

**The Implementation and Management of the Digital
Platforms and Online Resources in Online Distance
learning Amidst COVID-19 Pandemic**

A case study in a School in UAE

تشغيل وإدارة المنصات والمصادر الرقمية في التعلم عن بعد خلال جائحة
كوفيد-19

دراسة حالة خاصة في مدرسة في دولة الإمارات العربية المتحدة

by

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of the requirements for the degree of
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Abstract

This research is a case study which aims to explore the implementation and management of digital platforms and online resources to provide accessibility to learning and connectivity to the learning communities in online distance learning amidst COVID-19 pandemic in a school context in UAE. Also, it simultaneously aims to examine the impacts on teachers perceived benefits. The study used mixed-methods case study research design with exploratory sequential data collection methods. The exploratory qualitative data was collected through a structured questionnaire addressed to 2 leadership members who were involved in the implementation and management of the digital platforms during the pandemic and collected additional artifacts. Then, the research proposed a structural hypothesis model to do empirical tests on the data collected from 45 teachers (grades 1-8) participated in an online survey to express their perception about the different themes in the hypothesis and the benefits of using them. The results show that there were overall positive responses to the perceived benefits as a result of the leadership support through the investment on the technology infrastructure, technical and administrative support, training, video tutorial, positive encouragement, and the effectiveness of the digital platforms used in synchronous and asynchronous modes to provide accessibility and connectivity. However, the study brought up that there were inconsistencies of the impact of middle leadership between the different phases and the satisfaction of the teachers who have been working for a longer time in the school. The research suggests improving the impact of leadership in phase3 through culture of continuous learning and breaking the barriers of teachers' resistance to change. Also, it suggests initiating a personalised professional development program led by teachers and focuses on investing on cultural capital, coaching/mentoring, constructive personalized feedback targeting the mastery of digital competency. Also, it suggests extending the role of professional learning community to lead on learning towards deeper use of technology.

Keywords: Technology planning, technology management, digital platforms, online distance learning, virtual learning environment, accessibility and connectivity to learning amidst COVID-19 Pandemic.

ملخص:

ان هذا البحث يهدف الى دراسة حالة خاصة وهي مدرسة في دولة الإمارات العربية المتحدة والاستقصاء عن كيفية تشغيلها وإدارتها للمنصات والمصادر الرقمية خلال فترة جائحة كوفيد19 لتأمين فرصة الحصول على فرصة التعلم والتواصل مع مجموعات التعلم. بالإضافة الى ذلك، دراسة تأثير ذلك على تصورات المدرسين للفائدة المرجوة منها.

لقد تطلب البحث نهج البحث المدمج للحالة الخاصة بالطريقة الاستقصائية التتابعية. حيث إن البحث يتطلب مرحلتين من تجميع البيانات. في المرحلة الأولى يتم تجميع بيانات نوعية من خلال طرح أسئلة موضوعية عن التخطيط والتشغيل ويليها إدارة المنصات والمصادر الرقمية وما يتخللها من اعداد للمدرسين ووضع السياسات المرافقة لها. وفي المرحلة الثانية يتم تجميع بيانات رقمية من خلال أسئلة عبارة عن أجوبة محددة بخمسة خيارات تقيس تصورات المدرسين حيث توجه لهم عبر رابط منصة غوغل.

فقد أظهرت النتائج استحسانا عاما للفائدة المرجوة من المنصات الرقمية في تأمين فرصة الحصول على التعلم والتواصل مع مجموعات التعلم. بالإضافة الى رضى عام عن توفير الادارة للبنية التحتية من التكنولوجيا، وتوفير فريق يساعد في الدعم الفني والتدريب على تشغيل المنصات والمصادر الرقمية، والمساعدة الفردية، بالإضافة الى الفيديوهات التي توجه طرق التشغيل. ولكن البحث يحث على تحسين أثر دور القيادات الوسطى خاصة في المرحلة الثالثة فيما يخص التأكيد على تزويد المدرسين بالتغذية الراجعة لكل مدرس، وتحسين خطة التطوير المهني بحيث تشمل ثقل المدرسين بمهارة توظيف التكنولوجيا بطريقة فعالة ويكون لهم الدور القيادي فيها وبمساعدة موجهين بحيث يكون التطوير مرتكزا على الفرد ويسودها ثقافة التعلم المستمر.

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Glossary and Key Definitions

Distance Learning and Online Distance Learning: Distance learning is a type of education that happens remotely without physically being in the same place and does not have to be at the same time. It is usually aided by technology and may involve some face-to-face meeting. In the past, teachers or schools used to communicate with students using mails including the course contents and students work which put the students at risk of isolation due to time delay to get feedback and less interactions with peers. With the advancement of technology and the internet, distance learning took the form of online distance learning where students and teachers use the online educational tools and Media to interact synchronously (simultaneously) and asynchronously (non-simultaneously) and in different ways which provide different learning opportunities, enhance communication between peers and between students and teachers, and help getting some guidance and instance feedback.

Professional Development is referred to the various activities which are initiated to develop the knowledge and skills of educators which drive impacts on students' outcomes (Fenstermacher and Berliner, 1985). Professional development in education is different from pre-service education as it takes place after the educators being employed by educational institutions. The activities of the professional development in education are related to different types of educators' practices including the improvement of instructions, teaching and learning and curriculum (Elmore et al. 2002).

Self-Efficacy: "The belief in one's ability to organize and execute actions required to manage prospective situations" (Bandura, 1995: p.2).

Teachers Digital Self-Efficacy: It is the extent of which the teachers consider themselves being capable of performing their job to achieve students' outcomes and engagement in learning (Tschannen-Moran & Woolfolk-Hoy, 2001). In this study, teachers' digital self-efficacy will be referred to teachers self-efficacy in using technology and digital platforms to interact and connect with students in online distance learning.

Online Digital Platform: "An online learning platform is an integrated set of interactive online services that provide learners, and others involved in education with

information, tools and resources to support and enhance education delivery and management” (Josep, 2021). It entitles the teacher to set a virtual learning space for a group of students where they can progress in learning in a flexible schedule and according to their own learning pace.

Learning Management Systems (LMS): is a one type of E-Learning platform which is designed to assist teachers to manage the course material including content, tasks and assessments and make them accessible online to students. (Ispring, 2019)

Virtual Learning Environment (VLE) is defined as online-based platforms which aim to provide digital tools for both learners and teachers to facilitate learning. The tools are being managed by the teachers and intended to cater the needs of different learning preferences and goals, while permitting collaborative and resource-based learning with the flexibility to share and reuse the same resources. The different tools include emails, online references, multimedia presentations, search engines, conferencing software’s, chat blogs, synchronous and asynchronous discussion forums, shared whiteboards, interactive simulations and activities. The VLE does not aim to duplicate or replace the face-to-face classroom, but to provide digital communication, interaction and quizzes or polls whether it is in a physical classroom or through online remote learning (Britain and Liber, 2004).

Accessibility to learning in online distance learning includes the design of learning that can be accessible to all learners through technology regardless of whether they have a disability or not, and regardless of their location, family conditions, or the digital devices that they have.

Connectivity refers to the communication between different stakeholders including leadership, students, and teachers in school districts in order to maintain relations, interaction, and engagement within the school community whether in “bricks and mortar” or in the virtual environment.

Hybrid Learning/ Blended Learning: hybrid learning is a mix of online and offline learning where some of the online learning part replace the traditional face-to-face instruction. The aim of hybrid learning is to use different techniques whether it is online or offline to provide effective teaching which cater the needs of the students. While blended learning uses only distance learning as a compliment to classroom learning with equal balance of online and traditional instruction. Figure1 presents a visual illustration of both

and they stand in the middle of the learning spectrum between face-to-face and full online instruction. It shows how hybrid learning relies more on online instruction than blended learning. (Reed, 2020)

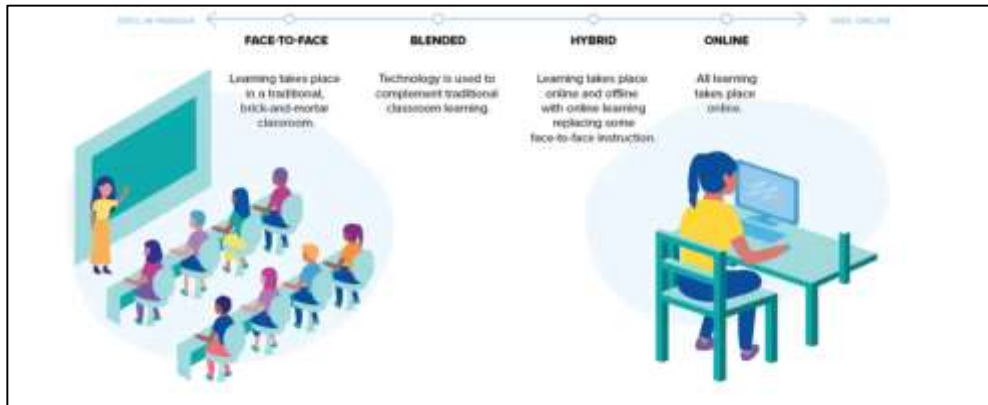


Figure 3: Learning spectrum (Reed, 2020).

<https://www.wwt.com/article/guide-to-hybrid-blended-learning-higher-ed>

During COVID-19 pandemic, hybrid learning and blended learning models were a must for higher education institutions' sustainability while ensuring the safety of different stakeholders (Reed, 2020). In the *Which School Advisor* (17 August 2020,) it was announced that hybrid learning and blended learning will be adopted as models used in UAE's schools as of September 2020 based on the approval of the educational institutional authorities of the different Emirates. This step has been taken after having an obligatory three full months of fully online instruction from March 2020 till June 2020.

Contingency Plans and Crisis Management: The planning process in preparation of potential crisis or disaster is defined as Contingency planning. However, the overall management at the beginning and during the period of crisis and disaster is referred to as crisis management. Both concepts complement each sequentially (Aoun, 2020).

Abbreviations

UAE: United Arab Emirates

PLC: Professional Learning Communities

TAM: Technology Acceptance Test

LSU: Leadership Support

TDSE: Teacher Digital Self-efficacy

TASU: Technical and Administrative support

SCH: System characteristics of the digital platforms used in the case study.

PEOU: Perceived ease of USE

TPB: Teacher perceived benefits

SLT: Senior leadership team

MOE: Ministry of Education in AUE

MMCS: Mixed-Methods case study

CHAPTER ONE: INTRODUCTION

The integration of technology in education has been one of the biggest priorities of the United Arab Emirate (UAE). The UAE government along with private and public schools have been working to develop the technological infrastructure with some disparities in the technological advancements among them. Nevertheless, the unexpected and fast emerged contagious disease COVID-19 was considered as a worldwide pandemic and posed a decision to close schools' premises and switch to remote learning in some countries including the UAE. Backed up with a robust technology infrastructure, the UAE made the decision to provide continuity of learning through online remote learning. Hence, on 8th of March 2020, it was announced the closure of schools and universities across the UAE for a duration of two weeks by bringing backwards the spring annual break as to contain the possible transmission of the virus and plan for a full remote learning for additional two weeks. Then, the closure of school premises for “bricks and mortar” classroom was extended till the end of the academic year and shifted to online distance learning for all schools in UAE. Since then, there has been some changes in the provision of learning in schools depending on the situations and the recommendation of the committee of the emergency protocols in UAE. Students in the UAE experienced a period of full 3 months online distance learning from March 2020 till June 2020. Afterwards, in September 2020, different schools opened with different plans of provision (Hybrid learning, full online distance learning, face-to-face) depending on their context with the option of providing online distance learning based on the families' intentions.

Background Briefing of the Research

School closures, even for short periods, constitute many problems in different issues. Mainly is a reduction in instructional time, which has negative impacts on learning achievement and educational performance. According to UNESCO (30 July 2020), the education disruptions increase the gap within the education systems. These include: Interrupted learning, more pressure on schools that kept open, “confusion and stress for teachers, parents unprepared for distance and home schooling, maintaining, and improving distance learning, challenges measuring and validating learning, gaps in childcare” (UNESCO, 2020).

Ferri et al. (2020) published studies with regard to the challenges and opportunities of emergency remote learning as a result of the pandemic which were carried in collaboration with professors, policy makers and specialists from different countries. The studies revealed several technological, pedagogical and social challenges. The technological challenges include internet connectivity and lack of devices amongst students. The pedagogical challenges related to digital skills, content structure versus the abundance of online resources, interactivity and motivation of students, social and cognitive presence of teachers.

Research Problem and Objectives

When e-learning/blended learning were just choices for schools for different reasons, there were certain adopted mechanisms/strategies of integrating learning management systems, digital online platforms, and online solutions along with the preparation of appropriate infrastructures, but most of them were focused on higher education. As long as there is uncertainty of the duration of the pandemic, schools are opted to close at anytime. The switch off and on of emergency remote learning became a phenomenon in UAE and around the world. The continuous move from face-to-face teaching to online distance learning and vice versa has been causing a continuous change in the learning conditions. Providing the solid technological infrastructure in UAE, the integration of digital platforms and online resources in education have been a key to accessibility to learning during pandemic. However, school leadership and teachers were recognised to be catalysts in this transformational change as claimed by Goerge Couros:” Technology will not replace great teachers but technology in the hands of great teachers can be transformational”.

This research aims to explore the implementation and management of digital platforms and online resources to provide accessibility to learning and connectivity to learning communities in online distance learning amidst COVID-19 pandemic in a school context in UAE (phase2 and phase3) and how these influence teachers perceived benefits of using them.

The Research Main Questions:

1. How has the school leadership implemented and managed the technology infrastructure, digital platforms and online resources, policies and protocols to provide continuous accessibility and connectivity in online distance learning?
 - a. How were the technology infrastructure, digital platforms and online resources used to provide accessibility to learning?
 - b. How were the school policies and protocols of using digital platforms and online resources used to enhance the accessibility to learning and connectivity to school community?
 - c. How were the school policies related to technology planning and implementation placed around teachers' needs?

2. What is the impact of the leadership support (LSU), technical and administrative support (TASU), system characteristics of the school digital platforms (SCH), teacher's digital efficacy (TDSE), and teacher perceived ease (PEOU) on the perceived benefits (TPB) of using the school digital platforms and online resources in online distance learning?
 - a. To what extent does LSU influence TDSE in online distance learning?
 - b. To what extent does the LSU influence TASU in online distance learning?
 - c. To what extent do the SCH, TDSE, and TASU influence PEOU in online distance learning?
 - d. To what extent do the SCH, PEOU, TDSE, TASU influence TPB in online distance learning?
 - e. How do the teachers' responses differ based on demographic distribution?

Case Study Setting:

The case study is a school located in Dubai, UAE. It has 1500 enrolled students from Pre-KG to grade 12 which follows the American High School Diploma where English is the language of instruction. The distribution of grades across phases follows the MOE structure where phase1 comprises Pre-KGs, phase2 includes the grades from 1 to 5, phase3 incorporates the grades from 6 to 8, while the grades from 9 to 12 constitutes phase4. The

school's philosophy is to foster inclusive education that cater the needs of all students. The school invested in technology infrastructure by adopting digital platforms and online resources, dedicating a technology department that is responsible for implementing and managing the newly and adopted technology to support teachers and review the implementation with SLT. The school governance is committed to provide quality of education and put in-work a dedicated team to develop school instruction in collaboration with the rest of teachers in the school.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This research study is designed to pinpoint the aspects that underpin the implementation and management of existing or new technologies in a school district in Online Distance Learning amidst COVID-19. A literature review was done to understand theories of the elements related to the phenomenon including contingency plans and crisis management and their relevance to UAE context, implementation and management of technology processes including the role of leadership and the quality of professional development, distance learning issues, teacher digital self-efficacy, and system characteristics. This review of literature was presented according to themes from general to more specific focus.

2.2 COVID-19 Crisis Management

2.2.1 Overview of Crisis Management and Contingency planning

The term crisis overlaps with other key terms such as emergency, disaster, catastrophe, and event. The concept of a crisis could be defined in many diverse ways depending on the context, subject and area. Hence, due to these disparities, the crisis management theories are still underdeveloped according to Roux-Dufort and Lalonde in 2013 (cited in Pursiainen 2017). On an organisational level, the crisis is interpreted as a decisive point which can improve or worsen the reputation and sustainability of the business from the point of view of Fink in 2002 (cited in Pursiainen, 2017). Therefore, organisations should regularly update their existing plans (contingency plans) for the sustainability and stability during the crisis according to the crisis management cycle (figure 2.1) which reveals a continuous cycle of assessments, evaluation and modifications (Pursiainen, 2017). “Top organizational officials should drive the plan, with human resource leaders playing a key role in the personnel interface elements of the plan” (Aoun, 2020). Whilst on a public management level, a crisis is viewed as an unprecedented situation which cannot be managed effectively with the on-going operations and management structures. With the emergence of crisis and disaster, community leaders, who are part of the emergency management, should be focusing on

the public safety rather than the ordinary processes and assets of business (Pursiainen 2017).



Figure 4.1: Crisis Management Cycle (Pursiainen, C., 2017. P. 5)

Although it is very important to set solid and rigorous contingency plans to prepare the different stakeholders in a case of an emergency which is part of crisis management process, contingency plans should be open and dynamic to explore the situations and respond to them with the current system and be subject to circumstances. Crisis management leaders should investigate the risks, environment, social support, characteristic of stakeholders, and the complexity of the issue. For this, Crisis management “is a combination of planning and thriving under pressure” (Marker, 2020).

2.2.2 COVID-19 Crisis Management in UAE

The UAE has established on 14th May 2007 the National Emergency Crisis and Disasters Management Authority (NECDMA) which was the first of its kind in the region and it has the mission of “supervision and administration to comply with the nation’s policy regarding the emergency, crisis and disaster management necessary procedures, through coordination & cooperation with related entities” (NCEMA, n.d.). As a response of COVID-19 Crisis, NCEMA, with its focused tasks departments, had to collaborate with other public and private organisations including the education sectors in order to issue laws, legislations and protocols that protect the school communities and hence UAE citizens from the spread of the virus and ensure their safety. (NCEMA, n.d.)

As part of the COVID-19 crisis management, UAE issued different protocols to support the sustainability of the education, maintaining equal opportunities for pupils in online distance learning, and ensuring the health and safety of school communities at school reopening the management of the COVID 19 crisis. (Mansour, 2020)

2.3 Integration of Technology in Education

2.3.1 Definition of Technology

There has been an argument about the definition of digital technology as it has been ever changing in history.

According to Stošić, technology cannot be defined in one term or statement as the interpretation differs from one country to another which could be referred to different labels that indicate the purpose of usage and characteristic, but it rarely defined the pedagogical implication of those technologies in education. As a result and still according to Stošić, there is a need to know more about the application of educational technology in different areas including psychology, didactics, pedagogy, informatics. Thus, he classified them into three categories: teaching tools, learning tools and tutorials. However, Selwyn (2011) framed the digital technology as an “ever changing complex of technological artefacts and tools”.

On the other hand, some scientists differentiated between technologies and media which tends to be tricky because it is being used interchangeably in our daily life according to Bates (2015). The research will refer to technology as the media, application, and WEB based tools as well as digital devices, but will refer specifically to a specific technology when referring to specific purpose or function.

2.3.2 Briefing about Technology in Education

According to UNESCO 2019, technology can “complement, enrich and transform education for better”. Its significance in education can improve accessibility, remove inequity, reinforce inclusive education, support teacher’s professional development, improve the relevance and quality of learning, and improve the administration and governance.

In 2020, the UAE government established a strategy to promote the use of technology in schools to foster future employment and 21st century skills among students while providing the necessary hardware and software resources. Government should use the full potential of technology and accelerate the economic growth by investing in education and open up to new technologies and encourage research and development within the private sector (Alrawi, 2010).

2.3.3 Significance of Technology Integration in School Instruction

The main purpose of implementing technology in school is to improve student learning while the effective planning would be built around teachers' needs and technology perceived benefits to accept it.

In high-tech learning mode, the interconnection in the learning process is multidimensional. Interconnection between students and teacher should be transformed from having teacher the transformer of knowledge to the facilitator of the learning through active engagement process and with different teaching tools which includes, technology solutions, cloud-based information, digital teaching materials while students benefit from the variety and advancement of technology to construct their knowledge (Paraskev et al., 2008). In addition to that, providing an online connection network and a virtual learning environment would facilitate the opportunity to access the knowledge at any time and any place (Visvizi, et al., 2019). According to several studies, technology has the prospect to modulate teachers' roles as it can promote a change in the role from transferring knowledge to facilitating learning and acquiring the needed knowledge (Paraskev et al., 2008).

In 2010, Dr. Ruben Puentedura created a framework to integrate technology in designing instructional activity within classroom and beyond. The model is referred by SAMR Model (Figure 2.3).

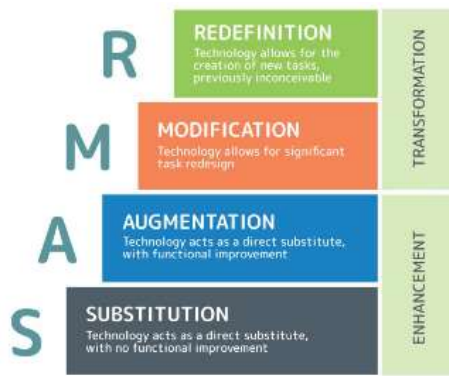


Figure 2.3: SAMR Model. Image Modified from Original by Leffler's on Wikimedia Commons. <https://www.schoolology.com/blog/samr-model-practical-guide-edtech-integration>.

How would this framework have impact on students' digital efficacy on the long term? This should be integrated through a project on school level (Gross and Mouza, 2008). Do teachers need to have the digital competence to apply it? What if it is not integrated within the vision of school Instructions? Stošić (2015) had a point when he said that the advancement and implementation of new technologies expands to the extent to wonder if teachers are trained and coached to use them. Hence, two issues should be considered: teacher's competence to effectively use technology, and the advanced school technology infrastructure to support the new solutions and media (Stošić 2015).

According to McMillan-Culo et al., (2005) (cited in Gross and Mouza 2008), the significance of integration of technology articulated by policy makers can be summarized in 3 categories: to tackle the problems around teaching and learning, to transform school curriculum which engage students and make teaching and learning purposeful, and to equip students with knowledge and skills to be technology competent in the technology cutting edge. However, Gross and Mouza (2008) claimed that there have not been until that time tangible recommendations from policy makers on how to approach those rationales. Hence, they produced a framework, called *i⁵*, which can support teacher in implementing technology-based projects. This framework aims to assess the success of the technology-based project before implementing it and reveal the challenges that could be faced. The framework aim to examine different variables which are grouped in 4 main concepts: School context which includes organizational (culture/support), human capital infrastructure, technology infrastructure; the (teacher) innovator which includes technology proficiency, pedagogy-tech proficiency, knowledge of resources; The innovation/ project which underpin the "variables distance

from school culture, distance from resources, distance from current practice” (Gross and Mouza, 2008); and last the operators/students which underpin technology proficiency, project-style experience, beliefs and attitudes (Gross and Mouza, 2008). Hence, teachers are not responsible alone in implementing technology and it has to be supported with school’s vision and culture and embraced by schools’ stakeholders providing a high-tech infrastructure.

2.3.4 Challenges and Limitation of Technology Integration

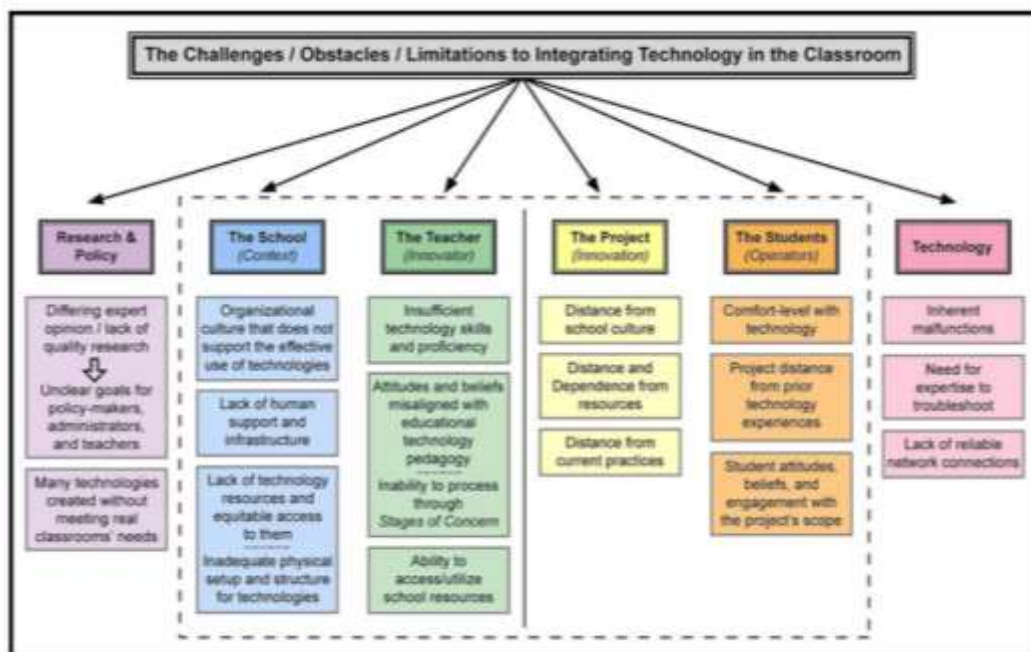


Figure 2.4: Challenges and Limitation of technology Integration. (Gross and Mouza, 2008, P. 34)

Gross and Mouza (2008) summarized the challenges of integrating technology in the classroom (Figure 2.4) based on several literatures. The challenges reveal several integrated factors which are not limited to the teachers’ end use, but further related to school vision of using technology with the supporting policies that respond to students and classroom needs with the supporting culture, the adequate infrastructure and resources, the collaboration between stakeholders to build technology self-efficacy and to create the content that is relevant to school culture and responsive to student’s needs and interests.

2.3.5 Significance of Technology in Online Distance Learning

The online distance learning is a solution to access learning remotely for learners who are not able to attend physically in “Bricks and mortar” classes due different obligations such as health, family, time and place restrictions, or part time jobs (Simpson, 2018).

Online distance learning is taking different shapes in many educational institutions and is taking lots of attention in studies (Markova et al., 2017). Also, its potential is influenced by four elements: accessibility, interactivity, flexibility and collaboration. (Liang & Chen 2012)

In fact, this strategy of learning is more adopted in higher education as many universities have allocated some sections or branches to offer online distance learning (Weidlich and Bastiens, 2018). It is easily implemented in higher education and high schools as it demands a high level of responsibility on the students to stay motivated and highly disciplined. Hence, online distance learning programs can achieve the level of success by arranging a proper communication set-up between the students and their responsibilities and seminars (Zaborova et al., 2017).

Nevertheless, online distance learning is less common in the Middle East and North Africa (MENA) due to the issues of accreditation of the degrees as up to now the Ministry of Education in UAE (MOE) has few accredited online distance learning institutions such as Hamdan Bin Mohammed Smart University (HBMSU). In addition to that, online distance learning was almost rare in UAE schools until the announcement of curfew and school closure during the COVID-19 pandemic where online distance learning was adopted to avoid disruption of education, which is another advantage of online distance learning providing a robust technological infrastructure on both country and school district level. On the other hand, this does not confidently result in high quality of online distance learning and it requires some changes in the interactivity among teachers and students (Liang & Chen 2012). Furthermore, the implementation of online distance learning tends to face some barriers such as teachers and students’ accessibility due to technical and home conditions, validity of the online assessments, excessive screen time, measuring students’ engagements in the course work. All of this requires consideration from the top school management to create policies and protocols to remove those barriers.

2.3.5.1 Accessibility Issues

No matter how much efforts teachers put to develop the design of their instructions during online learning, it will be useless without ensuring accessibility at the first step to help facilitate learning most effectively (Liang & Chen 2012). The online distance learning during COVID-19 pandemic reflected that the issues of accessibility is related to more than students who have disabilities but includes students who could not have access to their devices, or do not have WIFI at all, or do not have adequate internet bandwidth to support synchronous video meetings. In addition to that, it includes the stranded teachers and students in different countries than the school home country as the accessibility is affected by time and place. On that side, this became an issue that needed collaboration between school leadership, decision makers and the governments to create policies to help increase the accessibility to avoid the disruption of education with minimum risks and where technology is at the center of any plan.

2.3.5.2 Connectivity Issues

With the online learning, connectivity of students to their school community can be observed by the frequency and quality of interactions between teachers and students. Some studies articulated the concept of interaction in both synchronous and asynchronous online distance learning environment. One of which by Moore (1989) who suggested “three types of interaction: student-student, student-teacher, student-content”. While, Paulsen (1995) cited in (Lee 2007) suggested four types of interaction between teachers and students or among students in the form of: “one-alone, one-to-one, one-to-many, and many-to-many”.

During online distance learning, it is very challenging for teachers to maintain the connection with asynchronous and independent learning especially with young learners who might tend to feel more isolated. In line with this, studies from (Muirhead 2001, cited in Lee 2007, p. 2) drew the attention that students may tend to be more isolated and become passive learner in an online learning environment unless they are encouraged to actively engage and lead their learning even with asynchronous mode. Lee (2007), suggested to benefit from the different features of technological media such as forums and blogs, which are not bound to place and time, to increase the interaction

and communication between students and teachers and among students through inquiry and discussions. (Lee 2007)

The type of technological media that allows communication, with video conferencing or breakout rooms in synchronous mode which allows interactions between students and teachers and between peers, having collaborative learning experience within small groups or whole classes, and using some non-verbal cues will support connectivity and inclusiveness and build resilience especially in emergencies. On the other hand, the technological media alone does not promote effective mean of connectivity without designing the virtual learning environment – following Constructivist theory of learning- which is learner-centered that makes students interact actively and are involved in discussion, group tasks, and able to navigate using the technological media (Liang & Chen 2012).

In other words, connectivity can be promoted by the different online communication tools and media that allows interactions between teachers-students and students-students with the condition that teachers have the digital self-efficacy of using these tools to design virtual learning environments that are students-centered (Lee 2007). When teachers design the online instructions to be more student centered by increasing collaboration, students will feel connected to community of learning with common interests (Blocher et al., 2002).

2.4 Theoretical Framework

This research uses the theory of technology acceptance (TAM) by Davis (1989) as the basis of the theoretical framework. This model is used widely to explain the user behavior and attitude towards accepting and using new technology and information systems.

2.4.1 Technology Acceptance Model (TAM)

According to Hong et al. cited in (Tan, 2019), the TAM (Davis, 1989) comprises the simplest and inclusive model to study the acceptance of information technology. It is grounded on two theories: “Theory of Reasoned Action” by (Fishbein, & Azjen, 1975) and “Theory of Planned Behaviour” by (Azjen, 1989).

Some researchers suggested to integrate both TAM and Theory of planned behaviour (Figure 2.5) to investigate the acceptance of the usage of information technology and media as it showed better exploratory capabilities than using either one in Bosnjak et al., 2006; Chen et al., 2007; Wu & Chen, 2005 cited in (Koul & Eydgahi, 2017).

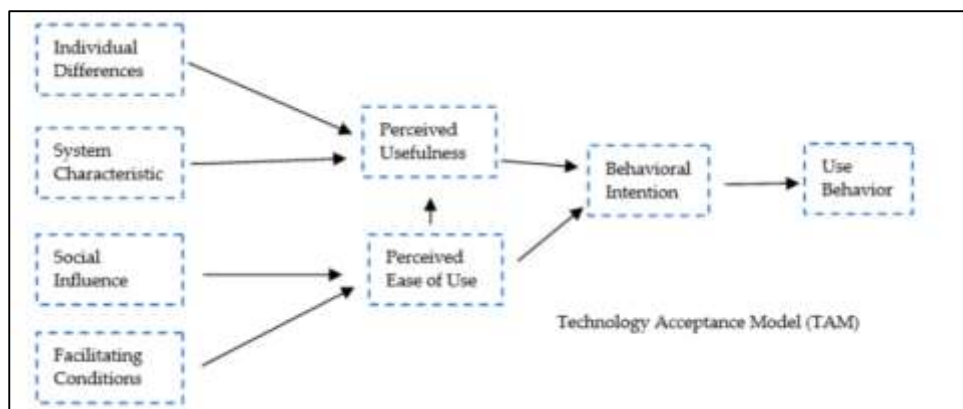


Figure 2.5: Theoretical Framework: Adapted Technology Acceptance Model (TAM) by Davis 1996 (Tan, 2019, p.8)

2.4.2 Behavioral Intention – Behavioral Use

Attitudes to new technology is defined as a teacher’s overall intuitive reaction to use the system (Davis, 1989). Different studies have pointed to the role of educators to transform the learning into more active process with technology support, and most of them deduced that attitude towards technology use is a major prediction of its use in the teaching process (Kreijns et al. 2014; Lochner et al. 2015; Raghunath et al. 2018). On the other hand, intention to use can be articulated as to the extent that someone’s beliefs of being able to use technology (Venkatesh et al., 2003). The theory of planned behaviour by Ajzen’s theory (1991) indicates that the more favorable the teachers’ attitudes toward online distance learning tools and digital platforms, the greater their intention to use them.

2.4.3 Perceived Ease of Use – Self-Efficacy

Perceived ease of use is defined as to the extent a teacher believes that using online digital platform and tools without making extra efforts (Davis, 1989). However, previous researchers showed that the digital self-efficacy to use technology is a key variable in measuring the development of the acquired skills (Campeau & Higgins 1995; Bates & Khasawneh, 2007; Gravill & Campeau, 2008). Also, digital self-

efficacy positively affects perceived ease of use (PEOU) in online distance learning (Hsia, et al., 2014).

2.4.4 Perceived Usefulness – Perceived Benefits

Perceived usefulness is defined as the extent to which an individual believes that technology enhances the performance to achieve the goals (Davis, 1996). Perceived benefit is more specific and referred to the impact of technology on someone's work (DeLone and McLean, 2003).

In 1989, Davis conducted several researches and brought about the significant correlation between perceived ease of use (PEOU) and the current and future usage, but perceived usefulness has greater significance on technology acceptance (Davis, 1989).

2.4.5 External Variables or Constructs

In addition to teachers' digital self-efficacy (TDSE), the research considers other external constructs that influence the perceived ease of use and hence perceived benefits of using the school digital platforms and online resources in online distance learning environment. Consequently, those constructs will frame the conceptual framework of the study: Leadership support (LSU), system characteristics (SCH), technical and administration support (TASU).

The adapted model of TAM (figure 2.5) by Davis (1996) will be used to map the constructs with their abbreviations in the study as follows:

- Individual difference: teacher digital self-efficacy (TDSE).
- Social influence: leadership support including (culture, professional development, training, coaching/mentoring, monitoring/feedback) (LSU)
- Facilitating condition: technical and administration support through specified Team and personnel. (TASU)
- System Characteristic: the system characteristic of the school's digital platforms. (SCH)

2.5 Conceptual Framework of the Research study

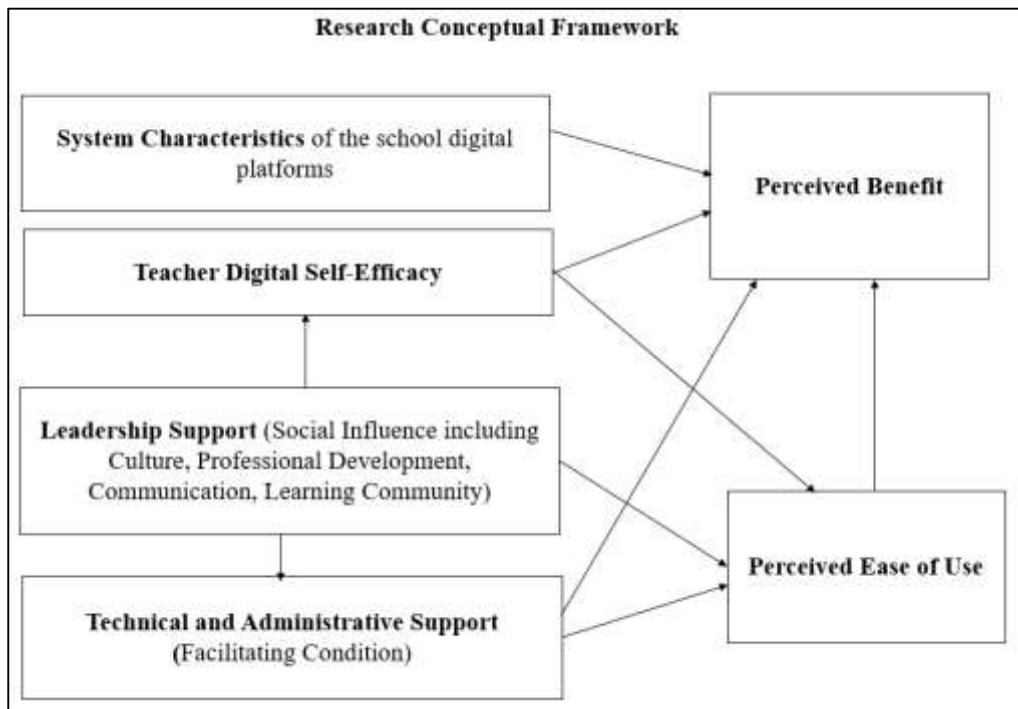


Figure 2.6: Conceptual Framework, adapted from TAM (Davis, 1989; Azjen, 1980) models. (Jaber, 2021).

2.5.1 Leadership Support

2.5.1.1 Culture of Continuous Learning

Kennedy & Archambault (2012) mentioned that lots of teachers found that the face-to-face teaching strategies were not effective in the online environment. So, teachers have to change the instruction to provide effective students centered learning methods (Borup et al., 2014). This implies that the role of teachers should change their belief about teaching and learning more from transferring knowledge to facilitating knowledge, which helps students to get what they need as needed. Hence, this way helps teachers to differentiate the content in different ways with the support of technology and multimedia which in turn provide students alternative means to interact with the learning content (DiPietro, 2010).

Mizell (2010) deduced that the main elements to improve students' achievements are the quality of teaching and school leadership. Hence, they need to have continuous development of knowledge and skills through quality professional development to

advance their practices in order to drive impacts because professional development is an important strategy to drive school culture towards long life learning for both students and teachers as needed.

2.5.1.2 Professional Development

Recently, there are lots of attention towards professional development processes in schools because of the big shifts to place large accountability on teachers in addressing the improvement of students' attainment and progress.

In UAE, the role of teacher is being the central to any reform or restructuring agenda. Hence, education policy makers in the UAE have proposed a new paradigm of teacher training and professional development which is more constructive and personalised according to situations. The new paradigm of professional development (figure 2.7) is mainly lead by teachers and in multidirectional way as it is collaborative and collegial. Also, they aimed to the develop the process that improves teaching profession by further empowering teachers with the following: allowing teachers to be decision making, providing community of practice and collaboration, mentoring program, teachers lead their own professional development journey, and “constructive feedback and performance evaluation authority over classroom management “(Warner, 2018).

	Traditional Model of Teacher Training & PD (cognitive)	New Model of Teacher Training and PD (constructive and situated)
Focus	Teaching	Learning
Context	Classroom	In Situ, Virtual
Instruction	Didactic	By engagement and interaction
Interaction	One way (from teacher to students)	Collaborative, Collegial
Timing	Planned in a curriculum	Flexible ,evidence or need driven
Outcome	Mechanical learning (transmission and absorption)	Metacognitive understanding of how learning is taking place and how behavior is changing
Participants	Trainer & Teacher	Colleagues

Figure 2.7: New Model of Teacher Development Paradigm in UAE. (Warner, 2018).
<https://mbrsgcdn.azureedge.net/cmsstorage/mbrsg/files/87/872091c8-05f3-418b-84a9-48294717ebbb.pdf>

2.5.1.3 Professional Development Influences Self-Efficacy

In technology Integration policies, teacher technology preparedness has been considered as the “single most important step” to have effective practice in education (Groth et al., 2007). On the other hand, school leaders need to understand how to support teachers to use technology, monitor their usage to assess their progress and provide interventions (McConnell, 2011). Thus, the professional development program through the technology implementation process is considered one of the important ways to develop teachers’ digital self-efficacy (Overbaugh & Lu, 2008).

2.5.1.4 Technical and Administrative Support

The role of technical and administrative support from information technology team or administration can enhance teacher’s use of technology. Previous studies revealed the importance of the availability of administrative team and technical support individuals to respond to users’ requirements and requests (Compeau & Higgies, 1995). In online distance learning, teachers may face issues with computer accessibility and need a remote support. Otherwise, it will add extra stress and anxiety. In addition to that, teachers may feel that they are adding lots of mental efforts in administrative tasks that students and parents may need such as accounts, accessibility, device compatibility. The technical support is a facilitating condition variable that may influence the PEOU and TPB.

2.5.1.5 Teacher Digital Self Efficacy

The self-efficacy is one of the important elements to consider when looking into the adoption of technology in the education (Paraskeva, et al., 2008). It is considered more important than skills and knowledge, and a key to successful integration of technology on a teacher’s level (Ertmer & Ottenbreit-Leftwich, 2010).

Bandura (1995) stated that an individual can refrain from doing a task if there is low self-efficacy. Hence, he concluded that there will be less acceptance or slow adoption of the new technology if there is perception of difficulties in completing a task or innovating. As a result, the teacher’s digital self-efficacy could be one of the main important factors for successful technology implementation. The most influencing

source of self-efficacy typically comes from mastery experiences as it is improved when the tasks are successfully perceived, while it diminishes when tasks are unsuccessfully perceived (Bandura, 1986, 1997). Also, social models have an important influence on the development of self-efficacy especially when teachers do not have the confidence in their abilities to complete a task, or do not have enough experience. Thus, a constructive feedback and coaching from others (leadership or other teachers) or even mentoring may alter confidence level (Bandura, 1997). Also, physiological and emotional state of the individual is another factor that affects self-efficacy which includes and not limited to stress, anxiety, fatigue, and mood. (Bandura, 1997).

2.5.1.6 System Characteristics

This construct refers to the characteristic of the digital tools and online services to support the integration and implementation goals of the school district and teachers. The goals are defined by the institution based on the current need or problem/solution. In the research the goals are defined as accessibility and connectivity to maintain sustainability during online remote learning. The characteristic of technology solution will impact the perceived usefulness, the complexity of online distance learning tools may affect the teacher perceived benefits (TPB) of using them (Davis, 1989).

2.6 Conclusion

According to some literature reviews the importance of implementation and management of technology in education have been controversial as the use of technology differs from country to country and from school to school and even between teachers in the same school. On teachers' level, different tools and technology artifacts can be used for class management, flipping learning, and access to additional resources and to develop 21st century skills, but there is a need to have centralised approach of technology implementation and management within a school district with a clear vision, culture and community of learning.

With the advancement of technology and sciences, the COVID-19 pandemic revealed the confusion in facing the spread of the disease on different aspects in our lives and pushed for a real change to cope with facing the current situation and planning for a

change on the long run. “Restoring education for ‘every’ child would require commitment from all stakeholders to work collaboratively and creatively” (Kaushik, 2020)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter refers to research methodology which includes, according to Johnson and Christensen (2012), “identification, study, and justification of the research method”. Hence, this chapter aims to describe the research methodology in which there will be an identification and illustration of the approach, design and methods to answer the research questions as well as the methods for Data collection and research ethical consideration.

3.2 Research Approach

According to Creswell (2014), the research approach has three basic components: philosophical world view or paradigms, research design and methods of research. Hence, choosing the research approach influences research design and methods.

3.2.1 Research Paradigm

Post Positivism	Constructivism
Determinism	Understanding
Reductionism	Multiple participant meanings
Empirical observation and measurement	Social and historical construction
Theory verification	Theory generation
Transformative	Pragmatism
Political	Consequences of actions
Power and justice orientation	Problem-centered
Collaborative	Pluralistic
Change oriented	Real-world practice oriented

Figure 3.1: Research Paradigm by Guba (1990, P. 17), cited in Creswell (2014, P. 6)

The research follows the pragmatic paradigm by John Dewey (1859–1952) and Jane Addams (1860–1935). Its main focus is on action and result (figure 3.1). Therefore, researcher should focus on the science of “what works” to achieve the research objectives (Creswell, 2009). The philosophy of the pragmatic paradigm serves this research which aims to explore the planning and responses in a school context in UAE amidst COVID-19. So, it is more practical as it aims to construct, out of existing theories and literature, a structural model of relationship among different concepts

within a specific school context in UAE and reflect on its practices based on the findings which cannot be generalized beyond the school context and targeted population.

3.2.2 Research Design and Methods

The research design refers to the strategy that the researcher will use to address the research objectives. The design of the research might need a quantitative, qualitative, or mixed methods (Johnson & Christensen, 2012). Thus, this research follows a mixed methods case study research (MMCS) design (Creswell, 2014). The rationale for using MMCS design are:

- Neither the quantitative data collection nor qualitative data collection alone would be sufficient to give a comprehensive view about the case study.
- The research questions and objectives require qualitative study of the implementation and management of leadership within the case study and quantitative empirical validation in addition to the triangulation of both results (figure 3.2).
- Although different literatures echoed the relationships between some constructs, there is need to understand qualitatively the case study context in order to consolidate the instruments of the different construct based on the conceptual framework.

	Qualitative Approach	Quantitative Approach	Pragmatic Approach
Connection of theory and data	Induction	Deduction	Abduction
Relationship to research process	Subjectivity	Objectivity	Intersubjectivity
Inference from data	Context	Generality	Transferability

Figure 3.2: A Pragmatic Alternative to the Key Issues in Social Science Research Methodology. (Morgan, D. L., 2007, P. 7)

Creswell (2014) suggested different MMCS design to be able to triangulate data analysis: Convergent Parallel, Explanatory sequential, exploratory sequential and Concurrent. This research is presented as an exploratory sequential case study (Figure 3.3).

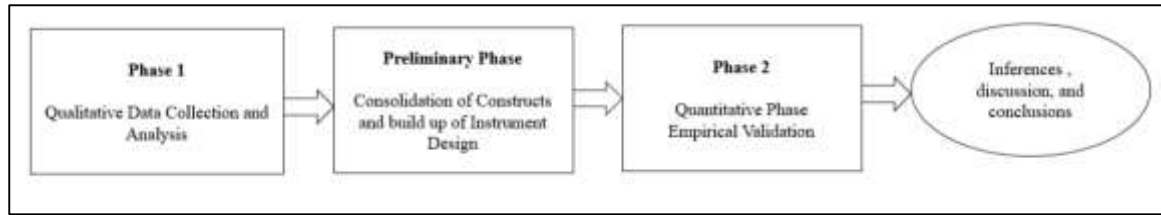


Figure 3.3: Diagram illustrate the exploratory sequential mixed-methods design used in this research.

Hence, the study will be composed of two phases:

- Phase1 study is qualitative data collection which aim to explore the planning and management carried by school management and leadership in response to the sudden shift to online distance learning mode due to COVID-19 pandemic outbreak. The importance of this phase is to provide a deep understanding of the context and help in developing the instruments of the quantitative phase2 study (Creswell, J. W., 2014).
- Phase2 study is quantitative data collection to examine the responses of the teachers to the factors of the different concepts which were developed based on hypothesis derived from the theories and consolidated by the data collected in phase1.

3.3 Research Purpose Statement

As the integration of technology and media in Education is still a key forum for original research, this research would contribute to advance our understanding of historical and contextual specific Ed-tech policies and practices through a theoretically informed analysis. In addition to the above, the research would benefit the participants to reflect on the technology planning and practices for future consideration.

3.4 Research Questions

A literature review was done with regards to the concepts that were addressed in the research questions in order to provide specific answers. Within this case study, the question is raised to explore and understand the leadership implementation and management of technology amidst the COVID-19 crisis and examine the responses of the teachers in a school context in UAE, particularly in phase 2 and 3 (grades 1-8). Thus, the study will provide answers to the following questions:

Sub questions:

1. How has the school leadership implemented and managed the technology infrastructure, digital platforms and online resources, policies and protocols to provide continuous accessibility and connectivity during online remote learning?
 - a. How were the technology infrastructure, digital platforms and online resources used to provide accessibility to learning?
 - b. How were the school policies and protocols of using digital platforms and online resources used to enhance the accessibility to learning and connectivity to school community?
 - c. How were the school policies related to technology planning and implementation placed around teachers' needs?

2. What is the impact of the LSU, TASU, SCH, TDSE on the PEOU on in online distance learning?
 - a. To what extent does LSU influence TDSE in online distance learning?
 - b. To what extent does the LSU influence TASU in online distance learning?
 - c. To what extent do the SCH, TDSE, and TASU influence PEOU in online distance learning?
 - d. To what extent do the SCH, PEOU, TDSE, TASU influence TPB in online distance learning?
 - e. How do the teachers' responses differ based on demographic distribution?

3.5 Data Collection

3.5.1 Data collection Techniques for Phase 1 study:

3.5.1.1 Site setting

The researcher selected a high-tech school participant and got the approval of the principals to conduct the study. However, the site was change to another school context due to lack of response of the participants although they were given enough time to respond (2 weeks). The new site is a different school in Dubai with different curriculum and technology, infrastructure and implementation. The site setting is described thoroughly in chapter four.

3.5.1.2 Selection of participants

The data collected through a structured questionnaire with open ended questions addressed to two members from the leadership team. One is a senior leader who is a main contributor to policy and decision making in the school. While the second person is leading the technology planning and implementation. The rationale for the selection is based on the following:

- 1 According to Creswell, 2014, it is critical that the sampling technique is selected purposefully within this stage of the exploratory sequential Mixed-Methods design. Thus, the participants in this phase should be knowledgeable in the subjects related to questionnaires to get in-depth information. Thus, it was agreed to include leadership members who were involved in technology integration within the phase of the study.
- 2 The quality of information from expert people is more important than the number of participants as long as the data is valid. As such, the selection of participants should be based on their involvement with the phenomenon related to the research and their acceptance and ability to provide the required information with accuracy.

3.5.1.3 Interview Questionnaire Procedure:

The participation in this study is made voluntary and the recruited participants were informed about the purpose of the study. Also, they were informed that they have the option to refuse to answer any question and stop at any point of time. Below are the agreed procedures for collecting the qualitative data:

- The participants were given the choice of having either a virtual structured interview method through video conferencing tool or to answer a structured questionnaire sent through email correspondence. The latter option was preferred as it provides more flexibility and enough time for the recruited participants to answer the questions on their own pace. The researcher designated a period of one week to respond to the questions and provide documentation that support the answers to the questions.

- The questionnaire was sent by email to the two participants rather than having an interview due restriction of having face-to-face meeting in school due to COVID-19 safety precautions as well as respecting the participants’ choices of not having a recorded video conference.
- The participants should be able to answer the questions related to contingency planning and provide clear picture of the digital platforms and online resources being used with the characteristic and purposes of using them. The participants may answer the questions directly and/or provide the relevant documentation which provide clear answers to the questions. Appendix A illustrates Phase 1’s main sections of the questionnaire and their significance with the corresponding sub-questions.

3.5.2 Data Collection Phase 2 Study design

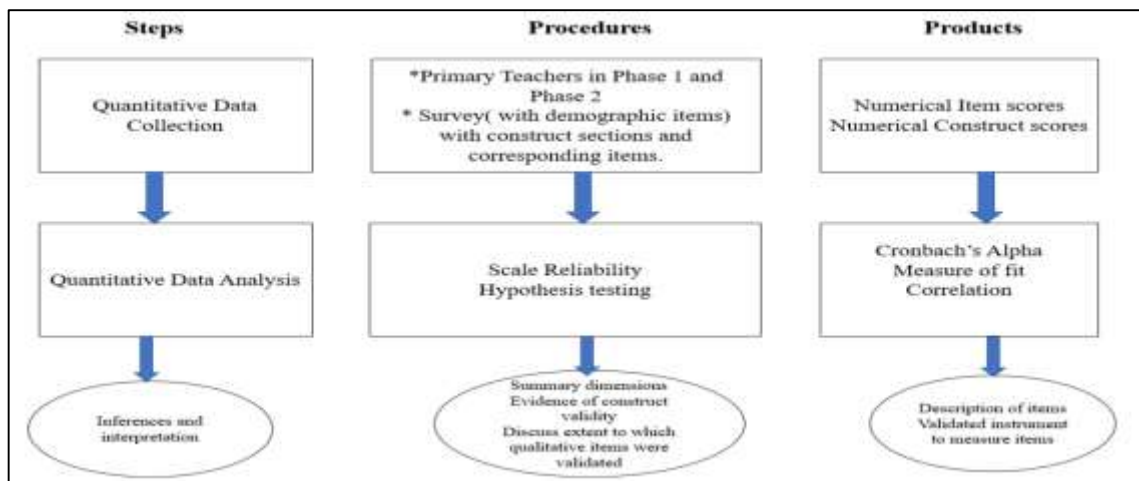


Figure 3.4: Phase 2 Study Diagram

Phase2 study design (figure 3.4) includes the development of the instrument and validation. This phase follows a data analysis of the qualitative data in phase1 to consolidate the items of the different constructs (LSU, TDSE, TASU, PEOU, SCH, TPB). The strategy of collecting quantitative data is through an online survey addressed to all teachers of the targeted grade groups to collect as many respondents as possible (Saunders et al, 2012; Yin 2003). A google form tool was created for the online survey as to make sure that the data is being collected in timely and more structured way and by avoiding having missing information. On behalf of the researcher, a member of the school leadership team was nominated to send an email to the targeted teachers to invite

them to voluntarily participate in the study and highlight the added value of their contribution. The email included the hyperlink to the online survey which included an introductory section that explain the objectives of the study and some key definitions in addition to the emphasis on the confidentiality and animosity of the responses. Also, the questions were translated to Arabic to cater some teachers' needs.

3.5.2.1 Study Hypothesis and Proposed Model:

The study hypothesis for this phase is derived from the conceptual framework presented in chapter3 which will draw a proposed study hypothesis model as illustrated in figure 3.5.

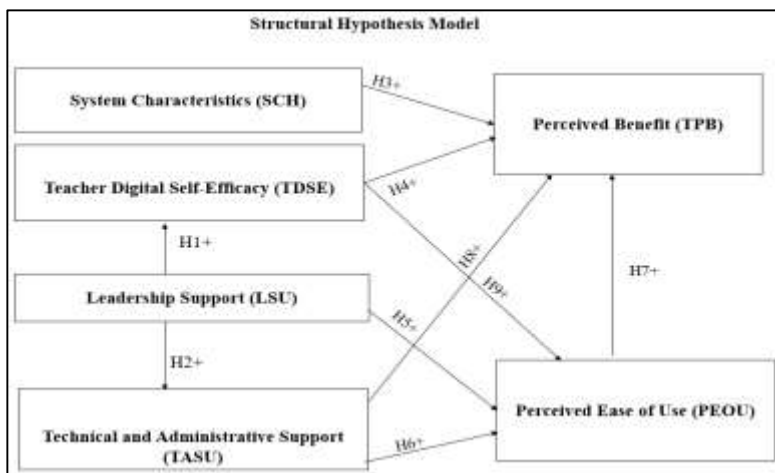


Figure 3.5 Research Hypothesis Model, adapted from TAM (Davis, 1989; Azjen, 1980) models. (Jaber, 2021).

H1+: LSU has positive influence on TDSE; The higher LSU, then the higher the TDSE.

H2+: LSU has positive influence on technical and administrative support TASU; the higher LSU, then higher TASU.

H3+: SCH has positive influence on TPB; The higher SCH, then the higher TPB.

H4+: TDSE has positive influence on TPB; The higher TDSE, then the higher TPB.

H5+: LSU has strong positive influence on PEOU; The higher LSU, the higher PEOU.

H6+: TASU has positive influence on PEOU; The higher TASU, the higher PEOU.

H7+: PEOU has positive influence on TPB; The higher PEOU, the higher TPB.

H8+: TASU has positive influence on TPB; The higher TASU, the higher TPB.

H9+: TDSE has positive influence on PEOU; The higher TDSE, the higher PEOU.

3.5.2.2 Sampling Design and Data Collection – Phase2 Study

As the research purpose statement is exploratory case study research. The design will be non-experimental, which means that there will be no random or control groups for pre-test and pro-test.

The second part of the study is supposed to construct and validate the response of the online survey, which will reflect the results of the qualitative data in phase1. Also, it will test the hypotheses presented in the conceptual framework with the sample size of 80 teachers from phase2 and phase3 i.e., grades (1-8). The hyperlink to the survey was sent by a third party to the targeted group of teachers providing that they will participate voluntarily within timeframe of 10 days and extended for 3 more days in order to get sufficient response and be able to have a valid sample. Hence, the total respondents was 45 from different grades (1-8).

3.5.2.3 Measurement of Construct – Instrument

The online survey is composed of different sections; each construct has a separate section with corresponding items (questions), in addition to a section focused on demographic distribution of respondents i.e. year group, teaching subjects, years of experience, and number of years working in the school (Experience in the current school).

The items of constructs (LSU, TASU, TPB, SCH, PEOU, TDSE) were measured with the same scale for consistency using the 5-point Likert scale including numbers and labels (1= Strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5= strongly agree).

A screenshot of the online survey is presented in Appendix B.

3.6 Research Credibility: Validity and Reliability

Validity is referred to the extent by which the results really measure what the research questions supposed to do (Sounders et al, 2012). In terms of mixed-method,

triangulation of data sources provides an overall understanding of the phenomena in the context, and it is viewed as a good strategy to the validity of the results (Patton, 1999). In terms of the collected qualitative data, the validation was be done through the triangulation of the data collection along with official artifacts documents (Inspection documents) and protocols prepared and sent to different school stakeholders.

In addition to the triangulation of sources, the measures of constructs were developed based on literature review and were consolidated with the qualitative data results from phase1 study (Creswell & Clark, 2007). At a later stage, a pilot online survey was sent to a group of colleagues and professionals to review the instrument and provide their feedback. The collected feedback was consolidated to update the instrument and establish the content (face) validity. The table in Appendix C presents the list of constructs with the initial measurement instruments and sources of building or adapting them before doing a pilot survey. The other types of validity construct and criterion validity will be discussed in the next chapter.

Reliability underpins the extent of consistency of the findings as a result of the data collection techniques and procedures (Easterby-Smith et al., 2008). To ensure reliability of the research results, the errors of both researcher and participants should be minimized (Robson, 2002). It can be measured using Cronbach Alpha test for the quantitative data and addressed in the next chapter. Whereas the reliability and validity of the phase1 data is established by the participation of the more knowledgeable personnel and who have access to the required information. The triangulation of the data analysis in the next chapter will provide more validity and reliability of the results.

3.7 Ethical Considerations

The researcher will adopt an objective position in the inferential analyses in order to establish authoritative findings and reduce bias in influencing the results of the study.

The school principal and leadership are made aware of the objectives and purpose of the study and are voluntarily contributing to the research questions. A consent letter was sent to school principal and vice principals to get the approval. Then the participants in the survey were made aware of the objective of the research while mentioning that their participation is voluntary but would be appreciated as it will

provide a holistic overview of the teachers' perceptions. However, the participant has the right to withdraw from the study in case of any stress caused to any participant, Also, the research ethics would consider the wellbeing of the participants during COVID-19 pandemic and the restrictions of visiting schools and would understand the preference of having responded to questionnaire and a follow up emails rather than a recorded structured or semi-structured interview for phase1 data collection.

CHAPTER 4: RESULTS, DATA ANALYSIS AND DISCUSSIONS

4.1 Introduction

This chapter aims to provide descriptive analyses and discussion of the case study context using both qualitative data which is collected from leadership team with relation to planning and implementation of technology and quantitative data collected from teachers related to their responses to the planning. Also, it intends to test the proposed hypothesis on the sample of the case study context in order to provide a deep understanding of the causal effects of the proposed variables and reflect on them.

Two leadership members, who were involved in the technology implementation and had access to the required data needed for the research, responded to the questionnaire with open ended question and provided protocol that were sent to parent, and official documents that were used during the Knowledge and Human Resources Authority KHDA school review for evaluating the online distance learning. In addition to that, 80 teachers (grades 1-8) were invited to participate in the online survey questionnaire to serve the quantitative part of the study.

4.2 Case Study Site Setting

The case study is a school located in a residential and commercial neighborhood in Dubai, UAE. It has 1500 enrolled students from Pre-KG to grade 12 which follows American High School Diploma program where English is the language of instruction. Arabic, Islamic Education and Social Studies are core subjects follow the curriculum set by MOE. They are taught in Arabic as per its regulation related to promote the use of the Arabic language. The distribution of grades across phases follows the MOE structure where phase1 comprises Pre-KGs, phase2 includes the grades from 1 to 5, phase3 incorporates the grades from 6 to 8, while the grades from 9 to 12 constitutes phase4.

The philosophy of the school promotes inclusive education which cater for the special needs students (SEN) in order to enable them to fulfill their potential in an inclusive environment.

In correspondence with this, the school has established the “Easy Learning Section” and has recruited highly qualified specialists and teachers to cater for the needs of these students.

During the COVID-19 pandemic, the school faced two weeks full closure in March 2020 as all schools in UAE followed by a full term of full remote online learning. Then, in the beginning of academic year 2020-2021, the school updated their contingency planning according to the regulation of KHDA including safety and attendance. The school had to provide an option for students to choose whether to continue online distance learning, full time brick-and-mortar for students in Pre-K to year 3, or hybrid learning for other. The sudden shift to online remote learning caused some challenges on school leadership including the following:

- Shifting to the distance learning model without compromising the quality of students’ learning which includes scheduling, the quality of assessments, quality of assignments, tracking the data, and remodel teaching instructions accordingly.
- Difficulties in using the newly introduced technology tools and digital platforms.
- Applying differentiation across all subjects for students who are fully on distance learning mode.
- Identifying the emotional struggles that some students might be going through.
- Wellbeing of staff and students in the hard circumstances.

4.3 Qualitative Data Collection

Question 1.1.: How the technology infrastructure, digital platforms and online resources were used to provide accessibility to learning?

The school has invested on providing a technology infrastructure to ensure that all stakeholders can have accessibility to learning and connectivity to school community. The school adopted various educational digital platforms since the start of the pandemic for different purposes which altogether would improve the accessibility and connectivity to learning. However, the uses of the educational digital platforms were inconsistent across the year groups as the decisions were based on the need of every phase and the ability of the age groups. With the continuous mass of information and updates that the transitional stage required, the school leadership team created different tutorials for students and their families and shared them through different social media and electronic means in order to help them access learning on the different school digital platforms. Also, the school created designated email accounts for parents to support solving the problems of accessibility. In addition to that, the school technical support mapped the devices being in use in order to provide on demand remote technical support. Table 4.1 illustrates a brief description of the use of the different educational digital platforms based on grade distribution which are grouped into 3 categories.

Table 4.1: Grade grouping and Technology use.

Grade Group1: Phase2/ grades 1-3		
Digital Platforms/ Online Resources	Mode of use	Purpose of use
Google Meet	Synchronous	Used for online virtual sessions in addition to conducting staff and parents' virtual meetings
Seesaw	Synchronous and asynchronous	- Used in online virtual sessions to upload the classwork, where teachers can post quick links and students take pictures of their work. - Used for classwork creation and submissions of synchronous and asynchronous lessons and posting recorded sessions.

Grade Group2: Phase2/ grades 4&5		
Digital Platforms/ Online Resources	Mode of use	Purpose of use
Google Meet	Synchronous	Used for online virtual sessions in addition to conducting staff and parents' virtual meetings
G-Suite	Synchronous and asynchronous	- Used in online virtual sessions to upload the classwork, where teacher can post quick links and students take pictures of their work. - Used for classwork creation and submissions of synchronous and asynchronous lessons.
Classkick Edmodo Razkids 3asafeer		Classkick, Edmodo and Nearpod are used to set classwork and collaborative tasks with real-time monitoring and peer-support. Razkids and 3asafeer are 2 online software resources to support the extra content for the Arabic subject.

Grade Group3: Phase3/ grades 6-8		
Digital Platforms/ Online Resources	Mode of use	Purpose of use
Google Meet	Synchronous	used for online virtual sessions in addition to conducting staff and parents' virtual meetings
G-Suite (Google Classroom is included)	Synchronous and asynchronous	G-suite is used in online virtual sessions to upload the classwork, where teacher can post quick links and students take pictures of their work. Also, it is used for classwork creation and submissions of synchronous and asynchronous lessons.
Achieved 3000 ClassDojo EdPuzzle Education Go Formative Khan Academy Kam Kalima Nearpod Study Island, Quizzizz, Quizlit	Synchronous and asynchronous	The online resources are used to set classwork and collaborative tasks with real-time monitoring and peer-support. In addition to that, some are used for doing different types of assessments. Also, some provides additional content resources for the different subjects.

Question 1.2: How the school policies and protocols of using digital platforms and online resources were used to enhance the accessibility to learning and connectivity to school community?

To overcome the challenges that have been faced since the start of the pandemic, the school governance and leadership team had to work continuously on updating the policies and procedures including staff wellbeing, student attendance, technical and administrative support, communication protocols, and adopting new digital platforms. The changes and updates were made based on the stakeholders' needs and feedbacks which were collected using different online surveys with the purpose to inform school distance learning planning and decision making. Also, they had to design and communicate the newly adopted attendance and workload guidelines. All these updates had to be relayed to all stakeholders regularly which needed different channels of communication to reach them all. The channels include: school's management system, school emails, short message service (SMS), posts on social media, online virtual meetings and forums.

Question 1.3: How were the school policies and processes related to technology planning and implementation placed around teachers' needs?

Before integrating a new technology, the school governors and SLT including the policy and decision makers conducted extensive meetings with academic leaders to ensure the technology serves its intended purposes.

Also, a professional learning community (PLC) was initiated which aims to contribute to school improvement plans. It includes group of teachers who work collaboratively at school level to improve student outcomes. The PLC members used to meet regularly with the SLT and middle leaders consistently.

Before the implementation of the new technology, the school provided teachers with the required training and support to be able to use the various tools in the classroom through a dedicated learning technology department. The latter is always available to answer direct teachers' questions and provides one-to-one support in case of any issue. Also, the usage reports were examined to give indications on how often is the technology utilised by

different groups of students. Then, progress of students was tracked to see whether the tool achieved what it was intended to.

As a result, customised training programs were offered to ensure all teachers can use the technology as intended. Every academic term, the learning technologies department used to report the usage of each online platform, the issues encountered by teachers and students, and the results of the periodic questionnaires sent to teachers and students regarding their perceptions on the technology implementation in the classrooms, collected through online surveys.

In addition to that, SLT and middle leaders attended as many sessions as possible especially live sessions during distance learning for evaluation and informing next steps. Also, middle leaders, who were made accountable, used to provide feedback to their team and discuss suggestions to improve. This information is taken from the school review report shared with KHDA where the school had to answer the questions about the actions taken by SLT and middle leaders to monitor the distance learning to ensure its effectiveness.

4.4 Quantitative Data Collection

The online survey was addressed to 80 teachers; 55 females and 25 males, who teach students in phase2 and phase3 (grades 1- 8) as illustrated in the previous section. Hence, 45 teachers responded to the questionnaire.

This section includes information about the decoding and computing of new variables to able to do statistical queries using SPSS Statistics, demographic data statistic, validation and reliability testing of the measurement scale, testing the model fit of the hypothesis on the sample data, and the last section is about the inferential data statistics, results and discussion based on the current school context.

4.4.1 Decoding and Computing New Variables.

Some questions in the instrument have categorical description options such as teaching experience and experience in the current school. These variables were computed within the

same variable to numbers, where each number represent a category option ranging from 1 to 4 as described in table 4.1.

On the other hand, other variables were collected using check boxes options with the option of having more than one option such as grades and teaching subjects. The reason for this is that the targeted teachers could be teaching more than one grade within the phase for a specific subject, or may teach different subjects within the same grade. In order to be able to analyse the data using SPSS Statistics, new variables were created for grade group and subjects. Furthermore, a variable was created for each construct and were calculated using the mean of its indicators. Table 4.2 presents the new computed variables and their corresponding value and label.

Table 4.2: List of the new computed variables on SPSS database:

New Variables	Values/Label	Old Variable/ condition
Arabic	0= "No" or 1= "Yes"	If the variable <i>Subject</i> has the option "Arabic" in the string, then it is set to 1. Otherwise, it is set 0.
Islamic	0= "No" or 1= "Yes"	If the variable <i>Subject</i> has the option "Islamic" in the string, then it is set to 1. Otherwise, it is set 0.
Social_Studies	0= "No" or 1= "Yes"	If the variable <i>Subject</i> has the option "Social Studies" in the string, then it is set to 1. Otherwise, it is set 0.
Group	1: Phase2/ Grades (1-3) 2: Phase2/ Grades (4 & 5) 3: Phase3/ Grades (6-8)	
LSU	Mean of (LSU1, LSU2, LSU3, LSU4, LSU5, LSU6, LSU7)	
TASU	Mean of (TASU1, TASU2, TASU3, TASU4)	
TDSE	Mean of (TDSE1, TDSE2, TDSE3, TDSE4, TDSE5, TDSE6)	
SCH	Mean of (SCH1, SCH2, SCH3, SCH4, SCH5, SCH6, SCH7)	
PEOU	Mean of (PEOU1, PEOU2, PEOU3, PEOU4, PEOU5, PEOU6, PEOU7, PEOU8, PEOU9, PEOU10, PEOU11, PEOU12)	
TPB	Mean of (TPB1, TPB2, TPB3, TPB4, TPB5, TPB6, TPB7)	

Teaching Experience

Category	Category Description
Category1	Less than 3 years
Category2	3 to 9 years
Category3	10 to 20 years
Category4	Over 20 years

Experience in the Current School

Category	Category Description
Category1	1 st year
Category2	2 to 3 years
Category3	4 to 7 years
Category4	Over 7 years

4.4.2 Demographic Data Statistics

Table 4.3: Gender Statistics

Gender Statistics	Frequency	Percent
Male	11	24.4
Female	34	75.6
Total	45	100

Out of 55 females and 25 males, 45 responded including 11(24.4%) male and 35(75.6%) females responded to the online survey.

Table 4.4: Grades groups Statistics

Grade Groups Statistics	Number of Responses
Group1 (Phase2/ grades 1-3)	16
Group2 (Phase2/ grades 4&5)	12
Group3 (Phase3/ grades 6-8)	17

As the sample was small, the comparative analysis of grades was based on group grades. So, table 4.4 shows the breakdown statistics, where 16 responses correspond to (group1), grade 1-3, and 12 responses correspond to group2 (grades 4&5), while 17 responses correspond to group3 (grades 6-8).

Table 4.5: Teaching Experience Sample Statistics

Category	Category Description	Count	Percent
Category1	Less than 3 years	1	2.2
Category2	3 to 9 years	9	20
Category3	10 to 20 years	32	71.1
Category4	Over 20 years	3	6.7
Total		45	100

Table 4.5 shows the number of responses according to the categories which refers to the ranges of the number of years of experience for the participants. The majority of the participants were in category3 (10-20 years) with 71.1%, while the least one was category1 (less than 3 years) with 2.2% (1 response). Hence, this exhibit that the responses came from teachers who have long time teaching experience.

Table 4.6: Teachers' Experience in the Current School

Category	Category Description	Count	Percent
Category1	1 st year	1	2.2
Category2	2 to 3 years	7	15.6
Category3	4 to 7 years	17	37.8
Category4	Over 7 years	20	44.4
Total		45	100

Table 4.6 presents statistics of respondents based on the ranges of the number of years of experience in the current school. Category4 (over 7 years) had the highest number of responses (44.4%), followed by category3 (4 to 7 years) with 37.7%, then category2 (2 to 3 years) with 15.6%, and least for category1 (1st year) 2.2% which correspond to 1 response. Consequently, the results conveys that the large majority of the participants were the one who had long time experience in the current school.

4.4.3 Instrument and Measurement Model Analysis

Reliability and validity of the instrument are both about how well a method measures something: Reliability refers to the consistency of a measure and to the extent to which test scores are free of measurement errors. Validity is about the defensibility of the inferences that the researcher makes from the data collected by using an instrument which means the instrument measures exactly what it is supposed to. In this section, the researcher presents different tests that were done to justify the level of the reliability and validity of measurements and results.

4.4.3.1 Test of Normality of the Different Constructs

The test of normality should be done on the variables that have continuous attributes. Since all the variables were classified either nominal or ordinal. The test of normality was done on the new variables that represent the 6 main concepts (construct) of the research hypothesis model which are: PEOU, TDSE, SCH, TASU, LSU, TPB. Those variables were created and calculated using the mean of the value of the different items for the same construct as describes in table 4.1. As a result, the type of the variable was defined as scale and were statistically treated similar to continuous variables.

Table 4.7: Descriptive Statistics for the Constructs

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
PEOU	45	2.42	4.83	3.7352	.53220
TDSE	45	2.17	5.00	3.7259	.74294
SCH	45	2.71	5.00	3.7429	.54704
TASU	45	2.50	4.75	3.7722	.59070
LSU	45	2.43	5.00	3.7079	.62490
TPB	45	2.43	4.71	3.7365	.57785
Valid N (listwise)	45				

Table 4.7 shows the descriptive statistics of the different constructs including mean and standard deviation. All Std. Deviation are below 1 and closer to 0 which means the data are to some extent clustered around the mean.

Table 4.8: Test of Normality

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PEOU	.129	45	.057	.954	45	.073
TDSE	.113	45	.189	.956	45	.086
SCH	.067	45	.200*	.982	45	.719
TASU	.129	45	.057	.953	45	.067
LSU	.104	45	.200*	.971	45	.313
TPB	.129	45	.058	.969	45	.262

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Table 4.8 presents the normality test that was conducted in SPSS using Kolmogorov-Smirnov and Shapiro-Wilk. The values of the skewness of all 6 variables are within the acceptable range [-2, +2] and kurtosis values are within the acceptable range of [-5, +5] with values close to zero and the significance values are higher than 0.05. In conclusion, all constructs are very close to normal distribution with little skewness and kurtosis.

4.4.3.2 Factor Analysis Suitability

A test has been carried to check if the sample data is adequate for factor analysis. The test was done using Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity (Bartlett, 1951; Kaiser, 1970) in SPSS Statistics. Table 4.9 shows that the measures are greater than the minimum accepted value (0.5) (Leech et. Al. 2005).

Table 4.9: Test KMO and Barlett's test.

Construct	KMO
LSU	0.85
PEOU	0.89
SCH	0.66
TASU	0.79
TDSE	0.82
TPB	0.78

4.4.3.3 Scale Reliability Test

Cronbach's alpha is a used to test scale reliability (Bollen & Long, 1993) and (Garson, 2011). The scale reliability analysis was carried in SPSS statistics to check the internal consistency of the measurement scale for constructs and their corresponding items. The general rule for value of Cronbach's alpha is that it will be considered good if it is above than 0.7, better if above 0.8, and best if above 0.9. The Cronbach's Alpha's values are presented in a separate section for each construct as follows:

*** TDSE: Teacher Digital Self-efficacy**

Table 4.10 shows that Cronbach’s Alpha for TDSE is equal to 0.9 which reflects a reliable scale with inter-item correlation range from [0.336-0.792] and a mean of 0.621 which reflect acceptable consistency between the indicators.

Table 4.10: Reliability Statistics for TDSE

Reliability Statistics			
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	
.901	.909	6	

Inter-Item Correlation Matrix						
	TDSE1	TDSE2	TDSE3	TDSE4	TDSE5	TDSE6
TDSE1	1.000	.721	.816	.392	.406	.602
TDSE2	.721	1.000	.754	.599	.813	.783
TDSE3	.816	.754	1.000	.338	.515	.687
TDSE4	.392	.509	.338	1.000	.782	.766
TDSE5	.406	.813	.515	.782	1.000	.766
TDSE6	.602	.783	.687	.766	.766	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.621	.336	.792	.456	2.356	.023	6

*** PEOU: Perceived Ease of Use**

Table 4.11 presents a Cronbach’s Alpha equal to 0.95 for PEOU which reflects a reliable scale with inter-item correlation range from [0.484-0.87] and a mean of 0.627 which indicate adequate consistency between the indicators.

Table 4.11: Reliability Statistics for PEOU

Reliability Statistics			
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	
.902	.893	12	

Inter-Item Correlation Matrix												
	PEOU1	PEOU2	PEOU3	PEOU4	PEOU5	PEOU6	PEOU7	PEOU8	PEOU9	PEOU10	PEOU11	PEOU12
PEOU1	1.000	.887	.539	.778	.828	.688	.716	.657	.571	.614	.584	.523
PEOU2	.887	1.000	.551	.758	.827	.828	.845	.721	.693	.633	.638	.601
PEOU3	.539	.551	1.000	.585	.484	.631	.523	.531	.619	.528	.560	.538
PEOU4	.778	.758	.585	1.000	.571	.778	.789	.738	.689	.678	.571	.585
PEOU5	.828	.827	.484	.571	1.000	.551	.598	.516	.555	.589	.555	.584
PEOU6	.688	.828	.631	.778	.551	1.000	.828	.628	.655	.728	.682	.627
PEOU7	.716	.845	.523	.789	.598	.828	1.000	.828	.642	.663	.573	.554
PEOU8	.657	.721	.531	.738	.530	.628	.820	1.000	.696	.614	.581	.629
PEOU9	.571	.693	.519	.689	.555	.555	.642	.696	1.000	.728	.746	.578
PEOU10	.614	.633	.528	.679	.598	.723	.662	.614	.728	1.000	.670	.668
PEOU11	.584	.638	.560	.571	.555	.682	.573	.585	.746	.670	1.000	.627
PEOU12	.523	.601	.538	.581	.584	.627	.554	.624	.578	.668	.627	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.627	.484	.878	.396	1.788	.008	12

*** SCH: System Characteristics of the digital platforms and online resources**

Table 4.12 shows a value for Cronbach’s Alpha of 0.834 for SCH which reflects a reliable scale with inter-item correlation range from [0.233-0.925] and a mean of 0.421 which implies adequate consistency between the indicators

Table 4.12: Reliability Statistics for SCH

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.834	.836	7

Inter-Item Correlation Matrix							
	SCH1	SCH2	SCH3	SCH4	SCH5	SCH6	SCH7
SCH1	1.000	.909	.301	.361	.255	.233	.319
SCH2	.909	1.000	.275	.341	.425	.418	.333
SCH3	.301	.275	1.000	.666	.390	.357	.607
SCH4	.361	.341	.666	1.000	.300	.307	.413
SCH5	.255	.425	.390	.300	1.000	.925	.344
SCH6	.233	.418	.357	.307	.925	1.000	.354
SCH7	.319	.333	.607	.413	.344	.354	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.421	.233	.925	.692	3.969	.037	7

*** TASU: Technical and Administrative Support**

Table 4.13 presents a value of Cronbach’s Alpha equal to 0.841 for TASU which reflects a reliable and consistent scale with inter-item correlation range from [0.484-0.641] and a mean of 0.579 which indicates adequate consistency between the indicators.

Table 4.13: Reliability Statistics for TASU

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.841	.846	4

Inter-Item Correlation Matrix				
	TASU1	TASU2	TASU3	TASU4
TASU1	1.000	.641	.601	.497
TASU2	.641	1.000	.565	.566
TASU3	.601	.565	1.000	.606
TASU4	.497	.566	.606	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.579	.497	.641	.144	1.289	.002	4

*** LSU: Leadership Support**

Table 4.14 shows the value of Cronbach’s Alpha for TASU is equal to 0.909 which reflects a reliable scale with inter-item correlation range from [0.460-0.791] and a mean of 0.594 which indicates adequate consistency between the indicators.

Table 4.14: Reliability Statistics for LSU

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.909	.911	7

Inter-Item Correlation Matrix							
	LSU1	LSU2	LSU3	LSU4	LSU5	LSU6	LSU7
LSU1	1.000	.655	.601	.562	.494	.530	.578
LSU2	.655	1.000	.537	.480	.463	.601	.571
LSU3	.601	.537	1.000	.546	.460	.634	.478
LSU4	.562	.480	.546	1.000	.709	.791	.706
LSU5	.494	.463	.460	.709	1.000	.632	.700
LSU6	.530	.601	.634	.791	.632	1.000	.741
LSU7	.578	.571	.479	.706	.700	.741	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	.594	.460	.791	.332	1.721	.009	7

*** TPB: Teacher Perceived Benefit**

Table 4.15 presents a value for Cronbach’s Alpha of 0.851 for TPB which reflects a reliable scale with inter-item correlation range from [0.114-0.778] and a mean of 0.470. Inter-Item value between TPB3 and TP7 <0.15 which indicate that they are not well correlated as they measure different dimension of TPB. TPB3 measure the perceived benefits of the digital platforms to effectively handle any class size and grouping, while TPB7 measures the perceived benefits of the digital platforms to support having different forms of assessments and feedback in synchronous and asynchronous session. So, the perception of teachers are divergent for the two indicators. Further discussion about TPB3 is presented in the study.

Table 4.15: Reliability Statistics for TPB

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.851	.861	7

Inter-Item Correlation Matrix							
	TPB1	TPB2	TPB3	TPB4	TPB5	TPB6	TPB7
TPB1	1.000	.776	.408	.382	.406	.405	.328
TPB2	.776	1.000	.392	.510	.545	.525	.504
TPB3	.408	.392	1.000	.575	.419	.286	.114
TPB4	.382	.510	.575	1.000	.501	.445	.458
TPB5	.406	.545	.419	.501	1.000	.653	.605
TPB6	.405	.525	.286	.445	.653	1.000	.628
TPB7	.328	.504	.114	.458	.605	.628	1.000

Summary Item Statistics							
	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Inter-Item Correlations	470	114	776	664	6.837	.020	7

4.4.3.4 Convergent Validity

In order to claim that there is convergent validity, Fornell and Larcker (1981) suggest to extract the factor loading; which is the regression path of the item with relevant construct (latent variable), in order to measure the value of the average variance extracted (AVE) and composite reliability (CR) of the constructs. Any factor loading value above 0.4 is considered to be acceptable (Guadagnoli & Velicer, 1988). The value of (CR) and (AVE) are used to assess the convergent validity of the different constructs. Hence, an AVE value greater than 0.5 indicate adequacy of the convergent validity measure of the construct and a value equal to 0.7 or higher is considered good (Hair et al., 2010). Furthermore, CR is another test for convergent validity with a cut-off value of 0.7 and above is considered as an acceptable value (Hair et al., 2010).

Thus, a principal component factor analysis was done in SPSS to extract the factor loading through the function used “Dimension Reduction”/ factor loading and “Promax” rotation (oblique rotation) option as the dimensions are already set (Field, 2013: 681). The function will produce the factor loading. The CR and AVE are calculated using the following formula in Excel sheet:

$$AVE = \frac{\sum \lambda_i^2}{n}$$

λ_i^2 = square loadings of indicator i of a latent variable.
 n = number of items in the construct.

$$\text{CR: } \rho_c = \frac{(\sum \lambda)^2}{(\sum \lambda)^2 + \sum \text{var}(\epsilon)}$$

$\text{var}(\epsilon_i) = 1 - \lambda_i^2$ ∴ squared measurement error of indicator i.

All AVE values (Table 4.16) fall within the range [0.53-0.79] which indicate acceptable values for convergent validity of all construct measurement. Also, CR values fall within the range [0.89-0.98] which also confirm convergent validity.

Table 4.16: Summary of Reliability and Validity Tests Results:

Construct	KMO	Cronbach Alpha	AVE	CR
LSU	0.85	0.909	0.79	0.96
PEOU	0.89	0.952	0.79	0.98
SCH	0.66	0.834	0.53	0.89
TASU	0.79	0.841	0.79	0.94
TDSE	0.82	0.901	0.76	0.95
TPB	0.78	0.851	0.78	0.98

4.4.3.5 Criterion Validity

Criterion Validity refers to the extent to which a measured construct relates to the theoretical representation in the hypothesis structural model. Figure 4.1 shows a summary of the individual standardized coefficients (β) between the predictable variables and the dependent variables to validate the hypothesis on the sample data and their level of significance.

As indicated in figure 4.1, the hypothesis H1-H9 have values more than 0.5 which means that the predictable variables have strong positive influences on the dependent variables with significance $p < 0.01$. Hence, the sample data support the hypothesis model with significance of more than 99%.

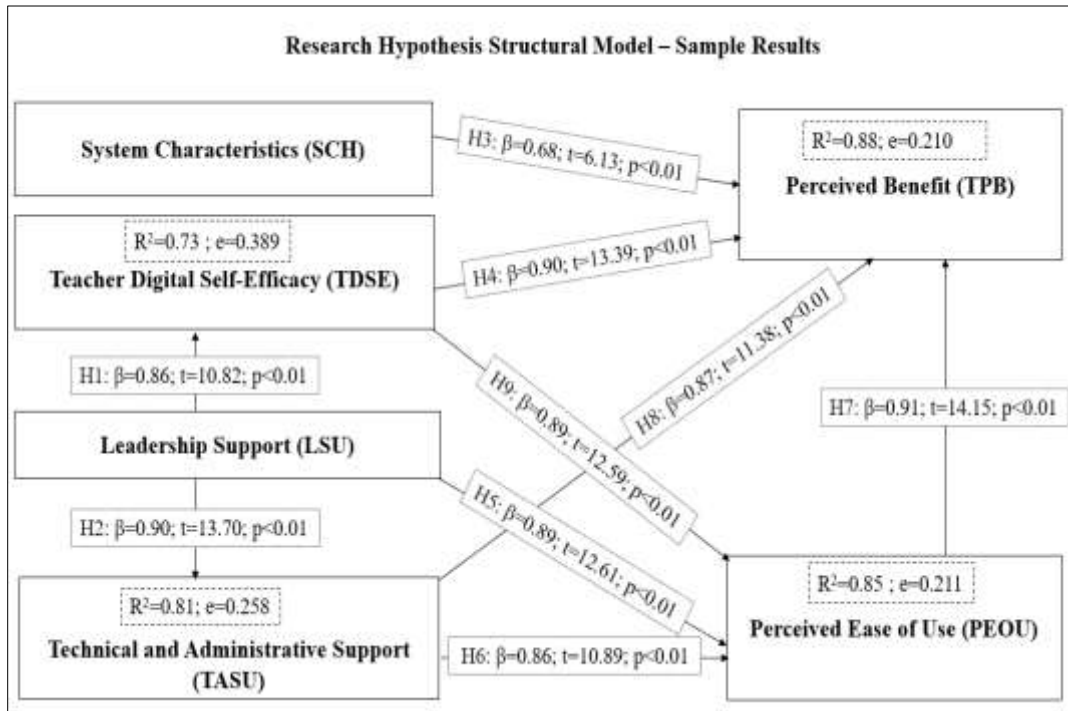


Figure 4.1: The structural model for testing Hypothesis with results using SPSS/ANOVA.

Hypothesis H1: LSU has positive influence on TDSE; $\beta=0.86$; $t=10.82$; $p<0.01$

Hypothesis H2: LSU has positive influence on TASU; $\beta=0.81$; $t=13.7$; $p<0.01$

Hypothesis H3: SCH has positive influence on TPB; $\beta=0.68$; $t=6.13$; $p<0.01$

Hypothesis H4: TDSE has positive influence on TPB; $\beta=0.9$; $t=13.39$; $p<0.01$

Hypothesis H5: LSU has positive influence on PEOU; $\beta=0.89$; $t=12.61$; $p<0.01$

Hypothesis H6: TASU has positive influence on PEOU; $\beta=0.86$; $t=10.89$; $p<0.01$

Hypothesis H7: PEOU has positive influence on TPB; $\beta=0.91$; $t=14.15$; $p<0.01$

Hypothesis H8: TASU has positive influence on TPB; $\beta=0.87$; $t=11.8$; $p<0.01$

Hypothesis H9: TDSE has positive influence on PEOU; $\beta=0.89$; $t=12.59$; $p<0.01$

4.5 Inferential Data Analysis

All measurements in this section were produced in SPSS statistics and ANOVA.

4.5.1 The Impact of LSU on TDSE

Figure 4.2 presents the regression analysis between the two variables independent variable LSU and the dependent variable TDSE.

Regression: LSU =>TDSE

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	LSU ^b		Enter

a. Dependent Variable: TDSE
b. All requested variables entered.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.855 ^a	.731	.725	.38954	.731	117.052	1	43	<.001

a. Predictors: (Constant), LSU

Figure 4.2: LSU=>TDSE

The model summary reflects that the value of the adjusted R^2 is less than R^2 with error of estimate of 0.389. The value of the coefficient of determination R^2 is of 0.731 which means that 73.1 % of the variation in TDSE is explained by LSU. The significance is less than 0.01 which means that the null hypothesis cannot be accepted and that the prediction within the sample has strong model fit. Hence, the teacher digital self-efficacy is determined by the leadership support with a 73.1% of its variation for the targeted population in the school context.

4.5.2 The Impact of LSU on TASU

Figure 4.3 shows the result of the regression analysis was done between the two variables the independent variable LSU and the dependent variable TASU.

LSU => TASU

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	LSU ^b	.	Enter
a. Dependent Variable: TASU			
b. All requested variables entered.			

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.902 ^a	.814	.809	.25803	.814	187.594	1	43	<.001
a. Predictors: (Constant), LSU									

Figure 4.3: LSU=> TASU

The model summary reflects a value adjusted R^2 less than R^2 and an error of estimation of 0.258. The coefficient of determination R^2 equal to 0.814 which means 81.4 % of the variation in TASU is explained by LSU. The significance is less than 0.01 which means that the null hypothesis cannot be accepted and that the prediction within the sample has strong model fit. Hence, the technical and administrative support is determined by the leadership support with 81.4 of its variation.

4.5.3 The Impact of LSU, TDSE and TASU on PEOU.

Figure 4.4 shows the regression analysis and ANOVA results between the variables LSU, TDSE and TASU and the dependent variable PEOU.

(LSU+TDSE+TASU) =>PEOU

Variables Entered/Removed ^a				Model Summary				
Model	Variables Entered	Variables Removed	Method	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	LSU, TDSE, TASU ^b	-	Enter	1	.924 ^a	.854	.843	.21096

a. Dependent Variable: PEOU
b. All requested variables entered.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.638	3	3.546	79.672	<.001 ^b
	Residual	1.825	41	.045		
	Total	12.462	44			

a. Dependent Variable: PEOU
b. Predictors: (Constant), LSU, TDSE, TASU

Figure 4.4: (LSU+TDSE+TASU) =>PEOU

The model summary reflects that the adjusted R^2 is less than R^2 with error of estimate=0.21 and the coefficient of determination for the sample is of 0.854 which means 85.4% of the variation in PEOU is explained by LSU, TDSE and TASU altogether. The ANOVA results shows that P-value <0.01 which means the model is a good fit and with high significance. Hence, the perceived ease of use is determined by the leadership support, teacher digital self-efficacy and technical and administrative support with a variation of 85.4% for the targeted population in the school context.

On the other hand, a comparative analysis was conducted between the LSU=>PEOU; model 1 in figure 4.5, and (LSU+TDSE+TASU) => PEOU; model 2 in figure 4.5, to observe the mediation effects of both TDSE and TASU variables between the independent variable LSU and the dependent variable PEOU.

Variables Entered/Removed ^a				Model Summary				
Model	Variables Entered	Variables Removed	Method	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	LSU ^b	-	Enter	1	.887 ^a	.787	.782	.24829
2	TDSE, TASU ^b	-	Enter	2	.924 ^a	.854	.843	.21096

a. Dependent Variable: PEOU
b. All requested variables entered.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.812	1	9.812	159.159	<.001 ^b
	Residual	2.651	43	.062		
	Total	12.462	44			
2	Regression	10.638	3	3.546	79.672	<.001 ^c
	Residual	1.825	41	.045		
	Total	12.462	44			

a. Dependent Variable: PEOU
b. Predictors: (Constant), LSU
c. Predictors: (Constant), LSU, TDSE, TASU

Figure 4.5: TASU and TDSE Mediation test

As indicated in figure 4.5, the R^2 and adjusted R^2 in Model1 is less than the adjusted R^2 in model2 with ANOVA significance less than 0.01 for both models. Hence, the mediation effect of TASU and TDSE is strong as it increases the coefficient of determination of the positive influence on the dependent variable PEOU. In other words, the technical and administrative support along with teacher digital self-efficacy increase the causal effect of leadership support on perceived ease of use.

4.5.4 The Impact of SCH, TDSE, PEOU, and TASU on TPB in Online Distance Learning.

Figure 4.6 shows the regression analysis SCH, TDSE, PEOU, and TASU and the dependent variable TPB and its significance in the sample.

(SCH+TDSE+TASU+PEOU) =>TPB

Variables Entered/Removed ^a				Model Summary				
Model	Variables Entered	Variables Removed	Method	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1.	TASU, SCH, TDSE, PEOU ^b	.	Enter	1.	.938 ^a	.879	.867	.21065

a. Dependent Variable: TPB
b. All requested variables entered.

a. Predictors: (Constant), TASU, SCH, TDSE, PEOU

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1.	Regression	12.917	4	3.229	72.772	<.001 ^b
	Residual	1.775	40	.044		
	Total	14.692	44			

a. Dependent Variable: TPB
b. Predictors: (Constant), TASU, SCH, TDSE, PEOU

Figure 4.6: (SCH+TDSE+TASU+PEOU) => TPB

The model summary reflects that the adjusted R^2 is less than R^2 with error of estimate=0.21) and the coefficient of determination in the sample is of 0.879 which means 87.9% of the variation in TPB is explained by SCH, TDSE, TASU and PEOU altogether as presented in figure 4.1. The ANOVA results reveals a P-value <0.01 which means that the model is a good fit for the sample and with high significance. Hence, the teachers perceived benefits is determined by the system characteristics of digital platform and online resources, teachers

perceived ease of use along with teachers' digital self-efficacy and technical and administrative altogether with a variation of 87.9%, error of estimate =0.21, and significance higher than 99%.

4.5.5 The Correlation between the Demographic Variables and The Different Constructs

The correlation tests between each demographic variables; grade groups, teaching experience, and experience in the current school, and the different constructs aim to explore deeper understanding about the trends in for different groups and categories and help in making better conclusion and reflections. As the used demographic variables categorical of type ordinal, the researcher used Spearman's rho correlation test in SPSS.

4.5.5.1 Correlations with Grade Group

➤ Grade Group ⇔ LSU Correlation

Correlations				
			Grade Group	LSU
Spearman's rho	Grade Group	Correlation Coefficient	1.000	-.274 [*]
		Sig. (1-tailed)	.	.034
		N	45	45
	LSU	Correlation Coefficient	-.274 [*]	1.000
		Sig. (1-tailed)	.034	.
		N	45	45

*. Correlation is significant at the 0.05 level (1-tailed).

Figure 4.7: Grade Group ⇔ LSU

As indicated in figure 4.7, the Spearman's rho correlation test between LSU and Group Grade generated a value of (-0.274) with significance of <0.05. Which means that the null hypothesis; there is no correlation between the 2 variables, is rejected at level (1-tailed) and that there is enough evidence that grade group and LSU have a negative low to moderate correlation with significance less than 0.05. In other words, the higher the grade group the leadership support decreases. This implies that the impact of leadership support is stronger in group1 for the grades 1-3. The research will examine further the individual indicators of

the leadership supports to develop deeper understanding of the factors that was affecting the variation of responses among the different grade groups.

➤ **Grade Group ⇔ TPB Correlation**

Correlations			Grade Group	TPB
Spearman's rho	Grade Group	Correlation Coefficient	1.000	-.306*
		Sig. (1-tailed)	.	.020
		N	45	45
	TPB	Correlation Coefficient	-.306*	1.000
		Sig. (1-tailed)	.020	.
		N	45	45

*. Correlation is significant at the 0.05 level (1-tailed).

Figure 4.8: Grade Group ⇔ TPB

As indicated in figure 4.8, the Spearman's rho correlation test between Group Grade and TPB generated a value of (-0.306) with significance of 0.02 (<0.05). Which means that the null hypothesis; there is no correlation between the 2 variables, is rejected at level (1-tailed) and that there is enough evidence that grade group and TPB would have a negative moderate correlation with significance with less than 0.05. In other words, the higher the grade group the teacher perceived benefit would decrease.

➤ **Grade Group ⇔ SCH Correlation**

Correlations			Grade Group	SCH
Spearman's rho	Grade Group	Correlation Coefficient	1.000	-.097
		Sig. (1-tailed)	.	.264
		N	45	45
	SCH	Correlation Coefficient	-.097	1.000
		Sig. (1-tailed)	.264	.
		N	45	45

Figure 4.9: Grade Group ⇔ SCH

As indicated in figure 4.9, the Spearman's rho correlation test between group Grade and SCH generated a value of (-0.097) which means there is low negative correlation between

Grade group and TPB. However, the significance is of 0.264 (>0.05) which means that there is not enough evidence to reject the null hypothesis, that there is no correlation between the 2 variables for the population of the targeted groups in the school.

➤ **Grade Group ⇔ PEOU Correlation**

			Grade Group	PEOU
Spearman's rho	Grade Group	Correlation Coefficient	1.000	-.143
		Sig. (1-tailed)	.	.174
		N	45	45
	PEOU	Correlation Coefficient	-.143	1.000
		Sig. (1-tailed)	.174	.
		N	45	45

Figure 4.10: Grade Group ⇔ PEOU

As indicated in figure 4.10, the Spearman's rho correlation test between Group Grade and PEOU generated a value of (-0.143) which means there is low negative correlation between Grade group and PEOU. However, the significance is of 0.174 (>0.05) which means that there is not enough evidence to reject the null hypothesis, that there is no correlation between the 2 variables for the population of the targeted groups in the school.

➤ **Grade Group ⇔ TASU Correlation**

			Grade Group	TASU
Spearman's rho	Grade Group	Correlation Coefficient	1.000	-.228
		Sig. (1-tailed)	.	.066
		N	45	45
	TASU	Correlation Coefficient	-.228	1.000
		Sig. (1-tailed)	.066	.
		N	45	45

Figure 4.11: Grade Group ⇔ TASU

As indicated in figure 4.11, the Spearman's rho correlation test between Group Grade and TASU generated a value of (-0.228) which means there is low negative correlation between

Grade group and TASU. However, the significance is of 0.066 (>0.05) which means that there is not enough evidence to reject the null hypothesis, that there is no correlation between the 2 variables for the population of the targeted groups in the school. This implies that either the technical and administrative support was less effective in the higher groups or not and in this case, there could be other factors in that were affecting the responses of the sample.

➤ **Grade Group ⇔ TDSE Correlation**

Correlations				
			Grade Group	TDSE
Spearman's rho	Grade Group	Correlation Coefficient	1.000	-.168
		Sig. (1-tailed)	.	.135
		N	45	45
	TDSE	Correlation Coefficient	-.168	1.000
		Sig. (1-tailed)	.135	.
		N	45	45

Figure 4.12: Grade Group ⇔ TDSE

As indicated in figure 4.12, the Spearman's rho correlation test between Group Grade and TDSE generated a value of (-0.168) which means there is low negative correlation between Grade group and TDSE. However, the significance is of 0.135 (>0.05) which means that there is not enough evidence to reject the null hypothesis, that there is no correlation between the 2 variables for the population of the targeted groups in the school. This means that the negative responses would applies to the population of the targeted groups or it would not. In this case, there could be other factors that affecting the negative responses of the sample on teacher digital self-efficacy in higher year groups.

4.5.5.2 Correlations with Teaching Experience

➤ Experience ⇔ TPB Correlation

Correlations			TPB	Teaching Experience
Spearman's rho	TPB	Correlation Coefficient	1.000	.079
		Sig. (1-tailed)	.	.302
		N	45	45
	Teaching Experience	Correlation Coefficient	.079	1.000
		Sig. (1-tailed)	.302	.
		N	45	45

Figure 4.13: Teaching Experience ⇔ TPB

As indicated in figure 4.13, the Spearman's rho correlation test between Teaching Experience and TPB generated a value of (0.079) which means there is a very low correlation between Teaching Experience and TPB. However, the significance is of 0.302 (>0.05) which means that there is not enough evidence to reject the null hypothesis, that there is no correlation between the 2 variables for the population of the targeted groups in the school.

➤ Teaching Experience ⇔ LSU Correlation

Correlations			Teaching Experience	LSU
Spearman's rho	Teaching Experience	Correlation Coefficient	1.000	.181
		Sig. (1-tailed)	.	.116
		N	45	45
	LSU	Correlation Coefficient	.181	1.000
		Sig. (1-tailed)	.116	.
		N	45	45

Figure 4.14: Teaching Experience ⇔ LSU

As indicated in figure 4.14, the Spearman's rho correlation test between Teaching Experience and LSU generated a value of (0.181) which means there is a low correlation between Teaching Experience and LSU. However, the significance is of 0.116 (>0.05) which means that there is not enough evidence to reject the null hypothesis, that there is no correlation between the 2 variables for the population of the targeted groups in the school.

➤ **Teaching Experience ⇔ TDSE Correlation**

Correlations			Teaching Experience	TDSE
Spearman's rho	Teaching Experience	Correlation Coefficient	1.000	.107
		Sig. (1-tailed)	.	.241
		N	45	45
	TDSE	Correlation Coefficient	.107	1.000
		Sig. (1-tailed)	.241	.
		N	45	45

Figure 4.16: Teaching Experience ⇔ TDSE

As indicated in figure 4.16, the Spearman's rho correlation test between Teaching Experience and TDSE generated a value of (0.107) which means there is a very low correlation between Teaching Experience and TDSE. However, the significance is of 0.241 (>0.05) which means that there is not enough evidence to reject the null hypothesis, that there is no correlation between the 2 variables for the population of the targeted groups in the school.

➤ **Teaching Experience ⇔ SCH Correlation**

Correlations			Teaching Experience	SCH
Spearman's rho	Teaching Experience	Correlation Coefficient	1.000	-.158
		Sig. (1-tailed)	.	.150
		N	45	45
	SCH	Correlation Coefficient	-.158	1.000
		Sig. (1-tailed)	.150	.
		N	45	45

Figure 4.17: Teaching Experience ⇔ SCH

As indicated in figure 4.17, the Spearman's rho correlation test between Teaching Experience and SCH generated a value of (-0.158) which means there is a negative low correlation between Teaching Experience and SCH. However, the significance is of 0.150 (>0.05) which means that there is not enough evidence to reject the null hypothesis, that there is no correlation between the 2 variables for the population of the targeted groups in the school.

➤ **Teaching Experience ⇔ TASU Correlation**

Correlations			Teaching Experience	TASU
Spearman's rho	Teaching Experience	Correlation Coefficient	1.000	.247
		Sig. (1-tailed)	.	.051
		N	45	45
	TASU	Correlation Coefficient	.247	1.000
		Sig. (1-tailed)	.051	.
		N	45	45

Figure 4.18: Teaching Experience <=> TASU

As indicated in figure 4.18, the Spearman's rho correlation test between Teaching Experience and TASU generated a value of (0.247) which means there is a low correlation between Teaching Experience and TASU. However, the significance is of 0.051 (>0.05) which means that there is not enough evidence to reject the null hypothesis, that there is no correlation between the 2 variables for the population of the targeted groups in the school.

4.5.5.3 Correlations with The Variable Experience in Current School

➤ **Experience in Current School ⇔ PEOU**

Correlations			Experience in Current School	PEOU
Spearman's rho	Experience in Current School	Correlation Coefficient	1.000	-.319*
		Sig. (1-tailed)	.	.016
		N	45	45
	PEOU	Correlation Coefficient	-.319*	1.000
		Sig. (1-tailed)	.016	.
		N	45	45

*. Correlation is significant at the 0.05 level (1-tailed).

Figure 4.19: Experience in Current School <=> PEOU

As indicated in figure 4.19, the Spearman's rho correlation test between Experience in the current school and PEOU generated a value of (-0.319) with significance of 0.016 (<0.05). Which means that the null hypothesis; there is no correlation between the 2 variables, is rejected at level (1-tailed) and that there is enough evidence that Experience in the Current School and PEOU have a negative moderate correlation with significance with less than

0.05. In other words, when the category of the Experience in the current school increases, the perceived ease of use decreases. So, the teachers who have been working for longer time in the school have less perceived ease of use which needs further exploration to know which indicators of the perceived ease of use is affecting the results and how it is related to other external factors.

➤ **Experience in Current School ⇔ TDSE**

Correlations			Experience in Current School	TDSE
Spearman's rho	Experience in Current School	Correlation Coefficient	1.000	-.281*
		Sig. (1-tailed)	.	.031
		N	45	45
TDSE	TDSE	Correlation Coefficient	-.281*	1.000
		Sig. (1-tailed)	.031	.
		N	45	45

*. Correlation is significant at the 0.05 level (1-tailed).

Figure 4.20: Experience in Current School ⇔ TDSE

As indicated in figure 4.20, the Spearman's rho correlation test between Experience in Current School and TDSE generated a value of (-0.281) with significance of 0.031 (<0.05). Which means that the null hypothesis, that there is no correlation between the 2 variables, is rejected at level (1-tailed), and that there is enough evidence that Experience in the Current School and TDSE have a negative low to moderate correlation with significance less than 0.05. In other words, when the category of Experience in the current school increases, the perceived ease of use decreases.

➤ **Experience in Current School ⇔ SCH**

Correlations			Experience in Current School	SCH
Spearman's rho	Experience in Current School	Correlation Coefficient	1.000	-.325*
		Sig. (1-tailed)	.	.015
		N	45	45
	SCH	Correlation Coefficient	-.325*	1.000
		Sig. (1-tailed)	.015	.
		N	45	45

*. Correlation is significant at the 0.05 level (1-tailed).

Figure 4.21: Experience in Current School ⇔ SCH

As indicated in figure 4.21, the Spearman's rho correlation test between Experience in Current School and SCH generated a value of (-0.325) with significance of 0.015 (<0.05). Which means that the null hypothesis, that there is no correlation between the 2 variables, is rejected at level (1-tailed), and that there is enough evidence that Experience in the Current School and SCH have a negative moderate correlation with significance less than 0.05. In other words, when the category of Experience in the current school increases, the System Characteristics decreases.

➤ **Experience in Current School ⇔ TASU Correlation**

Correlations			Experience in Current School	TASU
Spearman's rho	Experience in Current School	Correlation Coefficient	1.000	-.095
		Sig. (1-tailed)	.	.268
		N	45	45
	TASU	Correlation Coefficient	-.095	1.000
		Sig. (1-tailed)	.268	.
		N	45	45

Figure 4.22: Experience in Current School ⇔ TASU

As indicated in figure 4.22, the Spearman's rho correlation test between Experience in Current School and TASU generated a value of (-0.095) which means there is a low negative correlation between Experience in Current School and TASU. However, the significance is of 0.051 (>0.05) which means that there is not enough evidence to reject the null hypothesis,

that there is no correlation between the 2 variables for the population of the targeted groups in the school.

➤ **Experience in Current School ⇔ TPB Correlation**

Correlations			Experience in Current School	TPB
Spearman's rho	Experience in Current School	Correlation Coefficient	1.000	-.239
		Sig. (1-tailed)	.	.057
		N	45	45
	TPB	Correlation Coefficient	-.239	1.000
		Sig. (1-tailed)	.057	.
		N	45	45

Figure 4.62: Experience in Current School ⇔ TPB

As indicated in figure 4.63, the Spearman’s rho correlation test between Experience in Current School and TPB generated a value of (-0.239) which means there is a low negative correlation between Experience in Current School and TPB. However, the significance is of 0.057 (>0.05) which means that there is not enough evidence to reject the null hypothesis, that there is no correlation between the 2 variables for the population of the targeted groups in the school.

➤ **Experience in Current School ⇔ LSU Correlation**

Correlations			Experience in Current School	LSU
Spearman's rho	Experience in Current School	Correlation Coefficient	1.000	-.177
		Sig. (1-tailed)	.	.123
		N	45	45
	LSU	Correlation Coefficient	-.177	1.000
		Sig. (1-tailed)	.123	.
		N	45	45

Figure 4.63: Experience in Current School ⇔ LSU

As indicated in figure 4.63, the Spearman’s rho correlation test between Experience in Current School and LSU generated a value of (-0.177) which means there is a low negative

correlation between Experience in Current School and LSU. However, the significance is of 0.123 (>0.05) which means that there is not enough evidence to reject the null hypothesis, that there is no correlation between the 2 variables for the population of the targeted groups in the school.

4.5.5.4 The Distribution of Indicators according to Grade Groups for LSU and TPB.

This section aims to explore the distribution of indicators according to the variable Grade Groups for the constructs LSU and TPB. The reason for choosing these two constructs is that there is negative low to moderate correlation with Grade group. So, by looking into their indicators, it would provide deeper understating about the indicators that influence the negative correlation in the higher-grade groups that affects it. The exploration was done through the crosstabulation function on SPSS and producing the Graph chart presented below.

➤ LSU: Leadership Support

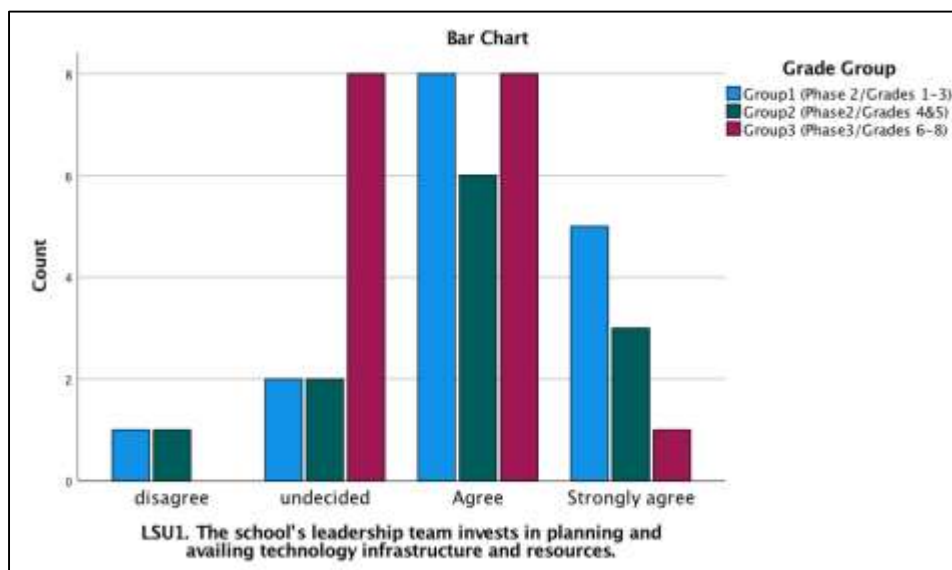


Figure 4.23: LSU1 * Grade Group

Figures 4.423 shows that for LSU1, Group1 and Group2 has more distribution of data in the positive side with more in the agree and less in strongly agree, very minor negative and minor undecided. Whereas, group3 responses are equally divided between neutral and agree and low minority in strongly agree.

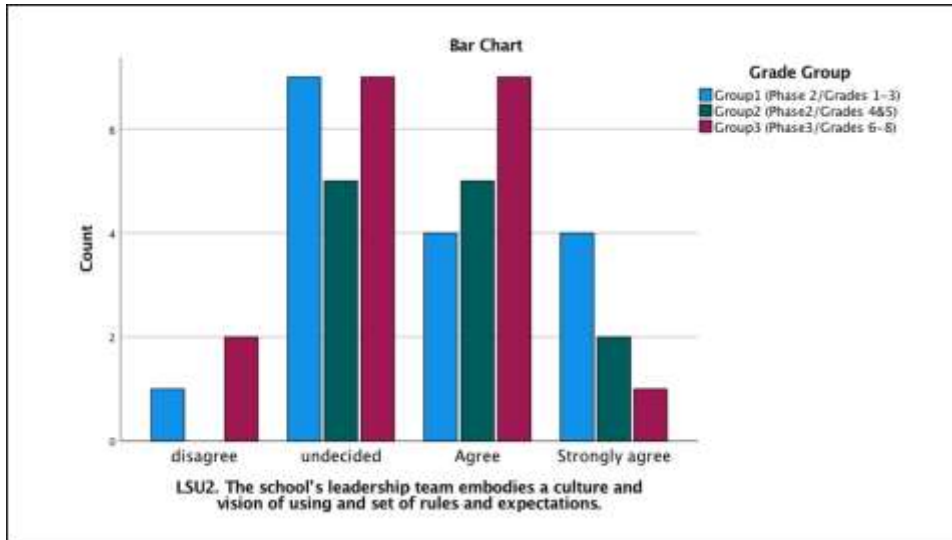


Figure 4.24: LSU2 * Grade Group

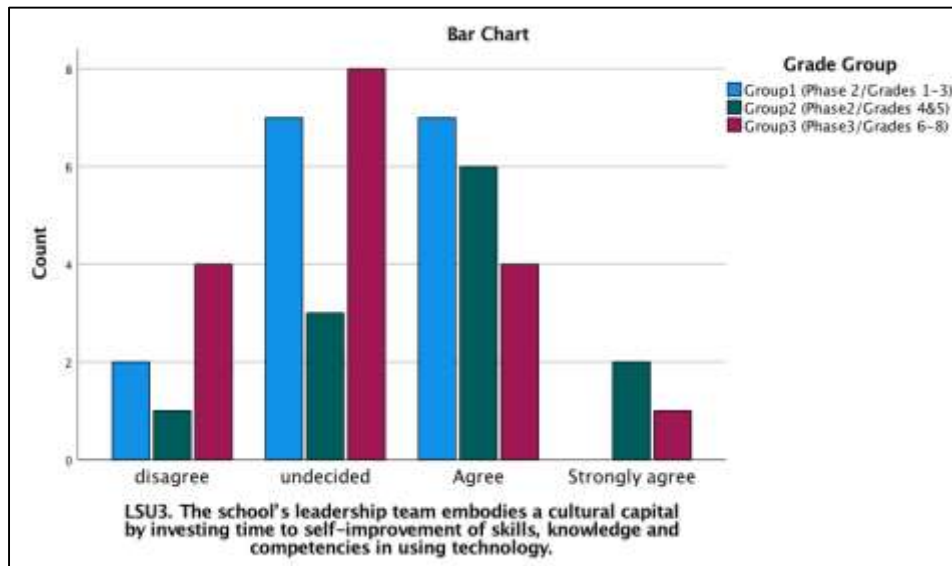


Figure 4.25: LSU3 * Grade Group

Figures 4.24 and figure 4.25 reveals for LSU2 and LSU3 are relatively close to each other with that group3 having the most negative responses compared to group1 and group2 with close neutral responses with group1. Whereas, while positive responses for LSU3 in group1 and even more in group3.

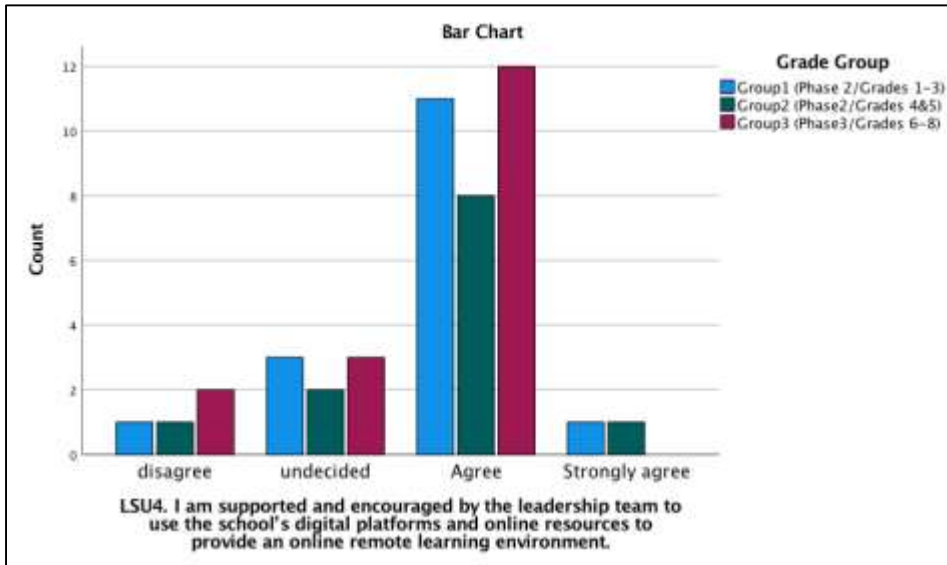


Figure 4.26: LSU4 * Grade Group

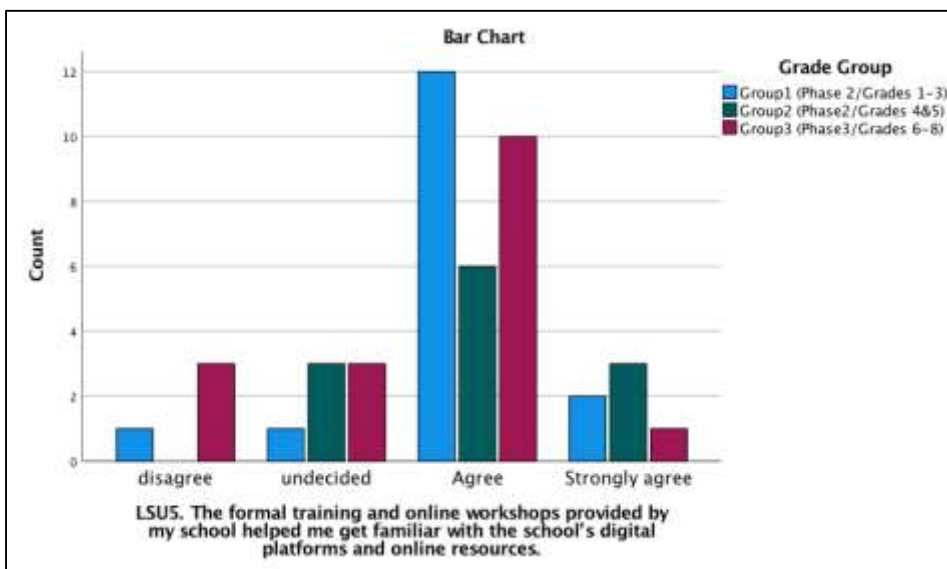


Figure 4.27: LSU5 * Grade Group

Figures 2.26 and figure 4.27 present close figures to each other with regard to grade grouping. The graphs illustrate an overall positive figure in all groups, but with more negative figures in group3.

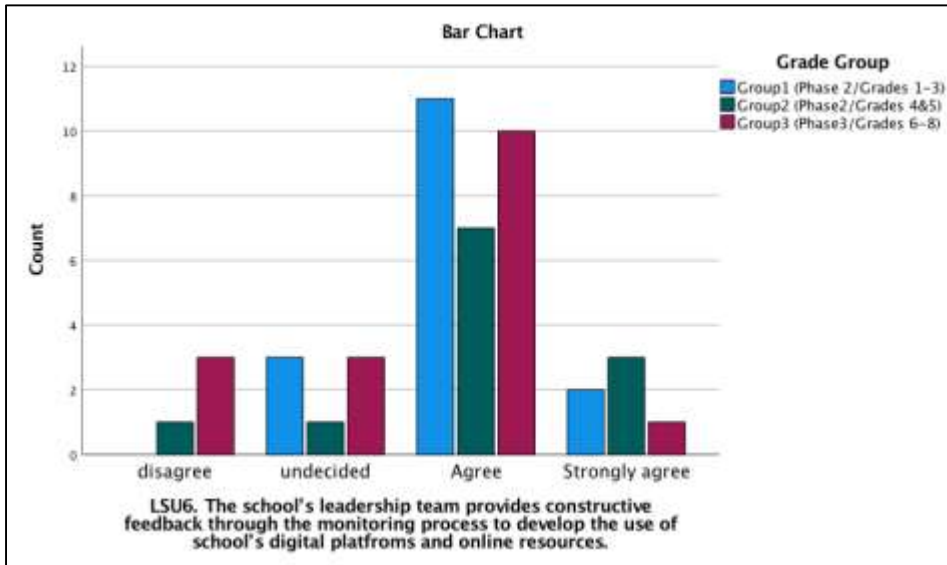


Figure 4.28: LSU6 * Grade Group

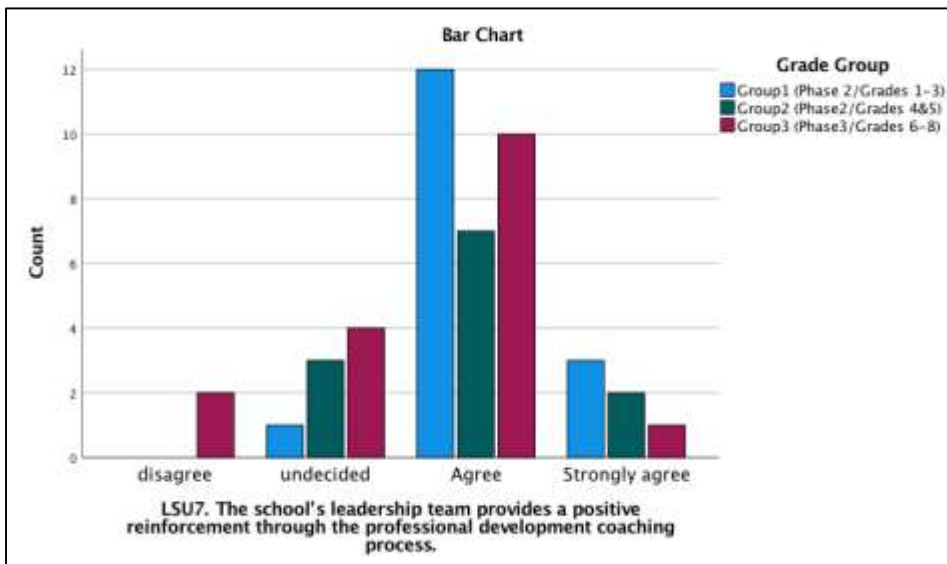


Figure 4.29: LSU7 * Grade Group

Figures 2.28 and figure 4.29 reveal that LSU6 and LSU have more positive responses, but group3 have the highest negative figures for both. Whereas, group1 has highest agree for both indicators and highest strongly agree for LSU6, while group2 has the highest for LSU6.

In summary, the study on LSU shows that all groups are satisfied with the planning and availability of resources and the teachers feel encouraged to use the school's digital platforms and online resources. However, there is less satisfaction with the culture and vision of using the technology, and the setting of expectations which leads to change.

Furthermore, it is noticed that there is less satisfaction in the cultural capital by investing time to self-improvement of skills, knowledge and competencies in using technology in group3 while it is much stronger in group1.

Also, the leadership support through the trainings and online workshops to get familiar with the school digital platforms and online resources is more effective in group1 than in grade group3, which could be linked to the different leadership practices in both groups on how they reflect on the feedback for improvement. Otherwise, it could be related to other factors related the individual needs of having more time to practice and develop competencies, the expectations of using them are not clear, or teachers need a sort of modelling.

In addition to the above, the feedback to the teachers through the monitoring process of the leadership as well as the positive reinforcement through the professional development and coaching process was shown to be more effective in group1 than in group3 and to some extent group2. In summary, there is a positive response to the planning and investment on the infrastructure and encouragement to use the technology, but the practice of leadership has more impact in group1 followed by group2, and it is considered the least in group3.

➤ **TPB: Teacher Perceived Benefits of using the digital Platforms and online resources in online distance learning amidst COVID19.**

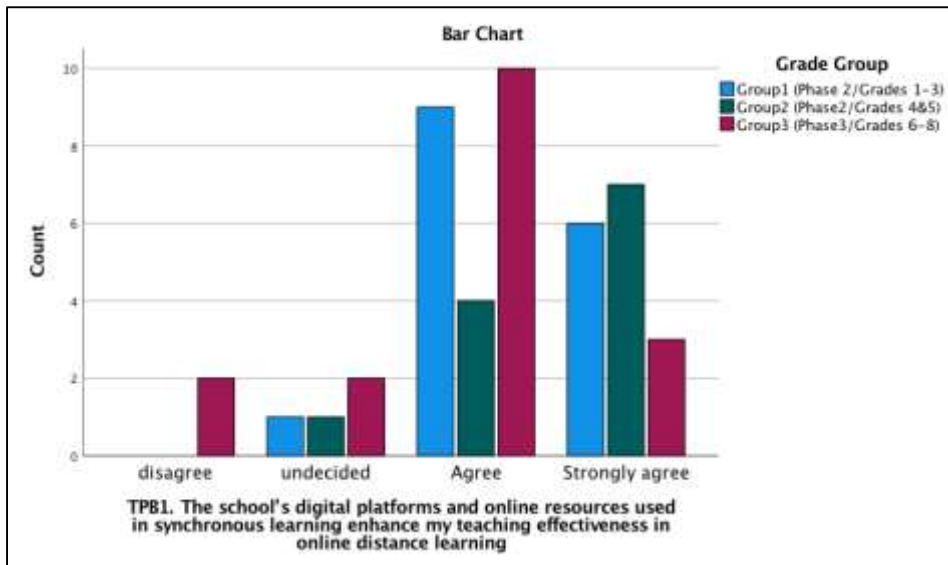


Figure 4.30: TPB1 * Grade Group

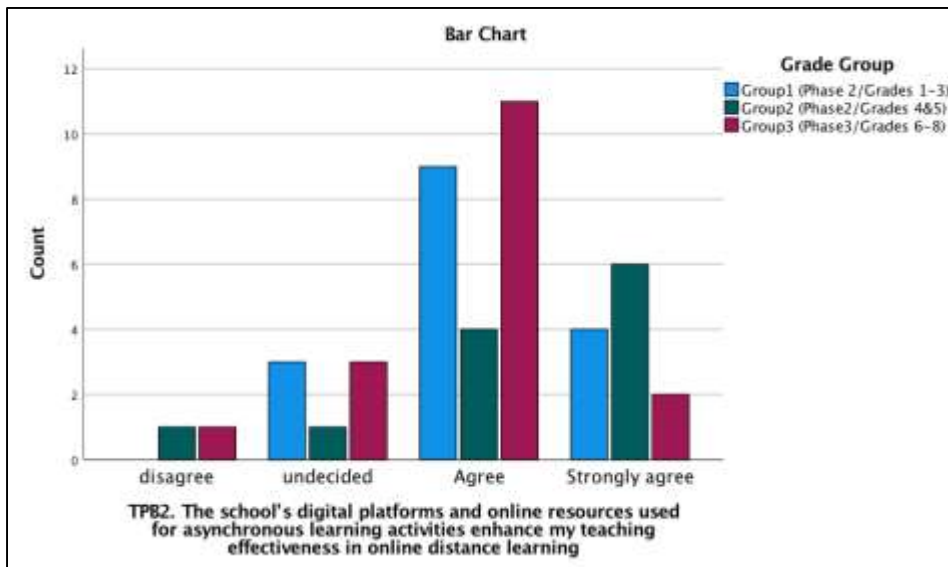


Figure 4.31: TPB2 * Grade Group

Figures 2.30 and figure 4.31 reveal that TPB1 and TPB2 have more positive responses in all groups. However, comparing the different groups, group3 have the highest negative for TPB1 and equally very minor negative with group2 for TPB2. On the other hand, group1 does not have any negative responses for both TPB1 and TPB2.

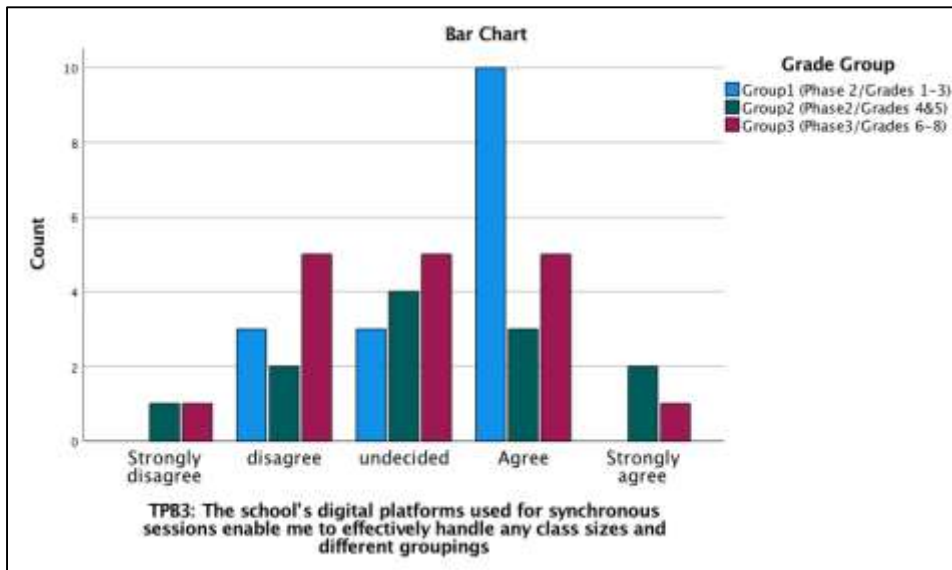


Figure 4.32: TPB3 * Grade Group

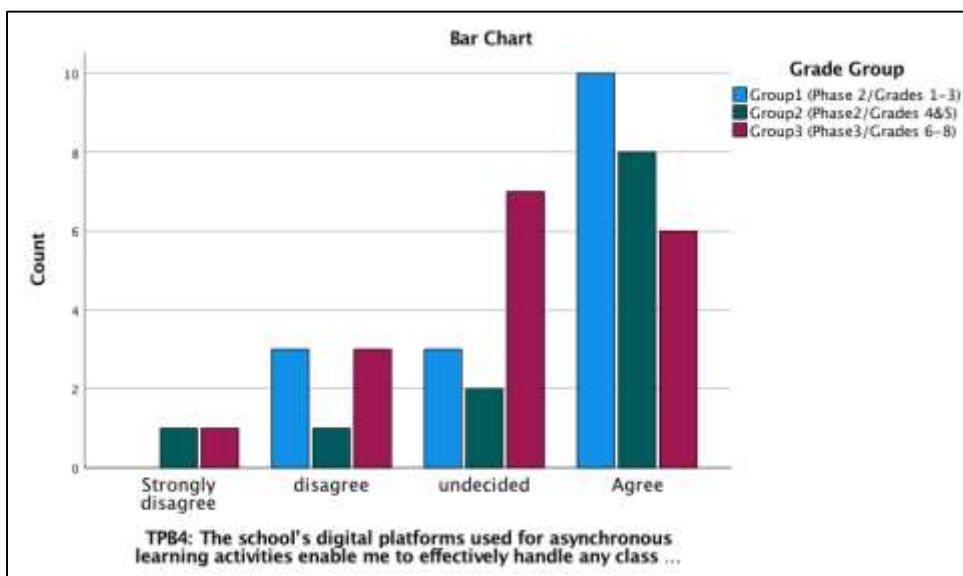


Figure 4.33: TPB4 * Grade Group

Figures 4.32 and Figure 4.33 show that there is minor strongly disagree for TP3 in group2 and group3 and significant disagree and neutral responses in all groups. Group2 and group3 responses have more spread between strongly disagree and strongly agree for TP3 and strongly disagree and agree for TP4 which reveals the large individual differences between the responses. While group1 has more clustered in agree (positive side), and less spread between disagree and agree in TP3 and TP4.

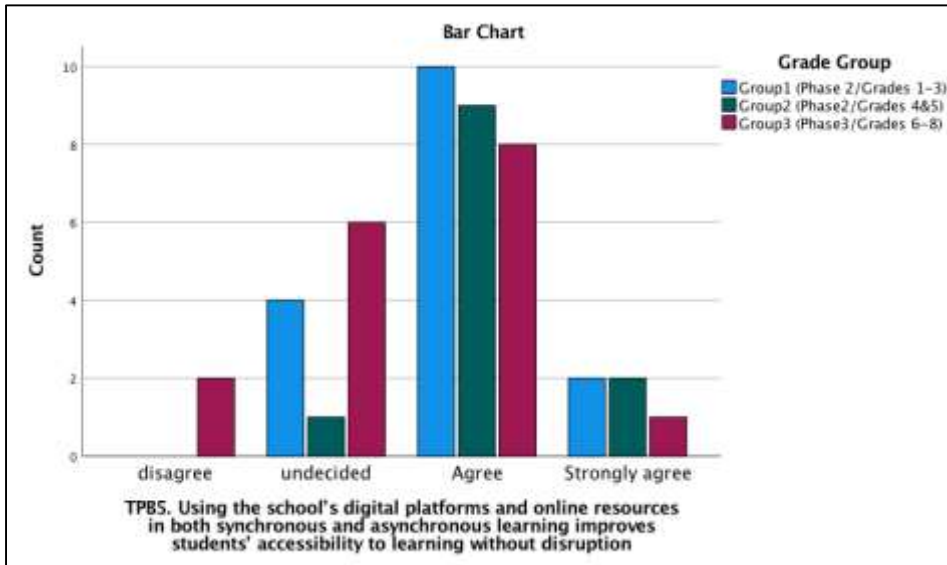


Figure 4.34: TPB5 * Grade Group

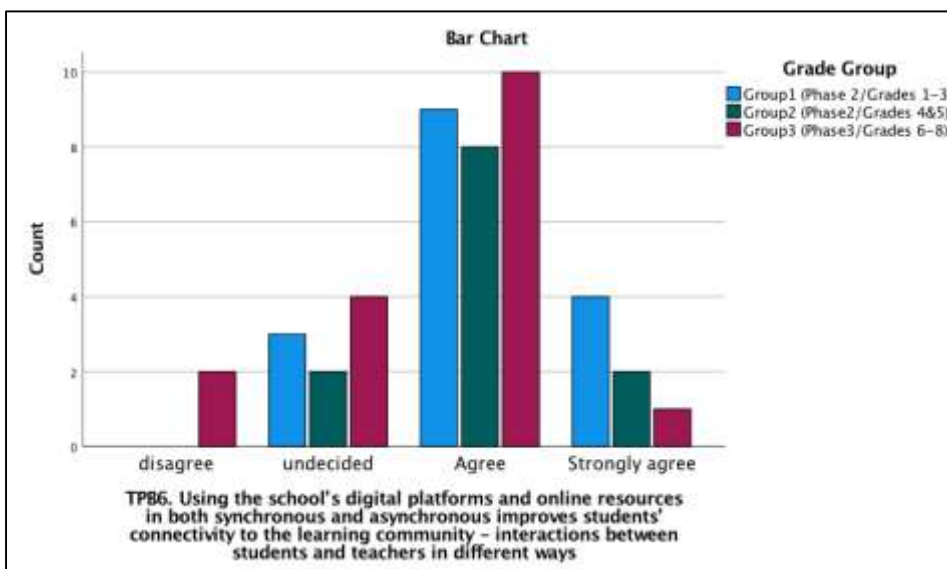


Figure 4.35: TPB6 * Grade Group

Figures 4.34 and Figure 4.35 presents quite more positive figures in all groups for both TPB5 and 6. However, group3 responses have more spread between disagree and strongly agree for TPB5 and TPB6 with more figures in disagree extreme is higher than the strongly agree and significant neutral responses. While group1 and group2 have more clustered in agree for both TPB5 and TPB6 without having negative responses. While group

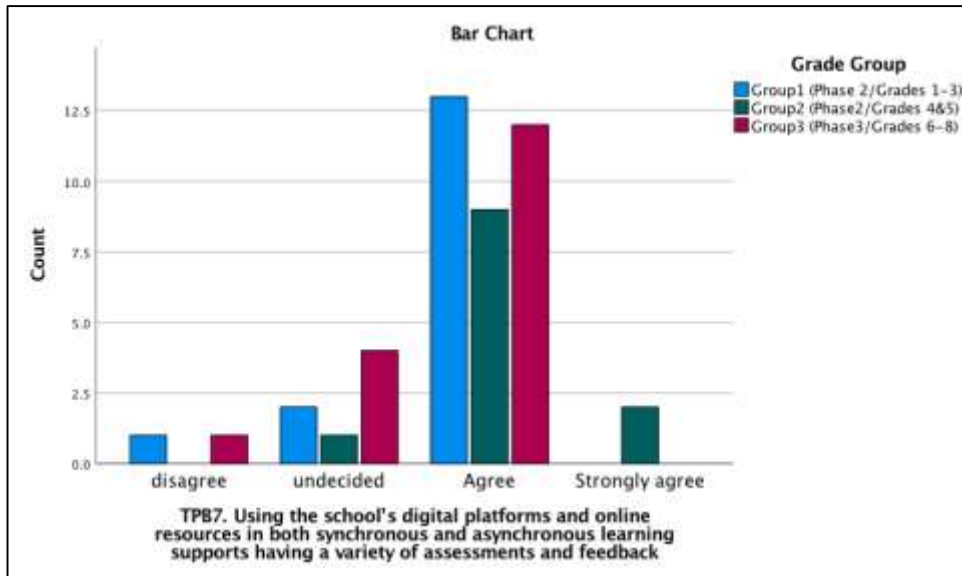


Figure 4.36: TPB7 * Grade Group

Figure 4.36 reveals a strong positive overall picture in all groups especially in group2. While there is very minor negative in group1 and group3 and significant neutral in group3.

In summary, the perceived benefit of using the digital platforms and online responses is more relatively positive in all indicators which implies an overall positive teachers' perception. However, the highest figures are in group1 followed by group2 according to figures 4.30- 4.36.

In contrast, group3 has the highest disagreement in all indicators. Also, it has close high strong disagreement with group2 in the indicators TPB3 and to some extent TPB4. This implies that there is almost an overall positive perception by the teachers about the benefits of the school digital platforms and online resources to enhance the teaching effectiveness in synchronous and asynchronous online distance learning and in supporting variety of assessments and feedback to students. However, there is least satisfaction in perceived benefits in handling any class sizes and different groupings which is in line with challenges being addressed by the leadership as the grouping of students and the changes in the learning environment have been always dynamic. Hence, this explains the low correlation between TPB3 and TPB7 which was addressed earlier in the study.

Also, almost a high majority of teachers perceived positively the benefits of using the school digital platforms and online resources in both synchronous and asynchronous learning as their use had improved students' accessibility to learning and connectivity to learning community.

In comparison to the previous results about leadership support, the challenges in handling grouping of students would link to the fact that although the workshop and online trainings were helpful to get familiar with functionality of the digital platforms but not to the mastery level. This would raise the question about which factor had led to this negative perception? Was it the limitation of the system characteristic of the digital platforms or the competencies of teachers to use the different functionality of the digital platforms?

The competencies of teachers to use the digital platforms is linked to the development of teachers' digital self-efficacy which is examined later in the study.

4.5.5.5 Explore the Distribution of Indicators according to Experience in Current school for PEOU, TDSE and SCH.

This section aims to explore the distribution of indicators according to the variable Experience in the current school for the constructs PEOU, TDSE and SCH. The reason for choosing the latter constructs is that there are negative low to moderate correlations with Experience in the current school independent variable. Hence, these tests would provide deeper understating about the indicators that influence the negative correlation with the teachers who have longer years of experience in the current school. The exploration was done through the crosstabulation function on SPSS where the Graph chart were generated and presented below.

- **TDSE:** The teachers' digital self-efficacy in using the digital platforms and online resources used in school in online distance learning.

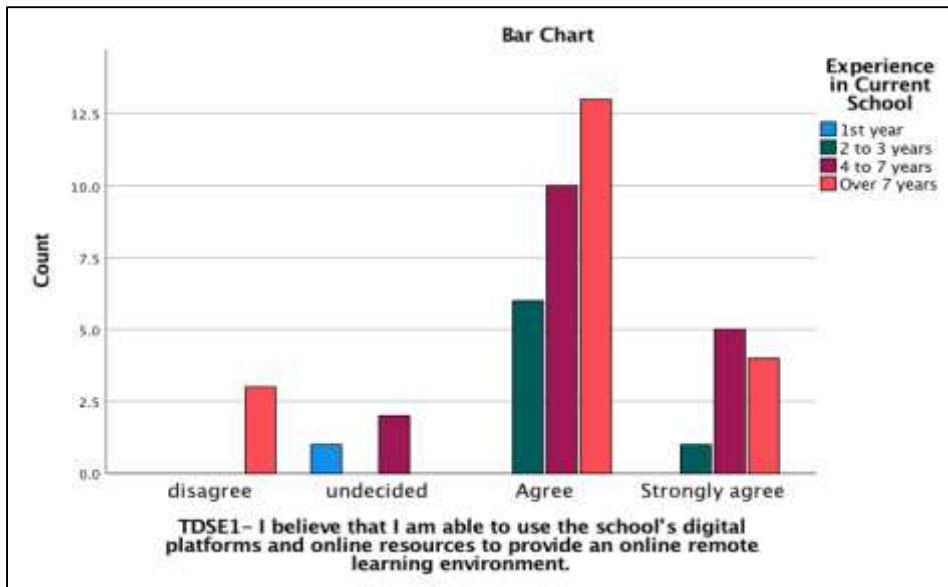


Figure 4.37: TDSE1 * Experience in Current School

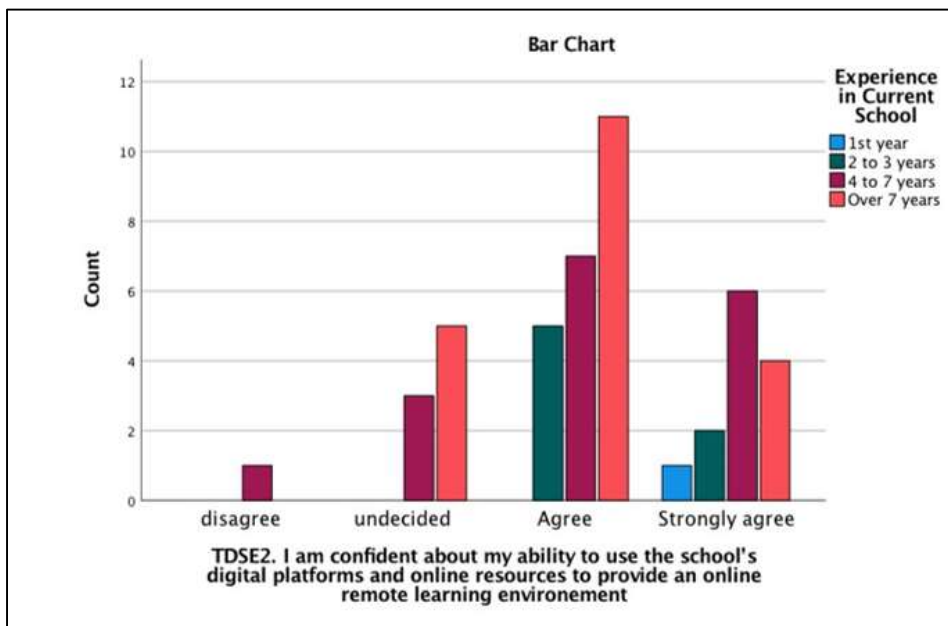


Figure 4.38: TDSE2 * Experience in Current School

Figure 4.37 and figure 4.38 show a cluster of responses on the positive side (around agree) and more sportive responses for both TDSE1 and TDSE2 in all categories. However, category3 and category4 have negative and significant neutral responses.

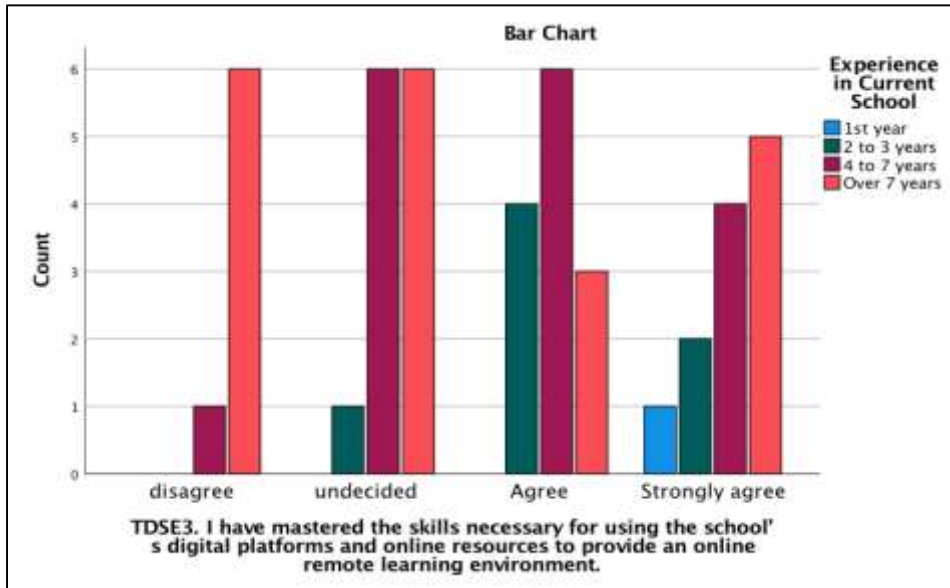


Figure 4.39: TDSE3 * Experience in Current School

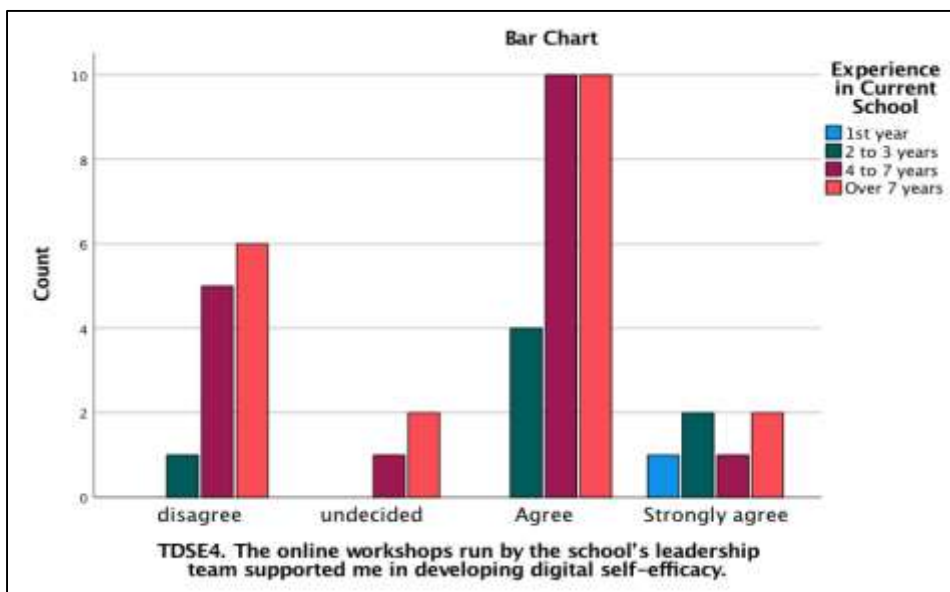


Figure 4.40: TDSE4 * Experience in Current School

Figures 4.39 and 4.40 shows that there is spread of responses for both TDSE3 and TDSE4 in all categories especially category3 and category4 which have significant negative responses for both TDSE3 and TDSE4 and neutral values for TDSE3.

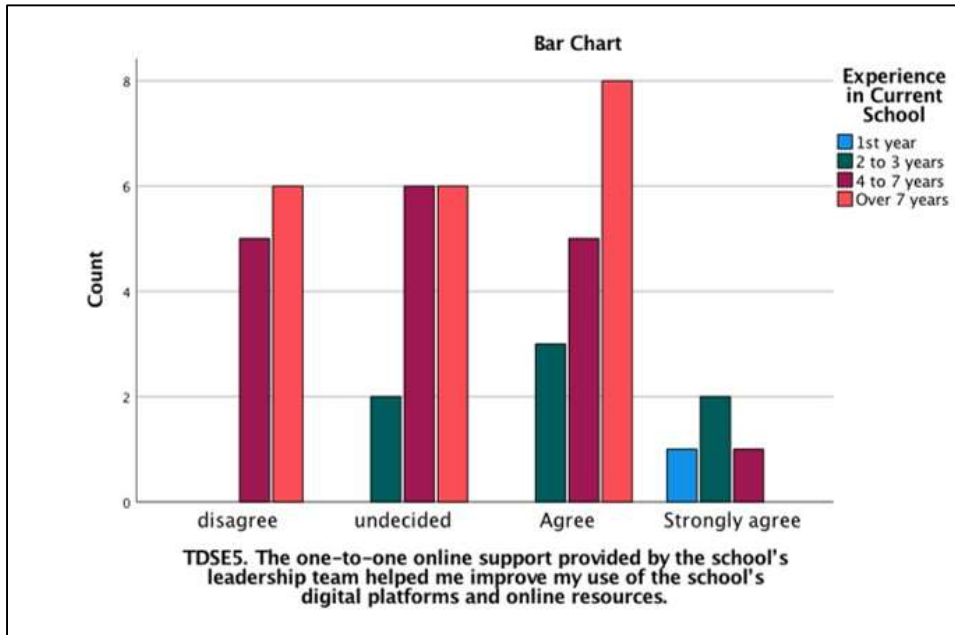


Figure 4.41: TDSE5 * Experience in Current School

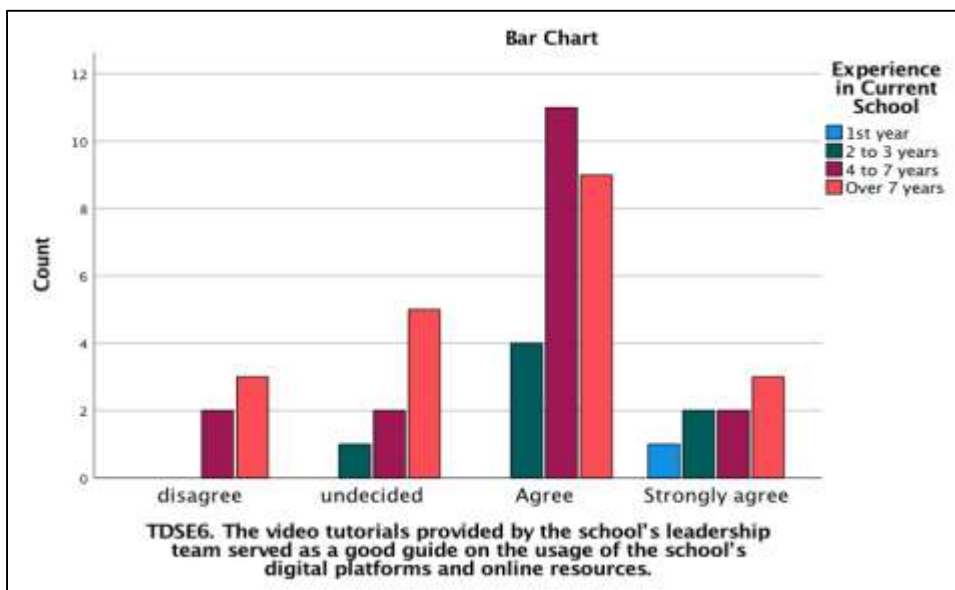


Figure 4.42: TDSE6 * Experience in Current School

Figures 4.41 and 4.42 shows that there is spread of responses for both TDSE5 and TDSE6 in all categories especially category3 and category4 which have significant negative and neutral responses for TDSE5 and low minority for TDSE6.

In summary, the study on TDSE show that there are lots of variations in the spread of the variables Experience in the current school among the different scale categories of TDSE especially for teachers that belong to category3 and category4. Figure 4.39 reflects that TDSE3 has spread of figures between negative and positive with high numbers of undecided for category3 and category3 which is more than TDSE1 and TDSE2. This means that substantial percentages of teachers in category3 and category4 consider that they did not master the skills to use the digital platforms an online resource in online distance learning. Literally, this could be linked from one side to the significant number of negative and neutral responses to the indicator in LSU3 which is “to which extent that the leadership invests on cultural capital by investing time to self-improvement of skills, knowledge and competencies in using technology” along with the more negatives of TDSE and LSU in the higher-grade groups. This would raise the concern about the impact of leadership in the higher year groups. On another side, this could be linked to the what Chen (2008) claimed that the current beliefs of teachers’ have more impact on the integration of technology and practices than the development of beliefs which also could be affected by the transformational leadership practiced and the culture of change.

On the other hand, figure 4.40 and figure 4.41 shows that TDSE4 and TDSE5 have spread of figures between negative and positive with relatively higher numbers of negative and neutral responses than in TDSE6. This implies that the category3 and category4 teachers would benefit more from the video tutorials than the workshop and one to one support which also could be linked to leadership support and how it embodies a cultural capital. If the teachers need to master the skills further, then they need to have the time to practice and master the kills. In the meantime, they need to access the video tutorials as many times as they need while practicing. Also, it could be linked to the responses about the perceived benefits of using the school digital platforms to handle any class size and different groupings.

The difference between the influence of improving digital self-efficacy and technical and administrative support is that the first one is needed on the long term to have digital mastery, while the second one could serve on short term to solve a problem. For example, the teacher could learn from the online workshops and would solve the problems through the one-to-

one support, but they would need more time to master the skills and keep on retrieving the different tutorials when needed.

- **SCH:** The system characteristics of the digital platforms used in the different grades in online distance learning.

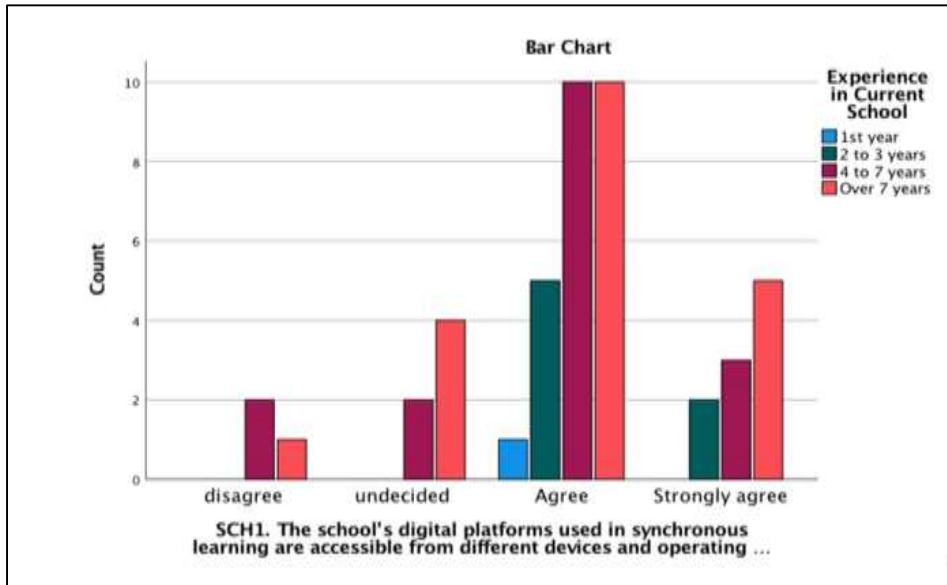


Figure 4.43: SCH1 * Experience in Current School

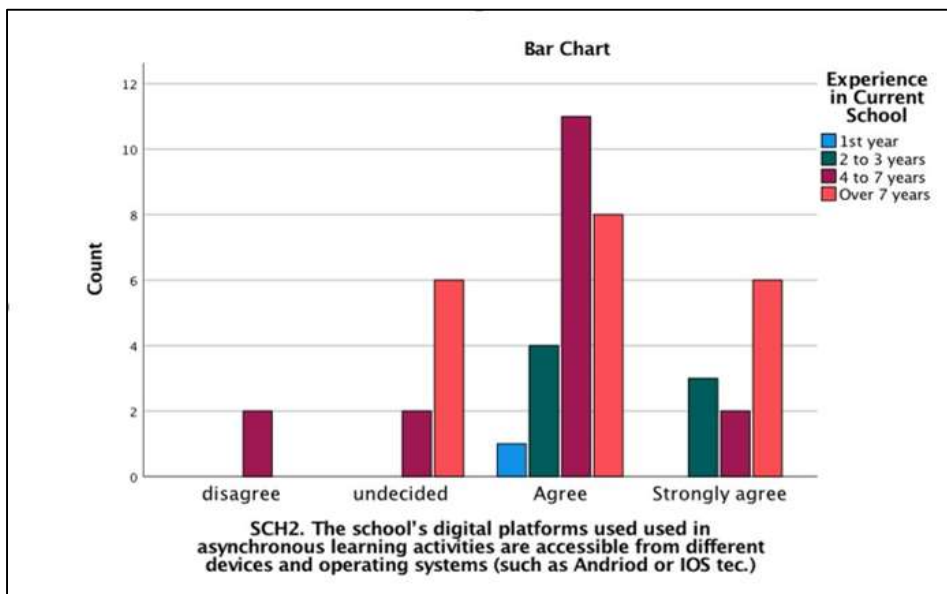


Figure 4.44: SCH2 * Experience in Current School

Figures 4.43 and 4.44 shows that there is an overall positive trend in all categories. However, there is spread of responses for both SCH1 and SCH2 in category3 followed by category4 which have significant neutral responses for SCH1 and SCH2.

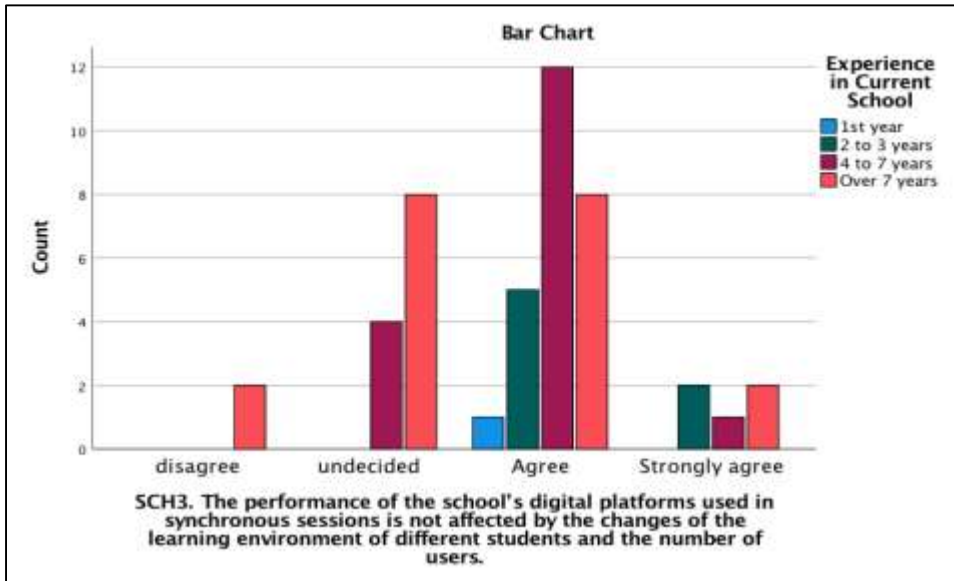


Figure 4.45: SCH3 * Experience in Current School

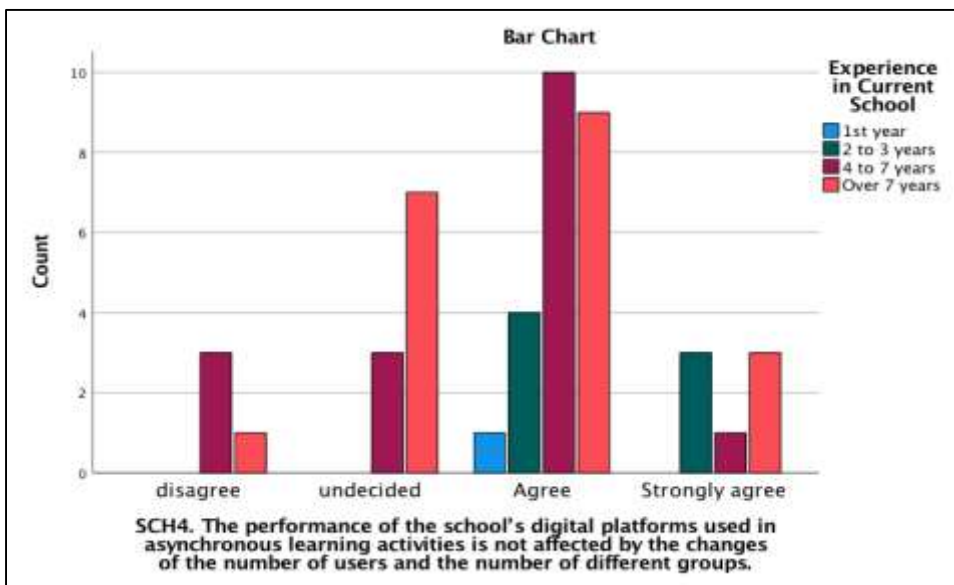


Figure 4.46: SCH4 * Experience in Current School

Figures 4.45 and 4.45 shows there is spread of responses for both SCH3 and SCH4 in category4 followed by category3 which have significant negative responses for SCH4. Also, category 4 has minor responses for SCH3 and SCH4.

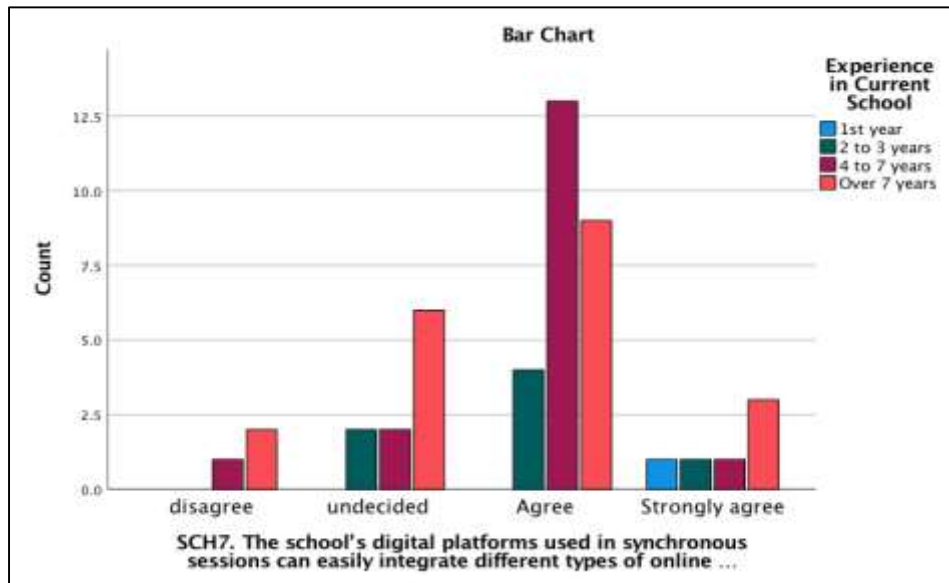


Figure 4.47: SCH7 * Experience in Current School

Figures 4.47 and shows there is spread of interval for the responses for SCH7 in category4 and category3 minor negative responses and a cluster around agree.

In summary, the responses of the teachers, with the different categories based on their working experience in the current school, are mostly positive with more agreement than strongly agree as shown in the figures 4.43-4.47. It is key to note that the teachers who belongs to category1 (less than1 year) and category2 (2 to 3 years) have positive responses in all indicators (agree and strongly agree). Whereas, category3 and category 4 have spread of figures between negative and positive with noticeable neutral responses to the indicators SCH1, SCH2, SCH3, SCH4, SCH5, and SCH7. Linking the neutral responses to the question raised about the causes of the negative perceived benefits of using the digital platforms and online resources to teachers' competencies or system characteristics, this should give more indication that the individual competency and digital self-efficacy of the teachers are the potential affecting the TPB negatively. If it was the system characteristic, then the answers would be more negative than the neutral or positive responses.

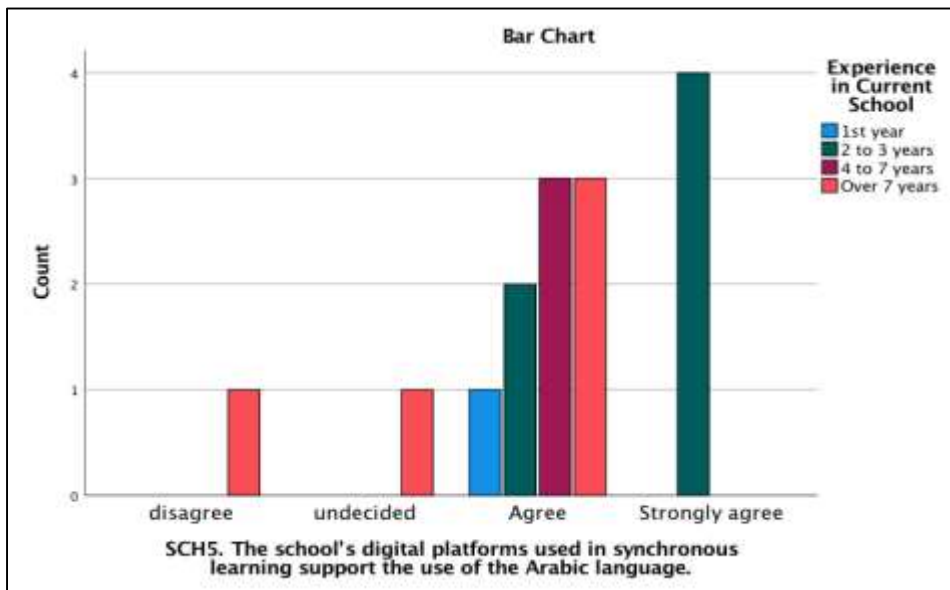


Figure 4.48: SCH5 * Experience in Current School

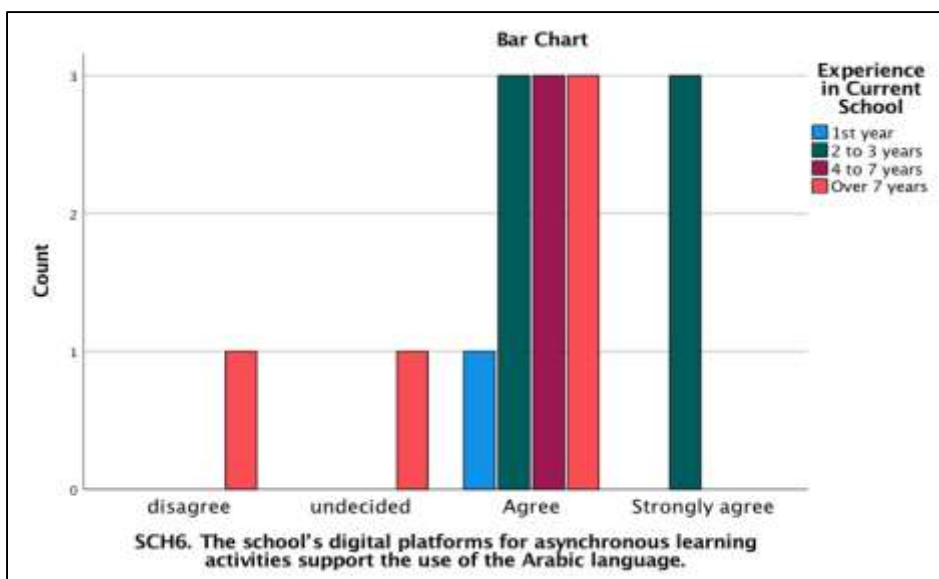


Figure 4.49: SCH6 * Experience in Current School

As the SCH5 and SCH6 are only focused on Arabic language, the bar graphs are based on the records of the teachers who teach either one of the following subjects: Arabic, Islamic, and Social Studies. Both graphs in figure 4.48 and figure 4.49 show positive agreement for all categories except category 4 which has 1 case disagree and 1 case undecided.

- **PEOU:** Perceived ease of use of the digital platforms and online resources in online distance learning.

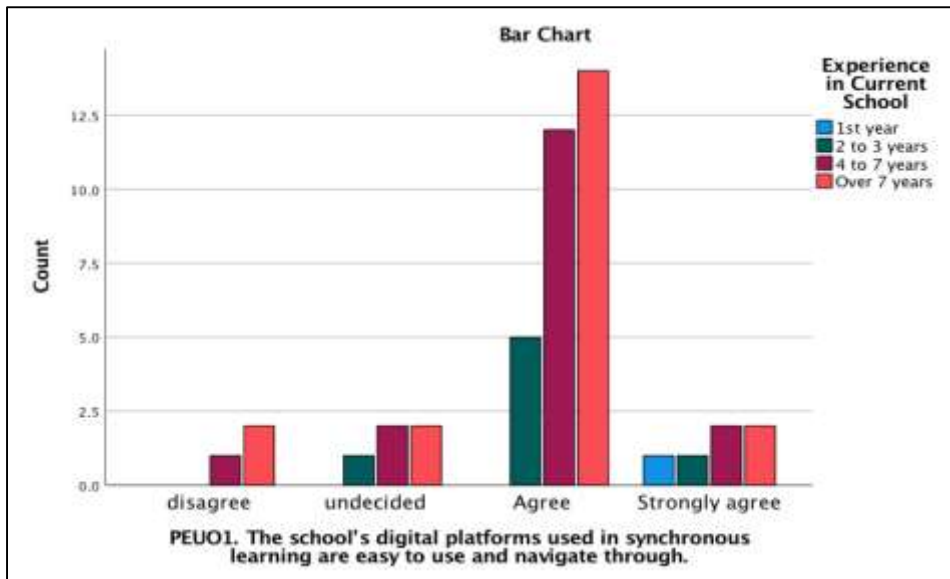


Figure 4.50: PEOU1 * Experience in Current School

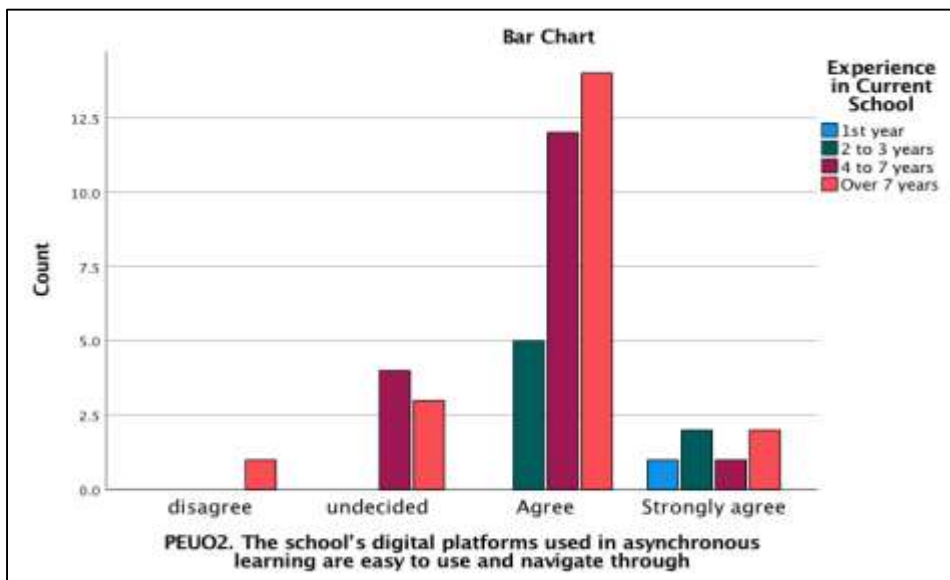


Figure 4.51: PEOU2 * Experience in Current School

Figures 4.50 and 4.51 show that there is spread of responses for both PEOU1 and PEOU2 in category4 followed by category3. However, the cluster of responses are around agreeing which reveals an overall positive picture.

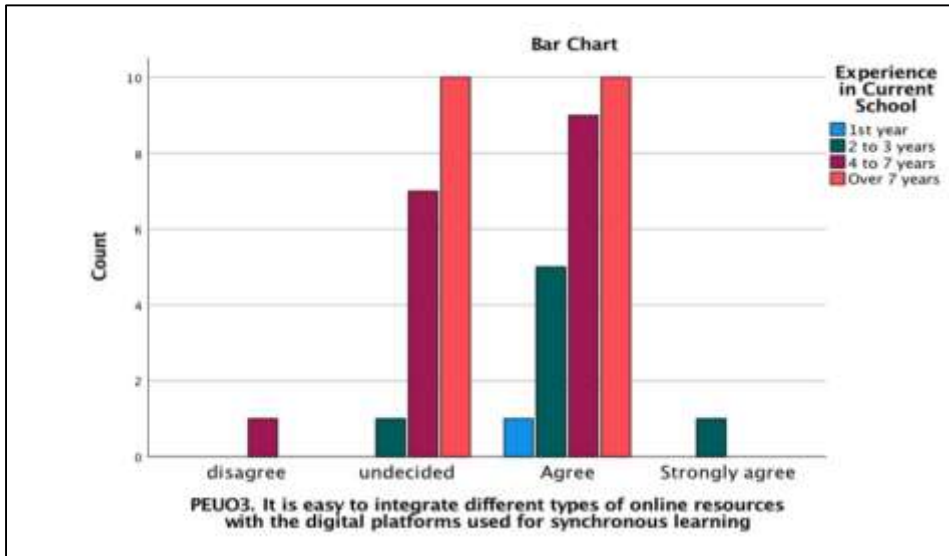


Figure 4.52: PEOU3 * Experience in Current School

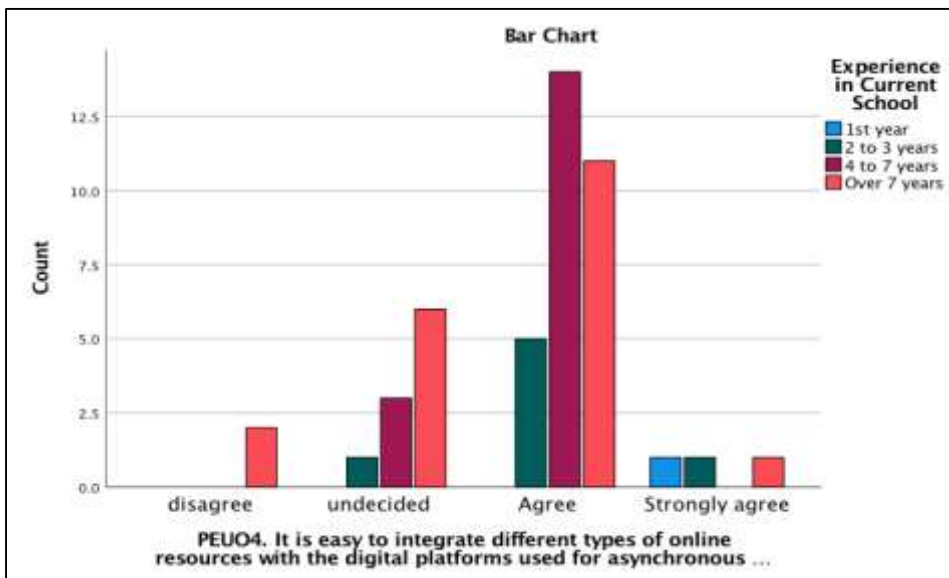


Figure 4.53: PEOU4 * Experience in Current School

Figures 4.52 and 4.53 present almost equal figures between neutral and agree responses for POU3 in category 3 and 4. Whereas more clustered figures around agree in PEOU4. This reveals a more positive overall picture PEOU4 in category3 and category4.

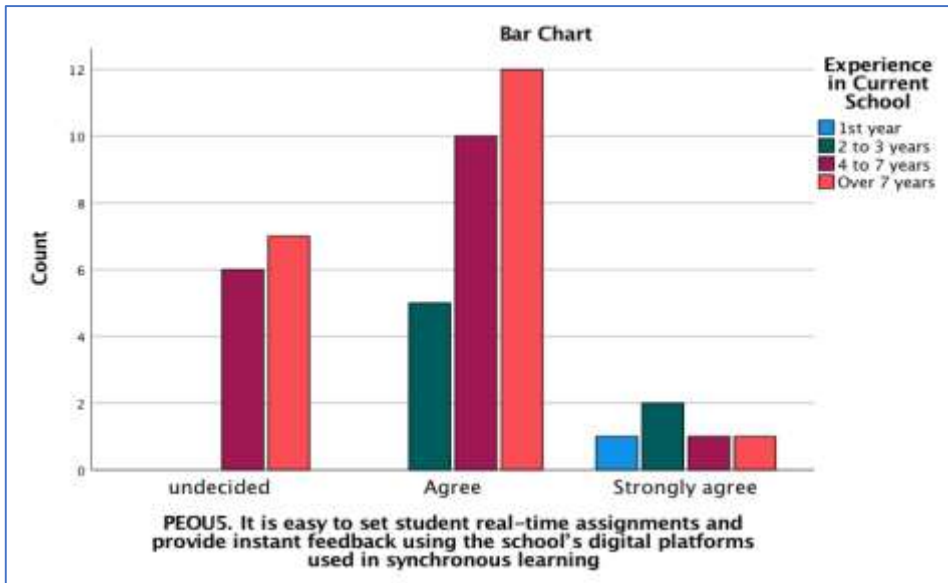


Figure 4.54: PEOU5 * Experience in Current School

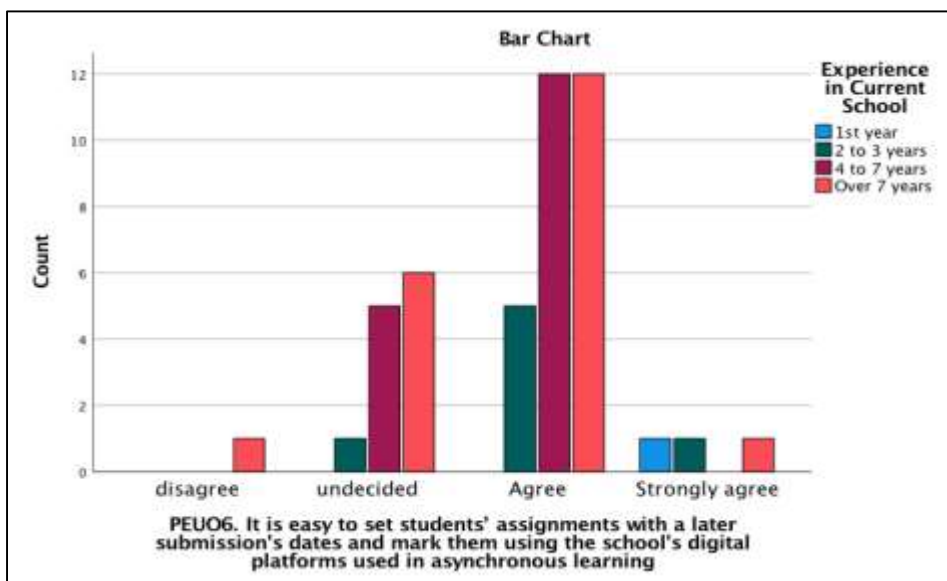


Figure 4.55: PEOU6 * Experience in Current School

Figures 4.54 and 4.55 shows a positive overall picture for PEOU5 and PEOU6, but there are significant neutral responses in category4 followed by category3.

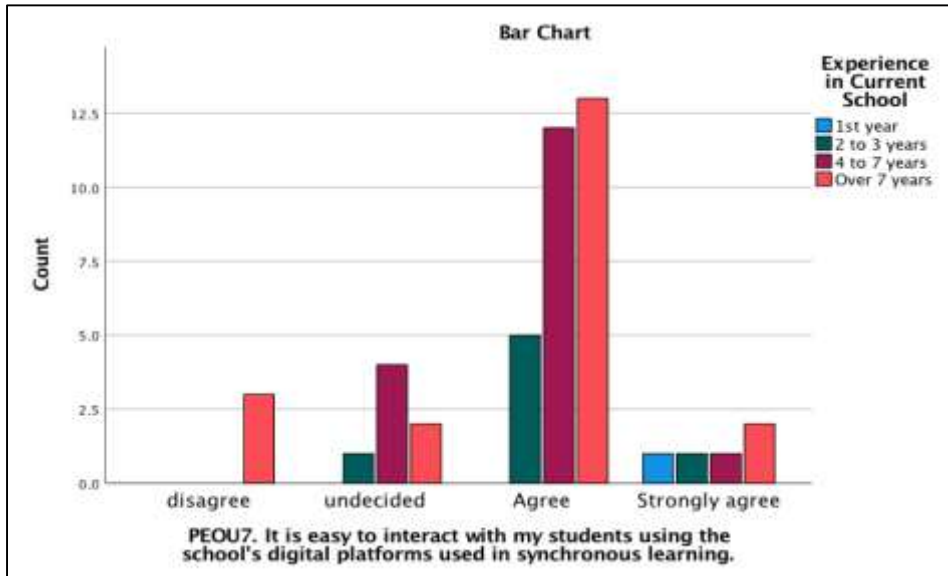


Figure 4.56: PEOU7 * Experience in Current School

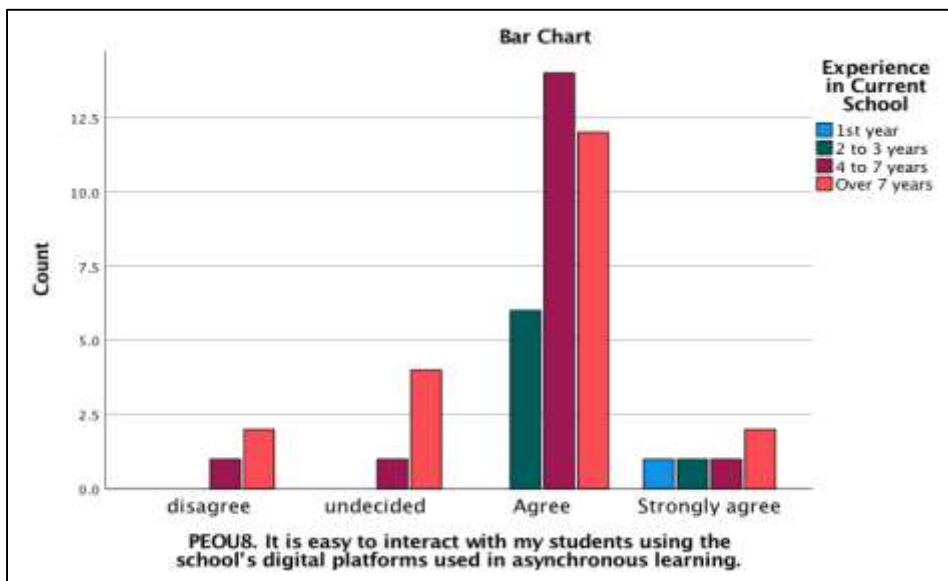


Figure 4.57: PEOU8 * Experience in Current School

Figures 4.56 and 4.57 shows there is spread of responses for both PEOU7 and PEOU8 in category4 followed by category3 which have minor negative and neutral responses. This reflects the divergent individual differences in PEOU7 and PEOU8 similar to the previous indicators.

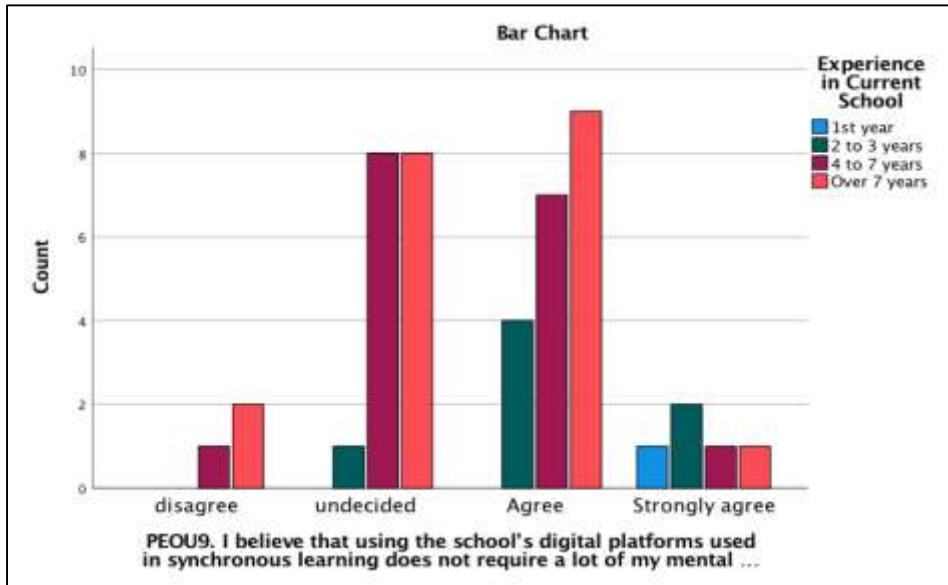


Figure 4.58: PEOU9 * Experience in Current School

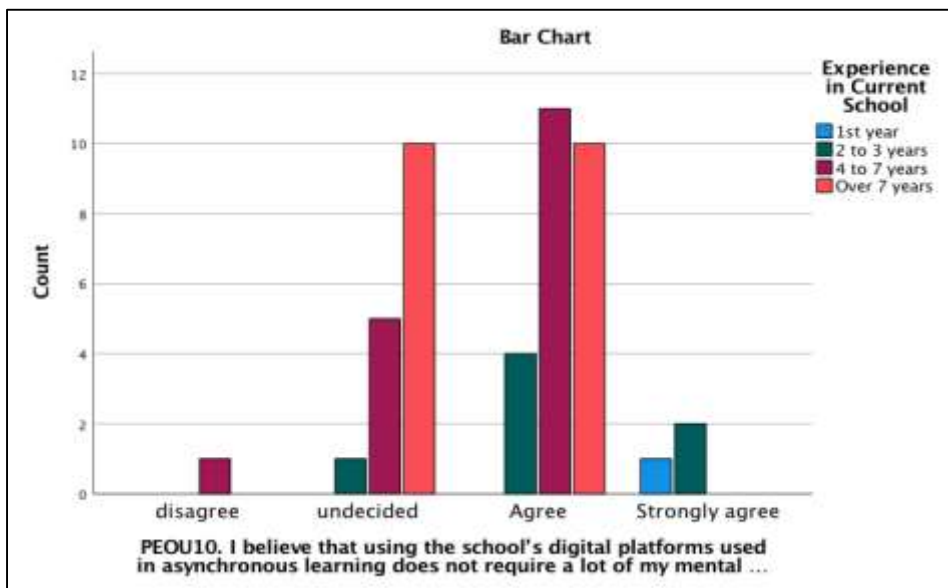


Figure 4.59: PEOU10 * Experience in Current School

Figure 4.58 shows there is spread of responses for both PEOU9 in category4 followed by category3 which have minor negative and significant neutral responses. This indicates the divergent individual differences in PEOU9. While figure 5.59 presents clustered figures for PEOU10 between neutral and agree and minor responses in the extreme which reveals more positive picture than PEOU9.

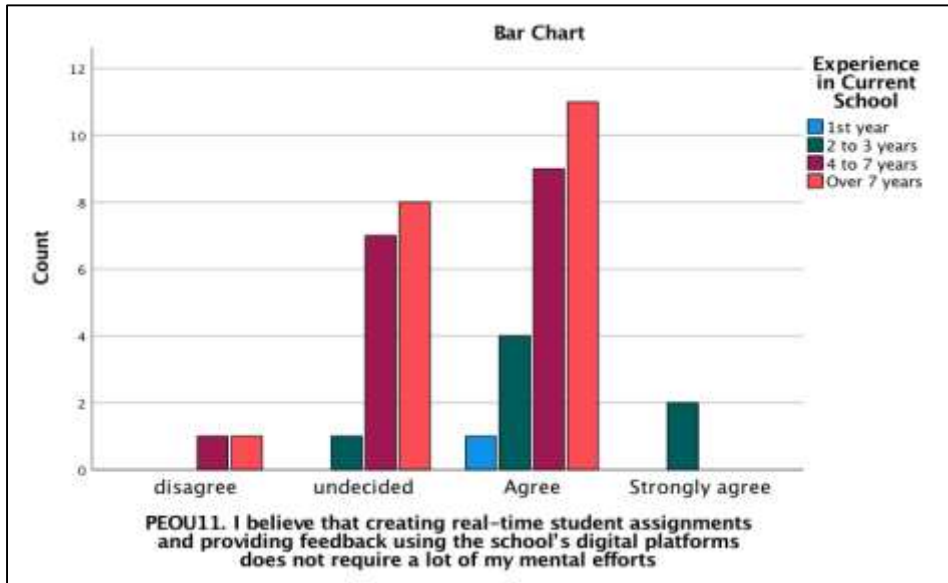


Figure 4.60: PEOU11 * Experience in Current School

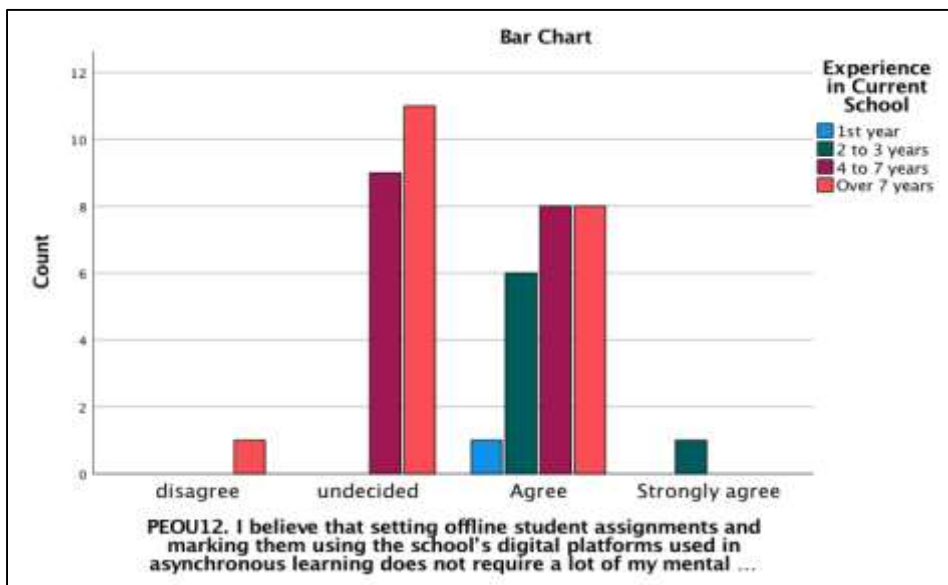


Figure 4.61: PEOU12 * Experience in Current School

In summary, figures 4.50-4.61 show that the higher the category of teacher experience in the current school the less the agreement on the perceived ease of use (PEOU) in the indicators PEOU1, PEOU2, PEOU7, PEOU8, PEOU9, PEOU11 with extreme cases. Also, large numbers of neutral responses for the teachers in category3 and category4 in the

indicators PEOU3, PEOU4, PEOU5, PEOU9, PEOU10, PEOU11, PEOU12. The results would reflect individual differences or a sort of resistance to change (TCF, 2017).

Also, it is key to note here that the school expectation differs between the grade groups. In some cases, they tend to use two different digital platforms in synchronous learning mode. One digital platform is used for video conferencing and another one for submitting tasks, while in other groups they would use one digital platform where students can collaborate and the teacher can observe the work simultaneously and provide instant feedback.

4.6 Summary

This chapter illustrated the strategies and descriptive descriptions of the outcomes of both qualitative and quantitative data collections where the first one was addressed to leadership team who are involved in the technology implementation, while the second was addressed to teachers. Whereas, the quantitative data was collected using online survey using google form using 5 points Likert scale. The Cronbach Alpha's and factor analysis (AVE & CR) scores confirm the convergent validity and reliability of the instrument used for the different constructs. Furthermore, the regression tests reflected that the hypothesis model was valid on the sample of the case study and that there were mediation effects of TASU and TDSE variables on PEOU and consequently on TPB. Finally, the correlations tests that were conducted between the demographic variables of the responding teachers and the different constructs reflect a negative low to moderate correlation between Grade groups and (TPB & LSU) and between number of years of experience for teachers and (PEOU, SCH, and TDSE). As a result, further tests analysis was conducted using cross tabulation between the demographic variables and the indicators of the constructs that reflected a significant negative correlation in order to get deeper understanding of the teachers' responses. As a reflection result, the next chapter will provide further discussion of the key findings based on the triangulations of the results and their indications, and hence provide the relevant recommendations.

CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.1 Key Finding and Discussion

The core implementation of online distance learning underpin investment on technology infrastructure to provide accessibility between students and the educational institutions. However, there are other important triggers to provide successful online distance learning. One of which is the deployment of digital platforms and media tools that are useful in providing continuous connectivity and interactions. In addition to that, teachers should become competent to transform their instructions to be more student centered which cannot be achieved without the skillful use of the digital platforms and online resources.

Davis (1986) suggested through the (TAM) framework that the behavior of teachers to use technology is anchored by their behavioral intention which is in turn anchored by the PEOU and TPB of using the new technology. The research proposed an adapted model of (TAM) framework in which the TPB is influenced by several factors: Individual differences factor which is defined in this research by the TDSE, SCH, and PEOU. While PEOU is anchored by: the social influence which is considered in this research is more related the culture prevailed through the LSU, and the facilitating conditions which is considered in this research as TASU provided for the teacher to perform their job when using the digital platforms and online resources. Those factors were identified to be interconnected as per other literature reviews and grounded theory which illustrated in the hypothesis structural model in figure 5.1.

Hence, the research focused on the influence of choosing the appropriate school digital platforms that serve the benefits of using them to provide accessibility and connectivity in online distance learning. In addition to that, the role of leadership support in influencing the teacher perceived ease of use through development of teacher digital-self-efficacy, providing technical and administrative support, which altogether would shape the teacher perceived benefits.

The qualitative data disclose that the school vision with regard to technology is to facilitate learning whether it is online distance learning or face-to-face in school, engage students, and it is an essential tool for evaluating learning.

The management invested in adopting various educational platforms that ensure students are engaged in online lessons with their teachers. Also, they initiated a dedicated team to provide support to all stakeholders in technology implementation and administration. This role of the department was extended to conducting workshop and on demand one-to-one virtual support. Furthermore, this department was made responsible of developing video tutorials to help build the knowledge and skills in using the newly implemented technology.

Another team was brought about to drive the development and innovation in teaching and learning and improve students' attainment. All of these were backed up with dynamic policies that emphasised the attendance and provided flexible schedule and provision to ensure the accessibility and connectivity to learning based on the family needs (Marker, 2020). This has caused some challenges as they needed continuous updates of grouping of students in classes and the learning environment setting. Consequently, it caused challenges on teachers to adapt to the changes using the school digital platforms, which in turn negatively affected the teacher perceived benefits, especially in the higher year groups, where more virtual collaborative synchronous and asynchronous tasks were needed.

Also, the management and leadership team set processes of monitoring learning and providing feedback and reflection sessions to the teachers based on team level rather than individual level. So, the leadership support was addressing towards developing teacher digital self-efficacy and providing technical and administrative supports through the training, workshop, one-to-one support, monitoring/feedback, video tutorials.

For this given information about the different aspects of leadership support provided, the quantitative study tested the proposed hypothesis structural model and examine the responses.

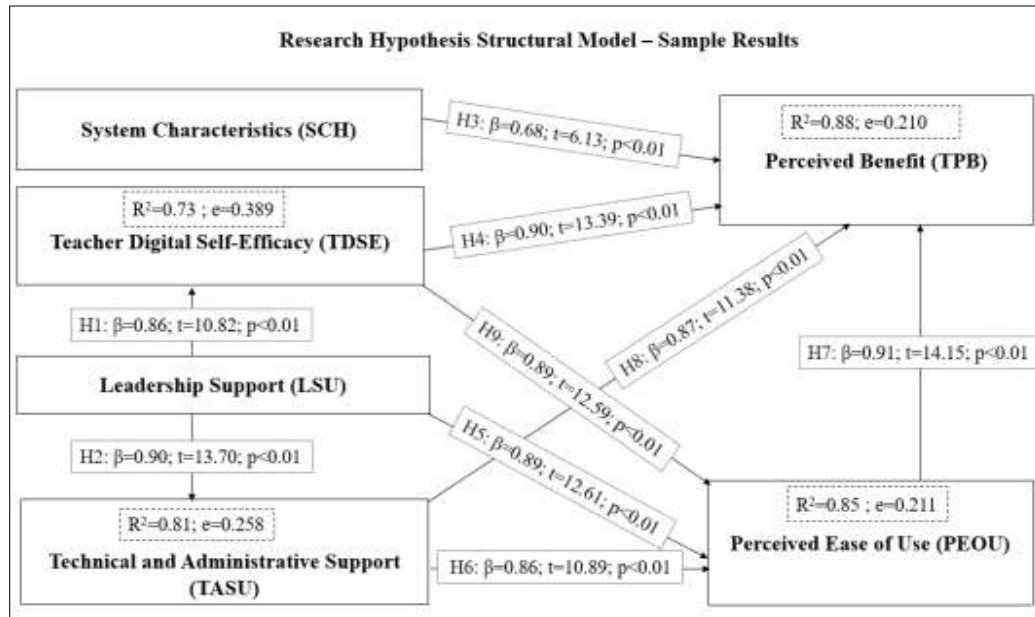


Figure 5.1: The structural model for testing Hypothesis with results using SPSS/ANOVA. (Jaber, 2021)

The key findings following the testing of the hypothesis on the sample is that the leadership support the teacher perceived benefits is determined by the following variables listed in the order from the highest (influence) to the least: perceived ease of use (Davis, 1986), then teacher digital self-efficacy (Mitchell et al., 2012), technical and system administrative support (Mitchell et al., 2012), and system characteristics (Davis, 1986). On the other hand, the perceived ease of use is in turn influenced by leadership support through culture influence (Davis, 1986; Gross & Mouza, 2008), teacher digital self-efficacy (Apraci, 2017), technical and administrative support as a facilitating condition (Davis, 1986). On top of this, the leadership support has strong influence on teacher perceived benefits through technical and administrative support and teacher digital self-efficacy (Michell et al., 2012) and through perceived ease of use (Davis, 1986). Leadership support, through technical support, can influence perceived ease of use to learn technical function or solve technical problems. Whereas the leadership support, through digital self-efficacy, would benefit building teaching competencies using digital platforms, and hence influence perceived ease of use by mastering the skills to use them.

The quantitative data revealed positive responses to the planning and investment on the infrastructure and encouragement to use the technology, but the practices of leadership have more impact in grade group1 followed in grade group2, and least in group3.

The study reflected an overall satisfaction with the planning and availability of resources as the teachers agreed that they were encouraged to use the school's digital platforms and online resources. However, there was less satisfaction with the culture and vision of using the technology, and the setting of expectation which led to change. Also, there is less satisfaction in group3 and much stronger in group1 in relation to the cultural capital which is developed by investing time to self-improvement of skills, knowledge and competencies in using technology.

Furthermore, the study reflected an overall positive perception by the teachers about the benefits of the school digital platforms and online resources to enhance the teaching effectiveness in synchronous and asynchronous online distance learning and in improving students' accessibility to learning and connectivity to learning community. However, there were significant disagreements in the group3 and group2 about the effectiveness of the digital platforms to handle any class sizes and different groupings. This is in line with the challenge expressed by the leadership regarding keeping the grouping of students and the changes in the learning environment dynamic has a negative impact on teachers' perception about the usefulness of the digital platforms to handle these changes. Hence, this does not mean the digital platforms cannot support this, but it is related to the teacher digital self-efficacy to handle this where the leadership support can influence that.

Consequently, teachers need more support on the pedagogical use of the digital platforms which can be, in this case, through modeling, video tutorials, and enough time of practice. Also, the feedback to the teachers through the monitoring process of the leadership as well as the positive reinforcement through the professional development and coaching process was shown to be more effective in group1 than in group3 and to some extent group2. However, considering the feedback about the monitoring evaluation process on team level alone would not benefit individual teachers as it is not personalized to their needs due to individual differences (Davis, 1986).

Besides that, the higher year groups are using lots of softwares and tools along with the digital platforms which can cause cognitive load in processing information in the teacher's memory (John Sweller, 1998) and hence would affect their performance and perceptions.

Ertmer (2005) cited in Chen, (2008) said that most teachers do not have deep comprehension or enough practice about integrating technology to serve the pedagogical side. Hence, they need leadership support in investing and developing their competencies through a process of professional development and coaching process to develop their knowledge, understanding and practice. The study reflected a substantial number of teachers, in category3 and category4, consider that they did not master the skills to use the digital platforms an online resource in online distance learning. This could be linked from one side to extent that the leadership invests on cultural capital. On another side, this could be linked to the what Chen (2008) claimed that the current beliefs of teachers' have more impact on the integration of technology and practices than the development of beliefs which also could be affected by the transformational leadership practiced and the culture of change or it is affected by the teachers' resistance to change and stay in the comfort zone (TCF, 2017).

Also, the study reflected that the category3 and category4 teachers would benefit more from the video tutorials than the workshop and one-to-one support which also link to leadership support and how it embodies a cultural capital. If the teachers need to master the skills further, then they need to have the time to practice and master the kills and in the meantime they need to access to video tutorials as many times as they need. Also, it is linked to the responses about the perceived benefits of using the school digital platforms to handle any class size and different groupings.

5.2 Limitation

The limitation of the research was related primarily to change of the case study after choosing a big high-tech school and get the approval of the school principal, the was lack of responses from different participants who were nominated for providing the information for the qualitative apart of the study. Then, the researcher had to change to another site where the context is different with a limited time to complete the study, but there was good cooperation from the leadership team to support with the study. Second, the online survey was sent towards the end of Ramadan when the working hours are very limited during the day and it was addressed to 80 teachers, but only 45 teachers responded even though the period was extended from one week to further 3 more days towards the with 3 gentle reminders while being careful on the wellbeing on the participants and not to stress them

especially with the challenging situation during the COVID-19 pandemic. Some of the teachers are less proficient in English language so the researcher had to translate the introduction about the study and the survey to Arabic language. Last but not least, the safety restriction of not being able to be on site to conduct the interview questionnaire which been replaced by using a word document questionnaire and the clarifications about the questions were used through insert notes on the same document.

5.3 Conclusion and Recommendation

The research was focused on a case study in a school context in UAE. It aimed to explore from one side how the school leadership implemented and managed of technology in online distance learning amidst COVID19 to provide continuous accessibility to learning and connectivity to learning communities. On another side the study aimed to examine how the teachers perceived benefits of using the management of technology to achieve the desired goals of accessibility and connectivity. Both sides of the study provide an overall picture of planning and responses, while the triangulation of the data results would help on reflecting and make informed decisions for the next steps for the school context. Also, it would help replicate the study or adapt it in different case studies to make conclusion on a wider scope.

The case study supported the hypothesis that the system characteristics and leadership support impact the perceived benefits through mediation factors which are teacher digital self-efficacy, technical and administrative support and perceived ease of use.

It was also found that the leadership support impacts vary between the year groups mainly in relation the setting expectation, monitoring process and feedback, and in the investment in capital culture. Also, it was found that the teachers perceived benefits for the teachers who have been working for longer years are affected negatively especially in the use of digital platforms and online resources to support different groupings in synchronous and asynchronous lessons and they consider the video tutorials are more helpful than the workshop and one-to-one support in developing their digital self-efficacy if they were given the time to practice.

Consequently, the study suggests the following recommendations:

- Improve the impact of Leadership and in the higher groups to be consistent with other groups by building a community of learning among leadership.
- Invest on cultural capital by giving time to professional development cycle and coaching/mentoring process which is targeted to develop the knowledge and skills on individual path for each teacher (Warner, 2018).
- Develop the monitoring process by rotating the leadership observation and extended to different grade groups and subjects. This would create a kind of sharing good practice.
- Provide more personalised feedback along with positive reinforcement. If necessary, provide mentoring support for the struggling or resistant teachers and encourage them to step out of their comfort zones.
- Continue with the video tutorial and extend this to bigger forum that encourages a community of learning teachers.
- Revise the protocols of attendance and grouping of students along with expectation of using the digital platforms and online resources taking into consideration the teacher's wellbeing. Hence, make wellbeing as core of any decision making rather than having it as a policy by itself as this will affect the perceptions and beliefs.
- Integrate the role of PLC team with technical team to lead on learning. This link would provide more support to teachers on the pedagogical use of the digital platforms and online resources. Hence, this could surpass the support in online distance learning and use of technology in general and drive a change towards the transformation in teaching and learning with the use of technology (Gross & Mouza, 2008).

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Appendices:

Appendix A:

Table 3: Main Sections and Questions and significance for phase 1 study

Main Sections	Significance	Questions
Exploring the background and history since the start of the COVID-19 Pandemic.	Understand the site setting and the changes which includes challenges, planning, the technology infrastructure, policies and how the management communicated the changes with different stakeholders to ensure continuous connectivity to school community and address accessibility to learning.	<ol style="list-style-type: none"> 1. Can you give brief description about the school? 2. Can you give brief description about Curriculum? 3. What were the challenges faced at the start of the pandemic in general? How did you work on them? 4. How did manage connection parents and students? 5. How did you solve those challenges? 6. What type of provision this year? What were the advantages and disadvantages? 7. Can you describe the protocol and procedures for emergency closure or distance learning and how did you manage consistent learning? 8. How did you (and continue to) manage communication with different stakeholders? 9. How did you (and continue to) manage the connectivity of students who are online full learning?
Explore the policy of technology integration.	To understand the policy as process of implementation technology and how it is planned around teachers needs and developing teachers' digital self-efficacy.	<ol style="list-style-type: none"> 1. What is the vision expected from technology? 2. What are the acquisition deployment and availability of technology provided to different stakeholders (Staff and students)? 3. How do you build technology plan around teachers' needs? 4. Is the plan being implemented? How? 5. What did you add since Pandemic and what is the purpose? 6. Is the plan being evaluated? How? 7. How do you support teachers' digital skills and self-efficacy of using technology in teaching? 8. How much time should be given to professional study and collaborative work? 9. How did you support teachers in building their knowledge and competence using the newly integrated technology during the pandemic?

<p>Explore the policies to ensure accessibility and connectivity using the currently used digital resources</p>	<p>To understand how the system characteristics of the digital platform and online resources serve to provide virtual learning environments which are appropriate for online distance learning. Also, to understand the policies set around those technology would provide safe learning environments, continues connectivity and accessibility.</p>	<ol style="list-style-type: none"> 1. List the digital platform and online resources being used in phase 1 and the purpose of using them. 2. List the digital platform and online resources being used in phase 2 and the purpose of using them. 3. What were the policies placed around using those digital resources to ensure the following issues? <ol style="list-style-type: none"> a. Flexibility of timing to access learning in case of students are staying in different country. b. Home accessibility issues: Lack of devices, internet access, technical issues at home. c. Assessment and feedback d. Health and safety during online distance learning: screen contact time, cyberbullying.
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Appendix B: This appendix contains the first section of the online survey that includes introduction about the study and the instruments for the different constructs.

Section 1 of 8

Online Teachers' Questionnaire

Introduction:

This survey questionnaire is addressed to the teachers in Phase 2 and Phase 3. It aims to explore how the school leadership's planning and management of digital platforms and online resources, that provide accessibility and connectivity during online emergency remote learning amidst COVID-19 pandemic, influences teachers' perceived benefits of using them.

It will take approximately 10 mins to complete.

The questionnaire is composed of 8 sections including this introduction. While section 2 aims to collect general and demographic information, sections (3-8) aim to examine teachers' perceptions related to the different concepts in the research.

The participation in this survey will support the success of the research, however, it will be kept anonymous and confidential.

**** Definitions of the key terms in this questionnaires:**

- Digital learning platforms refer to the digital spaces used to deliver learning experiences that enable students to interact and collaborate with teachers and students and actively engage with the educational content. In this survey, they refer to the digital learning platforms used in the school and during COVID-19 pandemic.
- Online resources refer to any learning resources and materials made available by the school for the online educational environment to assist students' learning. Some examples: HTML documents, recorded videos, YouTube videos, web-based resources, interactive exercises or exams, or any documents providing links to other Web sites.
- Digital online platforms used in synchronous refer to the digital online platforms that the school uses to provide synchronous learning that happens at the same time for the teacher and the students in real-time interaction between them. It allows for synchronous sessions which are lectures and course lessons that occur live through video conferencing software.
- Digital online platforms used in asynchronous refer to the digital online platforms that the school uses to provide asynchronous learning that does not necessarily happen at the same time for the teacher and the students. It allows to have asynchronous learning activities, so students are able to complete assignments on their own schedule.

Thank you for your time to complete the questionnaire through following sections.

Continue Appendix B

<p>Section 3: Perceived ease of Use (PEUO):</p>	<p>القسم 3: تصور سهولة الاستخدام</p>
<p>PEUO1. The school's digital platforms used in synchronous learning are easy to use and navigate through. (Synchronous learning) المنصات الرقمية المستخدمة في المدرسة للتعليم المتزامن هي سهلة الاستخدام والتنقل من خلالها (متزامن)</p>	<p>المنصات الرقمية المستخدمة في المدرسة للتعليم المتزامن هي سهلة الاستخدام والتنقل من خلالها</p>
<p>PEUO2. The school's digital platforms used in asynchronous learning are easy to use and navigate through. (Asynchronous learning) المنصات الرقمية المستخدمة في المدرسة للتعليم غير المتزامن هي سهلة الاستخدام والتنقل من خلالها (غير متزامن)</p>	<p>المنصات الرقمية المستخدمة في المدرسة لتعلم غير المتزامن هي سهلة الاستخدام والتنقل من خلالها</p>
<p>PEUO3. It is easy to integrate different types of online resources with the digital platforms used for synchronous learning. (Synchronous learning) توفر المنصات الرقمية المستخدمة في المدرسة للتعليم المتزامن سهولة إدماج مصادر رقمية مختلفة (متزامن)</p>	<p>توفر المنصات الرقمية المستخدمة في المدرسة لتعلم المتزامن سهولة إدماج مصادر رقمية مختلفة (متزامن)</p>
<p>PEUO4. It is easy to integrate different types of online resources with the digital platforms used for asynchronous learning. (Asynchronous learning) توفر المنصات الرقمية المستخدمة في المدرسة للتعليم غير المتزامن سهولة إدماج مصادر رقمية مختلفة (غير متزامن)</p>	<p>توفر المنصات الرقمية المستخدمة في المدرسة للتعليم غير المتزامن سهولة إدماج مصادر رقمية مختلفة</p>
<p>PEOU5. It is easy to set student real-time assignments and provide instant feedback using the school's digital platforms used in synchronous learning. (Synchronous learning) توفر المنصات الرقمية المستخدمة</p>	<p>توفر المنصات الرقمية المستخدمة في المدرسة للتعليم المتزامن سهولة إنشاء واجبات متزامنة وتزويد الطلاب بالتغذية الراجعة الفورية</p>

<p>في المدرسة للتعلم المتزامن سهولة إنشاء واجبات متزامنة وتزويد الطلاب بالتغذية الراجعة الفورية (متزامن)</p>	
<p>PEUO6. It is easy to set students' assignments with a later submission's dates and mark them using the school's digital platforms used in asynchronous learning. (Asynchronous learning) توفر المنصات الرقمية المستخدمة في المدرسة للتعلم غير المتزامن سهولة تحديد الواجبات مع موعد لاحق لتسليمها وتقييمها (غير متزامن)</p>	<p>توفر المنصات الرقمية المستخدمة في المدرسة للتعلم غير المتزامن سهولة تحديد الواجبات مع موعد لاحق لتسليمها وتقييمها</p>
<p>PEOU7. It is easy to interact with my students using the school's digital platforms used in synchronous learning. (Synchronous learning) توفر المنصات الرقمية المستخدمة في المدرسة للتعلم المتزامن سهولة في التفاعل مع طلابي (متزامن)</p>	<p>توفر المنصات الرقمية المستخدمة في المدرسة للتعلم المتزامن سهولة التفاعل مع طلابي.</p>
<p>PEOU8. It is easy to interact with my students using the school's digital platforms used in asynchronous learning. (Asynchronous learning) توفر المنصات الرقمية المستخدمة في المدرسة للتعلم غير المتزامن سهولة التفاعل مع طلابي. (غير متزامن)</p>	<p>توفر المنصات الرقمية المستخدمة في المدرسة للتعلم غير المتزامن سهولة التفاعل مع طلابي.</p>
<p>PEOU9. I believe that using the school's digital platforms used in synchronous learning does not require a lot of my mental efforts. (Synchronous learning) أعتقد أن استخدام المنصات الرقمية المستخدمة في المدرسة للتعلم المتزامن لا يتطلب الكثير من المجهود الذهني (متزامن)</p>	<p>أعتقد أن استخدام المنصات الرقمية المستخدمة في المدرسة للتعلم المتزامن لا يتطلب الكثير من المجهود الذهني</p>
<p>PEOU10. I believe that using the school's digital platforms used in asynchronous learning does not require a lot of my mental efforts. (Asynchronous learning) أعتقد أن</p>	<p>أعتقد أن استخدام المنصات الرقمية المستخدمة في المدرسة لأنشطة التعلم غير المتزامن لا يتطلب الكثير من المجهود الذهني</p>

<p>استخدام المنصات الرقمية المستخدمة في المدرسة لأنشطة التعلم غير المتزامن لا يتطلب الكثير من المجهود الذهني (غير متزامن)</p>	
<p>PEOU11. I believe that creating real-time student assignments and providing feedback using the school's digital platforms does not require a lot of my mental efforts. أعتقد أن إنشاء واجبات (Synchronous) متزامنة عبر المنصات الرقمية المستخدمة في المدرسة للتعلم المتزامن مع توفير التغذية الراجعة الفورية لا يتطلب الكثير من المجهود الذهني. (متزامن)</p>	<p>أعتقد أن استخدام المنصات الرقمية المستخدمة للمدرسة لإنشاء واجبات متزامنة مع توفير التغذية الراجعة الفورية لا يتطلب الكثير من مجهودي الذهني. (متزامن)</p>
<p>PEOU12. I believe that setting offline student assignments and marking them using the school's digital platforms used in asynchronous learning does not require a lot of my mental efforts. أعتقد أن (Asynchronous learning) تحديد واجبات مع وقت لاحق للتسليم والتقييم عبر المنصات الرقمية المستخدمة في المدرسة للتعلم غير المتزامن لا يتطلب الكثير من المجهود الذهني. (غير متزامن)</p>	<p>أعتقد أن استخدام المنصة الرقمية المستخدمة للمدرسة لتحديد واجبات مع وقت لاحق للتسليم والتقييم لا يتطلب الكثير من مجهودي الذهني. (غير متزامن عبر السيسو)</p>

<p>Section 4: Teacher's perceived benefits of using the school's digital platforms and online resources</p>	<p>القسم 4: تصور المدرس للفوائد المرجوة من لاستخدام المنصات الرقمية والموارد عبر الإنترنت</p>
<p>TPB1. The school's digital platforms and online resources used in synchronous learning enhance my teaching effectiveness in online distance learning. تعزز (Synchronous learning) المنصات والموارد الرقمية في المدرسة للتعلم المتزامن من فعاليتي التعليمية في التعلم عن بعد عبر الانترنت (متزامن)</p>	<p>تعزز المنصات والموارد الرقمية للمدرسة من فعاليتي التعليمية في التعلم عن بعد (المتزامن)</p>

<p>TPB2. The school's digital platforms and online resources used for asynchronous learning activities enhance my teaching effectiveness in online distance learning. تعزيز المنصات والموارد الرقمية المستخدمة في المدرسة من فعاليتي التعليمية في التعلم عن بعد (غير متزامن)</p>	<p>تعزيز المنصات والموارد الرقمية للمدرسة من فعاليتي التعليمية في التعلم عن بعد (غير متزامن)</p>
<p>TPB3: The school's digital platforms used for synchronous sessions enable me to effectively handle any class sizes and different groupings. (Synchronous sessions) تمكّني المنصات الرقمية المستخدمة في المدرسة للحصص المتزامنة من التعامل بفعالية مع أي عدد للطلاب في الفصل ومختلف المجموعات (متزامن)</p>	<p>تمكّني المنصات الرقمية للمدرسة من التعامل بفعالية مع أي عدد طلاب في الفصل والمجموعات مختلفة. (متزامن)</p>
<p>TPB4: The school's digital platforms used for asynchronous learning activities enable me to effectively handle any class sizes and different groupings. (Asynchronous learning activities) تمكّني المنصات الرقمية المستخدمة في المدرسة لأنشطة التعلم غير المتزامن من التعامل بفعالية مع أي عدد للطلاب في الفصل ومختلف المجموعات. (غير متزامن)</p>	<p>تمكّني المنصات الرقمية المستخدمة في المدرسة لأنشطة التعلم غير المتزامن من التعامل بفعالية مع أي عدد للطلاب في الفصل ومختلف المجموعات. (غير متزامن)</p>
<p>TPB5. Using the school's digital platforms and online resources in both synchronous and asynchronous learning improves students' accessibility to learning without disruption. (synchronous and asynchronous) استخدام المنصات والموارد الرقمية في المدرسة للتعليم المتزامن وغير المتزامن معاً يساعد على تحسين إمكانية الطلاب للتعلم من دون انقطاع (متزامن وغير متزامن)</p>	<p>استخدام المنصات والموارد الرقمية في المدرسة للتعليم المتزامن وغير المتزامن معاً يساعد على تحسين إمكانية الطلاب للتعلم من دون انقطاع. (متزامن وغير متزامن)</p>
<p>TPB6. Using the school's digital platforms and online resources in both synchronous and</p>	<p>استخدام المنصات والموارد الرقمية المستخدمة في المدرسة للتعليم المتزامن وغير المتزامن معاً يساعد على تحسين</p>

<p>asynchronous improves students' connectivity to the learning community - interactions between students and teachers in different ways. (synchronous and asynchronous) استخدام المنصات والموارد الرقمية المستخدمة في المدرسة للتعليم المتزامن وغير المتزامن معاً يساعد على تحسين إمكانية تواصل الطلاب مع مجتمع التعلم - التفاعلات بين الطلاب والمعلمين بطرق مختلفة (متزامن وغير متزامن)</p>	<p>إمكانية تواصل الطلاب مع مجتمع التعلم. (التفاعلات بين الطلاب والمعلمين بطرق مختلفة)</p>
<p>TPB7. Using the school's digital platforms and online resources in both synchronous and asynchronous learning supports having a variety of assessments and (synchronous and feedback. asynchronous) استخدام المنصات والموارد الرقمية المستخدمة في المدرسة للتعليم المتزامن وغير المتزامن معاً يتيح إجراء مجموعة متنوعة من التقييمات والتغذية الراجعة (متزامن وغير متزامن)</p>	<p>استخدام المنصات والموارد الرقمية المستخدمة في المدرسة للتعليم المتزامن وغير المتزامن معاً يساعد إجراء مجموعة متنوعة من التقييمات والتغذية الراجعة (متزامن وغير متزامن)</p>

<p>Section 5: Teachers' digital Self-efficacy (TDSE)</p>	<p>القسم 5: الكفاءة الذاتية الرقمية للمعلمين</p>
<p>TDSE1- I believe that I am able to use the school's digital platforms and online resources to provide online remote learning environment.</p>	<p>أعتقد أنني قادر على استخدام المنصات والموارد الرقمية للمدرسة لتوفير بيئة التعلم عن بعد عبر الإنترنت.</p>
<p>TDSE2. I am confident about my ability to use the school's digital platforms and online resources to provide online remote learning environment.</p>	<p>أنا واثق من قدرتي على استخدام المنصات والموارد الرقمية للمدرسة لتوفير بيئة التعلم عن بعد عبر الإنترنت.</p>
<p>TDSE3. I have mastered the skills necessary for using the school's digital platforms and online</p>	<p>لقد أتقنت المهارات اللازمة لاستخدام المنصات والموارد الرقمية للمدرسة لتوفير بيئة تعليمية عبر الإنترنت</p>

resources to provide online learning environment	
TDSE4. The online workshops run by the school's leadership team supported me in developing digital self-efficacy.	لقد دعمتني ورش العمل عبر الإنترنت التي يديرها فريق قيادة المدرسة في تطوير الكفاءة الذاتية الرقمية.
TDSE5. The one-to-one online support provided by the school's leadership team helped me improve my use of the school's digital platforms and online resources.	ساعدني الدعم الفردي عبر الإنترنت الذي قدمه فريق قيادة المدرسة في تحسين استخدامي للمنصات والموارد الرقمية للمدرسة عبر الإنترنت.
TDSE6. The video tutorials provided by the school's leadership team provided a good guide on the usage of the school's digital platforms and online resources.	قدمت مقاطع الفيديو التعليمية التي قدمها فريق قيادة المدرسة دليلاً جيداً حول استخدام المنصات والموارد الرقمية للمدرسة عبر الإنترنت.

Section 6: System Characteristics of the digital platforms and online resources (SCH)	القسم 6: خصائص نظام المنصات الرقمية والموارد عبر الإنترنت
SCH1. The school's digital platforms for synchronized lessons (google Meet/ Google Classroom) are accessible by different devices and operating systems (such as android, IOS etc.)	يمكن الوصول إلى المنصات الرقمية للمدرسة للدروس المتزامنة (google Meet / Google Classroom) بواسطة أجهزة وأنظمة تشغيل مختلفة (مثل android و IOS وما إلى ذلك)
SCH2. The school's digital platform for asynchronous lessons (Seesaw) is accessible by different devices and operating systems (such as android, IOS etc.)	يمكن الوصول إلى المنصة الرقمية الأساسية للمدرسة للدروس غير المتزامنة (Seesaw) بواسطة أجهزة وأنظمة تشغيل

	مختلفة (مثل android و IOS وما إلى ذلك)
SCH3. The performance of the school's digital platforms for synchronised lessons is not affected by the changes of the learning environment and number of users. (learning environments could change from face-to-face to online distance learning or vice versa)	لا يتأثر أداء المنصات الرقمية للمدرسة للدروس المتزامنة بالتغيرات في بيئة التعلم وعدد المستخدمين. (التغيير في بيئات التعلم يكون من وجهًا لوجه إلى التعلم عن بعد عبر الإنترنت أو العكس)
SCH4. The performance of the school's digital platform for asynchronous lessons (Seesaw) is not affected by the changes of the learning environment and number of users. (learning environments could change from face-to-face to online distance learning or vice versa)	لا يتأثر أداء المنصة الرقمية للمدرسة للدروس غير المتزامنة (Seesaw) بالتغيرات في بيئة التعلم وعدد المستخدمين. (تتغير بيئات التعلم من وجهًا لوجه إلى التعلم عن بعد عبر الإنترنت أو العكس)
SCH5. The school's digital platforms for synchronized lessons (google meet/google Kicks) support the use of different languages including the Arabic language.	تدعم المنصات الرقمية للمدرسة للدروس المتزامنة (google meet / google Kicks) استخدام لغات مختلفة بما في ذلك اللغة العربية.
SCH6. The school's digital platform for asynchronous lessons (Seesaw) supports the use of different languages including the Arabic language.	تدعم المنصة الرقمية للمدرسة للدروس غير المتزامنة (Seesaw) استخدام لغات مختلفة بما في ذلك اللغة العربية.
SCH7. The school's digital platforms used for synchronized lessons (google meet/ google kick) can easily integrate different types of online resources (videos, HTML documents, polls, etc.) regardless of the learning environment. (learning environments changes	يمكن للمنصات الرقمية للمدرسة المستخدمة للدروس المتزامنة (google Meet / google kick) أن تدمج بسهولة أنواعًا مختلفة من الموارد عبر الإنترنت (مقاطع الفيديو ومستندات HTML والتصويت وما إلى ذلك) بغض النظر عن بيئة التعلم. (تتغير

from face-to-face to online distance learning or vice versa)	بيئات التعلم من وجهًا لوجه إلى التعلم عن بعد عبر الإنترنت أو العكس)
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Section 7: Technical and administrative support (TASU)	القسم 7: الدعم الفني والإداري
TASU1. I can get one-to-one support from a dedicated team of technology staff experts, who are always available to solve technical and administrative issues.	يمكنني الحصول على دعم فردي من فريق متخصص من خبراء فريق التكنولوجيا ، والمتاحين دائمًا لحل المشكلات الفنية والإدارية.
TASU2. I can learn from the recorded video tutorials which are made to be accessible to provide technical and administrative support whenever needed.	يمكنني التعلم من دروس الفيديو المسجلة التي يمكن الوصول إليها لتقديم الدعم الفني والإداري كلما دعت الحاجة.
TASU3. I can benefit from additional features of the school's digital platforms and online resources through school's online workshops to enhance my job performance.	يمكنني الاستفادة من الميزات الإضافية للمنصات والموارد الرقمية للمدرسة من خلال ورش العمل عبر الإنترنت التي توفرها المدرسة لتحسين أدائي الوظيفي.
TASU4. I can discuss with colleagues through online groups or forums to raise concerns, share solutions and make better use of the features of the school's digital platforms and online resources.	يمكنني المناقشة مع الزملاء من خلال المجموعات أو المنتديات عبر الإنترنت لطرح المشكلات ومشاركة الحلول والاستفادة بشكل أفضل من ميزات المنصات والموارد الرقمية الأساسية للمدرسة والموارد.

Appendix C: Old Instrument Set by the researcher based on adapted instruments and theories.

Construct	Instruments (Items to measure each construct)	Use of Instrument (Same, adapted, or created)	Sources
Perceived ease of Use (PEUO)	<p>PEUO1. I believe that the digital platform is easy to use and navigate through.</p> <p>PEUO2. I believe that the online resources are easy to use and navigate through.</p> <p>PEUO3. I believe that it is easy to set students assignment and mark them through the digital platforms and online resources for asynchronized lessons.</p> <p>PEOU4. I believe that it is easy to integrate different type of online resources such as video, collaborative activities, polls in synchronized lessons.</p> <p>PEOU5. I believe that it is easy to interact with my students using the digital platforms and devices.</p> <p>PEOU6. I believe that using the digital platforms and online resources does not require a lot of my mental efforts.</p>	Adapted	<p>Akour, I. <i>et al.</i> (2006)</p> <p>Salo, J. <i>et al.</i> (2013)</p>
Teacher Perceived Benefits (TPB)	<p>TPB1. The digital platform and online resources enhance my teaching effectiveness in online distance learning.</p> <p>TPB2. The digital platform and online resources enable me to handle any class size and different grouping effectively.</p> <p>TPB3. The digital platform and online resources</p>	Adapted	<p>(Ajzen, I., 1991).</p> <p>Ajzen, I. (1991). The theory of planned behavior. <i>Organizational Behavior and Human Decision Processes</i>, 50(2), 179-211.</p>

	<p>improve students' accessibility to learning.</p> <p>TPB4. The digital platform and online resources improve students' connectivity to learning (interactions between students and teachers in different ways)</p>		
<p>Teacher Digital Self-efficacy (TDSE)</p>	<p>TDSE1- I am confident about my ability to use the digital platform and online resources to provide online remote learning environment.</p> <p>TDSE2. I believe that I am able to use the digital platform and online resources to provide online remote learning environment.</p> <p>TDSE3. I have mastered the skills necessary for using digital platform and online resources to provide online learning environment.</p>	<p>Adapted</p>	<p>(Compeau & Higgins, 1995)</p> <p>Compeau, D. R. & Higgins, C.A. (1995). Computer self-efficacy: Development of a measure and initial test. MIS Quarterly, 19(2), 189-211.</p> <p>(Zheng, Y. et al., 2018)</p>
<p>System Characteristics (SCH)</p>	<p>SCH1. The digital platform and online resources are being accessible by different devices and operating systems (such as android, apple etc.)</p> <p>SCH2. The digital platform and online resources performance are not affected by the changes of the learning environment and number of users.</p> <p>SCH3. The digital platform and online resources do support the use of different languages including Arabic language.</p> <p>SCH4. The digital platform and online resources can easily integrate regardless of the learning environment and the</p>	<p>Adapted</p>	<p>Bailey and Pearson (1983); Ives et al. (1983)</p>

	<p>synchronized/asynchronous mode.</p> <p>SCH5. The digital platform and online resources are efficient in providing virtual online environment including assignment submission and assessment/Feedback.</p>		
<p>Technical and administrative support (TASU)</p>	<p>TASU1. I can get exchange information with other staff who know how to better use the digital platforms and online recourse when I have difficulty using them or need administrative actions.</p> <p>TASU2. I can talk other people who are more knowledgeable to address a technical or administrative issue related to digital platforms and online resources.</p> <p>TASU3. I can discuss with others who know how to make better use of the features of the digital platforms an online resource being used.</p>	Adapted	<p>(Compeau & Higgins, 1995)</p> <p>(Zheng, Y. et al., 2018)</p>
<p>Leadership support (LSU)</p>	<p>LSU1. The school Leadership team invest on planning and availing technology infrastructure and resources</p> <p>LSU2. The school leadership team embodies a culture and vision of using technology through and hence set rules and expectations.</p> <p>LSU3. The school leadership team embodies a cultural capital by investing time to self-improvement, of skills, knowledge and competencies in using technology and provide positive reinforcement for through professional development coaching.</p>	<p>Some adapted items from different resources.</p> <p>Some are added based on the Literature review of the concept.</p>	<p>(Compeau & Higgins, 1995)</p> <p>(Igarria and Livari, 1995)</p> <p>Bordeaux's Sociology and theory of practice to information technology (Beckman et al. 2018)</p>

	<p>LSU4. I am supported and encouraged by the Leadership to use the digital platform and online resources to provide online remote learning environment.</p> <p>LSU5. The formal training provided by my school helped me to get familiar with the digital platforms and online resources.</p> <p>LSU6. The school Leadership team provide constructive feedback through the monitoring process to develop the use of digital platform and online resources.</p>		
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