي وتأثير المواقع الإلكترونية هي 0.866، والعلاقة بين الأسلوب التقليدي ومفهوم التعلم الإلكتروني هي 0.595، والعلاقة بين الأسلوب التقليدي واستخدام التعلم المدمج هي 0.844، والعلاقة بين تأثير المواقع الإلكترونية ومفهوم التعلم الإلكتروني هي 0.539، والعلاقة بين تأثير المواقع الإلكترونية واستخدام التعلم المدمج هي 0.86، وبين مفهوم التعلم الإلكتروني واستخدام التعلم المدمج هي 0.625.

والخلاصة: وجدت الدراسة ارتباطاً قوياً بين التعلم المدمج واستخدام المواقع الإلكترونية وبين مفهوم التعلم الإلكتروني واستخدام التكنولوجيا والأداء الأكاديمي للطلاب.

Dedication

This dissertation is dedicated to the memory of my father Eng. Kamal Abdulaal Ibrahim. Although he was the absolute source of support after the Almighty God, the real inspiration to pursue my master's degree, he was unable to see my graduation. This is for him.

To my mother, I dedicate my dissertation work, whose prayers are heard from above and she has been always the source of light, happiness, and guidance in my life.

A special feeling for love and gratitude to my wife who did her utmost effort and encouragement at the times of despair and deadlines.

I dedicate my dissertation work to my family, my four brother and my dearest and beloved sister and many friends.

I dedicate this work and give special thanks to those always supported me, at work or even beyond.

Thank you. My love for you all can never be quantified. God bless you.

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LIST OF ABBREVIATIONS

AC: Academic Achievement

BL: Blended Learning

TM: Traditional Method

WE: Website Effectiveness

CEL: Concept of E-Learning

UBL: Usage of Blended Learning

UAE: United Arab Emirates

MOHSER: Ministry Of Higher Education and Scientific Research

MOE: Ministry of Education

LMS: Learning Management Systems

VLE: Virtual Learning Environment

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

According to Alkoudmani and Elkalmi, (2015) It is considered that the "United Arab Emirates (UAE)" has the most important role for the provision of the standardized higher education in the Middle East region. Therefore, it is also reported that there are 103,431 students enrolled in various private and public institutions for acquiring the higher education, most of these institutions are the branches of world-renowned institutions for the provision of higher quality education (Oplatka, & Arar, 2017). On the other hands, it is also important to know that the Middle East region is also known for the higher level of unemployment that is caused because of low standard educational institutions in the region. In order to provide the higher standardized education, the "*United Arab Emirates (UAE)"* has taken the role of leadership in the region. At the same times, it is also worth-mentioning that it is highlighted by the government of the UAE to completely transform its educational system as the higher level of quality till the 2021. In addition to this, the UAE government is not only fully committed but also focused to upgrade its educational system with science and technology, innovation and research (Nickerson, 2015).

Furthermore, the performance of the students is the main element of the government so that, the educational system of the UAE can be inculcated among the leaders of the digital economy and their students can be more helpful and efficient to play their better role in the economy of the country (Atallah, et al., 2015). At the same times, the UAE government is mainly focusing on the structure and governing bodies of the educational system such as "*ministry of higher*

education and scientific research (MOHSER) and ministry of education (MOE)" as its key objective to visualize their education system (Selim, & Chiravuri, 2015). In addition to this, the universities are also considered to be the most important player for the digitizing the economy through preparing the students excel in the technology. Therefore, in the emirate of Dubai, the economic capital of the UAE and best city in various fields in the middle east region, "The Knowledge and Human Development Authority" has been established to raise "the quality of private education in Dubai so they support schools, universities, parents, students, educators, investors and government partners to create a high quality education sector focused on happiness and wellbeing" (KHDA 2019).

According to the statement of Ahmad and Hussain, (2017) the requirement for the accreditation of the educational institutions has become a great reason for the success of implementing these e-learning and technological based reforms in order to adopt the "Learning management systems (LMS)". In this way, either the institutions have developed their own LMS or they have adopted the solution for the Blackboard to support the technological integrated education system for the process of active learning among the students. These integrations in the educational institutions was considered to be the most importance for the better and blended learning of the students (Awofeso, Hassan, & Hamidi, 2016).

1.2 Research problem

According to Salloum and Shaalan, (2018) after the implementation of the e-learning procedure in the educational institutions of the UAE. There are some observations added that the e-learning and blended learning has not only presented

some better results but also it has shown some drawbacks. After the implementing the e-learning process in some educational institutions most of the students has remained failure to adopt this technology and it has also affected their academic performance also (Salloum, et al., 2019). The failure of this e-learning system can be imagined from the dropout ratio of the students that has critically increased and reached at the 40 percent of the undergraduate male students even before their final year of the program. In addition to this, it can also be one of the major reasons that the motivational level of the students and teachers to adopt the e-learning process (Al-Azawei, Parslow, & Lundqvist, 2016). The lower level of motivation during the process of adopting e-learning strategies can also be the higher level of hindrance in the academic performance of the students about the management of their knowledge through LMS, which is highly required for the purpose of blended leaning of the students (Annabi, & Muller, 2016). At the same times, there are also some evidences that represent the poor and lower level of the teaching and instruction skills of the instructors to deliver the proper information to the students, which has negatively affected not only the academic performance of the students but also their learning process and attitude. According to Alhazbi, (2016) the proper application of technology has become a severe problem for students, teachers and parents, which is causing most of the students' dropout from their schools and PHEI is labelling those students as "low achieving school leavers" instead of finding the most appropriate solution. It is mentioned by Alhazbi, (2016) the PHEI instead of finding the solutions of this problem through social factors, it has labelled most of the students as "low achieving school leavers" that has also become one of the most

critical reason and barrier for the students for entering in the workforce and universities for their higher education.

1.3 Gap of the study

Several studies have been conducted on the educational system of the UAE, but there is very little evidence in the previous empirical studies that have estimated the impacts of the e-learning and blended learning on the academic performance of the students. In this way, this study is intending to fill this gap in the empirical evidence. At the same times, earlier researches have focused on single factor of the research work, they either focused on the impacts of e-learning in the context of students, teachers and parents, but this study is focusing on the students, the teachers and parents as well. In addition to this, most of the studies have focused on the ideas of the instructors, teachers and educators about the implementation of the e-learning in the education system but not in the UAE particularly nor they could focus on the teaching skills based on technology. In this context, this study also focuses the interests and skills of the teachers, students and parents for the adoption and application of the technology in the educational system as well as parents in addition to discussing the challenges that users of technology might face and experience whether being a student, a teacher or a parent.

1.4 Research Objectives

The main objective of this study is to estimate the impacts of e-learning and teaching on the academic performance of the students in Dubai. The sub-objectives of this study are as under:

1. To assess the impacts of the e-learning and blended learning of the students on their academic performance.
2. To evaluate the behaviours of the students and teachers about the adoption of technology in educational institutions.
3. To estimate the needs for the implementation of the technology in the international schools of Dubai.

1.5 Research Questions

This study will be guided according to the following questions:

1. What is the effect and impact of using technology on students' learning and attitude (K-12) in international schools in Dubai?
2. What are the challenges and obstacles that teachers and students might face while using technology in classroom and how to overcome these obstacles and why?
3. How to further develop and push forward the current digital planning, infrastructure and teaching and learning in international schools in Dubai?

1.6 Significance of the study

The students are not only academically but also socially involved in the learning process for students in primary and secondary British schools in Dubai, so that, they can learn more. In the present times, technology has been playing its more important role for the development and enhancement of the educational and academic practices. In this regard, the adaptability of the technology for not only students but also for the teachers can play a significant role. The adoption of technology has always played its role as a cost-effective and time-effective

resource. The learning process of the students from not only books, teachers but also from their environment and social factors is called blended learning. In this context, this study will be very much useful and helpful for the students, teachers as well as parents. The importance of the usage of technology and adaptability of the e-learning and blended learning will be expressed in this study. So that, this study can play a role of motivational factor for the learners. At the same times, this study will enable teachers also to enhance their technological skills, in order to efficiently cope with the technology. Furthermore, this study will also highlight some problems for the adoption of technology in the educational institutions, so that the policy-makers can prepare better policies and conduct some technological learning training programs, sessions, seminars and conferences for the teachers to encourage them and increase their skills to adopt the technology in educational institutions. In this way, this study will significantly help students, teachers, parents and policy-makers to enhance the quality of the education at school level.

1.7 Design of the study

This study is based on five chapters. The first chapter of this study is "introduction" that has highlighted the background, rationale, significance and objectives of this study. The second chapter is related with the literature review that will thoroughly discuss the previous studies and theoretical framework. The third chapter of this study will be based on methodology that will enable the readers of this study about the systematic way and process of conducting this study. The fourth chapter of this study is on results and discussion that will briefly discuss the estimated results of this study. The fifth chapter is based on conclusion and

recommendation that will conclude the whole study and provide some recommendations for the future research and policy-makers.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter briefly discusses the concept of the blended learning. At the same times, this chapter also have a thorough discussion on the benefits of the blended learning among students, teachers and parents. Furthermore, this chapter briefly discusses the measures of the student's course outcome. At the same time, this chapter discusses the theory incorporating in this study. In addition to this, the usage of technology is also thoroughly discussed. After these discussions, previous literature is also presented on the usage of technology and blended learning techniques.

2.1 Blended learning

The combination of the face-to-face and online learning process is called the blended learning. At the same times, the literature also represents the blended learning as the "flipped classroom" or the "hybrid Learning". It is a fact that there is no exact definition of the blended learning and according to Boelens, Van Laer, De Wever, and Elen (2015) the blended learning is "learning that happens in an instructional context which is characterized by a deliberate combination of online and classroom-based interventions to instigate and support learning" (p.5). In addition to this, only the online learning factor is not sufficient as an addition to the classroom-based techniques of the teaching, it relatively needs the effective and efficient integration of both face-to-face and virtual techniques of teaching and learning (Diep, Zhu, Struyven, & Blieck,2017).

For example, a teacher at the university level uploads the selected online learning material just like pdf books, pdf or docx handbooks on the "virtual learning environment (VLE)" is not an effective or sufficient criterion for the blended learning or teaching. The techniques of the blended learning are most widely applied in the adult education or the higher education. It is a fact that in present times, most of the studies on blended learning have been conducted only in the United States. Meanwhile, the number of studies is also highly increasing in the higher education system of the United Kingdom too. It can also be considered that the increasing frequency of the studies in the higher education sector shows that there is still need of conducting more studies to estimate and identify the impacts of blended learning on the secondary and primary students, their teachers and their parents. According to the various expectations and motivations of the students in secondary system represents that it is quite difficult to conclude the effective and efficient impacts of blended learning among the students, parents and teachers in the formal education system (Sparks, 2015).

2.2 Advantages of Blended Learning

There are many positive impacts of the blended learning. At the same times, it does not only increase the cognitive engagement of the students but also teachers and parents (Fathema, Shannon, & Ross, 2015). In this regard, the benefits of the blended learning are thoroughly discussed below.

2.2.1 Improved outcomes

According the evidences presented in most of the previous literature, the application of the blended learning is the most important technique for the enhanced

results of the coursework among the students. The blended learning also becomes a peculiar reason for the higher number of student retention and increased number of the passing students. In this regard, the study by López-pérez, pérez-López, and Rodríguez-Ariza (2011) estimated the higher correlation between the implication of the blended learning techniques in the higher education courses and the improvisation in the attainment of the students, which also increased the retention of the students. In addition to this, Stockwell, Stockwell, Cennamo, and Jiang (2015) identified that the implication of the techniques of the blended teaching became the major reason for the higher number of students' attendance in the face-to-face classes, the performance of the students and the satisfaction of the students that are reported by the students themselves.

On the other hands, the studies conducted among the students from non-formal backgrounds found that blended learning has significantly positive impact on the enhancement of the retention of the students but it has insignificant impact on the increased attainment of the students. However, Delialioğlu (2012) was the first one, who introduced the learning process through blended learning technique at the London Metropolitan University in order to counteract the dropout ratio. Among the dropout students, most of the students were those who were late entrants to the higher education, which also became the most critical reason for them to successfully go through the process of transition towards the university level study. The dropout ratio of the students was decreased just after implementing the blended teaching at the college and the number of the students were increased for completing their coursework. Furthermore, it was also found by Hung, (2015) that after implementation of the blended learning techniques in order to support those

students who were at risk during their coursework program, the rate of coursework submission was increased with insignificant effect on their attainment.

2.2.2 Strategic use of classroom time

The improvement in the results of the students was partially identified after application of the blended learning, which is also related with the application of technology and its appropriate use during the classroom time. Moreover, Kintu and Zhu, (2016) suggested that blended learning and teaching has more effective outcomes by activating the students to be more focused and active during the class in comparison to the traditional teaching models such as lecture-based. This suggestion was also supported by Delialioğlu (2012) estimated that blended learning involves and engages the students more in comparison to the lecture-based and problem-based learning techniques. The online learning activities can play both roles for the learning process of the students through reinforcing the learning during the class and also can play the role as the initial introduction of the topic before it will be discussed thoroughly which is called "Flipped-Learning" or "Flipped-Classroom". Let the following words clarify this, when we want to have a discussion of a topic, the reading material is to be placed on the VLE and students would acquire access before start of the class, then during the class the discussion can be more analytical through encouraging the students to participate in the discussion and setting higher standards and questioning in support to a rich inquiry-based learning. In this way, the teachers are also given more time to focus on every student in the class through discussion and other strategies to assess students' strengths and those areas that need improvements so that interventions might occur for better outcomes. At the same times, Kintu and Zhu, (2016) identified that the

blended learning is more helpful for those students who live far away from their campuses to utilize the reading resources before attending the class in order to properly engage in the discussion.

Furthermore, it is also found that the students who are involved in the blended learning their confidence is also increased before attending the class lectures, they go through the topics and then they fully participate in the discussion on the specific topic during the class. At the same times, the blended learning can also be transformed into the “flipped-classroom”, this is teaching and learning technique in which the students have access to the online material as well as the materials of the textbooks and before participating in the discussion of the problem solving in the class they go through them. According to Stockwell et al. (2015), the flipped-classroom has significant impacts on some subjects especially for the scientific subjects; the students already gone through the concepts of the topic can participate in the group discussion in the class to further discuss the information and do questioning about the experiments, which will help them to enhance their information and skills. On the other hands, the results of the blended learning techniques are directly related with the motivational level, capacity of the students and their application of these strategies. If the students are highly motivated, go through the online and textbook material before the class, and during the class engage in the discussion about the topic, then definitely there will be more positive impacts of the blended learning on the academic education of the students.

According to the previous literature however the blended learning is the most precious technique to have significant impacts on the learning skills of the students in order to make them independent and enhance their educational skills,

but it can be a more challenging technique for the other students also. Meantime, a study conducted by Wivell and Day's (2015) in which the students reported that there is greater role of self-reliance, self-motivation and the capabilities of working independently on their academic performance. At the same times, the adoption of the blended learning becomes also a big challenge for those students who are transformed from the traditional learning techniques to the blended learning techniques. On the other hands, Pérez and Riveros (2014) found that the students are not motivated enough to participate in the online learning and activities, however, the blended learning techniques are very helpful to make the students autonomous and independent during the process of their learning.

In the same way, another study conducted by Chen and DeBoer (2015) found that blended learning plays an important role for the academic achievement of the students and those students who are mostly involved in the online materials, they are somehow more successful than the other students. But, at the same times, it is also the responsibility of the teachers and parents to provide training, proper instructions and sources to the students about the usage of the online learning techniques. For this purpose, the teachers can also conduct sessions for the students so that they can develop their online and technological skills (Hung, 2015). It is also required for the teachers, parents and other stakeholders to assess the motivational level of the students for the adoption of the blended learning techniques according to the age and other factors of the students, so that, their performance cannot be affected. Just like, the students from the higher education can be more independent, autonomous and motivated to adopt the blended learning techniques, they can choose themselves for their subjects online in comparison to

the students from the secondary and primary level. In this way, the blended and online learning will definitely have positive impact in the higher education but it will have negative impacts on the learning level of the secondary and primary students (Kintu and Zhu, 2016).

2.3 Measuring course outcomes

There are various techniques to measure the outcomes of the course, among these measures the grading and marking system, attendance, activities and the rate of the dropouts are inculcated. The measurement of the course outcome can be made efficient through the application of the blended learning system considering the activities of the students and outcomes can be generated through the system. At the same times, only measuring the outcome can be measured perfectly because of the motivational factors since the statistical analysis is unable to measure the attitudes of the students, in this matter, the blended learning system is being a great support. Subsequently, Liu, Bridgeman, and Adler (2012) quoted that "accountability initiatives involving outcomes assessment should also take into account the effect of motivation when making decisions about an institution's instructional effectiveness" (p.360).

2.3.1 Measuring student engagement

Measuring the engagement of the students is a more typical than doing the analysis of the experiences of the students and learning in comparison to their performance in the course. At the same times, "more than involvement or participation – it requires feelings and sense-making as well as activity" (Trowler, 2010, p.7). The understanding of the engagement has been considered as the most

important element in the education sector, because nowadays, the educational institutions are operating in more competitive environment. It can also consider to be one of the most significant advantage for those institutes to measure and improve the engagement of the students in order to retain and attract more students (Trowler, 2010). In addition to this, three elements of the student engagement were identified by (Fredricks, Blumenfeld & paris 2004) that are Emotional, Cognitive and Behavioural, which are defined below.

1. **Behavioural:** The behavioural engagement of the students is related with the actions of the students. Such as, the attendance of the students in class, submission of their work, their contribution in class discussion and their participation in the school-related activities (school governance, sports, extra-curricular).
2. **Emotional:** The emotional engagement is related with the most effective reactions of the students in response to their learning process. Such as, the emotionally engaged student will easily report that they were highly interested in the subject and they learned or enjoyed during their learning process in that specific subject.
3. **Cognitive:** The psychological investment of even more learners for the process of their learning. For instance, the desire to go beyond the needs of the class and the implementation of cognitive and emotional learning techniques.

Furthermore, it is essential to remember that commitment does not always have to be positive: if the students report dislike or anxiety about their learning process, which is caused because they could be negatively involved. Generally, behavioural involvement was explored through questionnaires from students or teachers, or observations from classrooms (Chen & DeBoer, 2015). As quantitative

measures of participation and submission of tasks can be used, it is also probably the simplest component of commitment to assess.

The blended teaching programs can provide especially rich data as information on the use of the internet setting by learners, including the frequency and the usage of the time, which can be collected through questionnaires. In addition to this, the questionnaire can provide more objective-based data than the open-ended self-administered questionnaires. The questionnaires and interviews are used to measure the cognitive and emotional engagement of an individual. Furthermore, the measuring process of emotional engagement is mainly self-explanatory: the students are questioned about their emotions towards different perspectives of their experiences about their learning and experiences in the classroom. On the other hand, it is particularly difficult to ascertain cognitive engagement that is mainly attributed to the intrinsic complexity of cognition evaluation. In the same way, the cognitive engagement measures are mainly depended on the items of the questionnaire in order to evaluate, whether the learners have been using thoughtful or surface-learning approaches (Yeou, 2016).

2.4 Cognitive Learning Theories

The technology has made higher level of promises in education because of the extensive growth in “Virtual Learning Environments (VLEs)” or what is known as the materials of online learning. This type of impact is categorized into the “programmed or direct instruction theory of learning” that assumes them as the "teacher-led instructions”. Despite many criticisms for the process of the promoting rote memorization, there are many studies that suggest that direct instruction enhances the cognitive and metacognitive abilities of learners. In addition to this,

this strategy gives learners time to transfer, organize and develop their understanding (Trowler, 2010). Furthermore, it takes time for learners to learn with comprehension. Because of this, making connection of important ideas requires sufficient time to construct understanding of the students. Time is therefore a very significant factor in implementing new abilities and investigating the data. According to Yeou, (2016) on learning and transfer, "the complex cognitive activity of information integration requires time". In this way, the same cognitive school of thought suggests that students participate in active learning and problem solving; they are accountable for their learning which they develop through implementing the abilities of students who are learning according to their own speed and through the usage of their own learning techniques.

Therefore, a great emphasis is placed on the prior understanding through which learners can develop memorization-learning strategies and also use them. After studying second language acquisition and cognitive psychology, linguistic learning is better allowed when the attention of the learners is formed through the process of triggering. In addition to this, Kintu and Zhu, (2016) proposed the "Noticing Hypothesis", which asserts that noticing is an important and adequate process to transform input to "intake for learning". The process of increasing awareness, comprehensible input (Akçayır, & Akçayır, 2017) and input enhancement (Pinto-Llorente, et al., 2017) are all terms that refer to the intentional efforts by the educators to raise awareness about the characteristics of the language with a perspective to promoting better L2 understanding (McCutcheon, et al., 2015).

This mindful understanding is subsequently introduced into concrete life when learners deliberately acknowledge some of their language issues and share their learning with others in a cooperative learning setting "where everyone participates including the teacher" (Kintu, Zhu, & Kagambe, 2017, p. 23). Co-operative learning features include positive interdependence on small group members and face-to-face communication, improving active learning, accountability for learners, and different learning styles. Cooperative teaching is helpful in English language teaching courses (Fredricks, Blumenfeld & paris 2004) because it serves the diversity of the students.

2.5 Studies on the Usage of Technology

The emergence of innovative techniques and approaches and the consequent disappearance of other techniques have always clearly defined the learning of the language. Although different techniques have different basic objectives, they all aspire to allow the target language to be acquired sufficiently (Kintu, Zhu, & Kagambe, 2017). The truth of the today's learner is driven by the technology. In addition to this, the technology plays an important role in the lives of twenty-first-century learners who can no longer depend on classroom-based teaching techniques for the purpose of their leaning, but expect to make everything accessible to them online or by clicking a button. At the same times, the usage of computer technology in order to improve the learning dates back to the 1960s and has since increased in use. On the other hands, some researchers believe that technology wastes time and money, others see the potentials of the technology when it is used properly to influence success of the learners (Thai, De Wever & Valcke, 2017). In an EFL environment at a university in Tokyo, Trowler, (2010) examined the efficiency of

various internet operations. The forums, blogs and wikis were mostly useful in learning the language, especially for improving the writing styles, although the findings did not demonstrate important differences of the learning outcomes while other operations were useful when it comes to learn mathematics and science for instance.

Furthermore, another comparable research exploring the effect of Web 2.0 technology on the English writing of first-year English-language learners at a university in Taiwan indicates that integrating Facebook into English writing skills learning increases the interest and motivation of learners. According to Akçayır, and Akçayır, (2017) students embraced cooperative learning techniques and enhanced their ability to write in English. The teaching atmosphere became more student-centred with learners sharing their expertise and interacting with their colleagues. On the other hands, another research at a university in Taiwan on two writing groups of ESL majors examined the impact of classroom blogging on the writing performance of the learners. The time of the research was eighteen weeks during which the experimental team widely used blogging while the control group used document-based types of the responses. All teaching materials were provided on the blog and students were requested to work together by handing out tasks and engaging through the usage of the internet blog debates (Yeou, 2016). The improvement in the results of the students was partially identified after application of the blended learning, which is also related with the application of technology and its appropriate use during the classroom time, the matter does not lay the entire responsibility on technology but also on those who are integrating it within teaching and learning starting with educators and teachers, then educational stakeholders

then students' year group or school phase that can really represent a trigger or not for their engagement.

The study of Akçayır, and Akçayır, (2017) showed a little difference in the overall performance of the students according to the writing test for both groups while emphasizing the time and effort required to design and maintain the blog. Fredricks, Blumenfeld and Paris (2004) explored the effect of using computers in a technical high school in Abu Dhabi on the students of the 10th grade evaluating their performance in writing. In this way, the research results showed that the usage of the computers in English language teaching to improve the effectiveness of the written text. In the research undertaken on a group of ESLs and EFL learners at colleges in Hong Kong, Taiwan and the USA taking academic writing classes, the pedagogical impact of using computers as a medium of instructional technology in a "Computer Assisted Language Learning (CALL) program" for writing and interaction is investigated. In this research, Thai, De Wever and Valcke (2017) the advances that, despite gender gaps, the typing speed and personal computer access, learners had favorable attitudes towards using computers in their writing. Due to the usage of the computers, the students were extremely motivated and felt encouraged to learn the language.

2.6 Studies on Blended Learning

Different educational researches that explicitly or implicitly are related to the present study, a brief summary for the most important researches is presented below: The Akçayır, and Akçayır, (2017) aimed at identifying the impact of the computerized book on the specific outputs as compared to the traditional one. The sample of the students from the fifth grade was 209, registered in three semi-

civilized colleges, was split into three groups and handled one of the following areas in each group: teaching through blended learning, teaching through non-traditional methods that was based only on the computerized subjects, and only the traditional book-based teaching as a teaching framework. The findings of the study showed that both non-traditional and blended learning method teaching has a positive effect and increases the abilities of the critical thinking.

The purpose of the study conducted by Akgunduz, and Akinoglu (2016) was to explore the impact of teaching approaches on the association of the students with other students and the interaction of the students with their teachers and parents to evaluate the satisfaction of the students. The participants in this research were 84 and they are students at Bin Silvana State University where they were organised into two categories, one teaching on the basis of blended teaching methods and the other on the basis of other traditional teaching techniques. The findings showed no differences in student's satisfaction level, but it showed that using blended learning technique has beneficial impacts to boost student's understanding of communication between student to student.

The main point in the research of Al-Azawei, Parslow and Lundqvist, (2017) is to explore the impact of blended learning technique in the accomplishment of the student in mathematics. The research sample represented by the intermediate school in Canada's Toronto area, where the research was performed on 56 instructors using blended teaching as a technique of mathematics teaching. The blended teaching technique enables learners to perform and score better than the others, as per the findings of the study. In the study Barhoumi, (2015) aimed to define the impact of mental and visual skill development experiences that were

acquired through the blended teaching techniques. The results of the research represented that the instructional experiences of the teaching methods of the blended teaching contribute to the development of abilities, mental and visual, such as reading information, calculating and interpreting findings, writing reports, and pointing out that the acquired knowledge was adequate.

Furthermore, Alkoudmani and Elkalmi, (2015) quoted that teaching with the techniques of the blended learning has more significant outcomes by motivating the students to be more focused and energetic during their class as comparison to the traditional teaching models for instance lecture-based. In the same way, it was also supported by (Awofeso, Hassan, & Hamidi, 2016) who assessed that the blended learning encompasses and engross the students with more in study as compared to the problem-based and lecture-based learning procedures. In addition to this, the online learning activities can play both roles for the learning process of the students through strengthening the learning process during their class and also can play the role as the preliminary overview of the topic before it will be discussed thoroughly. For example, formerly the discussion of the topic, the reading material is to be found on the online application and the students attain access before the start of the class, then during the class the argument can be more logical through encouraging the students to participate in the discussion. In this manner, the instructors are also given more time to concentrate on every learner in the class in order to measure their flaws and strengths with the help of the discussion. In addition to this, Salloum and Shaalan, (2018) acknowledged that the blended learning is more useful for such students who are living far away from their

campuses to exploit the reading material before their attendance of the class in order to properly involve in the group discussion of the class.

Furthermore, it is stated by Al-Azawei, Parslow and Lundqvist, (2017) the advantages of the Blended Learning for the teachers as edtech has also highly increased and the usage of the technology in teaching has been highly recognised. At the same times, the roles of teaching have also been developed with the passage of time, being from the traditional teaching techniques to the blended teaching techniques. At the same times, the blended teaching and learning has more significant advantages for the teachers at the same times (Al-Azawei, Parslow, & Lundqvist, 2016). Moreover, the blended learning and the application of the technology in the teaching methods significantly help teachers to save their time, the long hours that they spend for the preparation of the lessons, mark sheets and different reports on the daily, weekly and monthly basis that significantly have positive impacts on the success rate and pace of the students in their learning process. In addition to this, the engagement of the students remains at the higher level due to more discrepancies of the activities during their lessons (Boelens, Van Laer, De Wever, & Elen, 2015). In addition to this, the teacher can also concentrate on their efforts for the facilitation in order to guide the experience of the learning process among the students. In this way, the teachers are also capable of empowering their students by benevolenting them with better skills to imply the online working material and administer at the same time as they complete their activities (Diep, Zhu, Struyven, & Blieck,2017). In this way, this consents the students to go at diverse residences in the same class. At the same times, the students can also have personalized and customized instructions in the same

classroom in the same way, as other students according to their level. In addition to this, the grading and marking work is more computerized in many scenarios that enable them to save their more time for not only the teachers but also for the students (Fathema, Shannon, & Ross, 2015).

Furthermore, there is substantial level of sustainability for the application of the technology for the purpose of the teaching, where the less printing process is involved. In addition to this, López-pérez, pérez-López, and Rodríguez-Ariza (2011) believes that the blended learning is more important for the success and it should contain the combination of the technology and the traditional teaching techniques that should be applied in order to meet the preferred learning style of the students, in the mean times, it supports the teachers also. For instance Stockwell, Stockwell, Cennamo, and Jiang (2015, P. 32) comments, *"Technology can provide teachers with information on the progress and requirements of students, which maximizes face-to-face contact and helps staff to design courses that allow more flexible delivery. Ultimately, technology works best when it supports the true essence of education and aids teachers in helping students assimilate skills"*. Meanwhile, Pérez and Riveros (2014) stated that the technology has more influence to actually improve the environments for the learning process for the beneficial purpose of the students, on condition that the teachers should also choose to implement the blended learning styles. Therefore, Liu, Bridgeman, and Adler (2012, P. 45) says, *"Flipped classrooms, where students watch short video lectures before attending class, offer one example of a blended learning tactic that could be more widely adopted. True blended learning requires highly relational active and*

inquiry-oriented programs, both online and offline, as well as using digital tools to empower students".

In addition to this, one more study piloted by Akçayır, and Akçayır, (2017) who concluded that there is more important role of the blended learning for the academic accomplishment of the students and for those students who are frequently involved in the online resources, furthermore, the same students are somehow more successful as compared to the other students (Kintu, Zhu, & Kagambe, 2017, p. 23). On the other hand, it is correspondingly the obligation of the teachers and parents for the provision of the training, proper instructions and appropriate sources to the students for the procedure of the online learning techniques. In this way, the instructors can also conduct meetings for the students and with the students, so that, they can improve their skills in the context of the technology and online techniques (Liu, Bridgeman & Adler, 2012). In this way, it is also mandatory for the teachers, parents and other stakeholders to evaluate the motivational level of the students for the acceptance of the blended learning techniques according to their age and other factors of the students, so that, their performance cannot be affected. Likewise, the students from the higher education can be more self-determining, self-directed and inspired for the adoption of the blended learning techniques. In addition to this, Liu, Bridgeman, and Adler (2012) they can indicate themselves for their online subjects as compared to the students from the primary and secondary level. In this manner, the learning of the students in the context of online and blended will categorically have positive influence in their higher education but it will have negative influences on the level of the learning from the students of the secondary and primary (Fredricks, Blumenfeld & paris 2004).

Kintu, Zhu, and Kagambe, (2017) intended to understand the impact of teaching and blended learning to the point of understanding and motivation among the students of the ninth grade of the science students in Germany. The results stated that teaching and blended learning approach led to the experimental group's enhanced instructional results and, in specific to the upper-level cognitive procedures. The research discovered that teaching and blended learning approach resulted in enhanced student interests and inclinations, and the findings showed a powerful correlation between interest and inner motivation and cognitive learning outcomes. McCutcheon, et al., (2015) assess the usage of blended learning in other areas such as engineering, *"the inclusion of a reactive element, a Fuzzy Logic-based controller"* is suggested in their article for a blended learning strategy in an "introductory control engineering course". This controller was intended according to his activity and performance to control the workload for each student. The course suggested is based on an internet instrument called Control Web, which contains a full overview of control subjects and is used intensively throughout the course. The findings of the assessment attested to its effectiveness in terms of students ' teaching degree and performance.

In their research, Pinto-Llorente, et al., (2017) intended to identify the impact of using blended learning approach on the capacity of the teachers in order to design and produce multimedia education. This is a descriptive research. It primarily defines the characteristics of the training program and determines the percentages of blended learning between various learning models. The subjects of the research were consisted of 120 teachers and experts in the field of the technology. The findings showed that the teachers have been able to design and

generate instructional multimedia, making them more confident in coping with e-learning and building their own blended learning model.

CHAPTER THREE: METHODOLOGY

3.1 Research Methodology

The research methodology is the efficient technique to resolve any problem by providing a clear understanding of methods of the research studies which are being carried out. (Malterud, et al., 2016). It is completely associated with the explanation, predication of the related elements which subsequent study contain and also the procedure. In addition to that, research methodology is systematic by which information is gathered, this intended to provide properly planned work to conduct further research (Holtmann et al., 2016). This particular study comprises of the Onion research model that was introduced by Mark Saunders in the year 2009. As per the onion research approach, the research methodology of this specific study is being described below as:

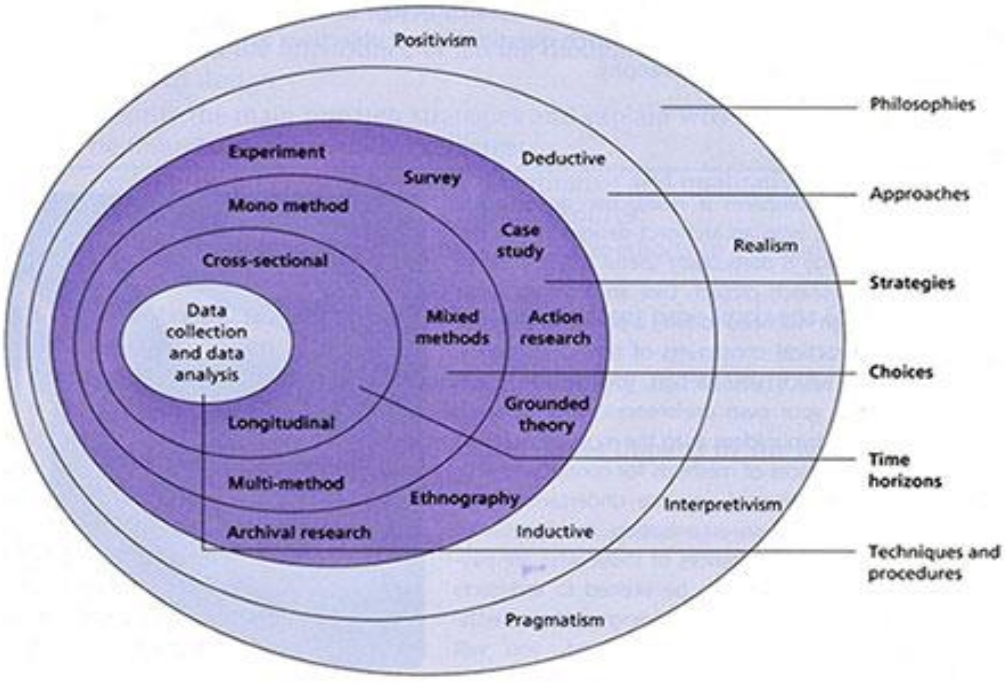

Figure 3.1: Onion Research approach

Source: Saunders et al. (2009)

3.2 Research Philosophy

The very first layer of the Onion research approach is research philosophies that is the concept researchers developed based on what they conduct the overall procedure of the study (Holtmann et al., 2016). More than that, research philosophies are the established views and thoughts researchers built regarding a particular topic. Research philosophies play a crucial part in identifying the data collection methods, techniques and research methodologies for assessing the data, and the acquired information is very much essential parameters which are collected during such process (Azizul Ridhuan, 2015). According to research questions and hypothesis research philosophies are classified as:

3.2.1 Positivism

As per the concept of positivism philosophies, the reality is constant and consistent (Sandelowski, M., 2017). Positivism philosophy is widely implemented in the field of social sciences. Following the observation, the truth can also be described. This philosophy believes that social factors do not play any part, and the information is considered as a fact (Esposito and Houser, 2019). Positivism also illustrates that reality can be expanded, realized, and experimented. With the positivism believe, researchers do not manipulate the consequences and always remained neutral during the conduct of the study (Olson, 2016).

3.2.2 Realism

Realism philosophy demonstrates that researchers implement proper techniques and paths of the research instead of following the perceptions and believes of the researchers (Mihas, P., 2019). In addition to that, consequences

would not be accepted until and unless such are not backed with the proper scientific evidence.

3.2.3 Interpretivism

Interpretivism is also called social constructivism. According to the concept of Interpretivism philosophy, procedures and the results of the study are influenced by the beliefs and thoughts of the researchers, as per the current situations such consequences are interpreted (Humphrey and Economou, 2015).

3.2.4 Pragmatism

Pragmatic philosophy demonstrates that the concepts will not be considered liable and accurate until and unless they do not produce specific actions (Malterud et al., 2016). Also, various issues could not be resolved with the help of a single technique or method (Esposito and Houser, 2019).

This particular study follows the positivist philosophy because the researcher does not influence the consequences of the research and remains neutral throughout the conduct of this study. This further implies that specific identified causes could lead to manipulated the outcomes. It has been observed that the deterministic concept of the world declared that most commonly, this philosophy is applied in the field of natural sciences.

3.3 Research Approaches

Research approaches are the second layer of the Onion research model that demonstrate the research techniques by approximating facts and findings which are more appropriately applied in the several research designs (Azizul Ridhuan, 2015).

Research approaches are classified into two basic categories, including inductive and deductive research approach discussed as:

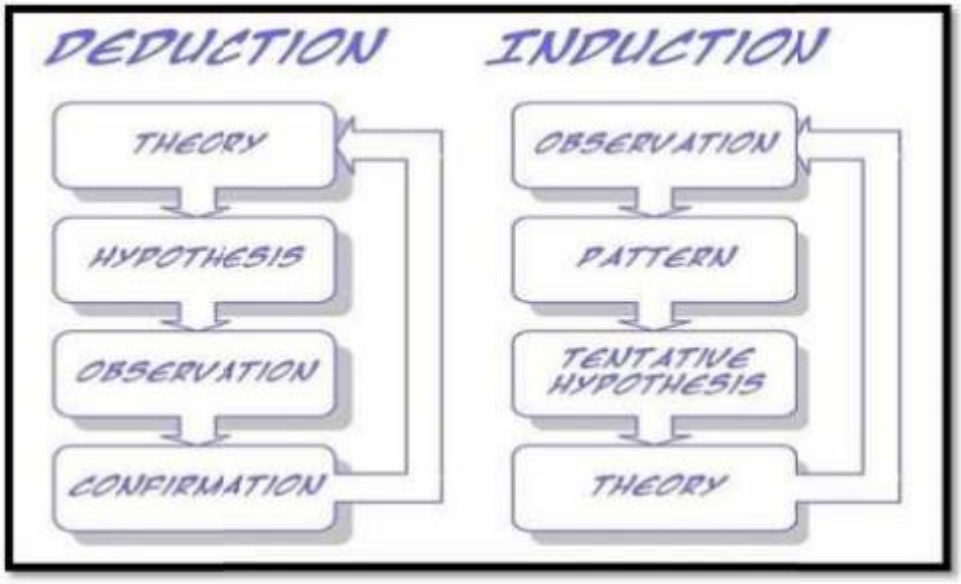

Figure 3.2: Research approaches

3.3.1 Deductive Research Approach

The deductive research approach already opted and chosen research theory and hypothesis are being evaluated and tested to provide justifications based on numerous research designs. Once the method is selected, the data will be collected further (Sandelowski, M., 2017). As per this research approach, research findings will be accepted both the research hypothesis and theory is rejected or accepted (Mihas, P., 2019). This approach relates to testing the research hypothesis.

3.3.2 Inductive Research Approach

The inductive research approach is applied to generate, modify, and appraise the theory (Humphrey and Economou, 2015). In addition to that, the research questions are developed following the data analyzation, and then the

conclusion is drawn (Olson, 2016). Research questions and their answers help in identifying the subjects of the study.

This particular research study follows the deductive research approach because as per the selected theory, data is further gathered. In addition to that, researcher does not influence the findings and consequences of the study despite the acceptance and rejection of the theory and hypothesis.

3.4 Research Strategies

Research strategies are the third layer of the onion research which re the techniques and methods of gathering data (Azizul Ridhuan, 2015). As per the onion research approach, there are several data collection methods where research strategies are implemented to meet the aims and objectives of the study, described as:

3.4.1 Experimental Research

In experimental research strategy, only a specific number of research samples are used to carry out study (Olson, 2016). The research process is grounded in experimentation, and according to that, data is evaluated. More widely, experimental research is applied in the healthcare and medical industry.

3.4.2 Action Research

The action research deals with the most practical issue of the research study related to any specific working area (Mihas, P., 2019). This is being used in the area of nursing and education because such fields focus on particular problems and require specific skills.

3.4.3 Case Study Research

The case study research study is used mostly for modification, generation, and providing a solution for a particular problem of practical and professional life (Holtmann et al., 2016). More than that, the case study research study filtrates the various topics and conclude it at the micro-level so that, the problem could be studied in detail (Esposito and Houser, 2019).

3.4.4 Grounded Theory

The grounded research strategy is applied mostly in the qualitative studies by the implementation of the deductive method that is considered as systematic (Azizul Ridhuan, 2015). In grounded theory, based on pre-defined terms and conditions, data is collected and studies. Qualitative information assessing techniques are used to code and group the information for evaluation (Sandelowski, M., 2017).

3.4.5 Surveys

The survey research strategy is used in both qualitative and quantitative research approaches. For the examination of quantitative data survey research strategies is widely used and proved helpful (Malterud, et al., 2016). In addition to that, the survey is used in the situations in which casual reactions and actions of the subjects are being evaluated. Data is gathered with the help of interviews and questionnaires.

3.4.6 Ethnography

Ethnography deal with the study of culture and behavior of the people and the community. In the ethnographic context, the researcher understands the people

through his observation and highlight the difference between the believes and cultures of individuals.

3.4.7 Archival Research

In Archival research study, the existing research material is used and based on that; researchers conduct further research. This involves the systematic reviews of the research studies. In addition to that, the archival research study is also known as historical research that generate the results after the evaluation of various studies.

The survey research study is applied in this particular research study to gather and analyze the data. In addition to that survey research study helps collect individual-based information within a short time. The self-administrative questionnaire is also used for the collection of data, and this is useful in understanding the beliefs and behaviors of an individual sample.

3.5 Research Choices

The fourth layer of the Onion research approach is research choices which are also associated with the data collection methods and techniques. To collect the data, there are three research choices, including:

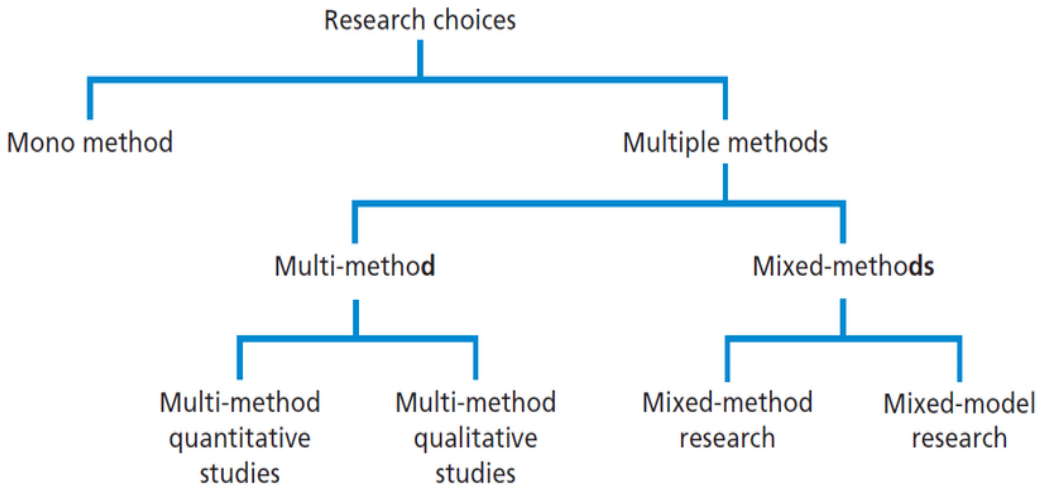

Figure 3.3: Research Choices

Source: Saunders et al. (2009)

3.5.1 Mono-Method

Mono method data gathering technique deals with the collection of data for once a time. Once the data is collected, it will not be gathered again during the entire research process. This research technique is used in both quantitative, and the qualitative data gathering approaches. Data is collected in numeric form in the quantitative research technique while the qualitative data collection technique involves the descriptive type of data which is coded further for analyzation.

3.5.2 Multiple Methods

In multiple data, collection technique data is collected more than once. This has been classified more also as a mixed-method and multi-method. The multi-method is further divided into two forms, including multi-method quantitative and multi-method qualitative data gathering techniques.

3.5.3 Mixed-Methods

The mixed-method data gathering method involves both quantitative and qualitative data-gathering technique (Humphrey and Economou, 2015). Data is collected in narrative and numeric form, which is further analyzed to generate precise results. This has been further divided into mixed-method research and mixed model research. In mixed method data, collection technique data is gathered in qualitative form and evaluated quantitatively.

This study follows the mixed method with more focus on the quantitative data gathering technique that is used to collect the data.

3.6 Time Horizon

Time horizon is the fifth layer of the onion research model, which illustrate the time and process to gather the data for conducting research (Malterud et al., 2016). The Time Horizon is classified into two major forms, including Diary, that is also called longitudinal time horizon and Snapshot, which is also known as cross-sectional time horizon.

3.6.1 Snapshot (cross-sectional)

Snapshot time horizon demonstrated that data is gathered once form the whole sample of the population (Humphrey and Economou, 2015). Data is gathered from every individual belongs to different background and ethnicity.

3.6.2 Diary (Longitudinal)

When data is collected more than one time, longitudinal data collection technique is applied in such situations. To conduct the study related to specific

behaviours of the sample, longitudinal data collection technique is being followed. Such data collection technique could be extended from one year to even decades.

3.7 Collection of data and analysis technique

Collection and analyzation of the data is the sixth layer of the Onion research model. There are two data collection techniques, including qualitative data collection technique and quantitative data collection technique (Esposito and Houser, 2019).

3.7.1 Quantitative technique of data collection

In the process of study, quantitative data collection technique is widely applied because this is easy to understand and analyze (Holtmann et al., 2016). In addition to that, with the help of questionnaires, quantitative data is gathered. Simultaneously, such quantitative data is also evaluated in the quantitative form by using statistical graphs and tools to get the results in numeric forms.

3.7.2 Qualitative technique of data collection

With the help of interviews, observation, & auidvisual materals qualitative data is gathered. Furthermore, such data is then coded to make it more meaningful. The analyzation and evaluation of the qualitative data are represented in non-numeric forms.

This study applied a quantitative research methodology that involves observational reports to answer one of the main hypothesis. In order to have a balanced and fair approch, the researcher focused more on gethering data from the quantitative data collection techniques for the sake of accuracy and unbiased

answeres. The researcher thinks this is the best possible way for him to provide thorough information about this specific problem on this particular topic.

3.8 Population

Ethnicity, age, and specific large group are called the population of the research study in which specific question related to that research is studied.

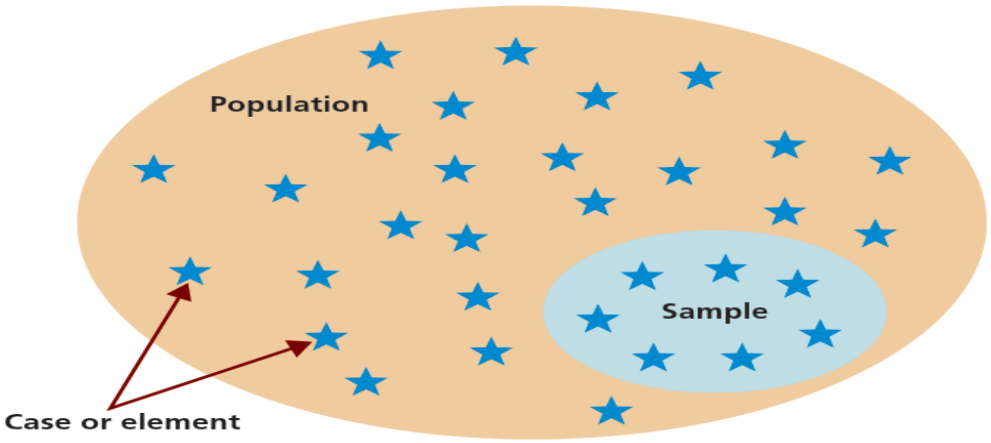

Figure 3.4: Population, sample, and individual cases

Source: Saunders (2009)

3.9 Sampling

The selected group of people or individuals from a defined population is known as the sample size of the research study that represents the overall population of the study. There are two sampling techniques probability and non-probability sampling techniques, discussed as:

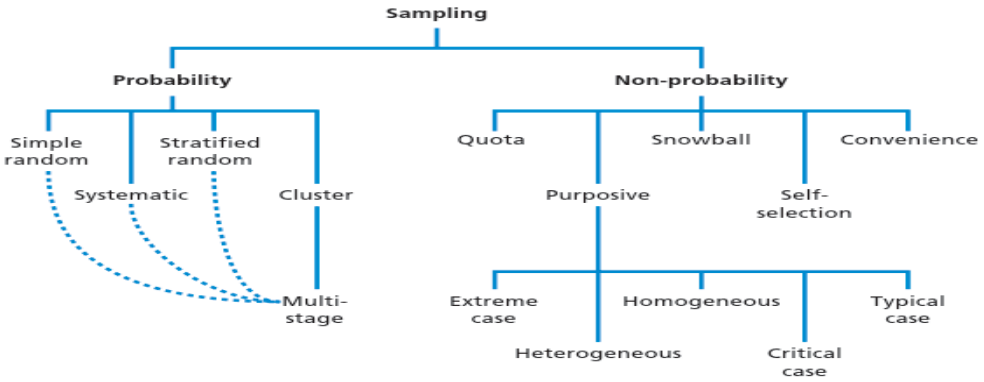

Figure 3.5: Sampling techniques

Source: Saunders (2009)

3.9.1 Probability Sampling

Probability research technique is used in the during experimental and survey research strategies. Furthermore, this has been applied where a specific population is well known to receive the equal participation of the individuals.

3.9.1 Non-Probability Sampling

When the researcher is unaware of the exact number of people, non-probability population sampling is applied in such conditions. Because of this, non-probability sampling becomes more problematic for researchers to collect and analyze the data.

This study has applied non-probability sampling technique by using convenient sampling technique.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.0 Introduction

This chapter thoroughly presents and discusses the results of the study. The reliability of the questionnaire and data is tested by the Cronbach's Alpha. Furthermore, this chapter also discusses the descriptive statistics of the study. In addition to this, this chapter also discusses the Pearson's correlation Matrix analysis through which the significance of the relationship between variables is tested for the quantative data. In addition, the observational tool is also discussed here to inform the qualative data analysis.

4.1 Data Analysis

The quantitative data is collected from the students, parents and teachers. In this regard, the quantitative data analysis technique is also applied through SPSS. Before going through the analysis and estimation of the relationship between variables, the reliability of the questionnaire is tested through estimation of the Cronbach's Alpha. After that, the frequency of the responses is estimated through the descriptive analysis. At the end, the Pearson's correlation Matrix is applied to estimate the significance and relationship between the variables of the study. The following sections briefly discusses all the quantitative analysis.

The qualitative methodology was used in this study in order to reflect on the quality of teaching and learning seen in the four observed classes and reach to the findings and results based on educational and scientific facts and principles.

Four class observations, two for science and two for maths where the focus was to measure the level of engagement of students and their achievements in those

particular subjects using technology as an enhancer or domain instruction in teaching and learning.

Both lessons for science were for one female teacher who holds a director of teaching and learning position at my school and was briefly interviewed after and during the lesson; first observed class was year 10 with fourteen students in class provided with the school ipads learning about Nano and it was mainly students-centered and independent learning lesson while the second observed class with the same teacher was a revision session before exam with year 7 in an ICT pod using some revision personalised educational and approved websites.

Maths classes were for two different teachers; one is a female who prepared her lesson for an effective use of technology creating a positive used environment for a properly flipped classroom. in She gave students 10 questions to complete as a homework and in the lesson, she created QR codes that steer students when they scan them to watch a very short video (i.e. duration of 1 minute or so) prepared by the teacher explaining how to get a better result in that question. The observed class was for year 9 with 10 students having a very positive independent based learning experience during the well-spent 55-minute lesson.

The second observed class in maths was for year 8 with a male teacher when students were learning about algebra graphs using the maths department's iPads logging to a frequently moderate use website for homework.

4.1.1 Reliability Test

Reliability Statistics

Cronbach's Alpha	N of Items
.937	6

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
AC	68.130	1155.629	.933	.918
BL	66.750	1233.523	.908	.917
TM	77.550	1627.644	.886	.927
WE	76.590	1629.517	.900	.926
CEL	74.150	1630.593	.632	.946
UBL	76.880	1468.874	.926	.914

Table 4.1: Reliability test of the questionnaire

AC=Academic Achievement, BL= Blended learning, TM=Traditional Method, WE= Website Effectiveness, CEL=concept of E-learning, UBL=Usage of Blended Learning

Cronbach's Alpha is used to estimate the reliability of the questionnaire and if the questionnaire is estimated to be credible and acceptable range then the data can be used for further analysis. In addition to this, the normal ranges of the Cronbach's Alpha are mostly above 0.5 but the ranges between 0.5 to 0.69 is objectionable and the range above 0.90. Between the 0.65 to 0.80 the data is completely reliable. In this way, the above mentioned table 4.1 represents that the data of all variables is in acceptable range. The Cronbach's Alpha values are AC=0.933, BL=0.908, TM=0.886, WE=0.900, CEL=0.632 and UBL=0.926. The estimated results of all these variables clearly represents the normality and acceptable range of the data. In this regard, the further analysis is conducted and presented below.

4.1.2 Descriptive statistics

Statistics

		AC	BL	TM	WE	CEL	UBL
N	Valid	100	100	100	100	100	100
	Missing	0	0	0	0	0	0
Mean		19.880	21.260	10.460	11.420	13.860	11.130
Std. Deviation		12.1350	11.2003	5.7637	5.6643	7.5465	7.6800
Minimum		5.0	7.0	2.0	2.0	4.0	2.0
Maximum		44.0	49.0	21.0	23.0	60.0	29.0

Table 4.2: The Descriptive Statistics

AC=Academic Achievement, BL= Blended learning, TM=Traditional Method, WE= Website Effectiveness, CEL=concept of E-learning, UBL=Usage of Blended Learning

The above-mentioned table 4.2 represents the descriptive statistics of the data. Furthermore, the above-mentioned table represents the mean, standard deviation, minimum and maximum data of every variable. In addition to this, there is no missing value in the data. The mean value of the AC is 19.88, BL is 21.26, TM is 10.46, WE is 11.42, CEL is 13.86 and UBL is 11.13. Furthermore, the standard deviation of AC is 12.13, BL is 11.20, TM is 5.76, WE is 5.66, CEL is 7.54 and UBL is 7.68. In addition to this, the minimum value of AC is 5, BL is 7, TM is 2, WE is 2, CEL is 4 and UBL is 2. At the same times, the maximum values of AC is 44, BL is 49, TM is 21, WE is 23, CEL is 60 and UBL is 29.

4.1.3 Pearson Correlation Matrix

Correlations

	AC	BL	TM	WE	CEL	UBL
Pearson Correlation	1	.889**	.879**	.890**	.627**	.903**
Sig. (2-tailed)		.000	.000	.000	.000	.000
N	100	100	100	100	100	100
Pearson Correlation	.889**	1	.822**	.878**	.593**	.899**
Sig. (2-tailed)	.000		.000	.000	.000	.000
N	100	100	100	100	100	100
Pearson Correlation	.879**	.822**	1	.866**	.595**	.844**
Sig. (2-tailed)	.000	.000		.000	.000	.000
N	100	100	100	100	100	100
Pearson Correlation	.890**	.878**	.866**	1	.539**	.860**
Sig. (2-tailed)	.000	.000	.000		.000	.000
N	100	100	100	100	100	100
Pearson Correlation	.627**	.593**	.595**	.539**	1	.625**
Sig. (2-tailed)	.000	.000	.000	.000		.000
N	100	100	100	100	100	100
Pearson Correlation	.903**	.899**	.844**	.860**	.625**	1
Sig. (2-tailed)	.000	.000	.000	.000	.000	
N	100	100	100	100	100	100

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

Table 4.3: The Pearson's Correlation Matrix Analysis

AC=Academic Achievement, BL= Blended learning, TM=Traditional Method, WE= Website Effectiveness, CEL=concept of E-learning, UBL=Usage of Blended Learning

The Pearson's correlation Matrix is the procedure that is applied in the quantitative data analysis technique in order to estimate the relationship between continuous variables that are taken as quantitative. Furthermore, the Pearson's correlation Matrix is also applied to measure the type of association and tendency between the variables. In this regard, the significance level of the variables is

estimated in two-tailed analysis at the level of 0.01 and one-tailed at the level of 0.05 correspondingly. According to the above-mentioned table 4.3, the association between variables is strongly significant at the level of 0.01. Furthermore, this figure represents that the relationship between AC and BL is at the level of 0.889. The relationship between AC and TM is 0.879. The relationship between AC and WE is 0.89. The relationship between AC and CEL is 0.627. The relationship between AC and UBL is 0.903.

Moreover, the Pearson's Correlation Matrix represents that the relationship between BL and TM is 0.822. The relationship between BL and WE is 0.878. The relationship between BL and CEL is 0.593. And the relationship between BL and UBL is 0.899. At the same times, the relationship between TM and WE is 0.866. The relationship between TM and CEL is 0.595. The relationship between TM and UBL is 0.844. The relationship between WE and CEL is 0.539. The relationship between WE and UBL is 0.86. And the CEL and UBL is 0.625. According to the above mentioned table 4.3 and estimated data, there is strong relationship of independent variables with the dependent variable and they are positively significant with the Academic Achievement of the students.

4.1.4 Observational Tool in qualitative method

The researcher used one of his previous school formal observation form that includes the following evaluation criterion of 5 elements; (1) Learning skills that students are meant to develop within the lesson, (2) Personalisation and differentiation of the tasks and activities, (3) Inspiration and motivation, (4) Assessment and Questioning & (5) Technology.

4.1.5 How data analysis is carried in qualitative method (observation)

The researcher (the observer) asked those teachers' consent to suggest one their lessons in both subjects where technology is used in classroom. , Using his laptop, the observer popped in to those four classes taking notes simultaneously during lesson using an observation evaluation form focusing on students learning and achievement while observing all areas in the classroom including the teacher, environment, technology provided facilities, student v teachers-cantered instruction and its effect on students achieved outcome (s).

The observer also asked those teachers to allow him briefly to interview them during and/or after the lesson as well as some students to get a better picture of the impact of the instruction used in class, feedback form students whether they found it useful, easy and attainable or not.

In Mathematics, two lessons were observed; in lesson 1; an effective use of technology creating a positive used environment for a properly flipped classroom in the lesson 1 maths. The teacher gave the students 10 questions to complete as a homework prior to the lesson so that students can reflect on them when they are in class. Hence, the teacher – the observer could say - thought carefully planning this lesson, consequently, she created QR codes that would steer students when they scan them to a very short video (i.e. 1 minute or so) prepared by the teacher explaining how to get a better result in that question. The observed class was for year 9 with 10 students having a very positive independent based learning experience during the well-spent 55-minute lesson.

In Mathematics lesson 2, students use the department iPads to log in to (my maths website) to answer questions. In addition to online worksheet for their

revision was available. Students are totally engaged on the tasks during this lesson too. At the same times, questions were planned to promote higher thinking skills and critical thinking skills too.

In Science, two lessons were also observed; in lesson 1; students were asked to watch a video answering questions created for them within the video using edpuzzle as well as writing down key notes. The main app used in this particular class were: (Edpuzzle). It was so evident during lesson that the teacher's marking/feedback has been done simultaneously in class, moreover, the learners had these feedback displayed to them to instruct their learning during completing their tasks where challenges were set to some highly achievers and support was provided to those who need to excel and improve their learning skills. At the same times, students get access to teachers' feedback and also can write comments to their teacher in class (interactive feedback).

In science lesson 2, students were trying a new online website for revision (onscreen.exampro.co.uk). The observer found out during the teacher's interview that the school had subscribed to this website and the money was taken away from the science department budget the matter which reflect the pre-planning steps taken by the school managers and teaching and learning stakeholders in order to push forward students' achievements. Personalised learning was also considered since only one student was working on a different website (brainpop.com). Despite, both websites used in this lesson were for revision; yet the (examp ro) is more of quizzing and questions while (brainpop) is more of learning videos and revision. Students were engaged and focused; some were with their earphones and asking questions to the teacher.

4.1.6 Interviews to students and teachers

The observed asked students during and after the above 4 lessons, whether they find useful techniques compared to other lesson where no or less use of technology or blended learning and he found out through all of those interviews to students that they were all extremely satisfied with this useful, efficient and engaging medium of learning. It was so evident as per students that they can't think of a better strategy other than the one been used in that lesson.

Teachers thinks it is effective to use technology as a medium of instruction however different year groups and age group might cause some challenges to occur. In addition, teachers also with some groups and classes used to face some technical problems e.g. earphones, Bluetooth, non stop video on some phone so the teacher booked 14 school iPads.

4.2 Discussion

This section thoroughly discusses the findings of the study according to the previous studies in order to support the findings of this study. This section is categorised into three parts that are based on the research questions of this study in order to meet the objectives of this study.

4.2.1 Research Question 1

What is the effect and impact of using technology on students' learning and attitude at international schools in the UAE?

According to the analysis of this study, it is found that most of the students, parents and teachers believe that there is positive impact of technology and blended learning on the academic performance of the students. At the same times, the

analysis of the study has also estimated the positive and significant results of blended learning on the academic performance of the students. In the same way, Stockwell, Stockwell, Cennamo, and Jiang (2015) also estimated that the implication of the strategies of the blended teaching and learning became one of the most important reason for the greater number of students' presence and attendance in the face-to-face classes. In addition to this, the blended learning and teaching techniques has also positive impacts on the performance of the students and the satisfaction of the students, which are reported by the students themselves. Furthermore, Alkoudmani and Elkalmi, (2015) stated that blended learning and teaching is considered that the "United Arab Emirates (UAE)" has the most important role for the provision of the identical higher education in the region of the Middle East. In addition to this, it is also testified that there are 103,431 students who are enrolled in various public and private institutions for the purpose of acquiring the higher education and most of these institutions are the branches of world-renowned institutions in order to provide the higher quality of education to the students (Oplatka, & Arar, 2017). However, it is also important to know that the region of the Middle East is also famous for the higher level of unemployment rate, which is caused because of lower standard educational institutions in the same region.

Furthermore, in order to provide the higher standardised education, the "*United Arab Emirates (UAE)"* is being considered as the leader in the region of the Middle East. In addition to this, it is also more important to mention that blended learning and teaching techniques are also highly highlighted by the government of the UAE so that they can completely transform their educational system as the

higher level of quality up to the 2021 as well as the national agenda. At the same times, the government of the UAE is not only fully committed but also more focused to upgrade its educational system with the help of the science and technology, innovation and research (Nickerson, 2015). Additionally, the academic performance of the students is the main factor for the government so that, the educational system of the UAE can be included among the leaders of the digital economy and their students can be more helpful and efficient to play their better role in the economy of the country (Atallah, et al., 2015). In addition to this, the studies conducted among the students from the background of the non-formal education estimated that the blended learning has positively significant impact on the enhancement of the maintenance of the students but then again it has insignificant impact on the increased attendance of the students. Nevertheless, Delialioğlu (2012) was the first one, who familiarized the process of the learning through the techniques of the blended learning at the London Metropolitan University in order to neutralize the dropout ratio. In addition to this, it is also found that among the dropout students most of the students were those who started their higher education after a long time that also became the most important reason for them to successfully go through the process of this transition to the level of the University for their Studies.

In addition to this, the dropout ratio of the students decreased just after the implementation of the blended teaching at the college level and the number of the students increased in order to complete their coursework. In addition, Kintu and Zhu, (2016) recommended that the blended teaching and learning has more effective outcomes through triggering the students to be more focused and active

during their classes in comparison to the traditional teaching models for example lecture-based teaching techniques. This recommendation was also supported by Delialioğlu (2012) explored that the blended learning engage and involves the students more in the process of learning in comparison to the lecture-based and problem-based learning techniques. In addition to this, the online learning activities can also play both roles for the process of learning of the students by reinforcing their learning during their classes and also can play the role as the early overview of the topic before it will be discussed thoroughly. For example, before starting the discussion of the topic, the reading material is uploaded on the VLE and the students acquire access before starting of their class, then during the class, in this way the discussion can be more analytical through encouraging the participation of the students in the discussion. As follows, the teachers are also given more time to focus on every student in the class to assess their flaws and strengths through their discussion. In addition to this, Kintu and Zhu, (2016) identified that the blended learning is more helpful for those students who live on the long distance from their campuses to utilise the reading material before attending their class in order to properly engage in the discussion.

4.2.2 Research Question 2

What are the challenges and obstacles that teachers and students might face while using technology in classroom and beyond and how to overcome these obstacles and why?

The results of this study has estimated that the students face difficulties in order to cope with the blended learning and teaching techniques in the UAE International schools. In addition to this, not only the students but also the teachers

have very little information and skills of using technology. At the same times, this study has also found that teachers and parents 'focus to help their children and students to cope with the technology is very limited. However, the trend of blended learning and teaching is increasing and students are trying to cope with the technology as it is the demand of present times, so that they can have better and bright career after their studies. In the same way, the previous studies have also found challenges among the students in the international schools of the United Arab Emirates (UAE). As stated by Salloum and Shaalan, (2018) that after the implementation of the procedures of the e-learning in the educational institutions of the UAE. Moreover, there are some interpretations that are added about the blended learning and e-learning has not only presented some better results but also it has shown some drawbacks. After implementing the process of the e-learning in some educational institutions the most of the students has still remained unsuccessful to adopt this technology and it has also affected their academic performance also in a negative way (Salloum, et al., 2019). The failure of this e-learning system can also be observed from the dropout ratio of the students, which has greatly increased and reached at the 40 percent of the undergraduate male students even before their completion of the study program.

Moreover, the failure of adoption of technology can also be one of the major reasons that the motivational level of the students and teachers to adopt the e-learning process (Al-Azawei, Parslow, & Lundqvist, 2016). In addition to this, the lower level of motivation during the process of adopting the strategies of the e-learning can also be at the higher level of limitation in the academic performance of the students in order to manage their knowledge through LMS that is highly

required for the purpose of blended leaning of the students (Annabi, & Muller, 2016). Meanwhile, there are also some studies that represent the lower and poor level of the teaching and instruction skills of the teachers in order to deliver the proper information to the students that has negatively affected not only the academic performance of the students but also their attitudes towards learning and learning process. In addition to this, Alhazbi, (2016) that the proper application of the technology has become a severe problem for students, teachers and parents, which is causing most of the students' dropout from their schools, also states it and PHEI is labelling those students as "low achieving school leavers" instead of finding the most appropriate solution. Moreover, it is also mentioned by Alhazbi, (2016) that the PHEI rather than finding the solutions of this problem through social factors, it has considered most of the students as "low achieving school leavers" that has also become one of the most critical reason and obstacle for the students for entering in the workforce and universities for their higher education.

On the other hands, there are some researchers who believe that the technology not only wastes time but also money. Nevertheless, other researchers see the significances of the technology when it is properly applied to influence for the success of the learners (Thai, De Wever & Valcke, 2017). At the same times, in an EFL environment at a university in Tokyo, Trowler, (2010) found the efficiency of various operations related with technology. The wikis, forums and blogs were mostly beneficial for learning the languages, particularly for the improvement of the writing styles, although the findings of the study did not express the important differences of the learning outcomes.

Likewise, another similar research exploring the effect of Web 2.0 technology on the English writing for the first-year English-language learners at a university in Taiwan shows that the integration of the Facebook into the English writing skills learning increases the interest and motivation of learners. Akçayır, and Akçayır, (2017) stated that the students incorporated cooperative learning techniques and enhanced their ability to write in the English language. Moreover, the teaching atmosphere became more student-oriented with the learners by sharing their expertise and interacting with their colleagues. In contrast, the another research at a university in Taiwan on two different writing groups of the ESL majors examined the impact of classroom blogging on the writing performance of the learners. The time for the research was eighteen weeks during that the experimental team widely used blogging while the control group used paper-based types of the responses. All the teaching materials were provided on the blog and the students were requested to work collectively by handing out tasks and engaging through the usage of the internet blog discussions (Yeou, 2016).

4.2.3 Research Question 3

How to further develop and push forward the current digital planning, infrastructure and teaching and learning in international schools in the UAE?

The findings of the study showed that the technology and blended learning and teaching techniques are playing very important role, there are many students, teachers, and parents to adopt the technology based and blended learning techniques. In this way, the suggestions presented by the respondents are note-worthy, most of the respondents responded that training for the teachers, students and parents should be arranged. At the same times, the informative and educational

conferences, workshops and seminars should be arranged for the teachers to familiarise them with the application of the technology and the techniques of the blended learning (Thai, De Wever & Valcke, 2017). In addition to this, Trowler, (2010), states that the social media applications and sites should be adopted for the purpose of teaching.

In addition to this, according to Liu, Bridgeman, and Adler (2012) that the teaching methods with the techniques of the blended learning has more significant effects by motivating the learners in order to be more energetic and focused for the duration of their class as compared to the traditional teaching techniques considering the lecture-based teaching techniques. On the contrary, it is stated by Akçayır, and Akçayır, (2017) who evaluated that the blended learning comprehends and involve the students with additional focus in study in comparison to the learning processes that are problem-based and lecture-based. Meanwhile, the learning activities based on online learning can also play the both roles for the learning process of the learners through improving the process of the learning during their class and also can play the most significant role for the overview of the topic before it will be discussed systematically (Fredricks, Blumenfeld & paris 2004). For instance, the in the past the discussion of the topic, the reading resources are to be found on the online application and the students to attain access before the start of the session, at that moment in time during the class the argument can be more reasonable and consistent through encouraging the students to participate in the discussion. Along these lines, the lecturers are also given additional time to concentrate on every single learner in the class in order to measure their flaws and strengths with the help of the comprehensive discussion. In addition to this,

Fredricks, Blumenfeld and paris (2004) admitted that the blended learning is more valuable for such students who are corporeal far away from their educational centers in order to exploit the reading resources before their attendance of the class in order to appropriately involve in the group discussion of the class.

In addition, Liu, Bridgeman, and Adler (2012) the advantages of the Blended Learning for the instructors as edtech has also very much augmented and the usage of the technology in teaching has been extremely documented. Furthermore, the roles of the schooling have also been technologically advanced with the as compared to the past, from the traditional techniques of the teaching to the blended techniques of the teaching. Moreover, the blended teaching and learning has more substantial advantages for the instructors at the mean times (Fredricks, Blumenfeld & paris 2004). Additionally, the blended learning and the solicitation of the technology in the teaching approaches significantly help teachers to save their time, the long hours that they devote for the preparation of their lessons, mark sheets and different reports on the daily, weekly and monthly basis that considerably have constructive impacts on the success rate and speed of the learners in their learning process (McCutcheon, et al., 2015). In addition to this, the involvement of the students remains at the higher level due to more divergences in the activities during their lessons (McCutcheon, et al., 2015). In addition to this, the teacher can also concentrate on their determinations for the assistance in order to guide the skills of the learning process among the learners. In this manner, the tutors are also proficient for empowering their students by benevolenting them with better abilities in order to imply the online working resources and direct them at the same time as they complete their activities. Like this, these consensuses of the

students in order to go at dissimilar habitations in the same class (Fredricks, Blumenfeld & paris, 2004). Meanwhile, the students can also have tailored and altered guidelines in the same classroom likewise, the other students according to their level. In addition to this, the rating, marking and grading work is more computerized in many circumstances that empower them to save their extra time for not only the instructors but also for the learners.

In addition, there is extensive level of sustainability for the solicitation of the technology for the purpose of the teaching where the less printing process is involved. In addition to this, according to Thai, De Wever and Valcke, (2017) the blended learning is more imperative for the academic attainment and it should encompass the amalgamation of the technology and the traditional teaching techniques, which should be applied in order to meet the preferred learning style of the students, in the mean times, it supports the teachers also. For the meantime, Akçayır, and Akçayır, (2017) quoted that the technology has more stimulus in point of fact improves the situations for the process of learning for the advantageous purpose of the students, on condition that the teachers have a duty to choose and implement the blended learning styles.

In order to motivate the students about the adoption of the technology for their educational processes and blended learning, the teachers and parents play very important role for facilitating them (Pinto-Llorente, et al., 2017). The students take more interest in practical tasks and they enjoy learning. In addition to this, the teaching and training of the students in a way that can be more fun for the students instead of direct learning can help them to focus more on technology for their educational purposes (McCutcheon, et al., 2015). The students and children take

more interest on the tasks that give them short term and quick benefit, relief or pleasure in this way the practical application and presentation of the usefulness of the application of the technology can enhance their motivation (Akçayır & Akçayır, 2017).

4.3 Summary

This chapter has briefly presented the results of the study. The reliability of the study through Cronbach's Alpha is presented and discussed. In addition to this, the descriptive statistics of the study are thoroughly presented and Pearson's Correlation Matrix and observational reports as well as students & teachers interviews have been also briefly discussed in this chapter. After presentation of the results of the study, this chapter has thoroughly discussed the findings of the study according to previous studies. The discussion was presented in the context of all set research questions, which presented how the findings of the study are met the criteria of the research questions that enabled the researcher to meet the objectives of this study.

CHAPTER FIVE: CONCLUSION

5.0 Introduction

This chapter briefly concludes the findings of this study. This chapter not only concludes the findings of this study but also presents the limitations of the study. In addition to this, the recommendations are also presented in this study for the parents, teachers and educational policy-makers that can be helpful to improve the teaching and learning process in the educational institutions.

5.1 Conclusion

The main objective of this study was to estimate the impacts of the adoption of the blended learning, teaching and technology on the academic performance of the students in the British Schools of the United Arab Emirates. In this regard, this study had adopted a mixed method of quantitative and qualiateive approach. In this way, the quantative reseach of this study had collected data from 50 teachers, 50 parents and 100 students. The data was collected through self-administered questionnaire. After data collection, the data was analysed through the application of the SPSS. The quantitative data analysis tecchniques Cronbach's Alpha was estimated to check the reliability of the data. The Descriptive statistics was applied to measure the means of every variable. At the end, with the help of the Pearson's Correlation Matrix was applied to estimate the relationship between variables and their impacts on each other. The Qualiative methodology was used in this study through observing four class two for science and two for maths where the focus was to measure the level of engagement of students and their achievements in those particular subjects using technology as an enhancer or domain instruction in teaching and learning.

After that, this study has found that blended learning has the positive impact on the academic performance of the students. In the same way, Stockwell, Stockwell, Cennamo, and Jiang (2015) also assessed that the implication of the strategies of the blended learning and teaching became one of the most pertinent reason for the greater number of students' presence and attendance in the face-to-face classes. Meanwhile, the techniques of the blended learning and teaching has also positive impacts on the performance of the students and the satisfaction of the students as well that are reported by the students themselves. In addition, Alkoudmani and Elkalmi, (2015) stated that blended learning and teaching is considered that the "United Arab Emirates (UAE)" has the most imperative part for the provision of the identical higher education in the region of the Middle East. In addition to this, it is also affirmed that there are 103,431 students who are registered in various private and public institutions for the purpose of acquiring the higher education and most of these institutions are the subdivisions of internationally-recognised institutions in order to provide the higher quality of education to the students (Oplatka, & Arar, 2017). On the other hand, it is also essential to identify that the region of the Middle East is also well-known about the higher level of unemployment rate that is because of lower standard educational institutions in the same region.

In addition to this, it is also found that the provision of the higher level of the education, the "*United Arab Emirates (UAE)"* is being considered as the leader in the region of the Middle East. It is explored that it is also more important to mention that blended learning and teaching techniques are also extremely

highlighted by the government of the UAE so that they can entirely transform their educational system as the higher level of quality up to the 2021. At the same times, the government of the UAE is not only fully dedicated but also more dedicated for the advancement of its educational system with the help of the science and technology, innovation and research (Nickerson, 2015). This study also found that the academic performance of the students is the main factor for the government. Because the educational system of the UAE can be included among, the cream of the crop for the digital economy and their students can be more helpful and efficient to play their role in the advancement of the country (Atallah, et al., 2015).

Moreover, there are numerous studies conducted among the students from the background of the non-formal schooling assessed that the blended learning has positively significant impact on the augmentation of the maintenance of the students but then again it has insignificant impact on the improved attendance of the students. On the other hand, Delialioğlu (2012) found that the process of the learning through the techniques of the blended learning at the London Metropolitan University in order to neutralize the failure ratio. In addition to this, it is also established that among the failure students most of the students were those who started their higher education after a long gap, which also became the most important reason for them to successfully go through the process of this transition to the level of the University for their Studies.

In addition to this, the failure ratio of the students declined just after the execution of the blended teaching at the college level and the number of the students improved in order to complete their coursework. Besides this, Kintu and Zhu, (2016) mentioned that the blended teaching and learning has more operative

significances through triggering the students to be more focused and active during their classes in comparison to the conventional teaching models for example lecture-based teaching methods. Delialioğlu (2012) who explored that the blended learning engage and involves the students more in the process of learning in comparison to the lecture-based and problem-based learning practices also reinforced this approval. In addition to this, the online learning activities can also play the both roles for the process of learning of the students by underpinning their learning during their classes and also can play the role as the early overview of the topic before it will be discussed comprehensively. For instance, before starting the discussion of the topic, the reading material is uploaded on the VLE and the students gain access before starting of their class, then in the course of the class, in this way the discussion can be more investigative through encouraging the participation of the students in the debate. In this way, the teachers are also given more time to focus on every individual student in the class in order to assess their flaws and strengths through their discussion. In addition to this, Kintu and Zhu, (2016) acknowledged that the blended learning is more helpful for those students who live on the long distance from their campuses to utilize the reading material before joining their class in order to properly engage in the discussion.

This study has found that there is positive relationship between the academic performance of the students and web-based learning. In this way, another comparable research discovering the effect of Web 2.0 technology on the English writing of first-year English-language students at a university in Taiwan that indicates the integrating Facebook into English writing skills learning increases the interest and motivation of students. According to Akçayır, and Akçayır, (2017)

learners incorporated the cooperative learning techniques and enhanced their skills to write in English. The teaching atmosphere developed more student-centred with students sharing their knowledge and cooperating with their classmates. On the other hands, another research at a university in Taiwan on various writing groups of ESL majors observed the impact of classroom blogging on the writing enactment of the students. The time of the research was fifty-six days during which the researchers' team extensively used blogging while the control group used document-based sorts of the responses. All instruction materials were provided on the blog and students were invited to work together by handing out the tasks and engaging through the procedure of the internet blog discussions (Yeou, 2016).

The study of Akçayır, and Akçayır, (2017) disclosed a little modification in the overall performance of the students according to the writing test for both groups while emphasizing the time and effort required designing and maintaining the blog. Fredricks, Blumenfeld and Paris (2004) discovered the effect of applying computers in a higher technical school in Abu Dhabi on the students of the 10th grade assessing their performance in writing. In this way, the results of the research exhibited that the application of the computers in English language teaching to improve the effectiveness of the written text. In the research undertaken on a group of ESLs and EFL learners at colleges in Hong Kong, Taiwan and the USA considering the academic writing classes, the educational impact of applying computers as a medium of instructional technology in a "*Computer Assisted Language Learning (CALL) program*" for writing and interaction is considered. In this research, Thai, De Wever and Valcke (2017) the improvements that, in spite of the gender gaps, the typing speed and personal computer access, learners had

satisfactory attitudes towards using computers in their writing. Because of the usage of the computers, the students were extremely motivated and felt stimulated to learn the language. Additionally, the teaching environment became more student-oriented with the learners by sharing their information and working together with their classmates.

This study has explored that there is major role for the successful implication of the e-learning in academic performance of the students in blended learning process. Because, most of the students who are not aware of the websites or web-based information become lethargic and they give up their studies because they remain unsuccessful to adopt technology and cope with the blended learning trends. In the same way, the statement of Ahmad and Hussain, (2017) the prerequisite for the certification of the educational institutions has become a great reason for the success of implementing these e-learning and technological based modifications in order to adopt the "Learning management systems (LMS)". In this way, either the institutions have established their own LMS or they have adopted the clarification for the Chalkboard to support the technological integrated education system for the procedure of the active learning among the learners. These incorporations in the educational institutions was considered the most significance for the better and blended learning of the students (Awofeso, Hassan, & Hamidi, 2016).

Furthermore, Salloum and Shaalan, (2018) subsequent implementation of the e-learning technique in the educational institutions of the UAE. There are some explanations added that the e-learning and blended learning has not only presented some better outcomes but also it has presented some drawbacks. After

implementing the e-learning practices in some educational institutions most of the students has remained unsuccessful to adopt this technology and it has affected their academic performance (Salloum, et al., 2019). The failure of this e-learning system can be observed from the failure ratio of the students that has critically increased and reached at the 40 percent of the undergraduate male students even before their final year of the program. In addition to this, it can also be one of the most important reasons that the motivational level of the students and teachers to implement the e-learning process (Al-Azawei, Parslow, & Lundqvist, 2016). The lower level of motivation during the process of adopting e-learning strategies can also be the higher level of limitation in the academic performance of the students about the administration of their knowledge through LMS that is highly required for the purpose of blended leaning of the students (Annabi, & Muller, 2016). Furthermore, there are also some indications that represent the poor and lower level of the teaching and instruction abilities of the instructors in order to deliver the right information to the learners, which has negatively affected not only the academic performance of the learners but also their learning process and attitude. In the same way, Alhazbi, (2016) the proper application of technology has become very problematic for the students, teachers and parents that is causing most of the students' dropout from their schools and PHEI is identifying those students as the low achieving school leavers instead of finding the most appropriate way out.

5.2 Limitations of the study

One of the major limitations of this study is the sample size. The sample size of this study is very small that cannot help to generalise the results of the study. Besides the sample size of the study, the other limitation of the study is the data

collection and data analysis techniques. The quantitative data collection techniques and data analysis techniques are not as much helpful as to discover the reasons and impacts of the blended learning and teaching on the academic performance of the students. Furthermore, the cross-sectional data is collected for this study that has also increased in the limitation of the study. However, it would be better if the qualitative data collection techniques was extentive so that the ideas of the students, teachers and parents could have been identified comprehensively. At the same times, the case study or experimental study or the longitudinal data would have helped to estimate better results of this study. In this way, it is recommended for researchers to conduct similar studies in future in the same area with the case study or experimental study method by the application of the longitudinal data collection technique.

5.3 Recommendations

After going through a vast literature and analysis of the collected data there are some recommendations for the policy-makers, teachers and parents to help the learners and students for the adoption of the technology and blended learning for the better results and academic performance of the students. The recommendations are as follows:

- The seminars, workshops and training programs should be conducted for the teachers to help them for the adoption of the technology and blended learning techniques during the process of teaching.
- The blended learning techniques and adoption of technology should be made compulsory in all educational institutions.

- The students should be facilitated by their parents and teachers to utilise internet technology for the purpose of their study.
- The students should be given trainings about the application of the specific technological tools, if they face any problem during their application.
- The counselling of the students should be done about the application of the technology for the purpose of the learning and education.

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