QATAR UNIVERSITY

COLLEGE OF EDUCATION

INTEGRATING TECHNOLOGY IN PREPARATORY STUDENTS' WRITING IN THE

SCHOOLS OF QATAR: EFL TEACHERS' KNOWLEDGE, PRACTICES AND

CHALLENGES

BY

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# ABSTRACT

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Title: Integrating Technology in Preparatory Students' Writing in the Schools of Qatar:
EFL Teachers' Knowledge, Practices and Challenges

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Competency in English writing skills is essential for academic and
professional success. However, learning to write entails explicit and intensive
instruction particularly in the EFL context. In view of the recent technology
development, it is essential to reconsider how writing is delivered and how teachers
are prepared for technology integration. To that end, this mixed-method study aimed
at investigating teachers' knowledge, practices, and challenges of technology
integration in teaching writing to EFL students in public schools in Qatar.
Quantitative data were collected from 182 teachers who completed a web-based
questionnaire, while qualitative data were collected through 10 semi-structured
interviews. Findings revealed that EFL teachers assumed a high level of knowledge in
all TPACK (Technological Pedagogical and Content Knowledge) constructs;
however, teachers barely apply this knowledge to improve students writing skills.
Several challenges documented in this study contribute to this deficiency in using
technology in teaching writing mainly, the absence of professional development, lack
of time and teachers' beliefs toward integrating technology. The results also showed
statistically significant differences in relevance to gender, years of experience, and the
received professional development. Finally, the study extends several

recommendations to educators and policymakers for the purpose of improving

teachers' skills in integrating technology in writing instructions.

# DEDICATION

*This thesis is dedicated to my loving mother*

*My beloved husband and*

*My greatest sons.*

# ACKNOWLEDGMENTS

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**CHAPTER ONE: INTRODUCTION**

English writing proficiency has become one of the most pressing concerns across the world (Abdel-Haq & Ali, 2017; Graham & Rijlaarsdam, 2016; Hidayati, 2018). This concern is driven by the need for writing skills to warrant academic and professional success. However, students' poor writing skills evident by the low performance in writing tests in most countries, indicate that they are not receiving the appropriate writing instruction in schools (Graham, 2019; Graham & Rijlaarsdam, 2016).

Nowadays, the need for efficient writing instruction is more important than ever (National Center for Education Statistics 2012). According to Ahmadi (2017), one of the most critical aspects of learning is the methods teachers use in their classes to assist students in language learning. Expectedly, this becomes more crucial when teaching English as a second or foreign language (ESL/EFL) (Iskandar, 2020; Schoonen et al., 2009). Much of the existing literature shows that acquiring a second language (L2) is a long life process that requires perseverance and conscious effort (Hwang et al., 2014; Lin et al., 2018; Mozaheb, Seifoori & Beigi, 2013). Writing acquisition in particular requires an appropriate level of syntax and lexical knowledge, which is considered quite intricate for EFL learners (Mozaheb et al., 2013). Compounding this difficulty, methods and strategies that are used in traditional writing classrooms are outdated and not tailored to satisfy the need of the digital native ESL/EFL learners (Graham, 2019; Schoonen et al., 2009). This concern is pronounced by EFL teachers who perceive teaching writing to be a quite challenging task, yet of vital importance (Ho & Thuy, 2009).

With this concern in mind, educational technology has revolutionized the teaching of writing. Teaching and learning nowadays are no longer confined to the

conventional classroom setting; the classroom has become a global place where people can meet from all over the world thanks to the internet (Roblyer & Doering, 2014). Currently, numerous technological tools and devices are available to assist instructors in improving the way they teach writing. Technology use in composition classes is known to have a promising impact on English language learners' writing skills as it encourages both individual and group learning, increases motivation, and facilitates the writing processes (Deore, 2012; Lin & Griffith, 2014).

**Overview of Teaching Writing Approaches in EFL Context**

Writing is a complicated human task and a complex activity that requires individuals to develop communicative and linguistic skills (Hidayati, 2018). According to Byrne (1991), writing is defined as a set of sentences organized in a certain order to form a coherent text. Other researchers stated that it is an ongoing process of finding out how to communicate one's feelings, thoughts and ideas in the most meaningful way (Abdel-Haq & Ali, 2017). In a nutshell, writing is a way of communication in which information and ideas are transmitted in a written form.

Unfortunately, the ability to write efficiently is not a natural inherited trait, it is an intimidating experience that needs to be taught and practiced in a formal context (Graham & Rijlaarsdam, 2016; Kitchakarn, 2012). In EFL writing classrooms, scholars have developed and adopted a wide range of approaches for teaching writing with a view of the EFL learners' needs. However, in recent years, writing instruction in EFL context is likely to be based on four major pedagogical approaches namely the product approach, process approach, genre approach and process- genre approach (Badger & White, 2000; Eliwarti & Maarof, 2014; Hasan & Akhand, 2010). Each approach deals

with writing from a different theoretical standpoint, and each approach has its strengths and limitations, as presented in the next section.

**Product Approach**

The product-oriented approach has extensively dominated the EFL writing classroom over the past few decades and is still favored by many teachers (Al-Hammadi & Sidek, 2015). Hyland (2008) pointed out that the product approach is more of a teacher-centered approach that is rooted in the behaviorist theory. According to Badger and White (2000), the approach views the writing text as an independent task that can be achieved by imitating a given model with emphasis given to linguistic and syntax knowledge.

Teaching using the product approach entails four successive stages: examining a model text and its features (familiarization), practicing the highlighted features (controlled writing), organizing the ideas (guided writing), and producing the final product (free writing) (Badger & White, 2000). During the familiarization stage, learners examine model texts and learn about the linguistic elements of the targeted genre. At the controlled writing stage, learners try to use the vocabulary and grammatical rules presented in the earlier stage to create their own sentences. The guided writing is the most important phase in which learners organize their ideas. Finally, at the free writing stage, learners produce their writing task individually with great attention to producing error-free pieces of writing.

Conversely, the approach was criticized for focusing on accuracy in the student's final product, ignoring the writing process and the development of the skills (Badger & White, 2000; Hyland, 2008). In addition, Mehr (2017) argued that a product-based approach encourages students to follow a set of fixed rules, regardless of the

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cultural factors affecting the writing process. Furthermore, the product approach is claimed to have an undesirable effect on students' self-efficacy and motivation due to constant error correction (Al-Hammadi & Sidek, 2015).

**Process Approach**

The process approach evolved to shift the focus on the embedded cognitive process of writing that the traditional product approach had ignored. The notion of the process approach was first brought to the L2 by Zamel (1982) who emphasized that students should be given the opportunity to explore their thoughts and express their ideas and not limiting their abilities to imitating a fixed model. Advocates of this approach based their claims on the sociocultural theory (Vygotsky, 2006, 1978) to explain the writing processes (Slavkov, 2015). Despite the different views of the writing processes, a typical writing model identifies four cyclical steps: prewriting, drafting, revising and editing, whereas the teacher's role is to mediate and facilitate learners' thinking rather than providing input (Badger & White, 2000).

Opponents of this approach argue that this approach tends to decontextualize writing since elements such as the purpose for writing, the genre, and the language structure are neglected; the writing process is the same regardless of the genre (Badger & White, 2000). Lack of modelling is also one of the critical drawbacks of the approach (Askarzadeh Torghabeh et al., 2010). In addition, this approach may not be effective with struggling learners who need guidance and supervision (Hyland, 2008). The limitations of the process approach paved the way to the development of the genre approach.

**Genre Approach**

The term genre is used to indicate a group of texts that have similar social purposes and organizing conventions (Hyland, 2008). The genre approach appeared as a modified version of the product approach (Badger & White, 2000) to highlight the importance of teaching students how to write particular genres while considering the social contexts and the communicative purposes. The teaching cycle starts by building the context in which the social purposes and the settings are discussed. The second stage includes analyzing a model text to unravel the language features. The third stage comprises the joint construction of the text facilitated by the teacher. The fourth stage is independent writing, while the teacher monitors students and provides help when needed. Finally, the teacher relates the task to other genres and shows how the task could achieve the purpose. As the teacher, moves from one stage to another, scaffolding and explicit instruction are reduced, and more responsibilities are granted to the students.

This approach is in harmony with what Vygotsky calls "the zone of proximal development" ( Lin, 2006). The genre approach is highly appreciated for valuing the social context and the communicative purpose, as well as offering a clear understanding of how text is structured based on the targeted genre (Badger & White, 2000). Similar to the product approach, the genre approach emphasizes the linguistic knowledge of the learners and the analysis of authentic models. However, this approach has received a controversial argument, as writing is seen as a matter of mimicking a model without considering the intellectual processes of the learners (Badger & White, 2000).

**Process-Genre Approach**

Process Genre Approach (PGA) was first developed in 2000 by Badger and White based on Flower & Hayes's (1980) model. The approach has emerged as a result of integrating the strengths of the product, process and genre-based approaches, and claimed to have a positive impact on overcoming barriers to writing (Agesta, 2016; Babalola, 2012).

According to Badger and White (2000), the model is rested on contextualizing the writing task to achieve a communicative purpose. This means students have to consider the register, the writer/audience relationship, text organization and the mode. The writing processes underpinning each element are of equal importance in this model. The teacher's role is to create an authentic situation and provide support, feedback and suggestions that enable students to identify the social context aspects such as purpose, tenor, field and mode of the targeted genre. Students have to undergo the writing process like planning, drafting, reviewing and editing before publishing their piece of writing, and the teacher's input may vary depending on students' levels.

Yan (2005) provided a detailed framework for the process-genre approach that served as implementation guidance for teachers. The framework includes six main stages: preparation (building knowledge of the field), modelling of a particular genre, planning the writing text, joint constructing between teachers and students, independent composing of the first draft, and finally revising and editing the final draft. Although each stage seeks to achieve a different purpose of the writing, scaffolding instruction is considered a fundamental principle. Scaffolding in PGA is assumed to help students achieve a higher performance writing level within their Zone of Proximal Development (ZPD) (Hyland, 2008).

**Technology and Writing Skills**

Technology has become an integral part of the twenty-first century and an indispensable aspect of our digital age. In accordance with this, technology has mandated its effect on education and altered the teaching and learning practices (Sarıçoban, Tosuncuoğlu & Kırmizi, 2019). Failing to compete with the fast-paced changes that technology brings to the educational field may lead countries to lag behind the developed nations, where attaining a sustainable education system is a priority. Therefore, educational technology adoption has been a global demand by policymakers and stakeholders who long to optimize their education system quality.

Technology integration in the classroom is believed to boost teaching practices and improve learning outcomes in all subjects (Regan et al., 2019; Sarıçoban et al., 2019). Accordingly, technology integration has become a major area of interest within the field of teaching the English language. Existing research has provided important information about the critical role technology plays in advancing students' four English language skills, including writing skills (Nugroho & Mutiaraningrum, 2020; Shadiev & Yang, 2020).

**Advantages of Using Technology in Writing**

Mounting evidence from the extant literature suggests that using technology could positively influence learners writing in terms of quality and quantity (Azmi, 2017; Fidaoui, Bahous, & Bacha, 2010; Yunus et al., 2013). In his study, Qoura (2017) advocated the use of technology and multimodal literacies to increase the opportunity of making the writing process and the resulting product more complex, engaging, generative and collaborative. In addition, Boudjadar (2015) and Qoura (2017) argued that technology allows students to interact with people and communicate their ideas to

a broad audience using emails, forums, blogs and social networks as examples. Furthermore, Wang (2011) stated that approximately 70% of the students found that using technology has spurred their English writing desire. Similarly, Allen et al., (2014) noted that students writing, engagement and motivation have improved as a result of using the W-Pal (intelligent tutoring system). Coupled with this, Technology also increases students' response by encouraging students to evaluate various authentic texts, analyze the key characteristics and features of text genres, compare different text types, assess the validity and recognize the importance of information sources (Azmi, 2017). Moreover, technology enhances students' level of motivation and interaction (Azmi, 2017; Lin & Griffith, 2014). Adding to all of the aforementioned advantages, technology allows students to receive feedback from a large audience, not only their teachers and peers (Boudjadar, 2015).

**Technology-Supported Approaches to Teaching Writing**

Technology made a great stride in developing the writing pedagogies and proposed opportunities for modern language writing classrooms that would not be possible in the traditional ones. Following are some examples of current technologies and approaches that are commonly used to help EFL/ESL students improve their writing skills.

*CALL Approach*

Computer-Assisted Language Learning (CALL) is a widely recognized approach in developing students' language competencies. According to Levy (1997), CALL is the use of computer systems and programmers to enhance language teaching instruction and the learning process. CALL research focuses on how technology influences learners and assists them in getting a deeper understanding of subject matter

(Rahmany, Sadeghi, & Chegini, 2014). CALL has a direct connection with constructivism since it allows students to engage in an exploratory learning environment where they can examine authentic materials and produce high-quality writing, whereas the teacher's role is to facilitate, monitor and guide the learning process (Ambrose & Palpanathan, 2018).

One of the most significant applications of CALL in teaching writing is the use of word processors. Many scholars have emphasized the viability and utility of word processing in writing instruction (Abdelrahman, 2013; Azizaturrohmi, 2019; Beck & Fetherston, 2003). It is the most widely recognized and widely used computer program in second language acquisition (Pennington, 2004). Students can use the word processor to draft their writing and get instant feedback about their spelling, punctuation and sentence construction. According to Beck and Fetherston (2003), there are several uses for word processors in writing that students can benefit from including formatting, cutting and pasting, insertion and deletion, searching, and editing.

Another powerful tool of CALL is email. Janfaza, Shahsavari, and Soori (2014) found that using emails increases students' writing performance. They argue that constant email communication between the teacher and the students allows teachers to guide students by responding to their queries regarding any writing issues they face. This kind of interaction provides plenty of opportunities for students to practice the language in authentic settings.

Web-based tools are also widely acknowledged in improving students' writing skills. Google Doc, for example, is a free online multimedia platform with a variety of valuable features. The tool allows students to look up words using an English interactive dictionary, find antonyms or synonyms, and check spelling and grammar.

Google Docs also has a feature for collaborative writing, which allows students to collaborate with their peers (Dara Damanik, 2018). In addition, online dictionaries, thesauri, writing labs, and grammar and spelling checkers are highly recognized tools in this sense.

*Social Media and Social Network*

The affordances of social media (such as Twitter, Wikis, blogs, LinkedIn, etc.) and social networks (Learning Management Systems, Facebook, WhatsApp, etc.) on enhancing students writing are varied and undeniable. Out of many benefits, social media offers students opportunities to practice writing in authentic contexts, increases motivation, and facilities the writing process (Galvin & Greenhow, 2020). Likewise, Rusli et al., 2019, suggested that leveraging social networks as writing tools fortify students writing skills, encourage students to develop autonomous learning strategies, and promote collaborative learning through exchanging information, posts, comments and feedback with both teachers and peers. Involving students in peer reviews activates students' critical thinking skills and evokes learning accountability (Cahyono & Mutiaraningrum, 2015).

**Teacher's Role and TPACK**

On account of the successive advances in the field of technology, teachers' duties, responsibilities, and qualities are constantly changing. These changes placed a number of demands on the teacher's role. To put it another way, teachers in the age of technology are required to adhere to technology expansions and to be knowledgeable in terms of content, pedagogy, as well as technology (Kozikoğlu & Babacan, 2019).

In light of these requisites, Mishra and Koehler (2006) put forward the concept of technological pedagogical and content knowledge (TPACK) in response to the

absence of a theoretical framework that supports technology inclusion in the teaching process (Rahmany et al., 2014). Over the last few decades, the TPACK framework has been widely investigated in an effort to define the complex nature of knowledge teachers need for successful technology integration (Baser, Kopcha & Ozden, 2016; Bostancioglu, 2014; Bostancıoğlu & Handley, 2018; Brantley-Dias & Ertmer, 2013; Drajati et al., 2018; Koehler et al., 2013, Mishra, & Cain, 2013; Sarıçoban et al., 2019; Taopan, 2020; Wu & Wang, 2015). Mishra and Koehler (2006) argued that effective technology integration occurs only when the three areas of knowledge intersect: content pedagogy and technology.

This view was supported by Gorder (2008), Ertmer and Ottenbreit-Leftwich (2010) who argued that successful teaching is associated with teachers' ability to properly use and select the technologies that facilitate student learning and meet their diverse learning needs. Against this background, educators, stakeholders and practitioners need to realize that technology accessibility, though it is important, does not necessarily warrant a successful integration of technology; teachers need to obtain an adequate level of knowledge that enable them to link appropriate technologies with the classroom activities.

In writing classes, the teacher's role is to provide scaffolding and guidance throughout the writing processes to ensure that students are able to perform the writing task properly. In doing so, teachers have to weigh a number of factors, most importantly are the use of suitable research strategies, tools, programs based on the targeted genre during the preparation, brainstorming, modeling, reviewing, editing and publishing phases (Yunus et al., 2013).

On the other hand, previous studies that investigated middle teachers' use of technology in writing classes showed that the vast majority of teachers do not use technology in writing classes (Applebee & Langer, 2011; Graham, Capizzi, Harris, Hebert, & Morphy, 2014). Applebee and Langer (2011) stated that even when the teacher uses technology, it is teacher-centered with students being passive users.

## Challenges Hinder Technology Integration

Despite the accentuated impact brought to the world by technology, its evolution has always been accompanied by challenges in all areas including education (Ammade et al., 2020). Based on a recent review of 29 empirical studies, Williams and Beam (2019) identified three chief challenges teachers encounter when integrating technology in teaching writing, namely: lack of professional development, teachers' beliefs towards technology, and technology access for educational purposes. In addition, some studies reported other challenges such as students' lack of digital literacy skills, time constraints and lack of school support among other barriers. Below is a brief summary of the most reported challenges.

### Lack of Professional Development

Generally, technology investment has been associated with hardware investment without thoroughly looking at the advantages in the classroom or preparing teachers to use the new technology; this led teachers to revert to the conventional methods of teaching (Qoura, 2017). Such findings drew researchers' attention towards the quality of teachers' education and professional training provided in the educational institutions. Lack of teachers' education and in-service training are at the top challenges that teachers confront when attempting to integrate technology in teaching writing. Prior research indicates that EFL teachers lack the necessary skills to incorporate

technology in their instruction (Celik, 2013; Nugroho & Mutiaraningrum, 2020). Additionally, in many cases, technology was used in a traditional way such as asking students to complete a worksheet or for drilling purposes (Ottenbreit-Leftwich et al., 2018). Chaaban and Ellili-Cherif (2017) asserted that the role of technology in writing instruction remains at a low level despite the constant calls by researchers and educators. Other studies revealed that students' use of technology in writing classes was limited to searching the net for information related to the writing topic, or using word processing to complete the writing task; on the other hand, some teachers stated that they never use technology for teaching writing (Applebee & Langer, 2011; Graham et al., 2014).

### Teachers' Beliefs and Attitudes

The ability of teachers to use technology to mediate writing instruction is informed by their beliefs toward technology (Williams & Beam, 2019). This was clearly stated in Peterson and McClay's (2012) study; findings from the corpus data revealed that teachers were unable to fully utilize the benefits of technology for writing due to two major assumptions. First, teachers assumed that using the word processors to plan and draft a text put students under more cognitive pressure than writing on paper. Second, teachers believed that the spell check feature of the word processors would impede students' spelling progress. In other studies, teachers claimed that developing writing activities using the computer took much more time and prevented them from meeting the curriculum objectives (Mills & Exley, 2014; Vrasidas, 2015). In fact, research shows that even when technology is available, teachers find justifications to avoid using it (Aldunate & Nussbaum, 2013)

Moreover, teachers' attitudes are another crucial factor that determines the extent to which teachers may adopt technology in their writing classes. Research proves that teachers' negative attitudes and perceptions towards technology adversely affect their technological practices (Canals & Al-Rawashdeh, 2019; Celik & Yesilyurt, 2013).

### Access to Technology

Teacher's use of technology is always associated with its accessibility in the classrooms. According to Ihmeideh (2010), computers were only used in computer laboratories in specific classrooms, and there was often a lack of computers in the labs. In addition, some researchers reported that teaches were unwilling to take students to the computer labs due to scheduling issues, the need to make advance arrangements, and worries over losing teaching time (Peterson & McClay, 2012). Even when tablets or computers are available for classroom use, teachers expressed their concerns regarding the large numbers of students and the limited number of devices (Beam & Williams, 2015). Other reported obstacles were the access to the Internet besides the lack of high-quality educational software that considers the age and level of students ((Beam & Williams, 2015; Ihmeideh, 2010).

### Lack of Students' Digital Literacy Skills

Though this generation is actively immersed in using social media, many students are unable to use technology for academic purposes (Sadauskas, Byrne & Atkinson, 2013). Students' weakness in using basic computer skills is identified as a major barrier for technology integration; keyboarding skills, for instance, are essential in performing writing tasks within the allocated time (Fadlelmula & Koç, 2016). Lacking these skills affects students' motivation and eventually inhibits them from producing high-quality texts.

Yunus et al., (2013) pointed out other challenges of technology integration such as the improper use of the internet by accessing irrelevant websites, and the disruption caused by technology use during learning time, which makes it harder for teachers to maintain class discipline.

## The Qatari Context

### Education Background

This study is set in the state of Qatar, a small yet wealthy country located in the Arabian Gulf and shared its land borders with the Kingdom of Saudi Arabia. According to the Planning and Statistic Authority (2021), the population of Qatar is 2,660,788. The official language for the country is Arabic, while English is considered a foreign language (Brewer et al., 2007; Mustafawi & Shaaban, 2019).

Over the past few decades, Qatar has experienced dramatic fluctuations in its education system. Till the late 1990s, education in Qatar was marked as being outdated, rigid and resistant to change (Brewer et al., 2007). In 2001, the Qatari government led an educational reform in collaboration with Research and Development Cooperation (RAND), a non-profit research organization (Brewer et al., 2007; Nasser, 2017). The appeal for the reform was triggered by students' poor achievement on the international standardized tests, traditional teacher-centered teaching methods and the policy makers' desire to improve the quality of education in Qatar from Kindergarten to 12the grade (K-12) (Romanowski & Du, 2020).

RAND was responsible for conducting a comprehensive assessment of the Qatari schooling system from K-12 to identify the strengths and weaknesses in the system and pinpoint areas that required improvement. Upon the completion of the evaluation, Rand reported several shortcomings related to the leadership policies,

curriculum quality, type of instruction and technology availability (Brewer et al., 2007; Nasser, 2017; Zellman et al., 2009). In response, the initiative *Education for a New Era* (EFNE) was launched in 2002. Among the three improvement options RAND presented, the Qatari government decided to adopt the Charter School Model, which advocated the establishment of the Independent Schools and the Supreme Education Council (SEC) (Brewer et al., 2007). The independent school model was built upon four main pillars: autonomy, accountability, variety and choice (Brewer et al., 2007).

In addition, based on RAND recommendations, a standards-based system was developed for the four core subjects (Arabic, English, Math and science) to guide the curriculum, the instruction and the professional development of the teachers (Brewer et al., 2007). Furthermore, the English language was introduced as the medium of instruction for science and math subjects, which formed a significant challenge for most science and Math teachers, who were not well qualified for the change (Nasser, 2017).

In 2007, the national professional standards were developed in an attempt to enhance teachers' instructional quality and school leaders' management skills (Brewer et al., 2007). At the beginning, there were 12 core standards for teachers each consisted of a series of statements outlining the expected knowledge and skills at various stages in teaching (entry, proficient and advanced), as well as a set of indicators for assessing the progress in reaching acceptable levels of performance (Brewer et al., 2007). Later in 2016, a refined version of the standards was developed consisting of only 6 standards (see Appendix A). It is worth noting in this context that deploying technology in students learning was stated explicitly in the first version of the professional standards (Standard 6), while in the second version, technology is embedded in the standards.

The shift towards decentralization was accompanied by other challenges related to building the educators' capacity, maintaining the reform principles, gaining the stakeholders' acceptance, and finding eligible operators (Brewer et al., 2007). These challenges, among many others, reverted the Western borrowed reform gradually to the centralized system, which was officially declared in 2016, by Emiri Decision No. 9. Correspondingly, the MOEAHE returned to the scene and the Independent schools' term was changed to the public schools.

**English Language Teaching in Qatar**

Qatar has spared no effort to optimize its education system with the purpose of providing Qatari students with a first-rate education that enables them to contribute to their country's development and prepare them for the world workplace. (Fadlelmula & Koç, 2016). On this basis, Qatar has perceived the important role the English language plays in the third millennium and has given it a significant consideration. This was manifested through revisiting the English curriculum standards documents in light of the Qatar National Vision 2030 (QNV 2030), and the Qatar National Curriculum Framework (QNCF) published in 2016 (Curriculum Standards for the State of Qatar English Langauge - Grades K to 12, n.d.).

The new English standards were developed to embody the common European framework of reference for language (CEFR), which defines language learners' proficiency at six reference levels in terms of, Reading, Listening, Speaking and Writing, and aims at building learners communicative proficiency (Council of Europe, 2011). Following the requirements of the Common European Framework of Reference for Languages, the Ministry of Education and Higher Education (MoEHE) has developed a series of textbooks for the preparatory stage called "Portal to English". The

textbooks are designed to build students' ability to use the language in real-life situations using the integrated approach of the four skills (Mitchell & Malkogianni, 2020).

In terms of writing, as the basic concern of this study, writing standards are classified into four categories: communicating information appropriately, organization, writing techniques development, and, register for older students. In the textbooks, writing is offered in two forms: the first one includes short exercises that are incorporated into the lesson. These writing exercises allow students to apply the words, concepts, and grammatical rules learned in the lesson; the exercises are presented gradually starting from gapped activities, short sentences and progressing to longer texts. The second form comprises asking students to write short texts at the end of each unit. Writing is often connected to prior speaking exercises to support students acquiring ideas before moving on to the writing task. Prompts are often given to walk students seamlessly into efficient use of the language.

**Educational Technology in Qatar**

Qatar is experiencing a rapid economic change as it moves to the knowledge-based economy to replace the hydrocarbon resources that have fueled its economic development and national wealth (Creel et al., 2017). In this vein, Qatar's higher authorities continue to place a high emphasis on education to meet the QNV 2030's human development goals (Ministry of Development Planning and Statistics, 2018). This vision was also supported by Qatar's National ICT plan, through addressing the societal benefits of integrating technology in education as one of the main strategic thrust in Qatar's agenda (ictQATAR, 2015).

In line with this, the Ministry of MoEHE took the responsibility to fulfill this agenda and improve the education quality. MoEHE seeks to develop curricula that keep up with global scientific and technological advances. Moreover, it provides teachers with professional development programs that aim at enhancing teachers' digital literacy skills. In addition, the ministry works hard to motivate young people to join the field of STEM (Science, Technology, Engineering and Math) education and professions to meet the needs of the labor market.

Despite the huge investment made to enhance the educational technology sector, research indicates that the accessibility and availability of technology in the classroom have not been adequate to improve the education system in Qatar (Karkouti, 2016). In particular, many teachers lack the required digital skills that enable them to optimize their teaching practices, participate efficiently in advancing students learning and contribute to the global digital economy (ictQATAR, 2015).

**Research Problem**

In Qatar, the English language is a compulsory subject from K-12. However, the current teaching writing practices in schools do not yield the desired outcomes despite the MoEHE effort to enhance English language teaching instruction. Data obtained from international standardized tests including PISA and PIRLS indicate that Qatar's performance on reading was lower than the average in previous years (Cruz, 2019; Mullis et al., 2017, 2011; OECD, 2014; Romanowski & Du, 2020). Additionally, findings from the English First English Proficiency Index (2020) indicate that Qatar has been ranked as a country with a "low proficiency" level of English language skills. Based on studies, reading and writing are interrelated as they relatively share a set of subskills such as cognitive and linguistic knowledge (Schoonen, 2019).

These facts brought attention to the status quo of the quality of writing instruction delivered to the students in the classrooms. Writing classes tend to be teacher-centered and technology use in EFL classrooms is still below the optimal level. Teachers mainly utilize the available technology such as internet-connected computers, laptops, interactive whiteboards, projectors and digital textbooks to fulfill their teaching tasks (lesson planning and searching for videos and pictures), while students are rarely engaged in a technology-mediated learning environment (Chaaban & Ellili-Cherif, 2017). Accordingly, significant learning deficits related to the quality of students writing were identified.

Stakeholders perceived students' underachievement in English as a crucial challenge in accomplishing Qatar National Vision 2030 goals (Said, 2016). As a result, the MoEHE called for urgent steps to improve students' outcomes in the English language, and accordingly English curriculum standards were reviewed and refined.

In language literature, writing instruction has a prominent effect on students' acquisition of writing skills (Agibuay, 2016; Jones, 2015; Suwantarathip & Wichadee, 2014). Adopting new approaches and strategies may leverage the writing instruction pedagogy and contribute to the development of students writing skills. However, effective infusion of technology requires teachers to obtain an appropriate level of technological knowledge (TK), pedagogical knowledge (PK) and content knowledge (CK) (Blessinger & Wankel, 2013). Moreover, knowledge of the mandated curriculum affects the writing instruction (Cheung & Jang, 2020). Teachers usually have to make various instructional decisions in which they have to balance between covering the curriculum and meeting students learning needs (Griffith, Massey & Atkinson, 2013)

In relation to the focus of this study, a thorough examination for the English writing curriculum standards revealed that using technology to enhance students writing competency is rarely mentioned. In addition, investigating the writing activities in the national English textbooks for the preparatory stage showed that technology use is limited to searching the Internet to find information related to writing projects. This gap in the curriculum aroused the researcher's interest to explore the writing instruction status regarding technology use. On this basis, this study intended to advance our understanding of teachers' knowledge in terms of technology, pedagogy and content. Additionally, it aimed to investigate how teachers integrate technology into their writing instruction and the perceived challenges of incorporating technology into the teaching of writing in EFL classes in public schools in Qatar.

## Research Questions

The current study aims at exploring teachers' knowledge, practices, in addition to the challenges they confront when embedding technology into teaching writing in EFL classes in public schools in Qatar. The research questions addressed by this study are the following:

1  What level of TPACK do EFL teachers' have in terms of integrating technology into teaching writing to EFL students in preparatory schools in Qatar?

2  In what ways do EFL teachers' integrate technology into teaching writing to EFL students in preparatory schools in Qatar?

3  What challenges do EFL teachers face when integrating technology into teaching writing to EFL students in preparatory schools in Qatar?

4    Are there any statistically significant differences among teachers in their knowledge and practices due to gender, years of experience and the received professional development?

**Study Objectives**

The following objectives drove this study:

1    Determine the EFL teachers' level of TPACK in terms of integrating technology into teaching writing to EFL students in preparatory schools in Qatar.

2    Explore how EFL teachers' integrate technology into teaching writing to EFL students in preparatory schools in Qatar.

3    Identify the challenges EFL teachers face when integrating technology into teaching writing to EFL students in preparatory schools in Qatar.

4    Identify any differences among teachers in their knowledge practices and challenges due to gender, years of experience and the received professional development.

**Significance of the Study**

This study provides a significant contribution to the field of EFL writing in different ways. First, studies that address the teachers TPACK and use of technology to teach writing are still very limited (Chai et al., 2013; Cheung & Jang, 2020), and very few have focused on exploring ESL/ EFL teachers TPACK (Mozaheb et al., 2013; Schmidt, 2019). In addition, to the best of the researcher's knowledge, apart from this study, no study on EFL teachers' TPACK, practices and challenges of integrating technology in teaching writing in Qatar has been found. Therefore, this study is an attempt to fill this void.

Furthermore, the findings of the current study would contribute to improve the quality of teaching writing in Qatari Schools as well as improve the quality of the professional development presented to the teachers based on the contextual realities and teachers' needs. In addition, research results would inform stakeholders and policymakers on challenges EFL teachers encounter when integrating technology into the teaching of writing which should be addressed during the review of the educational strategy. The results of this study may also encourage other researchers and educators to conduct further studies to explore factors that may affect teachers' integration of technology in writing instructions.

## Theoretical Framework

The current study is driven by two theories; the Pedagogical Content Knowledge (PCK) theory, and the constructivism learning theory.

### Pedagogical Content Knowledge (PCK)

This study is grounded in the pedagogical content knowledge theory that was first voiced by Shulman (1986). In his theory, Shulman (1986, 1987) conceptualizes the notion of teachers' knowledge and illustrates the complex and interconnected nature between knowing the subject matter and how to transfer this knowledge to the learner. According to Shulman (1986, 1987), a teacher must possess seven domains of Knowledge in order to be a successful teacher. First, the content knowledge; this refers to the quantity and structure of information in the teacher's mind that can be represented by Bloom's and Gagné's taxonomies. To acquire solid content knowledge, teachers need to go beyond the mere facts and principles of a domain, into understanding how the subject concepts are structured and organized. The second knowledge is the general pedagogical knowledge. This type of knowledge focuses on the wide-ranging approaches and strategies used for managing the classroom activities beyond the subject

matter. Third, knowledge of the curriculum, which refers to the entire spectrum of programs intended to teach certain subjects at a specified grade, as well as the educational resources associated with such programs. The fourth knowledge is the pedagogical content knowledge, which extends beyond the subject matter expertise to include knowledge of teaching purposes, the most valuable modes of representation of certain concepts, the most effective analogies, diagrams, observations, interpretations, and demonstration methods. The fifth knowledge is related to understanding the students and their diverse learning needs and characteristics. The last two domains are the knowledge of the educational standards, aims and values within the educational contexts that ranged from the classroom to the school, community and the district. Among those types, pedagogical content knowledge is of particular significance as it represents the core construct of the knowledge needed to understand, interpret and tailor the subject content to meet the diverse needs of the learners (Shulman, 1987).

The notion of PCK promoted a shift in the research focus towards addressing the emerging knowledge when content and pedagogy intersect. This view contradicts the traditional approach that deals with content and pedagogical knowledge as separate entities (Mishra & Koehler, 2006). According to Shulman (1986), teachers' effectiveness is measured by their ability to handle the content and choose from a repertoire of strategies the most suitable methods that make the content useful and more comprehensible for learners.

### *Technological Pedagogical and Content Knowledge (TPACK) Framework*

With the rapid advent of technological devices and tools, effective teaching with technology becomes more challenging. Several models and frameworks were empirically developed to help educators define the required knowledge and skills to

master technology integration in the classrooms (Redmond & Lock, 2019). Technological, Pedagogical and Content Knowledge (TPACK) is one of the recent frameworks that Mishra and Koehler (2006) coined on the ground of the Pedagogical Content Knowledge (PCK) theory of Shulman's (1986). According to Mishra and Koehler (2006), the TPACK model delineates the relationship among the three core knowledge: content, pedagogy and technology. In addition to this, the model highlights the dynamic relationship among these three domains: Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical and Content Knowledge (TPACK) (figure 1) (Voogt et al., 2016).
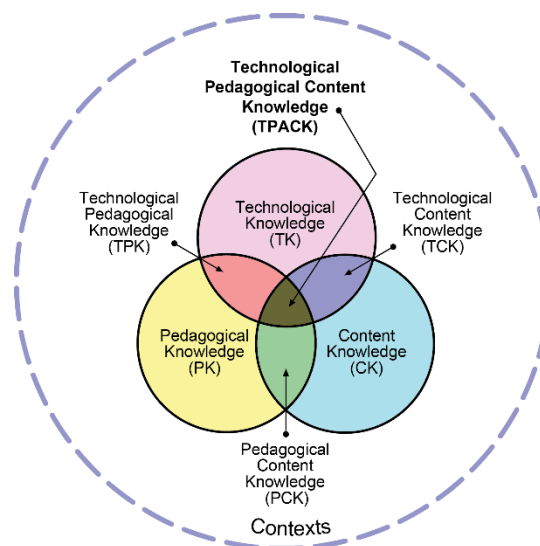


Figure (1) TPACK framework (Reproduced by permission of the publisher, © 2012 by tpack.org)

*Content Knowledge (CK)*

Apparently, content knowledge is an essential requirement for any subject in any discipline. According to Shulman (1986), content knowledge refers to the level and structure of knowledge exist in a teacher's mind about specific topics. This entails

knowing and understanding the topics they teach, the theories underpinning this subject matter, the facts, concepts and principles within a particular field (Shulman, 1986).

*Pedagogical Knowledge (PK)*

Pedagogical knowledge lies on a continuum ranging from the theories of teaching and learning to the educational practices, methods and techniques. This involves, to name a few, knowing about issues like lesson planning, teaching strategies, student assessment and evaluation, classroom management, in addition to the knowledge related to students' learning habits and attitudes towards learning (Mishra and Koehler, 2006).

*Technology Knowledge (TK)*

Technology knowledge represents teachers' knowledge of various technologies ranging from standard (transparent) technologies such as pencils and blackboards to advanced technologies evolving over time such as the internet and digital videos (Mishra & Koehler, 2006 & Schmidt et al., 2009). It also involves the ability to manage software and hardware systems efficiently. Mishra and Koehler (2006) stated that teachers need support to maintain this type of knowledge since technology is renewable and dynamic in nature.

*Pedagogical Content Knowledge (PCK)*

The concept of pedagogical content knowledge stems from Shulman's PCK theory; and is mainly concerned with incorporating teaching approaches that are appropriate for a particular content area (Shulman, 1986). This knowledge is what makes a concept easy or difficult to comprehend and grasp; knowledge of how to construct the new knowledge in students mind based on their prior ones; knowledge of

how to create a learning environment that brings the best of the learners and facilitates the learning process (Mishra & Koehler, 2006).

*Technological Content Knowledge (TCK)*

Technological content knowledge signifies the mutual relationship between content and technology. This can be translated through teachers' ability to navigate among a variety of technologies to choose the most suitable ones to teach a particular subject matter (Mishra & Koehler, 2006).

*Technological Pedagogical Knowledge (TPK)*

This knowledge, as Mishra and Koehler noted (2006), is concerned with how technology can affect the teaching and learning environment and how teachers utilize technology in a meaningful way to achieve a particular task.

*Technological Pedagogical and Content Knowledge (TPACK)*

Technological pedagogical and content knowledge is the cornerstone of effective teaching with technology. In other words, TPACK is the end result of incorporating the characteristics of the three sources of knowledge: TK, PK, and CK (Mishra & Koehler, 2006). Thus, dealing with each knowledge independently will not yield the desired result; quality teaching demands a thorough understanding of the dynamic relationship among the three forms of knowledge and applying this understanding meaningfully and productively (Mishra & Koehler, 2006).

**Constructivist Learning Theory**

The relationship between technology use for educational purposes and constructivism is evident in the literature. The constructivist learning theory has its roots in psychology guided by Dewey (1966), Piaget, (1970), Vygotsky (1978) and

Bruner, (1996). Constructivism is a cognitive and psychological approach built on social cognitivism, which suggests that people, their actions, and their surroundings all interact in a reciprocal way. Constructivism holds the notion that learning takes place in contexts, and that much of what people think and understand is shaped by their experiences in those situations (Schunk, 2012). In light of this, Constructivism recognizes learning as a socially based and active construction that is unregulated by age or developmental level; however, constructivism stresses that actual learning happens when learners are actively involved in the design and construction of learning (Gilakjani et al., 2013).

From this perspective, teacher's knowledge, beliefs, attitudes and practices are significant factors in determining students learning. The constructivist theory emphasizes that teacher's role is to adopt the pedagogical approaches that warrant student-centered and collaborative learning experiences (Gilakjani et al., 2013). In other words, teachers are not the only source of information, but rather the facilitators of learning who guide and support students to learn within their zone of proximal development (Hyland, 2008).

Therefore, the incorporation of technology into teaching and learning reforms the way students learn and the way teachers teach. According to Rakes, Fields and Cox (2006), there is a connection between teachers who hold student-centered views about teaching and how often they use technology to help students learn more. This connection between technology and constructivist instructional practices suggests that constructivist-minded educators see technology as a valuable learning tool in their student-centered classrooms.

**Limitations of the Study**

A number of limitations could have influenced the interpretation of the current study findings. First, data collected from the sample were self-reported; so, all the information presented was exclusively reliant on the participants' viewpoints. A further limitation to consider is the timing of collecting the data; data were collected during the Covid-19 pandemic in the first semester of the academic year 2020-2021, this affected the research methodology and procedures, as the researcher could not conduct classroom observations as it was planned or interviewing the teachers physically.

**Definitions of Key Terms.**

**Writing**: Oluwadia (1992) defines writing as an ongoing process that aims at finding out the most appropriate form of language to communicate the individual's thoughts and feelings to others.

**Technology**: Technology in this study refers to the wide range of hardware, software, and peripherals such as computers, iPads, interactive whiteboards, programs, applications, platforms, etc.

**Educational technology**: refers to a range of devices, tools and software programs that are used to enhance teacher's instructional practices and students' learning process. (Adams Becker et al., 2016, p. 34).

**TPACK**: A model for effective technology integration proposed by Mishra and Keohler (2006) that emphasizes the dynamic relationship between the three types of knowledge: technology, pedagogy and content.

**Technology Integration**: The process of incorporating technology into teaching and learning practices in order to enhance educational outcomes. (Baylor & Ritchie, 2002)

**Public preparatory schools**: schools that provide free compulsory education from grade seven to nine and are funded by the Qatar government (Ministry of Education and Higher Education, https://www.edu.gov.qa/en/Pages/pubschoolsdefault.aspx).

CHAPTER TWO: LITERATURE REVIEW

Technology has led to a remarkable evolution in English language teaching including writing skills. The role of technology in improving students writing skills is widely acknowledged by researchers (Alharbi, 2020; Barrot, 2020; Iwasaki et al., 2019). In line with the research trends, this study sought to explore teachers' perceived level of knowledge in terms of technology integration in writing classes, their use of technology, and the challenges that hinder technology integration in Qatari public preparatory schools.

This chapter presents a review of the literature pertinent to the scope of the study. However, a thorough investigation of the extant literature revealed paucity in studies related to technology integration in writing in the k-12 EFL context in particular. Therefore, and in view of the fact that writing is an integral component of English language skills, reviewing the literature related to integrating technology in English language classrooms was indispensable.

Having said that, this chapter was structured to reflect the key concepts in this study: teachers' knowledge, teachers' practices, and challenges. Finally, the chapter ends with an elaboration on the studies and some concluding remarks.

**Teachers' Knowledge**

According to Mishra and Koehler (2006), acquiring an appropriate level of knowledge in content, pedagogy and technology is a prerequisite for successful integration of technology. The notion of "technological pedagogical content knowledge" (TPACK) was only recently applied to educational science. Thus, the number of studies on TPACK has increased in recent years. TPACK framework has

been widely used to investigate teachers' knowledge in all disciplines such as math, science, social science etc.

Nevertheless, a small body of literature dealt with domain-specific TPACK, with only a few studies focusing specifically on language teaching (Chai et al., 2013; Tseng et al., 2020, Chai, Tan, & Park, 2020; Wetzel & Marshall, 2011). Noticeably, when it comes to EFL-TPACK the studies become slim (Debbagh & Jones, 2015; Öz, 2015; Wu & Wang, 2015). Furthermore, the existing TPACK literature has concentrated on examining pre-service teachers rather than in-service teachers (e.g., Kocoglu, 2009; Kurt, Mishra, & Kocoglu, 2013). Intriguingly, Akcay, Mancilla, and Polat (2015) discovered no substantial differences in technology acceptance between pre-service and in-service English as second language teachers. Moreover, a. Subsequently, studies on TPACK in EFL writing classes have received scant research attention.

Therefore, and upon reviewing the extant literature, the researcher collected studies that targeted teachers' TPACK in writing per se, in addition to studies that addressed writing along with the other language arts.

To address the research void, Cheung and Jang (2020) conducted a recent case study to investigate how five teachers utilized TPACK for teaching writing in a primary school in Singapore. Findings collected through classroom observations showed that teachers demonstrated a limited implementation of TPACK, and writing classes tended to be teachers-centered. Researchers suggested that English teachers should broaden their knowledge of technology integration in writing instruction in order to enhance students writing experience.

Teacher's TPACK was further explored by Putri (2019) in a qualitative study that aimed at examining teachers' employment of TPACK in teaching recount text. The study was conducted in a senior high school in Indonesia. Thirty-two EFL tenth graders and one teacher participated in this study. To collect data, the researcher conducted classroom observations, semi-structured interviews, and examined students' writing tasks. Results from the qualitative data unveiled the positive impact of TPACK on teachers' performance, as well as students' writing and engagement levels. The researcher concluded that most of the challenges that the teacher faced were attributed to the lack of technological content knowledge (TCK).

Moreover, Zoch, Myers and Belcher (2015) employed a collective case study design to explore how in-service teachers developed their TPACK while enrolled in a graduate course. The study included 20 teachers with diverse backgrounds, teaching experience and technology use experience. Qualitative data consisted of course assignments, semi-formal interviews, artifacts, field notes, anecdotal notes and end of the semester feedback. Data analysis revealed that the inclusion of professional development with the field experience allowed the teachers to apply the knowledge they gained immediately, and transfer it into practice. The study findings were in harmony with the researchers' beliefs that learning happens best when it is located within a meaningful context. The researchers asserted that understanding how teachers develop their TPACK would help academics develop suitable courses and training programs that support teachers in the field.

In addition to the above, several studies were found in the English language classes. For example, Alharbi (2020) investigated Saudi English teachers' level of knowledge using the TPACK framework. The researcher administered a questionnaire on a sample of 191 teachers from public schools in Medina city. The questionnaire

focused on measuring three dimensions of teachers' knowledge, content knowledge (CK), pedagogical knowledge (PK), and technological knowledge (TK). Analysis of the quantitative data indicated that Saudi EFL teachers' knowledge level was generally high. Findings also showed that female teachers' knowledge was significantly higher than male teachers' knowledge, and secondary teachers' knowledge was higher than teachers of other stages. On the other hand, no significant differences were found in terms of teachers' teaching experience.

In the same vein, Kozikoğlu and Babacan (2019) carried out a correlation survey model study to examine the relation between EFL teachers' attitudes towards technology and their TPACK level. The study also focused on finding out whether gender, teaching experience, or professional development have any significant effect on teachers' TPACK or attitudes towards technology. The study included 721 Turkish EFL teachers from 81 provinces across the country. To collect data the researchers utilized two online surveys (TPAK and the attitudes scale). While the findings suggested a high level of TPACK, that was in favor of the male teachers who had training on technology integration. On the other hand, no significant differences were found among EFL teachers based on their teaching experience.

In a similar vein, teachers' TPACK has also been investigated by Drajati and his colleagues (2018) in a study that aimed at exploring pre and in-service English teachers' perceptions and implementation of technology, pedagogy and content knowledge. The study included 100 Indonesian EFL teachers from all grades and data were collected using the TPACK online survey for multimodal literacy followed by classroom observations and interviews. The findings revealed that both pre- and in-service teachers have a sufficient level of TPACK but limited understanding of the multimodal literacy term. Additionally, results showed that novice teachers (1-3 years of

experience) surpassed experienced teachers in applying various types of technology in their classrooms. Based on these findings, researchers called for enhancing the quality of training and professional development provided for pre and in-service teachers to improve teaching practices.

Alqurashi, Gokbel, and Carbonara (2017) carried out a comparative study to examine teachers' TPACK level in Saudi Arabia and the USA. In addition, the study also aimed to find any significant differences in teachers' TPACK sub-dimensions due to age, teaching experience, and education level. A total of 86 teachers completed a web-based survey, 47 were from the USA while 39 were from Saudi Arabia. Although findings revealed differences in the mean scores between teachers from the two countries, both groups reported high TPACK level with CK and PK being higher than the TK; they both lacked confidence in troubleshooting skills and in extending hand to their students when facing technical issues. Interestingly, no significant differences in teachers TPACK were evident between the two groups of teachers in terms of age. On the other hand, significant differences were found between the two groups in their perceived TPACK level in terms of teaching experience and educational level.

By the same token, Hsu, (2016) carried out a quantitative study in Taiwan to examine 158 in-service EFL teachers' TPACK, and how it impacts their use of mobile-assisted language learning (MALL). The study results showed that teachers' integrated technology skills (TPK, TCK and TPACK) were higher than the three main areas of knowledge (TK, PK and CK). These results contradicted the findings from previous studies in this area.

In their mixed method study, Wu and Wang (2015) explored the TPACK of 21 Taiwanese EFL teachers in elementary schools, and their future professional development needs. For data collection, the researchers used a survey, interviews, and

teachers' observation. Findings of the study demonstrated that EFL teachers need further development in their technology knowledge (TK) to improve their TPACK. The results also suggested that teachers' TPACK was used to motivate students, display information and provide input, rather than facilitating students learning of the English language in a meaningful and authentic way.

In the same context, Liu and Kleinsasser (2015) explored 6 EFL teachers' TPACK professional growth and their computer self-efficacy development as a result of attending a year-long technology professional development program. By adopting a mixed method design, the study was conducted in two vocational high schools located in a city in Taiwan. To collect the data, the researchers conducted pre-and post-surveys, in addition to three individual semi-structured interviews before, during, and at the end of the study, to show the process of technology integration into teachers' instructional practices. The research findings depicted that five out of the six teachers have significantly improved their TPACK and computer self-efficacy while reporting the need for further development in the TPK domain. Furthermore, four teachers reported facing challenges when integrating technology into their language instructions such as aligning instruction with students' language level, evaluating students' project performance, and creating an online collaborative environment among students.

**Teachers' Practices and Challenges**

A growing body of research has investigated the impact of using technologies on promoting students' writing. Yet studies that focus on exploring how teachers incorporate technology in their instructional practices, particularly in EFL settings, are still limited. In the following section, the researcher reported the studies that addressed writing per se, followed by studies that targeted English language arts.

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Teachers' experiences in terms of using technology in teaching writing were examined by Williams-Butler (2018). The researcher adopted the case study approach to study the impact of using computers on students' writing scores and teachers' experiences. For this purpose, the researcher recruited 10 students from grade eight and five English Language teachers from a middle school in Georgia. Data gathered through the open-ended surveys and the progress reports pointed out that there was a need for better technology integration to increase students' achievement in writing. Another significant finding reported by teachers is that technology use was more of teacher-centered due to the schools' inadequate technology infrastructure, which minimized students' opportunities to access technology.

In another study, Cahyono and Mutiaraningrum (2015) carried out a qualitative descriptive study with the purpose to explore EFL Indonesian teachers' opinions and practices of the internet-based techniques for teaching writing. Seventeen teachers took part in the study in which they were asked to respond to two open-ended questions about their practices and opinions on internet-based writing instruction. Findings of the study revealed that almost half of the teachers utilized internet applications (email, online magazine, Facebook, yahoo, blogs, etc.) to teach writing. In contrast, the other half either used it on a limited basis or never used it at all. Nevertheless, all teachers demonstrated their willingness to apply technology in teaching writing and valued the internet-based teaching practices regardless of their background experience. Implications wise, the researchers called for intensive training for teachers on using technology to teach writing.

Moreover, Pytash and Testa (2015) adopted a case study design to investigate three teachers' experiences of integrating technology into their writing instruction. The study took place over one year and collected the data through teachers' observation,

semi-structured interviews and artifacts. Analyzing the data using constant comparative analysis revealed that teachers' practices reflected their intellectual understanding of writing instruction. However, technology use or lack of it did not necessarily mirror their beliefs; other factors influenced their decisions and practices such as the school context, access to the resources, teachers' perceptions of students' needs and abilities, teachers' own needs, and their efficacy as novice teachers.

Teachers' effectiveness in incorporating ICT in teaching ESL writing skills was further traced by Yunus et al. (2013) through a qualitative study that was carried out in Malaysian secondary schools. Findings gathered from interviewing four English teachers revealed that teachers' use of the ICT was very limited due to deficiencies in technological and pedagogical knowledge (TPK). Interestingly, teachers reported several advantages for using technology in writing instruction such as encouraging learners' autonomy, attracting students' attention, facilitating the learning process, and enhancing their vocabulary. On the other hand, teachers stated that Using ICT is accompanied by some disadvantages including issues related to controlling students during using technology, the improper use of short forms as with short messaging system (SMS), and the distraction caused by accessing irrelevant websites.

In terms of integrating technology in the English language, examining the existing literature yielded several results documented in the following section.

Carver and Todd (2016) adapted the mixed-method design to examine the effectiveness of online writing instruction for struggling writers from teachers' perspectives. A total of 29 teachers of grades five through twelve took part in the study that lasted for eight weeks. Data collection included pre and post-instruction surveys and reflective journals. Findings showed that the use of blogging tools positively influenced teachers' perception of the effectiveness of online writing instruction.

However, teachers expressed facing some obstacles such as frustrations caused by teachers and students' inability to use the blogging software, lack the keyboarding skills on the students' side, and teachers' need for personal interaction with their students.

Merç (2015) examined EFL teachers' usage of technology in Turkey. Quantitative data were collected using a questionnaire from 86 participants, while 12 teachers participated in semi-structured interviews. Findings suggested that teachers' use of available technology was below the required level due to insufficient preparation and training. In addition, teachers lack the technological and pedagogical knowledge necessary for integrating technology in teaching English. Besides, teachers stated that their choices of technology were limited to the available tools and resources in the schools. The implications of the study suggest that teacher education programs need to be revised and improved in light of the current technological advances in education.

Emhamed and Krishnan (2011) explored Libyan EFL teachers' attitudes towards integrating technology in teaching EFL students, their preparation to incorporate technology, the types of technology they used and the obstacles they encounter when incorporating technology in their language classes. Using purposive sampling, 40 teachers from 7 secondary schools in Sebha city participated in the mixed-method study in which quantitative and qualitative data were collected by means of a questionnaire and semi-structured interviews. Results of the study revealed that teachers tend to have positive attitudes towards integrating technology in teaching language classes despite the fact that they face several problems including lack of time, lack of administrative support and lack of formal training in technology integration. Furthermore, findings showed that CDs, tapes and computers are the most used types of technology in language classrooms.

Similarly, Li and Ni (2011) conducted a descriptive study to explore the trends and perceptions of 72 primary teachers' usage of technology in teaching the English language in China. Despite teachers' high level of competency in information literacy and computer technology, teachers' uses of technology were inconsistent with their actual practices in the classroom; their use of technology was teacher-oriented rather than student-oriented. This is can be attributed to several factors including their traditional pedagogical perceptions towards teaching foreign language and lack of appropriate professional development. The researcher concluded that a paradigm shift in teachers' education and professional development programs is needed in China to enhance teachers' technological pedagogical and content knowledge.

**Studies in Qatari Context**

To the researcher's best knowledge, one study related to technology integration in English classrooms was conducted in Qatar by Chaaban and Ellili- Cherif (2017). The descriptive study investigated how English teachers' perceptions of environmental factors and their characteristics influenced their technology adoption level in EFL classrooms. Around 263 teachers took part in a survey that aims at examining teachers' value and self-efficacy beliefs, technology availability and support, obstacles of technology integration, and formal technology training. Data analysis revealed a high level of confidence in using technology among teachers along with consistent perceptions about the value of technology as a learning tool. However, teachers reported facing some difficulties in integrating technology including, time restrictions, lack of technical expertise, and lack of students' technological skills. The researchers concluded that technology integration in EFL classroom is teachers- centered rather than students-centered.

**Concluding Remarks**

In light of the literature review, it is evident that there is a broad consensus among researchers about the role of technology in improving writing instruction in English language classes. Most of the studies indicated that teachers are obtaining moderate to high levels of TPACK (Alharbi, 2020; Cheung & Jang, 2020; Putri 2019; Zoch et al., 2015). However, teachers' technological practices were not in compliance with their knowledge, beliefs or attitudes as indicated by Cahyono and Mutiaraningrum (2015), Li and Ni (2011), Merç (2015), and Yunus et al. (2013). This could be attributed to the impediments that accompanied the integration of technology (Carver & Todd 2016; Golzar, 2019; Liu & Kleinsasser, 2015; Putri, 2019).

Each study referred to above has added to the body of knowledge regarding technology usage in language classes. On the other hand, a critical review reveals the limitations of our knowledge of how technology could enhance the writing skills of EFL students and what obstacles EFL teachers face when teaching writing using technology. In addition, the review reveals the pressing need to study the relationship between variables such as gender, education level, teaching experience, school location, and EFL teachers' TPACK or technological practices in writing classes.

The present study sought to build on these studies by exploring EFL teachers' knowledge, practices and challenges related to integrating technology in writing classes in Qatari preparatory schools. The present study is descriptive in nature and embraced the mixed method approach similar to the studies of Carver and Todd (2016), Wu and Wang (2015), Liu and Kleinsasser (2015) and Emhamed and Krishnan (2011). However, unlike most of the reviewed studies, which are mostly conducted on a small scale, the current study is distinctive as it is a national study that tackles the EFL teachers in preparatory schools all over the country. Moreover, the researcher sought to

examine the relationship between teachers' TPACK and instructional practices, and other variables such as gender, teaching experience and the received professional development. Finally, and taking into consideration the scarcity of studies related to technology integration in writing instruction this study may contribute to the international research trends, and give new insight s to other researchers in the Arab world to conduct further studies related to this field.

CHAPTER THREE: METHODOLOGY

This chapter addresses the methodology employed to explore EFL teachers'
knowledge, practices and challenges related to integrating technology into writing
instruction in Qatari preparatory schools. The chapter presents descriptions of research
design, population and sample, study tools, procedures, data collection, data analysis
and the ethical considerations applied during conducting this study.

**Research Design**

The current study embraced the descriptive research design; this design  intends
to describe an existing phenomenon and its characteristics as accurate as possible
(Atmowardoyo, 2018). The researcher adopted the mixed method approach, namely the
explanatory sequential design (figure 2) in which quantitative data is first collected and
analyzed, then, the results are used to inform the collection of qualitative data
(Creswell, 2014). This combination aims to bring nuanced understanding of the
research problem and strengthen the study findings through utilizing various data
resources (Creswell, 2014).
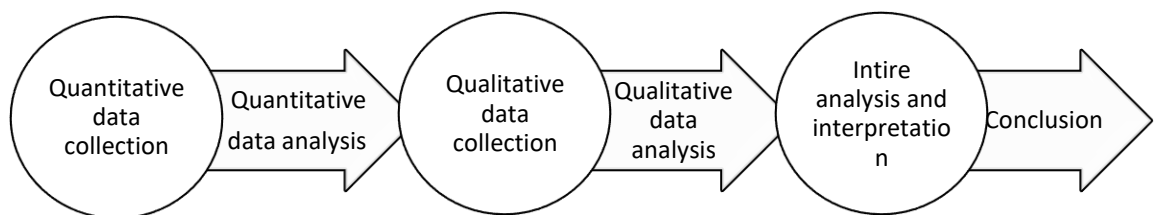


Figure 2. Explanatory sequential mixed method design

### Research Population and Sample

#### Population

This study targeted EFL male and female teachers recruited in public preparatory schools in the state of Qatar for the academic year 2020/2021. The total number of teachers based on the MoEHE records for the academic year 2020/2021 is (365) teachers including (191) female teachers and (165) male teachers, spread over 62 preparatory public schools (Teachers Affairs Office, November 12, 2020). It is worth noting that non-Qatari teachers in Qatari government schools constitute around 72% of its population (Romanowski et al., 2019). EFL teachers in government schools workload average is between 10-18 lesson per week except English coordinators who have 5 lessons a week to be able to fulfill the other professional and administrative required duties.

#### Sample

In mixed-method approaches, sampling strategies, sample size, scope and type may vary within the same study (Teddlie & Tashakkori, 2009; Teddlie & yu, 2007). For the quantitative data, the researcher targeted the whole population to collect as many responses as possible from EFL teachers in public preparatory schools through a self-reported survey sent via the web (emails and social media). The researcher received 182 completed survey with a response rate of (49.9 %). According to Cohen, Lawrence, and Morrison (2018), such a percentage should allow the researcher to generalize the findings and reduce the sampling bias.

Participants' demographic characteristics included gender, educational level, highest degree original country, teaching experience and school location. Table 1 below summarizes the demographic profile of the participants.

Table 1. Descriptive statistics of demographic characteristics

| Characteristics | Level | Frequencies | Percent |
|---|---|---|---|
| *Gender* | Male | 72 | 39.6% |
| | Female | 110 | 60.4% |
| *Highest Degree* | Bachelor | 130 | 71.4% |
| | Postgraduate Diploma | 23 | 12.6% |
| | Master | 25 | 13.7% |
| | Ph.D. / Ed.D. | 4 | 2.2% |
| *Highest Degree Original Country* | Qatar | 25 | 13.7% |
| | Others | 157 | 86.3% |
| *Years Of Teaching Experience* | 1-5 | 12 | 6.6% |
| | 6-10 | 43 | 23.6% |
| | 11-15 | 47 | 25.8% |
| | More than 16 | 80 | 44% |
| *School Location* | Doha | 86 | 47.3% |
| | Al Rayyan | 40 | 22% |
| | Umm Slal | 17 | 9.3% |
| | Al Khor & Dhekra | 11 | 6% |
| | Al Wakrah | 11 | 6% |
| | Al Daayen | 3 | 1.6% |
| | Al Shamal | 10 | 5.5% |
| | Al Sheehaniya | 4 | 2.2% |
| *Previous Professional Development Related To Integrating Technology Into Writing Instruction* | yes | 109 | 59.9% |
| | No | 73 | 40.1% |

Table (1) above shows that the participant teachers reached 182 in total (72 male teachers (39.6 %) and 110 female teachers 60.4 %). The majority of the teachers

(N=130) hold a bachelor's degree (71.4%), 23 hold a postgraduate diploma (12.6%), 25 hold a master's degree (13.7%), and only 4 teachers hold a PhD/Ed.D. degree (2.2%). Most of the degrees (N=157) were obtained from countries other than Qatar (86.3%). In terms of teaching experience, around half of the participants (N= 80) have more than 16 years (44%) of experience. 47 teachers (25.8%) have an experience ranged between 11-15, 43 teachers (23.6%) have an experience between 6-10, and 12 teachers (6.6%) have from 1-5 years of experience. In respect of school location, there were respondents from the eight municipalities in Qatar distributed to mirror very closely the number of public preparatory schools in each one based on the population. The largest number of participants were from schools in Doha 86 (47.3%), followed by Al Rayyan 40 (22%), while the minimum contribution was from Al Daayen with only 3 participants (1.6%). For the rest, the size of participation were 17 teachers (9.3%) from Umm Slal, 11 teachers (6%) from Al Khor and Al Wakra each, 10 teachers (5.5%) from Al Shamal, and finally 4 teachers (2.2%) were from Al Sheehaniya. Teachers were also asked to state if they have ever received professional development related to technology integration in writing instruction. According to the participants' responses, 109 (59.9%) reported receiving this type of training.

To collect the qualitative data, a sample of ten participants was drawn from the same population (EFL teachers in the preparatory schools) for the follow up semi-structured interviews. For this purpose, the researcher utilized the purposive sampling technique to select participants who could enrich the study data and achieve the research objectives. Purposive sampling is a non-probability sampling technique that provides in-depth knowledge about the issues under investigation (Cohen et al., 2018; Johnson & Christenen, 2014). When selecting the participants, the researcher defined three key criteria: gender, teaching experience in Qatar and school locations. As shown

in table (2), five male and five female participants were chosen to take part in the semi-structured interviews from six different municipalities. The participants' teaching experience in Qatar ranged from 6-20.

Table 2. Demographic characteristics of the interview participants

| Teacher | Gender | Teaching Experience in Qatar | School Location |
|---------|--------|------------------------------|-----------------|
| T1 | Female | 13 | Al Rayan |
| T2 | Female | 8 | Doha |
| T3 | Female | 6 | Al Rayan |
| T4 | Female | 6 | Um Salal |
| T5 | Male | 12 | Doha |
| T6 | Male | 8 | Doha |
| T7 | Male | 11 | Al Wakra |
| T8 | Male | 19 | Al Rayan |
| T9 | Female | 20 | Al Dhaayen |
| T10 | Male | 7 | Al-Khor |

**Research Variables**

The term variable implies a state, condition, factor or quality that may vary from one case to another in quantity, frequency, etc. (Cohen et al., 2018). In research, variables are classified into independent and dependent variables, and are defined as the construct that a researcher try to investigate or explore (Cohen et al., 2018). In this study, the dependent variables were EFL teachers' knowledge, practices and challenges related to technology integration in writing instruction, while the independent variables were gender, educational level, highest degree original country, years of teaching experience, school location and professional development.

**Research Instruments**

Cohen et al. (2018) argued that using different data sources provides high opportunities to obtain conclusive research results and brings objectivity to the research results. In this regard, this study employed a web-based survey and semi-structured interviews to collect the data.

**Teacher's Survey**

Surveys are predominant effective tools for gathering descriptive information about the phenomena being investigated on a one-shot basis (Cohen et al., 2018). Surveys allow the researcher to record the participants' responses through collecting self-report data; the survey is very convenient when there is a need to collect a large number of responses in a short time span. To this end, the researcher applied a survey that consisted of 50 items divided into four main sections: demographics, teacher's TPACK, teacher's practices, and challenges (see Appendix B).

The first section of the survey comprised the demographic data, which included teachers' gender, level of education, highest degree original country, teaching experience, school location and professional development related to technology integration into writing instruction.

The second section was adopted form Schmidt (2020) TPACK survey, which was derived from the empirically validated EFL TPACK survey for Baser, Kopcha & Ozden (2016). The TPACK survey used in this study was slightly adapted to suit the Qatari context and the research purposes. Examples of modifications included changing the word *D2L* (an acronym for *Desire 2 Learn*, a learning platform used in the USA) into *LMS* (an acronym for *Learning Management System*, a platform used in Qatari public schools). The word *second* language was changed into *foreign* language. Another worth mentioning modification is that the researcher decided to

examine four components of the TPACK survey: (TK), (PK), (CK), and (TPACK). This decision was empowered by the fact that TK, PK and CK are considered the primary types of knowledge which constitute and predict teachers' TPACK (Mishra & Koehler, 2006). Moreover, different researchers have argued that the boundaries between the other TPACK domains -TPK, TCK, PCK- are vague and difficult to be distinguished; this raised the question of whether any of these knowledge domains exist in reality (Brantley-Dias & Ertmer, 2013; Cheung & Jang, 2020). Having said that, the researcher decided not to include them in the survey.

The second section included 24 items that aimed to measure teachers' technological, pedagogical and content level in relation to teaching writing in the EFL context. For each item, participants had to decide to which extent they agree with the statements using a 5-point Likert scale (1= strongly disagree to 5= strongly agree). It is worth noting that the majority of section 2 items are worded as "I can" statements to reflect EFL teachers potentials to execute the tasks mentioned, while at the same time recognizing that they might not be able to do so due to specific obstacles in their language teaching context (Bostancioglu, 2014).

The third and fourth sections were developed after a careful analysis of the applicable literature. Section 3 included 18 items with three different types of questions. The first type was a multiple-response item that aimed at documenting types of technologies teachers use to integrate technology in their writing lessons. The second type was a Likert scale question that meant to examine how teachers use technology to facilitate the teaching of writing for EFL students. The items were prepared and arranged to cover the writing processes. Items were scored from 1-5 based on a frequency Likert scale (1= never; 5=always). The third type was an open-ended question (item 19) to give the participants the chance to report how they

incorporate technology into their writing classes.

Quite similar to the preceding section, the fourth section comprised two types of questions as well. The first type was the multiple-response, which sought to explore challenges teachers face when integrating technology in writing. The second type was an open-end question that allowed teachers to state any other challenges they encounter when integrating technology in their writing instruction.

The researcher decided to use a web-based survey in comparison to a paper survey because it is cheaper, faster, more convenient for participants, more accessible and environmentally friendly (Cohen et al., 2018). For that purpose, the web-based survey was constructed using the JotForm software as surveys can be easily customized and structured to meet the needs of the researchers. It also allows the researcher to maintain the confidentiality required by the QU/IRB.

*Teacher's Survey Reliability and Validity*

Validity and reliability are two key psychometric characteristics and fundamental requirements for an effective educational research. Validity is defined as how accurately the instrument represents or measures what it claims to measure (Winter, 2000). To ensure the content and construct validity of the survey, expert judgment is required (Cohen et al., 2018). The survey was sent to a panel of six university professors' experts in the field to give their feedback. Furthermore, to increase the validity, the researcher piloted the survey on 18 participants, whom were not included in the sample (Johnson & Christenen 2014). The feedback received was very positive, with very few changes primarily related to the language. All comments and recommendations were taken seriously, and the instrument was modified accordingly.

Reliability refers to the consistency of measurement over time, groups of

respondents and instruments (Cohen et al., 2018). Reliability analysis was carried out using Cronbach's alpha to measure the internal consistency of the multiple Likert-type sections (Teacher's TPACK and Teacher's Practices). The results, shown in table (3), present satisfactory reliability values (ranged between high to average). Researchers suggest that a level of 0.67 or higher is acceptable (Cohen et al., 2018).

Table 3. Values of Cronbach's Alpha reliability

| Section | No. of items | Cronbach's Alpha value |
|---|---|---|
| Technological Knowledge (TK) | 9 | 0.86 |
| Pedagogical Knowledge (PK) | 5 | 0.77 |
| Content Knowledge (CK) | 6 | 0.77 |
| Technological pedagogical Content Knowledge (TPACK) | 4 | 0.75 |
| Total TPACK items | 24 | 0.90 |
| Teachers' Practices | 16 | 0.87 |

**Teacher's Semi-structured Interview**

An interview is a distinctive qualitative data collection tool in which two or more persons exchange ideas to gain in-depth insight about a subject of common interest through social interaction (Cohen et al., 2018; Kvale, 1998). Interviews are categorized into three types: structured, semi-structured and unstructured; the semi-structured interview is the most prevalent form of interviews (Braun & Clarke, 2013). Therefore, the researcher decided to conduct the semi-structured interviews following the survey data collection and analysis. In a semi-structured interview, the wording and the order of the prompts and probes questions are personalized according to the interviewee's responses (Braun & Clarke, 2013). In this study, the interview questions were carefully generated to echo the research questions (see Appendix C).

According to Cohen et al. (2018), the validity of the interview can be achieved

by precluding the bias resources as much as possible. Cohen et al. (2018) and Winter (2000) claim that this can be achieved through honesty, depth, authenticity, richness, trustworthiness, objectivity of the researcher and the measures that the researcher maintains through the entire study procedures. To enhance the reliability of the interviews, the researcher piloted the interview on two interviewees to warrant the stability and the wording of the questions. Additionally, reliability was ensured by double-checking the interview transcripts, codes and themes to avoid any errors or misrepresentations of the data (Creswell, 2014).

**Research Procedures**

At first, it is important to clarify that this study was carried out during the academic year 2020/2021, thus data were collected during the covid-19 pandemic from November 3$^{rd}$, 2020 to January 10$^{th}$, 2021. According to the MoEHE regulations, blended learning was the mandated approach for teaching in which classroom-based instruction was delivered under social distancing preventive measures for two days a week on average, while online instruction was provided through Microsoft Teams Platform (MoEHE, 2021). This situation created some challenges for the researcher related to data collection procedures. One of these challenges was related to data collection resources. The researcher had her plans to conduct classroom observations to collect genuine data about teachers' in-classroom practices as opposed to self-reported data, and IRB approval was obtained. Had the researcher been able to conduct the classroom observation, that would have enriched the data, increased the accuracy and reinforced the internal validity and reliability of the study conclusions (Cohen et al., 2018; Denscombe, 2014).

Prior to conducting the study, the researcher worked on obtaining the MoEHE approval (see Appendix D), and then the approval of Qatar University Institutional

Review Board (QU-IRB) (see Appendix E). Upon obtaining the ethical approvals, the first phase of the Explanatory Sequential Mixed Methods Design commenced by constructing the web-based survey using JotForm software. Using emails and WhatsApp application, the online survey was disseminated to all teachers in public preparatory schools. After receiving the responses, the primary data were statistically analyzed using SPSS software to inform the subsequent qualitative data collection (Cohen et al., 2018).

In phase two of the study, a sample of 10 participants was recruited for the follow-up interviews. The semi-structured interviews focused on teachers' technological knowledge, their actual practices teaching writing with technology, and the obstacles they encounter when infusing technology in writing instruction. The researcher sent emails to all targeted participants inviting them to participate in the interview and informing them about the nature, scope and the purpose of the interview (Cohen et al., 2018). Along with the email, the consent form (see Appendix F) was sent to be signed and returned back (Braun & Clarke, 2013). The researcher also sought participants' permission to record the interview. The researcher utilized the Microsoft Teams platform to schedule and manage the interviews based on the participants' convenient time. The researcher conducted one-on-one interviews that lasted from 15-30 minutes approximately. The interview questions were organized and structured to reflect the objectives of the study. During the interviews, the researcher followed the interview protocol in which she strived to provide an anxiety-free atmosphere, establish rapport with participants, maintain clarity of questions, avoid using academic jargon, keep neutral, and make every effort not to reveal any kind of bias (Braun & Clarke, 2013; Cohen et al., 2018). The Interview questions helped the researcher to explore in depth teachers' technological knowledge and practices in relation to integrating

technology into writing instruction. In addition, the interviews provided data about the challenges teachers face when integrating technology into their teaching practices. After the interviews, the audio recordings were transcribed using the orthographic style. Orthographic transcription focuses on generating a thorough record of words and sounds uttered by the participants (Braun & Clarke, 2013). Each transcription was given an identification code to maintain the anonymity of participants.

**Data collection and Analysis**

Quantitative research is associated with numeracy and is intended to examine research content in a broader scope among a larger population (Creswell, 2014; Willig et al., 2017). On the other hand, qualitative data deals with open-ended data that is analyzed using non-statistical methods and is meant to provide an in-depth information about a smaller group of participants (Creswell, 2014; Willig et al., 2017). The use of quantitative and qualitative approaches allows the researchers to obtain a comprehensive understanding of the multifaceted dimensions of the research findings as well as avoid the blind spots of using only one method (Creswell, 2014; Johnson & Christenen, 2014). The following table illustrates how each research question was utilized using both research methods and research tools.

Table (4) Research method and tools based on the research questions

| Research Question | Research Method | Research Tools |
|---|---|---|
| 1-What Knowledge do EFL teachers' have in terms of integrating technology into the teaching of writing to EFL students in preparatory schools in Qatar? | Quantitative and Qualitative | Survey: Section 2 Interview questions:1+2+3+4 |
| 2-In what ways do EFL teachers' integrate technology in their writing instruction in preparatory schools in Qatar? | Quantitative and Qualitative | Survey: Section 3 Interview questions:5+6+7 |

| Research Question | Research Method | Research Tools |
|---|---|---|
| 3-What challenges do EFL teachers face when integrating technology in their writing instruction in preparatory schools in Qatar? | Quantitative and Qualitative | Survey: Section 4<br><br>Interview questions:8+9+10 |
| 4- Are there statistically significant differences among teachers in their knowledge, practices due to their gender, years of experience, and the received professional development? | Quantitative | Survey |

Quantitative data was collected via the web-based survey. The web-based survey link was sent to English teachers in the preparatory schools via emails and WhatsApp application, and it was available from 15th November to 15th December, 2020. Teachers' responses were subject to descriptive analysis using the Statistical Package of the Social Sciences (SPSS) version 26. Items related to teacher's knowledge and practices were analyzed by computing the means and the standard deviation, while items that required teachers to choose more than one option (multi responses) were analyzed by computing the percentages. In addition, inferential statistics were performed to examine the relationship (if any) between the dependent and independent variables. In specific, the independent t-test was calculated to explore the statistical differences between the independent variables (gender and the received professional development), and the two dependent variables (teacher's TPACK and teacher's practices). Subsequently, one-way ANOVA was performed to examine the differences between teacher's TPACK and teacher's practices, and teachers' experiences.

To probe beneath the information yielded by the quantitative measurements (Cohen et al., 2018) and to eliminate the self-reported responses bias, qualitative data were obtained via semi-structured interviews from ten teachers. The researcher opted to conduct online interviews as this endorsed great flexibility in time for both the

researcher and the participants (Braun & Clarke, 2013; Cohen et al., 2018). Additionally, the researcher deliberately chose the Microsoft Teams because teachers are using it for online learning, and because it allows the recorded interviews to be transcribed automatically, which can be downloaded into a Microsoft word document for analysis. To ensure an accurate representation of data, the researcher sent the written accounts to the participants to be checked.

To achieve the purpose of the study, thematic analysis is the most suitable approach. Thematic analysis is a systematic approach that goes beyond the categorization of words or phrases and the recognition of patterns to investigate embedded ideas within the textual data (Clarke & Braun, 2014; Guest, 2012). Braun and Clarke (2013) thematic analysis guided the analysis of qualitative data in this study, which included six stages as follows:

1. Familiarization with data: the researcher first examined the data carefully to identify topics of interest based on the research questions.

2. Creation of initial codes: in this stage, the researcher analyzed preliminary the data and labeled the identified text or topics to create the codes.

3. Searching for themes: After constant comparison of codes, the researcher identified the patterns and the recurring codes and developed the themes.

4. Reviewing potential themes: this stage entailed reanalyzing the coded data and verifying their suitability to the emerged themes and to the research questions.

5. Defining and naming themes: The researcher interpreted the data and provided detailed and comprehensive explanations. Furthermore, the researcher named each theme to reflect the data it represented.

6. Producing the report. The last stage was finalizing the analysis of data by reordering the themes and strengthening the arguments from the literature.

**Ethical Considerations**

In carrying this study, the researcher adhered to all ethical rules and principles that apply to the study including the ethics committees and review boards legislation, codes of practice, ethical guidelines among many others (Cohen et al., 2018).

At the preliminary stage of the study, the researcher obtained the approvals of the MoEHE and QU-IRB. Prior to data collection, participants were asked to sign the consent forms, which included the purpose of the study, the right to withdraw at any time during the research without any consequences, the anonymity, confidentiality, non-traceability, voluntary participation and the issues of beneficence and non-maleficence. Permission to record the interviews was also sought prior to the interviews.

Objectivity is another critical principle in research. The researcher strived to maintain objectivity throughout the research phases by dealing with the facts and data without bringing in any sort of biases related to emotions, beliefs or behaviors especially during data collection.

Fidelity, integrity and responsibility are other fundamental codes of ethics that the researcher preserved. The researcher endeavored to establish a mutual trust relationship with the participants and took sufficient accountability for her actions. Furthermore, throughout the research process, the researcher promoted accuracy, honesty and truthfulness during all research procedures.

CHAPTER FOUR: FINDINGS

The primary focus of this study was to explore teachers' knowledge and use of technology in teaching writing in Qatari preparatory schools. This chapter provides the findings of the quantitative and qualitative data. The results in this chapter are organized in four sections to mirror the research questions guided the study. As this study embraces the mixed-method explanatory sequential design, each section started by presenting the quantitative results, followed by the qualitative outcomes. To reiterate, the first section presents the results related to teachers' level of knowledge in TPACK, the second section highlights the findings related to teachers' technology use when teaching writing, the third section reports the challenges teachers face when teaching writing. Finally, the fourth section presents the significant variances, if any, for gender, years of experience and the received professional development on teachers' knowledge and practices.

## Teachers' Level of Knowledge

Question one: What level of TPACK do EFL teachers' have in terms of integrating technology into teaching writing to EFL students in preparatory schools in Qatar?

### Quantitative Results (Survey)

To describe EFL teachers' current knowledge of integrating technology in teaching writing, the researcher used the means and standard deviations to present teachers' responses to each item. To interpret the level of knowledge, the researcher categorized the means into three level (Table 5). This was done by computing the difference between the highest and the lowest point (5-1=4), then dividing the range by three (4÷3= 1.33). Tables show the items in descending order.

Table (5) Level of knowledge according to the means

| Weighted Average | Result interpretation |
|:---:|:---:|
| 1 - 2.32 | Low |
| 2.33 - 3.65 | Moderate |
| 3.66 - 5 | High |

It is worth noting that 182 teachers (49.9% of the total population) responded to the TPACK survey. In general, the TPACK subdomains comparison (Table 6) shows that teachers' level of knowledge in the four domains is high. However, teachers' content knowledge (CK) was the highest with a mean of (*M= 4.29*) and a standard deviation of (*SD= 0. 68*). By contrast, Teachers' technological, pedagogical and content knowledge (TPACK) gained the lowest value with a mean of (*M= 3.92*) and a standard deviation of (*SD= 0.76*). Interestingly, teachers' technological knowledge (TK) and pedagogical knowledge (PK) got the same mean value (*M= 4.15*) with different standard deviations. A detailed description of each domain is presented in the next sections.

Table (6) A Comparison of TPACK survey subdomains

| Item | Mean | Degree | SD | Rank |
|:---|:---:|:---:|:---:|:---:|
| CK | 4.29 | High | 0.68 | 1 |
| TK | 4.15 | High | 0.7 | 2 |
| PK | 4.15 | High | 0.73 | 3 |
| TPACK | 3.92 | High | 0.76 | 4 |

*Technological Knowledge (TK)*

The first part of the survey covers nine items related to teachers' knowledge of using technology. Findings illustrated in table (7) show that the overall participants' knowledge level of technology is high with a mean of (*M= 4.15*) and a standard

deviation of (*SD = 0.7*). The statement related to teacher's ability to use content development tools like office programs and Learning Management System (LMS) with a high proficiency scored remarkably the highest (*M= 4.48, SD= 0.87*). On the other hand, teachers' responses on their ability to troubleshoot common computer problems independently ranked at the bottom (*M= 3.82, SD = 0.1*).

Table (7) Descriptive Statistics of Teachers' Technological Knowledge (TK)

| Item | Mean | Degree | SD | Rank |
|---|---|---|---|---|
| I can use content development tools like office programs (i.e. Word, PowerPoint, etc.) and Learning Management System (LMS) with a high proficiency. | 4.48 | High | 0.87 | 1 |
| I can use digital classroom equipment such as projectors and smartboards. | 4.41 | High | 0.81 | 2 |
| I can use computer input/output devices such as printers, a headphones, and a scanners, etc. | 4.4 | High | 0.92 | 3 |
| I can use basic technological terms (e.g. operating system, wireless connection, cloud storage, file sharing,… etc.) appropriately. | 4.32 | High | 0.99 | 4 |
| I can adjust computer settings such as installing software and establishing an Internet connection. | 4.07 | High | 1.07 | 5 |
| I can use different types of software that help me complete my tasks efficiently. | 3.99 | High | 0.89 | 6 |
| I can create multimedia (e.g. video, web pages, etc.) using text, pictures, sound, video and animation. | 3.95 | High | 1.08 | 7 |
| I can use collaboration tools (wiki, Google Drive apps, blogs, social media, etc.) in accordance with my objectives. | 3.95 | High | 0.98 | 8 |
| I can troubleshoot common computer problems (printer problems, Internet connection problems, etc.) independently. | 3.82 | High | 0.1 | 9 |
| Total | 4.15 | High | 0.7 | |

*Content Knowledge (CK)*

The second section is dedicated to teacher's content Knowledge. It seems that all teachers believe they have a high level of content knowledge. As noted in table (8),

among those five statements, teachers' understanding of the English writing conventions scored the highest mean (*M= 4.46, SD = 0.74*). On the other hand, teachers' understanding of how rhetoric influences communication recorded the lowest (*M= 4.06, SD = 0.74*).

Table (8) Descriptive statistics of teachers' content knowledge (CK)

| Item | Mean | Degree | SD | Rank |
|---|---|---|---|---|
| I understand the writing conventions in English. | 4.46 | High | 0.74 | 1 |
| I can rhetorically analyze texts written in English. | 4.35 | High | 0.79 | 2 |
| I can express myself in a wide range of writing genres. | 4.3 | High | 0.77 | 3 |
| I understand how genre functions in texts written in English. | 4.3 | High | 0.68 | 4 |
| I understand how rhetoric influences communication. | 4.06 | High | 0.86 | 5 |
| Total | 4.29 | High | 0.68 | |

*Pedagogical Knowledge (PK)*

This section included six items that assess teacher's pedagogical knowledge. Findings displayed in table (9) show that teachers, in general, shared high level of pedagogical knowledge. The highest level of agreement among the teachers appeared in their ability to use teaching methods and techniques that are appropriate for EFL writing (*M=4.25, SD=0.85*). Whereas teachers' capability to support students' out-of-

class work to facilitate their self-regulated learning had the lowest mean value (*M=4.05,*

*SD=0.88*).

Table (9) Descriptive statistics of teachers' Pedagogical knowledge (PK)

| Item | Mean | Degree | SD | Rank |
|---|---|---|---|---|
| I can use teaching methods and techniques that are appropriate for foreign language writing students. | 4.25 | High | 0.85 | 1 |
| I can integrate the experience that I gain from professional development programs in my teaching process. | 4.19 | High | 0.87 | 2 |
| I align my teaching practices with the writing lesson's outcomes. | 4.18 | High | 0.78 | 3 |
| I can design learning experiences that are appropriate for foreign language writing students. | 4.12 | High | 0.9 | 4 |
| I can support students' learning in accordance with their physical, mental, emotional, social, and cultural differences. | 4.12 | High | 0.87 | 5 |
| I can support students' out-of-class work to facilitate their self-regulated learning. | 4.05 | High | 0.88 | 6 |
| Total | 4.15 | High | 0.73 | |

*Technological Pedagogical and Content Knowledge (TPACK)*

The TPACK construct covered four items. As table (10) depicts, the overarching TPACK level of the teachers was high with a mean of (*M= 3.92*) and a standard deviation of (*SD= 76*). A closer look at the mean values of all the statements in the four dimensions reveals that the TPACK and the last four statements in the TK were the lowest (*M ≤ 4.02*).

Table (10) Descriptive statistics of teachers' TPACK

| Item | Mean | Degree | SD | Rank |
|---|---|---|---|---|
| I can support students as they use technology to become independent writers and users of English. | 4.02 | High | 0.78 | 1 |
| I can use collaborative tools (e.g. Google Drive apps, LMS, Voice thread, etc.) to support students' writing development. | 4.02 | High | 0.93 | 2 |
| I can support my professional development by using digital tools and resources to continuously improve my ability to teach foreign language writing. | 4.01 | High | 0.83 | 3 |
| I can use Web 2.0 tools (interactive presentation software, digital story tools, etc.) to develop students' language and writing skills. | 3.67 | High | 1.02 | 4 |
| Total | 3.92 | High | 0.76 | |

**Qualitative Results (Interviews)**

Findings in this section are reported in terms of the emerging themes related to teachers' self-ranking on their confidence level of using technology to teach writing. Upon running the thematic analysis of teachers' responses, three themes emerged: poor knowledge, good knowledge and very good knowledge (Table 11). Five teachers rated themselves as having a good level of knowledge, while three teachers rated themselves as poor. Teachers justified this by the lack of professional development or training received in this area; they confirmed that most of what they do is based on a self-development effort to improve their writing instruction. Furthermore, some teachers clearly stated that many teachers lack the required technological knowledge needed for teaching writing skills. For example, one teacher said, "we don't have enough knowledge about how to use technology. So, people who are in charge should give classes or courses for the teachers or coordinators to develop or to enhance their knowledge in this area". Another teacher added, " lack of knowledge… many …many

teachers do not use technology in their class because they don't know how to use it... they don't know how to deal with online sites … and sometimes they find themselves stuck".

The remaining two teachers considered themselves as having very good level of knowledge regarding using technology in writing classes. This was justified by having a single workshop presented by the school, in addition to their own effort to develop their technology writing instruction.

Table (11) Teachers' level of Knowledge – Qualitative Data

| Level | Frequency | Percent | Quotation Examples |
|-------|-----------|---------|--------------------|
| Poor | 3 | 30% | • I think I'll give myself 2 out of 5. I have been teaching for 28 years, but I have never received any course in integrating technology in writing. <br> • 2 two out of five. Unfortunately, so far I haven't received any training regarding integrating technology in writing in specific. I have to try as hard as possible to be acquainted with all the modern trends by reading some articles. |
| Good | 5 | 50% | • Let's say 3, three. I can't say I'm well competent in it. We haven't taken any courses on teaching writing with technology. It's an independent self-development. <br> • It's good …Maybe three. I haven't received any training or courses on how to integrate technology in writing classes. All we do is from our own effort. <br> • I can say 3. Actually, I got one like two years ago on storyboard. It was self-development. |
| Very good | 2 | 20% | • We had workshop in school like how we use for example Padlet or Microsoft Word or Grammarly as a website. It is a good website for students to correct automatically correct their mistakes while writing. |

**Teachers' Practices**

Q 2: In what ways do EFL teachers integrate technology into teaching writing to EFL students in preparatory schools in Qatar*?*

This section presents the various forms of technology used by teachers in writing classes, as well as their technological practices.

**Quantitative Results (Survey)**

*Types of Technology Teachers Use in Teaching Writing*

In response to the question about the types of technology teachers use to teach writing, a range of responses were documented as shown in table (13). Since this is a multi-response question, data were analyzed using frequency instead of Means. Obviously, the most prevalent tools used for teaching writing were the PowerPoint (85%), Desktop computer/ laptop/ iPad (78%) and the interactive whiteboard (74%). Conversely, the least frequent tool was the use of social media in teaching writing (24%). In addition, around one-third of the teachers reported using other tools such as E-mails, video conferencing, writing applications, LMS and web-browsers to teach writing.

Table (13) Types of technology teachers use in teaching writing

| NO. | Item | Count | percentage |
|-----|------|-------|------------|
| *1.* | PowerPoint | 153 | 85% |
| *2.* | Desktop computer/ laptop/ iPad | 141 | 78% |
| *3.* | Interactive whiteboards | 133 | 74% |
| *4.* | Word processors | 88 | 49% |
| *5.* | Virtual learning | 72 | 40% |
| *6.* | E- mail | 65 | 36% |
| *7.* | Video conferencing tools | 65 | 36% |
| *8.* | Writing applications | 64 | 35% |

| NO. | Item | Count | percentage |
|-----|------|-------|------------|
| 9. | LMS | 60 | 33% |
| 10. | Web browser | 59 | 33% |
| 11. | Social media (Facebook, WhatsApp, Twitter, etc.) | 44 | 24% |

*Teachers' Use of Technology in Writing Classes*

Similar to the TPACK survey, teacher use of technology was categorized into three levels as shown in table (1)

Data analysis of this section summarized in table (12) shows that the total average score of EFL teachers' use of technology in teaching writing was moderate with a mean of (*M= 3.23*) and a standard deviation of (*SD= 0.43*). The Means of the items ranged between high to moderate. As expected, the highest mean value was relevant to teachers' use of technology to plan for their writing classes (*M=4.46, SD=0.82*). Other items with the highest means were "I use technology to give students constructive feedback", (*M=4.34, SD=0.88*), and "I use technology to discuss the writing tasks with my students", (*M=4.33, SD=0.89*).  On the other hand, asking students to publish their writing using web pages was the lowest (*M=2.93, SD=1.52*). The next lowest item was "I use technology to ask students to write their first draft using word processors", (*M=3.04, SD=1.41*).

Table (12) Descriptive statistics of teachers' practices.

| Item | Mean | Degree | SD | Rank |
|------|------|--------|----|----|
| - I use technology to plan for writing classes. | 4.46 | High | 0.82 | 1 |
| - I use technology to give students constructive feedback. | 4.34 | High | 0.88 | 2 |
| - I use technology to discuss the writing tasks with my students. | 4.33 | High | 0.89 | 3 |

| Item | Mean | Degree | SD | Rank |
|------|------|--------|-----|------|
| - I use technology to help students develop the ideas for writing. | 4.31 | High | 0.85 | 5 |
| - I use technology to engage students in writing activities (brainstorming, planning, drafting, publishing, etc.) | 4.3 | High | 0.84 | 6 |
| - I use technology to teach writing classes. | 4.29 | High | 0.85 | 7 |
| - I use technology to ask students to collect ideas about the writing tasks using Internet. | 3.8 | High | 1.06 | 8 |
| - I use technology to teach writing classes virtually. | 3.7 | High | 1.08 | 9 |
| - I use technology to ask students to write their first draft using word processors. | 3.42 | Moderate | 1.28 | 10 |
| - I use technology to ask students to work collaboratively on online writing tasks. | 3.32 | Moderate | 1.25 | 11 |
| - I use technology to ask students to exchange their writing tasks with peers for feedback electronically. | 3.22 | Moderate | 1.31 | 12 |
| - I use technology to ask students to review and edit their writing using online applications. | 3.19 | Moderate | 1.36 | 13 |
| - I use technology to ask students to use web-based- references to improve their writing mechanics (i.e. punctuation and spelling). | 3.12 | Moderate | 1.32 | 14 |
| - I use technology to ask students to use web-based- references to check grammatical errors in their writing. | 3.04 | Moderate | 1.41 | 15 |
| - I use technology to ask students to publish their writing using web pages. | 2.93 | Moderate | 1.52 | 16 |
| - *Total* | 3.23 | Moderate | 0.43 | |

### Qualitative Results (Interviews)

In contrast to the quantitative results, thematic analysis of the interviews revealed that technology integration in writing classes occurred at a limited level. A number of teachers admitted that technology is not an integral part of the teachers writing instructions. This was evident in their responses to the question about how they integrate technology in writing. One teacher stated:

"OK, it wasn't that good… because on writing lessons we depend on papers, we depend on group works or classwork more than the technology …more than using the laptops or tablets or any websites. We don't use technology in general in writing, and we use only papers, classwork and some strategies related to this".

Another teacher also echoed this by saying the following:

"Honestly speaking, I'm not using many things in writing, especially in writing. I do not include technology in writing because of some challenges. These challenges are not only for me, but for the entire academic situation here in Qatar maybe".

Moreover, themes related to the application of technology in teaching writing were identified based on the stages of the writing process (preparation, planning, writing the first draft, giving feedback, reviewing and editing, and publishing). The detected themes summarized in table (14) showed that there was a broad consensus among interviewees in terms of using technology during the pre-writing phase, in which teachers introduce the new topic, and prepare students for the writing task. Teachers' activities in this phase included showing students videos related to the writing topic, using tablets (if available) to search for new ideas, sharing the ideas through Teams, using online games to practice the targeted structure, and using the PowerPoints and smartboards as presentation tools. At the same time, teachers' responses showed that using technology in the other phases of writing process such as giving feedback to students or reviewing and editing their drafts is neglected by the majority of teachers.

In addition, and due to the pandemic situation, teachers reported using the Microsoft Teams platform to upload the writing videos prepared by the MoEHE, creating assignments and in few cases discussing the writing task.

Table (14) Findings of the Interviews Analysis

| Implementation Phase | Key Findings | Quotations |
|---|---|---|
| Preparation | Almost all teaches use technology to prepare students for the writing task. | • I can also use the YouTube to help me in presenting a general idea about the text that we are going to deal with.<br><br>• I usually use technology in the brainstorming stage or prewriting. We show them videos, we send them by tablets- if they have tablets- for example we send them some questions, we divided them into groups, and each group writes something about it.<br><br>• We use technology on the prewriting stage. While students are just collecting ideas or information, I ask them to surf the Internet and have a look at the information to brainstorm their ideas<br><br>• We adopt some useful sites like Word Wall.<br><br>• I ask them to look for words through online dictionaries. Before we had tablets, but now we don't use tablets anymore, but I give them my laptop so they can look for the words they need. |
| Planning | Two teachers only use technology during the planning phase. | • During the planning. I display graphic organizers or mind map for two minutes only on PowerPoint slides and I ask my students to fill in the mind map or the graphic organizer, which is displayed on the board.<br><br>• Most probably, I use technology in the planning by using the smartboard. |
| Writing first draft | Two teachers encouraged students to type their first during the online learning. | • They can use the word and they can send their draft on WhatsApp using social media. I mean or they can just take pictures of their writing and send it on Teams. |

| Implementation Phase | Key Findings | Quotations |
|---|---|---|
| Giving feedback | One teacher reported using technology to encourage peer feedback | • Sometimes we use the peer assessment when they swap their tablets to correct for their friends and then they swap the tablets back and give the final version. |
| Reviewing and editing | One teacher encouraged students to use technology during the editing phase. | • Students can write their text on the word and see the mistakes they have in structure or spelling. I also give them the opportunity to use the Microsoft Word to find another synonym from the list that is provided by Microsoft Word. We have also some websites that they can use for editing and proofreading their texts |
| Publishing | Two teachers stated that he encouraged students to use technology to publish their final version using the blog. | • Sometimes I asked them to make a PowerPoint presentation, so they prepare it as a project and they present it. Students like to present their works. So I support their speaking skills or I try to push them to talk by presenting their work.<br><br>• We can ask high achievers to put their writing after checking it on a blog, and of course, students are familiar with the idea of the blog. They have already started it in the first semester in Grade. |

**Technology Integration Challenges**

Q 3: What challenges do EFL teachers face when integrating technology into teaching writing to EFL students in preparatory schools in Qatar?

**Quantitative Results (Survey)**

The challenges section consisted of ten items where teachers were asked to select all the challenges they encounter when integrating technology into their writing instruction. The gleaned results as depicted in table (15) show that lack of time was the most reported challenge among EFL teachers (68%), while the large number of students appeared as second (51%), followed by students lacking the required technological

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skills (48%). Alternatively, the least expressed challenge was related to teachers' perceptions towards technology integration in writing instruction (15%), followed by teachers' lack of professional development (PD) (23%).

Table (15) Descriptive statistics of teachers' challenges.

| NO. | Item | Count | percentage |
|---|---|---|---|
| 1. | Lack of time | 123 | 68% |
| 2. | Large number of students | 92 | 51% |
| 3. | Students lack the required technological skills | 88 | 48% |
| 4. | Lack of computers in the classroom for students use | 75 | 41% |
| 5. | Workload | 67 | 37% |
| 6. | Students' perceptions towards technology integration in writing instruction | 58 | 32% |
| 7. | Internet connection issues | 53 | 29% |
| 8. | Lack of technical support | 53 | 29% |
| 9. | Lack of professional development on how to integrate technology in teaching writing effectively | 42 | 23% |
| 10. | Teachers' perceptions towards technology integration in writing instruction | 28 | 15% |

**Qualitative Results (Interviews)**

Based on the interviews, teachers highlighted a number of challenges that hinder the integration of technology in their writing instruction as noted in table (16). Among these challenges, lack of professional development was the most salient one as all the participants asserted that they have never received any training or workshops related to integrating technology into writing instruction. Other challenges emerged were related to teachers' beliefs about integrating technology into writing instruction (50%), lack of resources inside the class and at home (50%), lack of writing competency (50%), students lack of technological skills (40%), writing checking (30%), lack of students response (30%), lack of time (30%), students' negative perception towards technology (30%), writing difficulties (30%) technology misuse (20%) and parents' attitude towards Internet use (10%).

Table (16) List of Technology Integration Challenges (Qualitative)

| Challenges | Frequency | Percent | Quotation Examples |
|---|---|---|---|
| Lack of PD | 10 | 100% | • We have to provide teachers with more training and professional development sessions on how to integrate technology in their writing classrooms. Then we have to provide them with useful articles or useful sites that could help teachers integrate technology smoothly and comfortably with their students.<br><br>• Here in Qatar we did not ask students before Corona to have writing on PC, so I didn't have any idea or didn't see any teachers taught writing through computers. Most of the students were writing Emails and topics on paper only.<br><br>• So far, we didn't have specific instructions on how to integrate technology concerning writing. |
| Lack of time | 3 | 70% | • I think the time factor is a challenge…..we are linked to the overview and each teacher is supposed to have two classes only at most for writing. So I think the factor of time and the levels of students may hinder us from using technology.<br><br>• We need more time. Sometimes the writing class is divided into 2 blocks, and sometimes we take three blocks to allow students to write and take their time in writing especially when we use technology. |

| Challenges | Frequency | Percent | Quotation Examples |
|---|---|---|---|
| Teachers' beliefs | 5 | 50% | • For writing, I don't prefer honestly using technology. I use paper with them more than the technological methods. Because it's writing, they need to write. I believe in writing, your ideas will come out on paper more than with typing or using technology.<br><br>• I think it is too difficult to ask the students to use technology. In my opinion, it will be appropriate at the university level or college level. But in the preparatory stage, I think it is still difficult for the students to use, for example proof-writing sites or other sites.<br><br>• The challenges that we face is that integrating technology needs a lot of work from teachers to prepare their classes. If we are going to refer to the technology, the teacher will search for a long time to find something that is a suitable for her students and fitting their needs. |
| Lack of resources | 5 | 50% | • Sometimes students do not have enough devices at home, especially when there are more than one kid at home and they had to do their homework at the same time. So sometimes this is a bit challenging.<br><br>• We don't have access to the technology for personal use in classes. And many students say we do not have a PC or laptop at home.<br><br>• Many students say we do not have a PC, we don't have a laptop. |

| Challenges | Frequency | Percent | Quotation Examples |
| --- | --- | --- | --- |
| Students poor level of English | 5 | 50% | • The basic challenge is the language itself with our students. I think students have to improve their language, the amount of words they know and to master sentence writing. This is the basic challenge with the teaching of writing with most of our students.<br><br>• Let's say the storage of the vocabulary students use is very limited, and for writing you need to have a good amount of words and mastering of writing sentences too, how to construct a sentence. Um, this is the basic challenge with the teaching writing itself with most of our students.<br>I face many difficulties….about more than 50% of the students don't have enough vocabulary to talk about the topic. |
| Students lack the technological skill | 4 | 40% | • Believe me when I asked them to type their writing and send it back, there are many… many students told me we do not know how to type. Students do not know how to use technology. Sometimes you have to open even the PC for the student and to show her where to go …, how to open Google and so on…. So this is a big challenge.<br><br>• Students lack the experience and the skills on how to deal with writing using the laptops or PCs. Maybe this is a point that we need to improve in the future. |
| Writing checking | 3 | 30% | • It's so difficult to check the writing through the laptop, checking the papers is easier for me than the laptop.<br><br>• We need training on how to mark students' work online. As you know now we don't have paper and we need to find methods in which we can apply our marking strategy and how to give them feedback. |

| Challenges | Frequency | Percent | Quotation Examples |
|---|---|---|---|
| Lack of students response/ motivation | 3 | 30% | • Not all students respond to the exercises. Only one or two students answer and their answers usually are correct.<br><br>• Maybe from 10 to 20 or 25% of the students are interested and can do the activities. |
| Students negative perceptions | 3 | 30% | • Writing for all students is boring. If you ask any student to describe writing, they will describe it as being boring.<br>• Students feel board when using technology because they are weak in writing and they cannot do the task. |
| Writing is a difficult skill | 3 | 30% | • You are talking about one of the most challenging skill, which is writing, you know, as out of my experience, when we talk about listening, speaking, reading, writing in the last skill, and it is really the most challenging one for teachers to teach, and also for students to learn. Writing is not that easy task, even for adult learners, even for teachers themselves, when you ask some of the teachers to write a paragraph, it needs a lot of effort from the the teacher himself. |
| Technology misuse by students | 2 | 20% | • Students misuse technology. You know that sometimes we can take them to IT classrooms, it's very hard to control all the students and it is very hard to control 30 or more than 30 students at the same time, and you know you expect anything from them. I'm always finding it really hard to keep them safe while using the internet!  This is the most important challenge. |
| Parents attitudes and support | 2 | 20% | • Some students say my parents do not let me use the Internet at home ….I heard it many times from students. Maybe because many parents are afraid of letting their children use the internet. |

**Variances Analysis**

Q 4 :Are there statistically significant differences among teachers in their knowledge and practices due to gender, years of experience and the received professional development?

While the first three questions are descriptive in nature, the fourth one is inferential. In answering the fourth question, the researcher used the independent sample t-test twice, once to examine teachers' knowledge and practices differences in terms of gender, and the second time in terms of professional development. The researcher also used the One-Way Analysis of Variance (ANOVA) to examine teachers' knowledge and practices differences regarding teachers' teaching experience. The sections below present the results obtained after running these tests.

**Teachers' Knowledge and Practices by Gender**

Seeking significant differences between male and female, an independent sample t-test was conducted. Table (17) shows significant differences in favor of technological knowledge (TK) (*p= 0.02*). Male teachers reported a higher level of TK (*M= 4.30, SD= 0.67*) than female teachers (*M= 4.06, SD= 0.71*). By the same token, the results reported significant differences for the content knowledge (CK) (*p= 0.04*). Male teachers also reported higher level of CK (*M= 4.42, SD= 0.70*) than female teachers (*M= 4.21, SD= 0.66*). On the other hand, no significant differences between male and female teachers were identified in terms of their PK, TPACK or practices.

Table (17) t-test Statistic of Teachers' TPACK and Practices According to Gender

| Domain | Gender | N | M | SD | t | Sig. |
|--------|--------|-----|------|------|------|-------|
| TK | Male | 72 | 4.30 | 0.67 | 2.29 | 0.023 |
| | Female | 110 | 4.06 | 0.71 | | |
| CK | Male | 72 | 4.42 | 0.70 | 2.07 | 0.04 |
| | Female | 110 | 4.21 | 0.66 | | |

| Domain | Gender | N | M | SD | t | Sig. |
|---|---|---|---|---|---|---|
| PK | Male | 72 | 4.22 | 0.77 | 1.02 | 0.31 |
| | Female | 110 | 4.11 | 0.71 | | |
| TPACK | Male | 72 | 4.03 | 0.84 | 1.51 | 0.13 |
| | Female | 110 | 3.86 | 0.70 | | |
| Practices | Male | 72 | 3.29 | 0.47 | 1.46 | 0.15 |
| | Female | 110 | 3.19 | 0.41 | | |

### Teachers' Knowledge and Practices by Teaching Experience

One Way Analysis of Variance (ANOVA) was carried out to explore if there were any significant effects for the independent variable (teaching experience) on the dependent variables (teachers' knowledge and practices). Upon running the test, the results confirmed the existence of statically significant differences between teaching experience and teachers' TK ($p= 0.05$) as shown in table (18). To follow up the source of difference, a Tukey post hoc showed that teachers who have experience from (1-5) scored higher level of TK than those with (6-10) and (16 and more) years of experience. Moreover, findings indicate no statistically significant differences between teachers CK, PK, TPACK or practices and their teaching experience.

Table (18) ANOVA for Teachers' Knowledge and Practices by Teaching Experience

| Domain | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| TK | Between Groups | 3.845 | 3 | 1.282 | 2.686 | .048 |
| | Within Groups | 84.958 | 178 | .477 | | |
| | Total | 88.803 | 181 | | | |
| CK | Between Groups | 1.262 | 3 | .421 | .909 | .438 |
| | Within Groups | 82.393 | 178 | .463 | | |
| | Total | 83.655 | 181 | | | |
| PK | Between Groups | 1.068 | 3 | .356 | .657 | .580 |
| | Within Groups | 96.471 | 178 | .542 | | |
| | Total | 97.539 | 181 | | | |

| Domain | | Sum of Squares | df | Mean Square | F | Sig. |
|--------|--|----------------|-----|-------------|-----|------|
| TPACK | Between Groups | .146 | 3 | .049 | .083 | .969 |
| | Within Groups | 104.773 | 178 | .589 | | |
| | Total | 104.919 | 181 | | | |
| Practices | Between Groups | .148 | 3 | .049 | .258 | .855 |
| | Within Groups | 33.958 | 178 | .191 | | |
| | Total | 34.105 | 181 | | | |

**Teachers' Knowledge and Practices According to Professional Development**

An independent sample t-test was carried out to examine whether professional development had any impact on teachers' knowledge or practices. The results illustrated in table (19) showed that significant differences (alpha= .05) in both teachers TPACK ($t$= 2.031, $p$= 0.04) and teachers practices ($t$= 2.618, $p$= 0.01) were evident. Teachers who received professional development reported higher level of TPACK ($M$= 4.02, $SD$= 0.80) compared to their colleagues who did not receive any professional development in using technology in teaching writing ($M$= 3.79, $SD$= 0.68). Similarly, teachers who received professional development scored higher mean value in terms of practices ($M$= 3.30, $SD$= 0.45) than those who did not ($M$= 3.13, $SD$= 0.39).

Table (19) Teachers' Knowledge and Practices according to the professional development

| Domain | PD | N | M | SD | t | Sig. |
|--------|-----|-----|------|------|------|------|
| TK | Yes | 109 | 4.20 | 0.74 | .99 | .33 |
| | No | 73 | 4.09 | 0.64 | | |
| CK | Yes | 109 | 4.31 | 0.75 | .33 | .74 |
| | No | 73 | 4.27 | 0.55 | | |
| PK | Yes | 109 | 4.17 | 0.81 | .35 | .73 |
| | No | 73 | 4.13 | 0.60 | | |
| TPACK | Yes | 109 | 4.02 | 0.80 | 2.03 | .04 |
| | No | 73 | 3.79 | 0.68 | | |

| Domain | PD | N | M | SD | t | Sig. |
|---|---|---|---|---|---|---|
| Practices | Yes | 109 | 3.30 | 0.45 | 2.62 | .010 |
| | No | 73 | 3.13 | 0.39 | | |

CHAPTER FIVE: DISCUSSION AND CONCLUSION

The emerging technologies have urged teachers to develop various types of knowledge to keep up with the fast-growing developments in the field of education. Teachers' technological knowledge is essential to assist students to reach their potential and improve their technological knowledge and skills (Qoura, 2017). In this sense, it is no longer acceptable to deal with technology as a complementary tool; it should be part of the teachers' instruction and students' learning activities. Nevertheless, teachers are constantly confronted with various obstacles that hinder the effective implementation of technology. Therefore, this study focused on investigating EFL teachers' level of TPACK, their actual practices and challenges of integrating technology in teaching writing in preparatory schools in Qatar. This chapter discusses the findings from the previous chapter in light of the available literature. Recommendations for future research are included at the end.

The first question investigated EFL teachers' perceived knowledge based on the TPACK framework. In specific, four dimensions were targeted to assess teachers' knowledge namely, CK, PK, TK and TPACK. The reported results of teachers' self-evaluation revealed that teachers generally assumed a high level of knowledge in all TPACK constructs. Teachers were most confident with their CK, followed by PK, TK and lastly their TPACK. However, the researcher noticed a contradiction when comparing these results with the findings gleaned from the interviews as most of the teachers reported a poor to moderate level of confidence in using technology to teach writing. Moreover, some teachers admitted that they even lack the knowledge and skills needed to use technology in writing classes; they attributed that to the fact that they have never received training or courses in this field.

There are two causes for this discrepancy. The first one could be attributed to the survey items themselves. Having a closer look at the top-ranked items in each dimension shows that they targeted general skills that can be easily achieved and acquired (e.g. using office programs, smart boards and printers, understanding writing conventions, using appropriate teaching methods, etc.). In contrast, items that were rated as the lowest were mostly related to using advanced technologies such as multimedia, collaboration and interactive tools, in specific, most of these were more found in the TPACK domain, which was rated as the lowest among the other domains. In fact, using these technologies requires higher technological skills and active participation in the learning process on the part of the student. Therefore, it can be assumed that classrooms tend to be teacher-oriented since teachers feel less confident in using collaborative and advanced tools. These findings raise intriguing questions regarding the nature and type of professional development programs presented to teachers in terms of using technology in teaching writing.

Another possible explanation for these results could be attributed to a possible bias in teachers' responses due to the self-reporting surveys; respondents may over-report to offer socially acceptable answers, which may introduce bias (Cohen et. al., 2018). These findings are consistent with other studies (Alharbi, 2020; Alqurashi et al., 2017; Kozikoğlu & Babacan, 2019) that reported a high level in teachers' TPACK perceived knowledge.

A worth noting finding in this section is related to the CK domain. Among the four dimensions of TPACK, teachers reported a higher CK than the other subdomains. A note of caution is due here since most of the participants in this study (86.3%) had their degrees from countries other than Qatar; thus, this result cannot give an indication about teachers' education in Qatar. Moreover, although having a solid knowledge of the

subject matter is an essential factor in quality teaching, this does not warrant effective teaching; content knowledge should be combined with strong pedagogical and technological knowledge for better technology integration (Cheung & Jang, 2020; Mishra & Koehler, 2008). This result is in harmony with the findings of Alqurashi et al. (2017) who found that EFL Saudi teachers have higher CK than other TPACK domains.

Similar inconsistency between quantitative and qualitative was related to the professional development. The interviewed teachers asserted that they have never received official training regarding integrating technology in teaching writing, whereas more than half of the teachers in the survey reported receiving professional development in that topic. These differences are likely to be related to item misinterpretation. This was clear in teachers' responses; when the researcher asked them to name the received workshops in teaching writing via technology, the teachers mentioned training related to teaching writing, but when the researcher repeated the question focusing on technology integration, the answers were completely different assuring that they have never attended any training related to this specific topic.

The purpose of the second question was two folds: to explore the most used technologies in teaching writing and to examine the actual practices of teachers in writing classes in relation to technology use.

In relation to the first part, it was found that the vast majority of teachers use PowerPoint to create presentations for their writing lessons. In fact, using PowerPoint in some schools is mandatory. This raises questions about the benefits and drawbacks of using PowerPoint as a teaching tool in every writing class. In the field of education, PowerPoint remains the most common, user-friendly, and successful tool. However,

this tool is effective when only used smartly and reasonably; teachers should bear in mind that the purpose of the presentation should be to engage the students, convey information, and get them thinking not amusing them only (Priya, 2012).

Other highly reported technologies were desktop computers, laptops, iPads and interactive whiteboards. It is obvious that the technology tools that teachers use the most were those that allowed them to provide input or display information; this indicates that these technologies are exploited in a quite traditional way. In particular, they are used to prepare and present the writing task to the students without actively engaging students in the learning process. Surprisingly, word process was reported by less than half of the teachers; this is disappointing as using word processors helps students improve their writing competency compared to the handwriting method. In addition, the use of word processing increases students' motivation toward writing (Yilmaz & Erkol, 2015). One of the reasons contributing to this, as teachers stated in the interviews, is that students lack keyboarding skills, which makes using the word processor a burden on students and time-consuming.

Unfortunately, using E-mails, video conferencing tools, writing applications, LMS, web browsers and social media were respectively among the lowest utilized technologies. Taking into account that data collection took place during the pandemic in which blended learning was the adopted approach for schooling, these results pointed out a serious deficiency in using technologies in teaching writing. In fact, some teachers admitted that writing is a neglected skill, especially in boys' schools because it takes time and requires practice and perseverance. Evidence from the literature suggests that employing Internet applications and social media increases students writing skills and their motivation to write (Lin & Griffith, 2014; Qoura, 2017; Rusli et al., 2019).

In terms of the second part, which tackles teachers' practices, unlike findings related to teachers' knowledge, teachers' use of technology to teach writing was at a moderate level. These results are likely to be related to the challenges that teachers face when integrating technology in writing. What stands out in the results that most of the statements that were rated as moderate were student-centered practices, whereas most of the statements that ranked high were more teacher-oriented. These results were confirmed by the teachers' responses during the interviews; the vast majority of the teachers reported using technology at the preparation phase to introduce the writing topics, vocabulary and grammar. Very few teachers reported using technology during the other stages of the writing process. As reported by teachers, many challenges seem to contribute to the low technology integration in the writing classes. Therefore, it was apparent that teachers tend to use the approaches and strategies they are familiar with to teach writing. This proofs that until these days, technology is not considered an integral part of the teachers' practices as it is mainly dealt with as complementary activities (Graham, 2019). These findings are broadly supported by the work of Cheung and Jang (2020), Li and Ni (2011), Merç (2015), Williams-Butler (2018), Wu and Wang (2015) and Yunus et al., (2013) who found that teachers need to use technology to engage students in meaningful and active learning.

In regard to the third question, there is no doubt that addressing the obstacles facing technology integration is the very first step in facilitating technology integration in the teaching and learning process. Therefore, one of the research objectives was to explore the challenges EFL teachers confront when integrating technology in teaching writing in preparatory schools. Findings revealed several challenges, as discussed in the section below.

At the outset, lack of time appears to be the most significant factor as identified by most of the teachers. According to teachers, two periods are allotted for teaching writing lessons; most teachers consider it insufficient, especially when considering the poor level of students in writing. Teachers believe that integrating technology will add more burden to them in this context. This challenge is in line with those of previous studies conducted by Chaaban and Ellili-Chaerif (2017) and Emhamed and Krishnan (2011). However, research has proved that integrating technology can save teachers time if teachers are well equipped with the necessary digital literacy skills. For example, instead of asking students to search the net looking for information, teachers can set a WebQuest in which students learn how to use the available resources critically instead of looking for them (Azmi, 2017).

Another challenge was associated with the absence of suitable professional development. Surprisingly, all the interviewed teachers confirmed that they have never received any course during their university education nor in-service training specialized in integrating technology into teaching writing, a factor that they considered as the main reason behind their poor integration of technology. However, this issue was raised by only 23% of the surveyed teachers. This rather contradictory result may be due to the nature of the question as teachers were asked to choose the challenges they face. It is possible that teachers tend to choose the most important for them ignoring the other challenges. This result is in accord with the study of Emhamed and Krishnan (2011), and Li and Ni (2011). These findings have important implications for developing teachers' education and in-service professional development programs. Considering the TPACK framework in this vein would be of great benefit since a proper use of technology requires a satisfactory level of knowledge and appropriate training (Azmi, 2017; Mishra & Koehler, 2008).

An additional major challenge that emerged from the interviews was teachers' beliefs toward technology integration. Participants believe that writing on paper is better in writing classes; integrating technology needs more time and effort on the teachers' side; besides, technology is more appropriate for college students. It is widely accepted that teachers' beliefs influence their instructional practices (Peterson & McClay, 2012). Teachers who lack competence in technology use and software programing are more to place a lower value on the role of technology in students' learning (Golzar, 2019; Regan et al., 2019). This is not to mention that empirical research on writing has proved that integrating technology in teaching writing yields better outcomes compared to the paper-pen method (Boudjadar, 2015).

Other significant challenges identified in this study are students' poor technological skills and lack of computers for students' usage. Although schools are provided with computer labs, teachers expressed their concerns about wasting the learning time while taking students to the labs besides the advanced arrangement needed priory.

Regarding the fourth question, this study explored the differences in teachers' knowledge and practices in terms of gender, received professional development and teaching experience. This study concluded that EFL male teachers have higher TK than females. This can be viewed as males, in general, have better skills in technology than females. This result is in harmony with Ergen et al. (2019) Meta-analysis study on Technological Pedagogical Content Knowledge by Gender. It seems possible that these results are due to cultural perspectives. Generally, in Arab countries, technology is considered more of male interest and as a male practice; as a result, females tend to establish negative attitudes toward information technology tools (Sáinz & López-Sáez, 2010). However, various gender-related studies have produced different findings. The

reasons for these variations can be attributed to differences in the research sample characteristics, the size, and the gender distribution.

Moreover, results in this study suggested that teachers with experience between 1-5, have higher TK than the teachers who have more teaching experience. This can be interpreted in light of the demographic characteristics of the participants. As mentioned earlier in chapter 3, about half of the teachers have teaching experience of 16 and more, and around 26% have from 11 to 15. One way to look at this is those veteran teachers are more likely to hold a conservative view towards integrating technology than teachers who were born in the age of technology. This result is in line with Drajati et al. (2018) and Alqurashi et al. (2017). On the background of such data, it is important to provide experienced teachers with professional development courses that focus on how to integrate technology in writing classrooms effectively. Additionally, teachers with more years-of-experience could benefit from those with fewer years of experience through building professional learning communities to exchange expertise.

Furthermore, results indicated a significant difference in teachers' TPACK and practices in favor of teachers who received professional development related to integrating technology in teaching writing. Similar results were found in the study of Kozikoğlu and Babacan (2019). One of the issues that emerge from these findings is the importance of professional development in the field of teachers' education and training. Many veteran teachers finished their teacher education programs before the appearance of many of the current interactive technologies. This influx and diversity of emerging technology required teachers to maintain their learning and seek opportunities to improve their technological skills (Zoch et al., 2015). On this note, it is important to highlight that effective professional development is not "one-size-fits-all"; it is ongoing,

interactive and engaging where teachers have the opportunity to see new techniques in motion (Zoch et al., 2015).

**Conclusion**

Efficient writing instruction is essential for enhancing students' writing outcomes. (Graham et al., 2012). Mishra and Koehler (2008) emphasized that knowledge of content and pedagogy is not sufficient; teachers need to develop their ability to identify the most suitable resources and tools within the existing academic context. In line with this, the researcher carried out this study to explore the status quo of incorporating technology in writing instruction in Qatari preparatory schools. The results of the present study relied on data collected from 182 EFL teachers through using a survey and running 10 interviews.

The findings in this study show that EFL teachers in the preparatory schools in Qatar assume a high level of knowledge in all TPACK constructs. In particular, teachers perceive their CK to be the highest, while the TPACK level was the lowest. However, teachers' actual writing practices do not reflect their level of knowledge. Findings indicate that teachers barely apply this knowledge to help students use the language meaningfully, support their creativity, nurture their autonomy, or strengthen their higher-order thinking skills. In other words, teachers' integration of technology is limited to presenting the new content in most cases, while students are rarely given the opportunity to use technology in developing their writing skills like examining authentic materials, communicating with a real audience, giving and receiving online feedback from colleagues, or publishing their work on digital platforms.

This study highlighted several challenges that contribute to the deficiency in using technology in teaching writing like the lack of professional development, lack of time teachers' beliefs towards technology, lack of resources and students poor level of

technology skills. Teachers asserted that they need specialized professional development programs to promote their technology integration practices in writing classes. Teachers, on the other hand, stressed that students lack the academic technological skills needed to perform the writing assignments.

Furthermore, the findings reveal that male teachers have a higher level of TK than females. Moreover, it was found that novice teachers have higher TK than veteran teachers. More significantly, findings indicate that teachers who received professional development reported higher level of confidence in TPACK and use of technology to teach writing.

To conclude, this research adds to our current understanding of writing instruction in two respects. First, Professional development is needed to enhance teachers' technological and pedagogical practices in writing classes. Second, technology should be exploited in a more student-centered way, implying that teachers should have a thorough understanding of their students' level, needs and learning background. However, consideration should be given to the model and form of professional development provided to the teachers. A "one-shot" training related to technology is inadequate, and does not yield the desired change in teachers' practices (Agbayahoun, 2016; Harrell & Bynum, 2018); successful professional development should be contextualized, personalized, engaging, collaborative (Flint et al., 2011), and most importantly it should a long-term process that encourage teacher' ongoing reflection and self-growth and development (Agbayahoun, 2016). This study confirms the need for more research to investigate other aspects of writing instruction and technology.

### Recommendations

Based on the findings of this study, the researcher presents several

recommendations. First, all researchers interested in this field may conduct their studies on other stages such as the primary or the secondary; they even may conduct a national study from k-12. In addition, researchers are encouraged to conduct classroom observations to get a wider perspective concerning teachers' classroom practices and to reduce the bias resulting from self-reported data. In addition, the researcher encourages more studies that investigate technology integration in writing instruction from different perspectives. Finally, further research may investigate the TPACK of teachers who graduated from higher institutions in Qatar to give insight into the quality of teachers' education by the local higher institutions.

In addition, these findings have implications for policymakers to revisit the learning standards and competencies to include digital literacy as a core competency. Moreover, the findings may guide educators' efforts in Qatar especially those who are responsible for teachers' education and development to take serious actions toward equipping the teachers with digital literacy skills needed to enhance students writing skills in the era of technology.

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# Appendices

## Appendix A: National Professional Standards for Teachers in Qatar

| Old Standards | Revised Standards |
|---|---|
| 1. Structure innovative and flexible learning experiences for individuals and groups of students.<br>2. Use teaching strategies and resources to engage students in effective learning.<br>3. Foster language, literacy and numeracy development.<br>4. Create safe, supportive and challenging learning environments.<br>5. Construct learning experiences that connect with the world beyond school.<br>6. Apply ICT in managing student learning.<br>7. Assess and report on student learning.<br>8. Apply knowledge of students and how they learn to support student learning and development.<br>9. Apply teaching/subject area knowledge to support student learning<br>10. Work as a member of professional teams.<br>11. Build partnerships with families and the community.<br>12. Reflect on, evaluate and improve professional practice. | 1. Plan for student progress and achievement.<br>2. Engage students in the learning process and develop them as learners.<br>3. Create safe, supportive and challenging learning environments.<br>4. Assess students' learning and use assessment data to improve achievement.<br>5. Model high professional standards and engage in continuous professional development.<br>6. Maintain effective partnerships with parents and community. |

Note: Adapted from (Sawalhi, 2019)

# Appendix B: Teacher's Survey

## Teacher's Survey

This survey aims at exploring EFL teachers' knowledge, practices and challenges of integrating technology into L2 English writing instruction in preparatory public schools in Qatar. Accordingly, your participation in this study is highly appreciated.

Kindly be informed that all information collected through this survey will be treated as strictly confidential and will be used only for research purposes in accordance with Qatar University-related policies. No information about the institution or individuals who participate in this survey shall be disclosed to anyone at any time.

The study is approved by Qatar University Institutional Review Board with the approval number QU-IRB 1407-EA/20. If you have any questions related to ethical compliance of the study, you may contact them at QU-IRB@qu.edu.qa. If you have any questions, please contact Mrs. Hanadi at +97455605377, ha1315731@student.qu.edu.qa or the supervisor, Dr. Yousef Alshaboul at +97444035145, yalshaboul@qu.edu.qa.

By completing this questionnaire, you are giving your informed consent to voluntarily participate in this study. This questionnaire targets EFL teachers in preparatory public schools and will require 10 minutes of your valuable time. Thank you for your cooperation and wish you all the best.

### Section (1) Teacher's Demographic Information

1. Gender
   a. Male
   b. Female

2. Highest Degree
   a. Bachelor
   b. Postgraduate Diploma
   c. Master
   d. Ph.D. / Ed.D.

3. Highest degree original country
   a. Qatar
   b. Others

4. Years of Teaching Experience
   a. 1-5
   b. 6-10
   c. 11-15
   d. More than 16

5. School Location
   a. Doha
   b. Al Rayyan
   c. Umm Slal
   d. Al Khor & Dhekra

e.    Al Wakrah
f.    Al Daayen
g.    Al Shamal
h.    Al Sheehaniya

6.    Have you received any professional Development in integrating technology into writing instruction?
a.    Yes
b.    No

## Section (2) Teacher's TPACK Survey

For the purpose of this questionnaire, technology refers to both hardware and software tools that you use such as computers, iPads, interactive whiteboards, software programs, applications, platforms, etc.

Using the scale provided, please rate to which extent you agree or disagree with the following statements regarding your Technological, Pedagogical And Content Knowledge (TPACK):

| Strongly disagree SD | Disagree D | Neither Agree Nor Disagree N | Agree A | Strongly Agree SA |
| --- | --- | --- | --- | --- |

| TK | Technological Knowledge | SD | D | N | A | SA |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | I can use basic technological terms (e.g. operating system, wireless connection, cloud storage, file sharing… etc.) appropriately. | | | | | |
| 2 | I can adjust computer settings such as installing software and establishing an Internet connection. | | | | | |
| 3 | I can use computer input/output devices such as printers, a headphones, and a scanners, etc. | | | | | |
| 4 | I can troubleshoot common computer problems (printer problems, Internet connection problems, etc.) independently. | | | | | |
| 5 | I can use digital classroom equipment such as projectors and smartboards. | | | | | |
| 6 | I can use content development tools like office programs (i.e. Word, PowerPoint, etc.) and Learning Management System (LMS) with a high proficiency. | | | | | |
| 7 | I can create multimedia (e.g. video, web pages, etc.) using text, pictures, sound, video and animation. | | | | | |
| 8 | I can use collaboration tools (wiki, Google Drive apps, blogs, social media, etc.) in accordance with my objectives. | | | | | |
| 9 | I can use different types of software that help me complete my tasks efficiently. | | | | | |
| CK | Content Knowledge | | | | | |
| 10 | I can express myself in a wide range of writing genres. | | | | | |
| 11 | I understand the writing conventions in English. | | | | | |
| 12 | I can rhetorically analyze texts written in English. | | | | | |
| 13 | I understand how genre functions in texts written in English. | | | | | |
| 14 | I understand how rhetoric influences communication. | | | | | |
| PK | Pedagogical Knowledge | | | | | |
| 15 | I can use teaching methods and techniques that are appropriate for foreign language writing students. | | | | | |

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| 16 | I can design learning experiences that are appropriate for foreign language writing students. | | | | | |
|----|---|---|---|---|---|---|
| 17 | I can support students' learning in accordance with their physical, mental, emotional, social, and cultural differences. | | | | | |
| 18 | I align my teaching practices with the writing lesson's outcomes. | | | | | |
| 19 | I can integrate the experience that I gain from professional development programs in my teaching process. | | | | | |
| 20 | I can support students' out-of-class work to facilitate their self-regulated learning. | | | | | |
| **TPACK (Technology, Pedagogy and Content Knowledge)** | | | | | | |
| 21 | I can use collaborative tools (e.g. Google Drive apps, LMS, Voice thread, etc.) to support students' writing development. | | | | | |
| 22 | I can support students as they use technology to become independent writers and users of English. | | | | | |
| 23 | I can use Web 2.0 tools (interactive presentation software, digital story tools, etc.) to develop students' language and writing skills. | | | | | |
| 24 | I can support my professional development by using digital tools and resources to continuously improve my ability to teach foreign language writing. | | | | | |

## Section (3) Teacher's Practices

Please select all that apply

| 25 | What type of technologies do you use to teach writing? | | | | | |
|----|---|---|---|---|---|---|
| | a. | Desktop computer/ laptop/ iPad | b. | Interactive whiteboards | c. | Word processors |
| | d. | PowerPoint | e. | LMS | f. | Web browser |
| | g. | Social media (Facebook, WhatsApp, Twitter, etc.) | h. | Video conferencing tools | i. | Writing applications |
| | j | E- mail | k | Virtual learning | | |
| | l | Other: (please specify)------------------------------------------------------------------------------------------------------ ----------------- | | | | |

For the statements 1 – 16, please indicate how frequently you use computer technologies for each of the activities listed below

| Never | Rarely | Sometimes | Often | Always |
|---|---|---|---|---|
| N | R | S | O | A |

| | Statement | N | R | S | O | A |
|----|---|---|---|---|---|---|
| | I use technology to: | | | | | |
| 26 | I use technology to plan for writing classes. | | | | | |
| 27 | I use technology to teach writing classes. | | | | | |
| 28 | I use technology to teach writing classes virtually. | | | | | |
| 29 | I use technology to engage students in writing activities (brainstorming, planning, drafting, publishing, etc.) | | | | | |

| 30 | I use technology to discuss the writing tasks with my students. | | | | | |
|----|---|---|---|---|---|---|
| 31 | I use technology to help students develop the ideas for writing. | | | | | |
| 32 | I use technology to ask students to collect ideas about the writing tasks using Internet. | | | | | |
| 33 | I use technology to ask students to work collaboratively on online writing tasks. | | | | | |
| 34 | I use technology to ask students to write their first draft using word processors. | | | | | |
| 35 | I use technology to ask students to review and edit their writing using online applications. | | | | | |
| 36 | I use technology to ask students to use web-based-references to check grammatical errors in their writing. | | | | | |
| 37 | I use technology to ask students to use web-based-references to improve their writing mechanics (i.e. punctuation and spelling). | | | | | |
| 38 | I use technology to ask students to exchange their writing tasks with peers for feedback electronically. | | | | | |
| 39 | I use technology to give students constructive feedback. | | | | | |
| 40 | I use technology to ask students to write their final draft. | | | | | |
| 41 | I use technology to ask students to publish their writing using web pages. | | | | | |

42- Do you use technology for any other purposes while teaching L2 English writing to your students? If yes, please specify?

_____
_____

### Section (4) Challenges of Integrating Technology into L2 English Writing Instruction

Please select all that apply

| 43 | What challenges do you face when you integrate technology into writing classes? | | | |
|----|----|---|----|---|
| | a. | Lack of time | b. | Lack of professional development on how to integrate technology in teaching writing effectively |
| | c. | Lack of computers in the classroom for students use | d. | Teachers' perceptions towards technology integration in writing instruction |
| | e. | Workload | f. | Students' perceptions towards technology integration in writing instruction |
| | g. | Internet connection issues | h. | Students lack the required technological skills |
| | i. | Lack of technical support | j | Large number of students |

44- What are other challenges that you encounter while integrating technology into L2 English writing instruction? ----------------------------------------------------------------------------------------------------------
----------------------------------------------------------------------------------------------

As part of the study, the researcher will also conduct classroom observations for writing classes. If you would like to participate, please provide your email.

**Email: ……………………………………**

# Appendix C: Interview Protocol

## Interview Protocol

### Introduction

Thank you for accepting the invitation to participate in this research. I hope this interview will be pleasant and interesting for both of us.

As you know, the aim of the research is to investigate teachers' knowledge, practices, and challenges related to integrating technology into teaching of writing in EFL classes in public schools in Qatar.

I'm expecting this interview to last for about half an hour. I would also like to remind you that your responses to the interview questions will be confidential at all times and will be used for the research purposes only. This interview will be recorded for the purpose of this study and all the recordings will be confidential as well and will be heard only by me. The recordings will be deleted immediately after the completion of the degree. Is that ok with you?

If you want to stop at any time or you want to take a break please let me know. If you don't want to answer any question just tell me that you don't' want to talk about this, and that's would be fine with me.

Ok do you have any question before we get started?

### Introductory Questions

1- Could you please tell me about your academic background and teaching experience?

### Teacher's Technological, Pedagogical and Content Knowledge (TPACK)

2- Have you ever received any pre or in-service courses/training on teaching writing with technology? If yes, will you name them?
    - How would you describe your competences in integrating technology in teaching writing?
    - On a scale of 5 (1 incompetent, 5 highly competent) How do you rate your technological competency?
3- How do you support/maintain your own professional development on teaching writing with technology?

4- How do you decide which technology to use for each writing lesson? What things/factors do you take into consideration?

**Teachers' Use of Technology in Teaching Writing**

5- What type of educational technology (platforms, tools, application...) do you use in your writing classes?

6- How do you use technology to teach writing? (Give examples)
   - In which stages of writing instruction do you use technology?
   - How do you use technology to support your students' writing development at home?

7- How do your students use technology in writing classes? (Give examples)

**Challenges & Recommendations**

8- What are the challenges you face when integrating technology in writing classes?

9- How do you overcome those? What do you do?

10- In your opinion, what should be done for better technology integration in writing classes?

**Ending the Interview**

Those were all the questions I have for you. Would you like to add anything related or do have any question for me, I would be happy to answer your questions.

Thank you for your valuable contribution and for sharing your experience with me.

**Appendix D: MoEHE Approval**

<div dir="rtl">

تصريح الموافقة لدخول المدارس

السادة مدراء المدارس اختيار عنصر.    المحترمين،،،

السلام عليكم ورحمة الله وبركاته،،،

نود إحاطتكم علماً بأن الباحث / الباحثون المرفق لكم بياناتهم، بصدد إجراء دراسة ميدانية في مدرستكم وعليه يرجى التكرم بتسهيل مهمة الباحث ، علماً بأن البيانات ستكون سرية ولأغراض البحث العلمي.

مع الشكر لحسن تعاونكم ،،،

نوف عبدالله مبارك الكعبي

مدير إدارة السياسات والأبحاث التربوية

</div>

3

| بيانات الباحث | |
|---|---|
| اسم الباحث | هنادي أحمد أبوبكر |
| الجهة المشرفة (جامعة / كلية ) | جامعة قطر |
| جهة العمل | جامعة قطر |

| هاتف العمل أو المنزل | 44131462 | الهاتف النقال | 55605377 |
|---|---|---|---|

| البريد الالكتروني (الوظيفي أو الجامعي) | Ha1513731@student.qu.edu.qa |
|---|---|
| البريد الالكتروني (الشخصي) | hanadihkm@gmail.com |

| الرقم الشخصي | 2 | 0 | 5 | 0 | 0 | 0 | 0 | 4 | 3 | 7 | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|

| التخصص الجامعي | ماجستير المناهج والتقويم والتدريس |
|---|---|

| بيانات الأعضاء المشاركين بالبحث | | | |
|---|---|---|---|
| أسماء المشاركين | الدكتور يوسف الشبول | | انقر أو اضغط هنا لإدخال نص. |
| | 1. انقر أو اضغط هنا لإدخال نص. | الهاتف النقال | انقر أو اضغط هنا لإدخال نص. |
| | 2. انقر أو اضغط هنا لإدخال نص. | | انقر أو اضغط هنا لإدخال نص. |
| | 3. انقر أو اضغط هنا لإدخال نص. | | انقر أو اضغط هنا لإدخال نص. |
| أسماء أخرى | انقر أو اضغط هنا لإدخال نص. | | |

| بيانات البحث | | |
|---|---|---|
| عنوان البحث (بالعربي) | دراسة استطلاعية عن واقع استخدام معلمي اللغة الإنجليزية للتكنولوجيا في تدريس مهارة الكتابة لطلبة المرحلة الإعدادية في مدارس قطر والتحديات التي تواجههم | |
| عنوان البحث (بالإنجليزية) | Integrating Technology in Preparatory Students' Writing in the Schools of Qatar: EFL Teachers' Knowledge, Practices and Challenges | |
| الغرض من إجراء البحث | ☒ إنهاء متطلبات علمية (يذكر) : رسالة ماجستير | ☐ غرض آخر (يذكر) : انقر أو اضغط هنا لإدخال نص. |
| اسم الفئة المستهدفة | معلمو ومعلمات اللغة الإنجليزية | |
| المرحلة الدراسية للفئة المستهدفة | المرحلة الإعدادية | العدد 200 |
| الجهة المستفيدة من نتائج البحث | وزارة التعليم والتعليم العالي - جامعة قطر | |

| الفترة الزمنية التي ينفذ فيها البحث | تاريخ بدء تطبيق أدوات البحث | 2020-10-01 | تاريخ نهاية تطبيق أدوات البحث | 2021-05-01 | الزمن المتوقع لاكتمال البحث | 2021-01-07 |
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| عينة البحث | معلمو ومعلمات اللغة الإنجليزية في المرحلة الإعدادية في مدارس قطر |
| ملخص للبحث | تهدف الدراسة إلى التعرف على ممارسات معلمي اللغة الإنجليزية في توظيف التكنولوجيا في تدريس مهارة الكتابة لدى طلبة المرحلة الإعدادية، ومدى امتلاكهم للمعرفة المتعلقة بالمحتوى وأصول التدريس والتكنولوجيا وفقا لمنحى TPACK. كما تسعى الدراسة إلى الكشف عن التحديات التي تواجه المعلمين في إطار محاولاتهم لدمج التكنولوجيا في تدريس مهارة الكتابة. ويتوقع من الدراسة الخروج بتوصيات قد تسهم في بناء برامج تدريبية أكثر كفاءة وقدرة على تلبية احتياجات المعلمين في دولة قطر، كما يتوقع أن تفتح الدراسة آفاقا جديدة أمام الباحثين للتركيز على مهارة الكتابة وطرق تنميتها باستخدام أدوات ووسائل التكنولوجيا المختلفة. |
| أهداف البحث | 1. التعرف على مدى امتلاك معلمين اللغة الإنجليزية في المرحلة الإعدادية للمعرفة المتعلقة بالمحتوى وأصول التدريس والتكنولوجيا.<br>2. التعرف على ممارسات المعلمين المتعلقة بدمج التكنولوجيا في تدريس مهارة الكتابة باللغة الإنجليزية.<br>3. التعرف على التحديات التي تواجه معلمي اللغة الإنجليزية في محاولاتهم لدمج التكنولوجيا في تدريس مهارة الكتابة. |
| أسئلة البحث | 1. ما مدى امتلاك معلمي اللغة الإنجليزية في المرحلة الإعدادية في قطر للمعرفة المتعلقة بالمحتوى وأصول التدريس والتكنولوجيا؟<br>2. ما هي الطرق التي يستخدمها معلمو اللغة الإنجليزية لدمج التكنولوجيا في تدريس مهارة الكتابة لطلبة المرحلة الإعدادية في دولة قطر؟<br>3. ما التحديات التي يواجهها معلمو اللغة الإنجليزية عند دمج التكنولوجيا في تعليم الكتابة لطلبة المرحلة الإعدادية في قطر؟<br>4. |
| منهج البحث وأدواته | تعتمد هذه الدراسة على المنهج الوصفي التحليلي والذي يعتمد على دراسة الظاهرة كما هي في الواقع ويهتم بوصفها وصفا دقيقا ويعبر عنها كيفياً وكمياً.<br>وللإجابة على أسئلة الدراسة، ستقوم الباحثة بتطبيق استبانة مبنية على أبعاد منحى TPACK والذي قام بتطويره العالمان كوهلر وميشرا عام 2006. |

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# Appendix E: QU- IRB Approval

**Qatar University Institutional Review Board QU-IRB**
QU-IRB Registration: IRB-QU-2020-006, QU-IRB, Assurance: IRB-A-QU-2019-0009

October 28th, 2020

Dr. Yousef Alshaboul
College of Education
Qatar University
Tel.:  +974 4403 5145
Email: yalshaboul@qu.edu.qa

Dear Dr. Yousef Alshaboul,

**Sub.: Research Ethics Expedited Approval**
**Ref.: Student, Hanadi AbuBakir/ e-mail: ha1513731@student.qu.edu.qa**
**Project Title: "Integrating Technology in Preparatory Students' Writing in the Schools of Qatar: EFL Teachers' Knowledge, Practices and Challenges"**

We would like to inform you that your application along with the supporting documents provided for the above project, has been reviewed by the QU-IRB, and having met all the requirements, has been granted research ethics **Expedited Approval** based on the following category(ies) listed in the Policies, Regulations and Guidelines provided by MOPH for Research Involving Human Subjects. Your approval is for one year effective from October 28th , 2020 till October 27th, 2021.

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1) *Present no more than minimal risk to human subject, and*
2) *Involve only procedures listed in the following category(ies).*
*Category 7:* Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

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**Documents Reviewed:**  QU-IRB Application Human Subject- updated 14-10 Hanadi-signed, QU-IRB Application Material Check List-Handi, Research Proposal-Hanadi, مهمة تسهيل باحث في المدارس- هنادي, Consent Form- Teacher's interview-updated 14-10, Consent Form- Teacher's Survey- updated 14-10, Teacher's Survey updated 14-10, Interview Questions, QU-IRB Review Forms, responses to IRB queries and updated documents.

Please note that expedited approvals are valid for a period of **one year** and renewal should be sought one month prior to the expiry date to ensure timely processing and continuity. Moreover, any changes/modifications to the original submitted protocol should be reported to the committee to seek approval prior to continuation.

Your Research Ethics Expedited Approval Number is: **QU-IRB 1407-EA/20**. Kindly state this number in all your future correspondence to us pertaining to this project. In addition, please submit a closure report to the QU-IRB upon completion of the project.

Best wishes,
Dr. Noora Lari

**Institutional Review Board
( IRB )
Office Of Academic Research**

Vice Chair, QU-IRB

Qatar University-Institutional Review Board (QU-IRB), P.O. Box 2713 Doha, Qatar
Tel +974 4403-5307  (GMT +3hrs) email: QU-IRB@qu.edu.qa

# Appendix F: Teacher's Interview Consent Form

**Consent Form**
**Teacher's Interview**

**Title of the Study:**

Integrating Technology in Preparatory Students' Writing in the Schools of Qatar: EFL Teachers' Knowledge, Practices and Challenges

**Purpose of the Research**
This study aims to investigate teachers' knowledge in terms of technology, pedagogy and content, their practices related to integrating technology in writing instruction, and the perceived challenges in EFL classes in public schools in Qatar.

**Benefits and Discomfort/Risks**

Benefits: If you choose to participate in this study, you will be contributing to the scientific understanding of EFL teachers' technological, pedagogical and content knowledge in teaching writing instruction, their practices and the challenges they face. You are also expected to benefit from participating in this study by reflecting on your own writing practices and identifying the challenges that need to be addressed. The results of the study will help to bring changes to the classroom practices and improve students' writing proficiency.

Risks: The risks in this study are minimal. There are no anticipated dangers to you in this study.

**Procedures**

Your participation in this study will consist of an interview lasting approximately half an hour. You will be asked a series of questions about your technological and pedagogical knowledge, your teaching writing practices and the obstacles you face when integrating technology in writing instruction. Any information or personal details gathered in this study are confidential. No individual will be identified in any publication of the results. Participating in this study will have no influence on your employment situation.

**Confidentiality**

Your responses to interview questions will be confidential at all times. If the results of this study are published, the data will be presented in-group form and individual participant will not be identified. All records will be confidential and available only to professional researchers. Recording will be kept until completion of degree and destroyed immediately thereafter.

**Voluntary participation:**

Your participation in this study is voluntary; you will not be obliged to participate and if you decide to do so, you are free to withdraw at any time. You may pass on any question that makes you feel uncomfortable. At any time, you may notify the researcher that you would like to stop the interview and your participation in the study. There is no penalty for discontinuing participation. The interview will be audio

recorded to help me accurately capture your insights in your own words. The recording will only be heard by me for the purpose of this study. If you feel uncomfortable with the recorder, you may ask that it be turned off at any time.

The results of the study will be shared with you if you are interested. After publishing manuscripts out of this research, the papers will be available for all.

The ethical aspects of this study have been approved by Ministry of Education and Higher Education, and by Qatar University Internal Review Board.

The study is being conducted by Hanadi Ahmad Abubakir in partial fulfilment of the MA dissertation requirements at Qatar University. For any question, you may contact Mrs. Hanadi (+ 0097455605377, email: ha1315731@student.qu.edu.qa) or the supervisor Dr Yousef Alshaboul (+97444035145, email: yalshaboul@qu.edu.qa, Qatar university, college of education, Office 141)

The approval number of QU-IRB is **QU-IRB 1407-EA/20**.; If you have any question related to ethical compliance of the study you may contact this email at QU-IRB@qu.edu.qa.

Please read the above information carefully before you sign. By submitting this form, you are indicating that you understand and agree to participate in this study.

**I agree to participate in the research study. I understand the purpose and nature of this study and I am participating voluntarily. I understand that I can withdraw from the study at any time, without any penalty or consequences.**

- o   Yes

- o   No

**I agree to have the interview audio recorded.**

- o   Yes

- o   No