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EXPLORING TECHNOLOGY OWNERSHIP AND USE PATTERNS AMONG PREP SCHOOL LEARNERS

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ABSTRACT

EXPLORING TECHNOLOGY OWNERSHIP AND USE PATTERNS

AMONG PREPARATORY SCHOOL LEARNERS

Kübra ERDEM

Supervisor: Dr. Gökçe KURT TİFTİK

The purpose of the present study is to investigate how language learners in an English preparatory program make use of technology; which mainly comprises learners' technology ownership, use patterns, and levels of perceived technology-related skills. Additionally, it aims to explore whether gender, major, language proficiency level or language achievement of learners play a role in how much and in what ways they involve technology in daily and academic life. The study was administered in the fall semester of 2018-2019 academic year in the English preparatory program of a foundation university in Turkey.To collect both qualitative and quantitative data, this study was implemented by the use of an online survey for a total of 213 learners as well as a semi-structured focus group interview conducted with five students. The quantitative data obtained through the survey were analyzed using descriptive and inferential statistics whereas the qualitative data collected through the open-ended survey items and focus group interview were interpreted through thematic analysis. The findings may provide feedback for language teachers and raise their awareness on the future coordination of technology with teaching programs in higher education.

Key Words: technology ownership, technology use, ICT skills

ÖZET

HAZIRLIK OKULU ÖĞRENCİLERİ ARASINDA

TEKNOLOJİ AİDİYETİ VE KULLANIMININ İNCELENMESİ

Kübra ERDEM

Tez Danışmanı: Öğr. Gör. Dr. Gökçe KURT TİFTİK

Bu çalışmanın amacı, bir İngilizce hazırlık programında öğrencilerin teknolojiden nasıl faydalandıklarını; teknoloji sahiplikleri, kullanım şekilleri ve algılanan teknoloji beceri seviyeleri yönüyle incelemektir. Bunun yanı sıra, söz konusu çalışma; öğrencilerin cinsiyet, bölüm, dil yeterlik seviyesi veya dil başarısının teknolojiyi günlük ya da akademik hayatlarına ne kadar çok ve hangi yollarla dahil ettikleri konusunda rol oynayıp oynamadığını araştırmayı hedeflemektedir. Çalışma Türkiye'deki bir vakıf üniversitesinin İngilizce hazırlık programında 2018-2019 akademik yılı güz döneminde uygulanmıştır. Hem nitel hem nicel bilgi toplamak adına toplam 213 öğrenci için çevrimiçi bir anket kullanılmasına ek olarak beş öğrenci ile uygulanan yarı yapılandırılmış odak grup görüşmeleri gerçekleştirilmiştir. Anket aracılığıyla edinilen nicel veri betimsel ve çıkarımsal istatistik bilimi kullanılarak analiz edilmiş, açık uçlu anket soruları ve odak grup görüşmeleri aracılığıyla edinilen veri ise tematik analiz kullanılarak yorumlanmıştır. Bulgular dil öğretmenleri için geri bildirim sağlayabilir ve gelecekte teknolojinin yükseköğretim programlarına dahil edilmesi konusunda farkındalık kazandırabilir.

Anahtar Kelimeler: teknoloji aidiyeti, teknoloji kullanımı, ICT becerileri

To my one and only family, my beloved friends, all the beautiful souls that I am enormously lucky and forever grateful to have always been surrounded with

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CHAPTER 1

INTRODUCTION

1.1. Background of the Study

The use of technology in educational settings has been given increasing attention particularly for more than the last two decades. Educators have been searching for ways to support the classroom with technology as the young people of today are assumed to be more engaged with and skilled at practicing digital technologies when compared to the teachers and learners of the previous generations (Tapscott, 1998, 2009). It appears that new age learners display a variety of learning characteristics as well as familiarity with and preferences for digital technology use. Therefore, understanding the differences and/or similarities among today's learners' technology use for learning and other purposes may shed light on whether there is a need, and if so how, to reshape the learning activities and outcomes regarding both inside and outside the classroom.

Information and Communication Technologies (ICT) are currently unavoidable parts of life and much of what people do every day requires the use of them eventually. ICTs are changing relationships among people and how they perceive the world in a significant amount (Barbosa Granados & Amariles Jaramillo, 2019). However, educators share some common concerns regarding whether this is always fruitful for learners. In their learning environment, the learners may not be taking full advantage of using technology productively for learning (Thompson, 2012). This leads to the assumption that teachers may have to undertake responsibility and if necessary, adjust their teaching to the needs of their learners so that they could make the best use of ICTs for various purposes.

This study aims to investigate the technology ownership and use patterns among learners in an English as a Foreign Language (EFL) preparatory program of a foundation university. There have been several studies confirming the usefulness of ICT in the learning and teaching of English (Hubbard, 2013; Jung, 2006). According to Agbo (2015), ICT use provides vigorous educational settings, modifies teaching and learning procedures, allows learners to interact with input effectively in a self-reliant and productive manner as well as leading to the support of innovative methods to teach and learn. In addition to making an attempt to reveal the usefulness of technology use not only for learning but also for general purposes, this study also investigates whether certain factors, particularly gender, major, proficiency level of EFL and achievement in EFL, play a part in determining how much and how well learners involve technology in daily and academic life. Apart from the mentioned variables, the current study also delves into the learners' perceived level of ICT skills, perceived benefits of ICT use, and the potential of ICT in developing language skills, all of which could pose a crucial role as determining factors.

1.2. Statement of the Problem

The comprehensive use and popularity of ICTs have brought about an immense spread in computing domain in the modern age. This inclination profoundly altered settings where teaching and learning take place. Overall, the internet sufficiently satisfies the need to learn and practice while giving space to take part in, for instance, online discussions, share information on academic grounds, and communicate anyplace and at any moment (Serrano-Puche, 2013). Accordingly, the learners and classrooms are immediately transforming into something new making it

more and more difficult for teachers to catch up with. Hashemi (2013) mentions that teachers need guidance in using and integrating technology into their lessons adding that they find it harder to do so with the latest development in technology. This brings up the question of whether teachers need training on technology use and integration in their teaching.

On the other hand, the learners today are not homogenous in their technology use apart from the differences in age as well as not showing a fixed set of apparent interests towards it (Jones, Ramanau, Cross & Healing, 2010). As the learners enter university, they seem to have a range of differences in the characteristics and background of their digital lives. First year learners bring diverse experiences of technology with them, which makes it challenging for educators and administrators to serve for (Thinyane, 2010). Therefore, academics and particularly EFL instructors at preparatory schools may have an urgent need to be provided with more information on how the first year learners vary in terms of their technology access and use in order to reconsider curricular and/or pedagogic adjustments to be made.

For educators and administrators to be able to have more in-depth understanding of the issue, it is pointed out that rather than making assumptions on learners' knowledge, an empirical approach towards analyzing how diversely learners access and use technology is of more significance (Kennedy, Judd, Dalgarno & Waycott, 2010; Thinyane, 2010). Any serious change intended to improve teaching demands further inquiry (Kennedy, Judd, Churchward, Gray, & Krause, 2008). This leads to the idea that more evidence-based studies need to be applied for a clearer description of the learners of new generation before aligning educational practices.

The current study seeks to discover how learners use ICT in learning EFL in a preparatory program of a foundation university in Turkey, which mainly targets at

investigating learners' technology ownership, use patterns, levels of perceived ICT skills, and the link between learner characteristics and ICT use. Nowadays in most universities, learners are required to use technological devices, namely a mobile phone, tablet or laptop, to keep up with their EFL learning environment as well as with certain alternative assessment tasks performed both in and outside the classroom. Therefore, understanding learners' ICT-related knowledge and expectations concerning both themselves and their teachers may benefit the effectiveness of teaching significantly in these terms. Especially during their first year of preparatory program at university, learners receive and submit oral and/or written assignments through online service providers as well as working with certain web pages to revise and practice what has been taught on listening, reading, grammar and writing throughout the academic year. These tasks require the use of certain technologies such as word processing software, recording tools, or presentation applications. However, since learners display features of a variety of digital backgrounds, and they are not provided with any type of orientation or training on making use of technology for learning as it is generally not part of the curriculum of preparatory schools, it turns into a challenge for them to keep up with their schoolwork. As learners may be lacking some certain skills in using technology for learning, the instructors may have difficulty in the process of adapting technology to their teaching or collecting homework in due time in the requested format, for instance. Even when the poor email etiquette that most learners have trouble with is considered, several similar concerns do exist about whether learners can really benefit from technology in education not only inside but also outside school.

1.3. Significance of the Study and Research Questions

The current study primarily addresses how preparatory school English language learners utilize technology for different purposes and whether this changes depending on other determining elements such as gender, major, proficiency level of English or EFL achievement. To begin with, it investigates the types of ICTs owned and preferred by the learners for general and learning purposes. This is to indicate how much time is spent on the digital devices that are prevalent among the learners when they want to have fun or learn English. Then, it questions how skilled learners perceive themselves in using certain computer technologies and applications some of which can be considered as basic computing skills while some others as being more complex and demanding. This aims to provide valuable feedback as to whether, how and what kind of changes are necessary to expand the standard of ICT use for pedagogical reasons. Furthermore, it explores whether or how learners' ICT ownership, use and skills vary by learner variables such as gender, major, language proficiency and achievement. For instructors to ensure university learners address and fulfill the course requirements, it is essential to first recognize the impact such differences may hold. Knowing if ICT helps improve language skills and if there are differences among learners studying in different classes and different language proficiency levels of English or achievement in exams applied throughout the preparatory programs of universities may empower teachers to ground their judgement on empirical data collected; thus, get through a more fruitful decision making process when needed. In the final phase, the study evaluates how beneficial learners believe using ICT in learning English is. This information may provide more in-depth understanding of digital learners and help shape teaching and learning experiences in EFL-focused environments.

In the larger context, teachers and learners are parts of dynamic educational settings where teacher evaluation and learner reflections continuously affect what is being taught and how it is taught especially when technology is involved in the frame. According to Arrosagaray, González-Peiteado, Pino-Juste and López (2019), "Scientific evidence about students' attitudes towards the use of ICT becomes a means to achieve greater quality in the teaching-learning process by being able to adapt curriculum design and the use of resources to their skills and opinions" (p. 38). Therefore, prior to any changes being made to reinforce the teaching scheme or curriculum by employing technology, the feedback and data gathered from the observations and empirical studies should be taken into account. The findings and implications may raise institutional awareness on the future integration of technology and applications into teaching programs as well as other institutions in higher education.

Besides, previous studies inquiring similar issues have mostly been applied in other countries (e.g. Caruso & Kvavik, 2005; Jung, 2006; Selwyn, 2008; Thinyane, 2010) while, in Turkey, not as much research has been done so far. However, for a better representation of the digital generation, it would be highly constructive and worthwhile to collect data from different contexts where learners use technology to learn English. Thus, the results and implications of the current study may help educators construct EFL teaching and learning through technology in higher education.

This study looks for answers to the research questions listed below:

1. What kinds of information and communication technologies (ICTs) do the English language learners in the preparatory program of the target university own?

2. How do the learners use ICTs for general purposes and for language learning?

3. How skilled do the learners perceive themselves in using ICTs?

4. Are there any significant differences in the learners' ICT ownership, use and perceived skills in terms of gender, major, proficiency level and achievement?

5. How do the learners perceive the benefits of using ICT in learning English?

1.4. Overview of Methodology

Both quantitative and qualitative data were collected through an online survey and a focus group interview to investigate the ICT ownership and use patterns among randomly selected 213 preparatory school learners from four different proficiency levels of a foundation university in Turkey. The study employed a within-stage mixed model research pattern which was formerly identified by Johnson and Onwuegbuzie (2004) as using an instrument that mixed qualitative and quantitative data collection methods "within the stages of the research process" (p. 20). First developed by EDUCAUSE Center for Advanced Research (ECAR) in 2005, the survey is an adapted version of the Information and Communication Technology Use and Skills (ICTUS) for Learning English survey of Jung (2006).

The questions in the first section of the survey regarded demographic information (i.e. gender, age, major, proficiency level of English and final exam scores for achievement). This section had multiple choice and open-ended type of questions and it helped answer Research Question 4.

The second group of questions in the survey were targeted to find out the electronic devices that the learners in this study owned (e.g. laptop, tablet, smart phone, etc.), how many hours they spent using them for general purposes, habits of

ICT use, and perceived ICT skills of learners. This section helped explain Research Question 1, 2, 3, and 4.

The questions in the third part of the survey were concerned with how many hours learners used ICT for learning English, to what extent learners benefitted from technology in their classes, and whether ICT use developed learners' foreign language abilities (i.e. reading, writing, listening, speaking, grammar and lexis). Open-ended questions concerning the perceived benefits of ICT use were also included at the end of this section, which helped answer Research Question 5. Focus group interview questions also dealt with how learners used ICTs and how skilled they were at using ICTs, learners' technology use in courses along with future predictions and suggestions. Learner responses to the interview were analyzed to help answer Research Question 2, 3, 4 and 5.

Before its actual application, the reliability and validity of the survey were checked through piloting with 48 EFL learners from the target institution. SPSS was used to analyze the quantitative data gathered by the questionnaire. For the qualitative data accumulated through the open-ended questions and the focus-group interview, thematic analysis was applied through naming, categorizing and grouping to establish possible connections to and further elaborate on the quantitative findings obtained.

CHAPTER 2

LITERATURE REVIEW

This chapter serves a broad review of literature and studies centered on themes such as language and learning in the 21st Century, essential digital skills for learners, digital native debate, and ICT use in higher education.

2.1. Learning in the 21st Century

From very early ages to adulthood, people are exposed to technology that constitutes a critical element of their lifestyle, job, way of thinking and interacting (Jones & Healing, 2010; Simoneaux & Stroud, 2010). It is through technology that teaching and learning activities have witnessed a shift from the conventional 20th century to the innovative 21st century standards. In the past, a division of knowledge and skills disabled learners from going beyond what was presented; thus, blocking information discovery and construction or deriving solutions to problems by using one's own experiences (Dede, 2010). Teaching included a transmission of knowledge through lectures and textbooks; therefore, learners could not improve problem solving or creative thinking skills that were necessary for the application of knowledge to new situations that could be more intricate (Saavedra & Opfer, 2012). There was a small amount of attention paid on extending adequacy in negotiation of meaning, communication and collaboration in groups while face-to-face interaction was required for teaching and learning to be achieved. Traditional learning focused on subject-centered practices and teacher-focused instruction (Andrade, 2016). However, Web 2.0 technologies have made it possible for groups of learners to actively take part in online communities in order to create, collaborate and share

knowledge reinforcing their strengths and preferences (Dede, 2010). As Dede (2010) points out, the way teachnology is used in pedagogical practices mostly manifests applying ICTs as a channel to improve "the effectiveness of traditional, 20th century instructional approaches: enhancing productivity through tools such as word processors, aiding communications by channels such as email and threaded asynchronous discussions, and expanding access to information via Web-browsers and streaming video" (p. 4).

According to Lombardi (2007), to support an authentic learning environment, teachers and learners need "high-speed Internet connectivity, communication and social networking tools for the support of teamwork, intelligent tutoring systems, virtual laboratories, and feedback mechanisms and mobile devices for accessing and inputting data" (p. 7). 21st century learning provides learners with opportunities to use ICTs to reach out for a substantial amount of information while adapting to real quick transformations in technology. In particular, the abilities leaners need to have such as functional and critical thinking abilities concern their success at school or long-term presence at work in the future. Why educators have been trying hard to come up with the best proceedings is for the sake of boosting learner engagement and improvement, preparing for future projects of learners and blending ICTs with the curriculum. As a result, educators are adopting innovative approaches and methods to teaching such as blended learning and flipped classroom, digital libraries and networks, technology-based learning, high-impact teaching and skills-based learning. In this way, educators can successfully cater for the diversity in learner population, help learners achieve the educational objectives of this century such as critical thinking, problem-solving, written and oral communication, collaboration,

information literacy, and global competencies (Andrade, 2016) and let these educational experiences prepare learners for their future jobs and endeavors.

Contrary to the traditional learner profile, today's learners originate from a range of backgrounds with differing values, perspectives and expectations regarding the skills and abilities both teachers and learners are required to display as well as their role in the classroom. Saavedra and Opfer (2012) offer several suggestions for educators on how to guide learners towards the new century skills. Accordingly, making the educational experience relevant to learners through technology enables the transfer of skills and abilities such as critical thinking and problem solving to diverse contexts, and helps learners and classmates communicate, collaborate and act on misunderstandings if there are any. Teachers need activities which foster autonomy, creativity, lower- and higher-order thinking skills apart from encouraging learners to onstruct new perspectives. Therefore, ICTs have a serious role in enhancing learner capabilities and knowledge indispensible for the new era.

Together with what learners take as disciplinary knowledge at school (e.g. reading, listening, history, physics, etc.), there is also need for a higher complexity of skills which are directly connected to the application and use of that very knowledge. Especially when the comtemporary working and living conditions and high standard of job quality are taken into account, how learners transfer their skills and competencies to the digital world becomes even more crucial.

2.2. Essential Digital Skills for Learners

Today's world requires people to have not only the competencies they need for education but also the ones that are necessary for work with self-regulation,

realization, citizenship and self-efficacy being only a few. These competencies are now particularly of vital importance mainly owing to the rapid revolution that ICTs have recently been through. Many well-known companies and employers are hiring less people but using more computers and telecommunications just because the latter could easily make up for the former in various ways like being comparatively more time saving, accurate and efficient. However, there are still certain human capabilities that technology cannot accomodate. One of these capabilities is expert decision-making in the perspective of Dede (2010) who describes expert decision-making as coming up with solutions to a problem based on personal experiences just like how skilled teachers communicate successfully in complex situations, "improvise answers and facilitate dialogue in the unpredictable, chaotic flow of classroom discussion" (p. 1). In the present industrial era, the value of cooperational and collaborational skills and expertise outweigh themselves since they pave the way for businesses to accomplish work. With the impact of digitalization in the workplace, workers are now using their smart phones to make video calls and communicate with each other when they are miles away instead of physically coming together in an office. Modern ICTs empower their users to access and benefit from information in a faster and easier way while offering them hundreds of resources to choose from; thus, attending to one's immediate matters and needs. This opens up space for several other 21st century skills that differentiate between workers who can cooperate and collaborate to create and share pieces of information in a chaotic knowledge community. Lombardi (2007) mentions that teamwork, critical thinking/reasoning, assembling/organizing information, and innovative thinking/creativity are among the highly desired abilities for employers in the process of hiring new staff. Similarly, Saavedra and Opfer (2012) claim that it is now the

complex thinking and interactional skills rather than the simplest competencies that employers are looking for. Considering the fact that workers are pushed to be ambitious and competitive about having such skills and practicing them as professionals in the job market, it is, therefore, a must for today's learners to bear with the complex problems of the world and be geared with necessary skills beforehand in order to be comfortable when they face challenges in the future.

Crockett (2016) proposes several of these 21st century skills which could be considered as fundamental for a favorable future for learners. According to the book (Crockett, Jukes & Churches, 2011), learners need to have problem solving and analytic thinking skills, creativity, collaboration, communication, ethics, action and accountability. In this context, problem solving skills refer to handling complex situations effectively and being able to think of extraordinary and well-designed solutions. Unfortunately, the ones who lack these skills are expected to have difficulty getting a job in the future. By creativity, it is meant that learners build their own digital and nondigital selves while getting to know both and noticing their limits to achievement through unique ways. Analytic thinking involves higher-order thinking skills including comparison and contrast, conceptualization of data, evaluating, organizing, classifying and synthesizing knowledge all under one's own control. These are regarded as extremely beneficial skills as learners consult to them in social, mathematical and scientific contexts giving learners the opportunity to make sound decisions in every aspect of their lives. Collaboration and communication refer to the physical and virtual interaction and sharing with global acquaintances in various multimedia dimensions visually or textually for the benefit of one's mental and emotional wellbeing. Finally, ethics, action and accountability involve adaptational abilities, taking responsibility, personal liability, awareness of

the environment and the globe, empathizing, patience, being helpful, respectful and hardworking in both the real and the virtual world. Wagner (2008) suggests several similar skills such as collaboration and leadership, adaptability, initiative and entrepreneurialism, and accessing and analyzing information.

Particularly for people who have a regular job and workplace, all the listed skills and competencies give some clues about how life is in the most complex contemporary world of this century. When compared to the rote skills of the prior century, it could possibly be inferred that the two most commonly wanted kinds of skills are critical thinking in complex settings and communication through cooperational and collaborational activity which seem to be more difficult to teach and deeper to learn.

2.2.1. Frameworks for Digital Literacies

As the concept of 21st century skills has gained popularity over the last decade, institutions and organizations have been focusing on developing schemes and frameworks that could encapsulate all necessary skills for the graduates of today; therefore, the workers of tomorrow. One such framework was developed by the International Society for Technology in Education (ISTE) for the first time in 1998. As a basis for ICT competencies of preuniversity learners, ISTE has listed standards which were revised once in 2007 and for another time in 2016. ISTE is a nonprofit corporation that runs itself to prepare learners for a technologically evolving future by allowing them to regulate their own learning through the medium of certain ICT skills. According to its current framework, learners need to develop themselves in seven categories of digital capabilities;

1. Empowered Learner: Learners use technology to achieve learning objectives to be an empowered learner. This includes goal setting, strategy development, personalizing learning and using current ICTs for feedback on learning.

2. Digital Citizen: Learners become aware of and manage their digital identities and responsibilities as they behave legally, ethically and respectfully while getting into social interaction on networked devices or web.

3. Knowledge Constructor: In this aspect, learners construct, create and produce their own set of information and ideas using various digital resources, media or digital devices through strategies for research and evaluation.

4. Innovative Designer: As innovative designers, learners develop theories, improve problem solving skills, and use ICTs to design, produce and test those theories for solutions that could really work.

5. Computational Thinker: Learners are able to benefit from technology as a powerful source in collection, algorithmic analysis and representation of data for problem solving and decision making purposes.

6. Creative Communicator: Learners use ICTs for self-expression in various styles and formats of media. Publishing content or conveying complex opinions in a clear and effective way through visualization, modeling or simulation could be examples to being a creative communicator.

7. Global Collaborator: Learners take the advantage of digital tools and media by collaborating with individuals and teams in the local and global environment consisting of diverse backgrounds and people from different cultures.

The ISTE seems to focus on several benefits that ICTs could serve in building digital literacies. There is an emphasis on how ICTs could ensure learning through

strategy development and learner autonomy. The key competencies lie within how learners could connect to and interact with the world both locally and globally to express themselves, to foster problem solving and data collection skills, to make original contributions to the knowledge society as responsible digital citizens via a range of ICTs.

Another comprehensive framework, Framework for 21st Century Learning, was created by Battelle for Kids. Joined by the Partnership for 21st Century Learning (P21) in 2018, Battelle for Kids is a nonprofit organization working hand in hand with educational systems and groups to arouse learners' interest in integrating the skills and abilities they need throughout life (e.g. problem solving, critical thinking, collaboration) into core academic content (e.g. world languages, art, history, geography). The themes that are blended in the academic subjects are global awareness, financial, economic, business and entrepreneurial literacy, civic literacy, health literacy, and environmental literacy. Together with the key academic content, these themes make up the heart of 21st century learning scheme. The second layer of outcomes comprises of life and career skills, learning and innovation skills and information, media and technology skills as Figure 1 demonstrates.

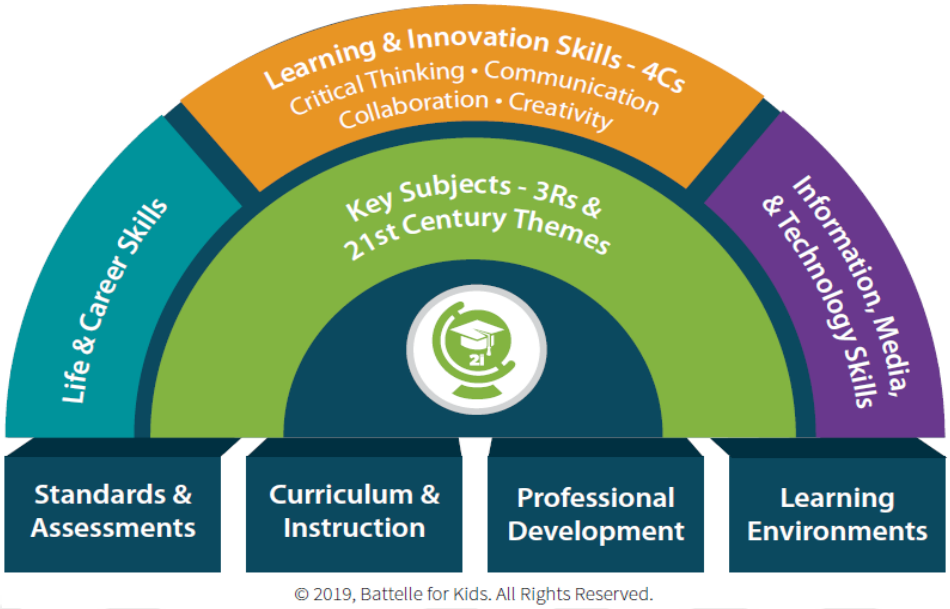

Fig. 1 Learner outcomes of the Framework for 21st Century Learning

Life and career skills aim to take the learners further than where sole academic knowledge can. They include developing flexibility towards diverse opinions and environments, adaptability to change, demonstrating the initiative to work independently, multi-task and manage goals, time and projects, being a self-directed learner as well as interacting, guiding and working productively and responsibly with various groups of people. These skills require the learner to build on both interpersonal and intrapersonal communication. Learning and innovation skills, on the other hand, concern thinking creatively and critically, problem solving, communication and collaboration. These are regarded as the capabilities that will distinguish between well-equipped learners who are ready for the difficulties of life and work and who are not. The third and final party of skills are highlighted as the information literacy, media literacy and ICT literacy. Learners can access, use, value and control information they gain from a collection of sources when they have

information literacy. Media literacy enables learners to analyze and create media messages and products using digital tools while ICT literacy allows learners to utilize technology when working with information and content knowledge collaboratively in order to solve problems, innovate, research, integrate and understand issues.

In order to make sure learners obtain and maintain proficiency over these sets of skills and competencies, there is a need for a baseline support system. In the Framework for 21st Century Learning, this system is split into four aspects as standards and assessments, curriculum and instruction, professional development, and learning environments. Standards and assessments check up on how proficiently learners make use of skills, knowledge and expertise to form a deeper understanding through formative and summative assessment tools such as portfolios or authentic problem solving tasks. Curriculum and instructions deal with applying innovative methods through technology in a competency or inquiry-based fashion for learners to connect and integrate higher-order thinking skills and content knowledge with the help of resources in and outside of school. Professional development involves methods, strategies, tools and activities that teachers could benefit from and share with each other to put into practice in the classroom. Teachers work collaboratively to evaluate learner performance based on project-oriented teaching, for instance, to diagnose how learners differ in their strengths and weaknesses, intelligences, preferences and styles of learning. As the final component of the framework, learning environments refer to the technologically well-equipped physical environment where professional teachers are supported to work together to come up with the best learning opportunities, real-world contexts and face-to-face or online classroom practices for learners to learn individually and in groups. Learners in these classrooms are provided with access to digital learning tools that are of high quality.

Framework for 21st Century Learning seems to be less technical but more functional and comprehensive when compared to ISTE in that it focuses both on the academic subjects and the key ICT skills and concepts that learners are expected to possess and demonstrate all interwoven. P21 Project views all of the aspects of teaching and learning as completely interconnected with each other accompanying ICTs, skills and expertise that are believed to be prerequisites for successful workers and citizens as well as for learners using technology with educational purposes. Such frameworks pursue similar traits with regards to understanding ICT skills, learners' digital identities and curricular changes and additions to be applied in instruction to make learning activities work more efficiently for both the teacher and the learner.

2.3. Digital Native Debate

Over the last three decades, the continuously advancing world of technology has been going through numerous changes and such incredibly rapid evolutions that teleportation does not seem so impossible anymore. People are now in an era where digitalization is beyond their imagination leaving them no option but to adapt. In the history of language and technology, one of the first ever researchers to talk about "the digital" was Marc Prensky. In 2001, he proposed the idea of "digital native and digital immigrant" (Prensky, 2001). By the former phrase, he addressed learners who were born after 1980 into the world of computers and the Internet; thus, were raised in a technology-driven environment as adept users of ICTs. Throughout the years, a couple of other expressions have been used to characterize digital natives. Tapscott (1998) referred to them as "Net generation", Keating and Evans (2001) preffered to call these learners "Technology-savvy" while several other references were as

follows; "Millennials" (Oblinger, Oblinger, & Lippincott, 2005), "Gamer generation" (Carstens & Beck, 2005), "Generation M" (Roberts, Foehr & Rideout, 2005), "Generation Y" (Weiler, 2005), "New millennium learners" (Pedró, 2006), " Homo zappiens" (Veen & Vrakking, 2006), "Google Generation" (Rowlands, et al., 2008), and "i-Generation" (Rosen, 2010).

Prensky (2005) claimed that learners in the 21st century are equipped with the digital traits to use technology of the present and the future as they are already adjusting to use communication systems, create blogs, do online shopping, collect, search, analyze and evaluate information, and socialize and collaborate through the Internet. The interpretation of what a digital native is raised the need for determining what characteristics a typical digital native has, particularly to understand how such characteristics could influence learning and teaching. In an attempt to do so, several researchers chose to acknowledge digital natives as learners who expect to access information quickly and who assume that technology is a primary aspect of their school life (e.g. Prensky, 2001; Oblinger & Oblinger, 2005; Philip, 2007). Others claimed that digital natives were learners who could access an array of ICTs immediately through a diverse palette of interactive media, perform various tasks concurrently, use ICTs with ease, and take the Internet as the first resort when there was a need for collecting necessary information to learn as well as for other activities (Bennett, Maton & Kervin, 2008; Helsper & Eynon, 2010; Toledo, 2007). Additionally, Thompson (2012) stated that a connection was observed between ample use of ICT and digital native characteristics. According to Teo (2013), one's interaction with technology, data, each other and other people or communities plays a role in discovering the shared commonalities of digital natives. Therefore, based on

Prensky's description and a whole body of previous studies, Teo (2013) set up a framework of four attributes and behaviors that separated digital natives from others. He proposed that digital natives were learners who "grew up with technology", were "comfortable with multitasking", were "reliant on graphics for communication", and did "thrive on instant gratifications and rewards" (Teo, Yurdakul & Ursavaş, 2014, p.1233). See Figure 2.

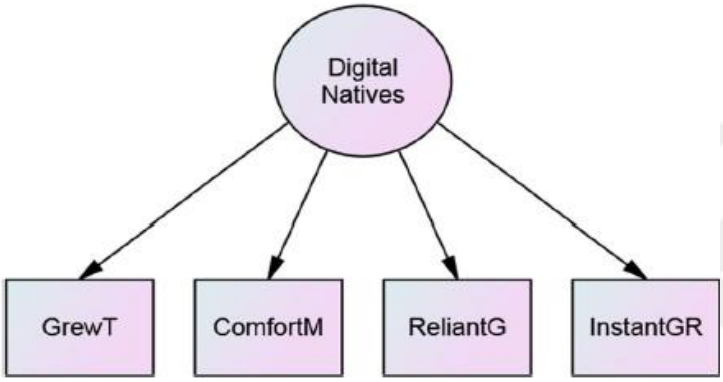

Fig. 2 MIMIC Model: Framework for the Digital Native Characteristics

The first component refers to the fact that digital natives are surrounded by ICTs as they grow up and so, often interact with them. Learners grasp and make efficient use of countless types of media, technological devices and tools at very early ages. Thanks to this, they manage to surpass others who are not considered as much of a digital native. The second component of the framework claims that digital natives are skillful at and have a preference for multitasking (Anderson & Rainie, 2012; Oblinger, 2004; Wallis, 2006). "Media multitasking" is defined as one's being occupied with one or more technological devices simultaneously (Foehr, 2006; Roberts, et al., 2005). Multitasking is considered to be a positive trait for learners since it helps them handle difficulty and manage time more efficiently. However, it is

not clear whether multitasking is related to learning or not (Anderson & Rainie, 2012; Junco & Cotton, 2012; Lee, Lin & Robertson, 2011; Wood, et al., 2012). The third factor concerns being reliant on graphics for commuication. This means digital natives tend to choose visuals, graphics and images over print sources. They have a natural tendency to blend visuals, written materials and sound to communicate (Oblinger & Oblinger, 2005) and they feel more comfortable in an environment that involves an abundance of graphics instead of written material (Teo, 2016). The final feature that is attributed to digital natives is thriving on instant gratifications and rewards. Prensky (2008) highlights this feature because digital natives are so used to receiving rewards and quick response from the Internet, video games and computers, their tolerance towards what they go through in real life situations decreases as they expect the same speed, performance and interactivity that they are used to experiencing in the virtual environment. According to Prensky (2001), this craving for getting immediate feedback and quick access to information is a characteristic that is inherent in digital natives. People today are living in an extremely rapid world of technology and they feel the need to have instant communication and connection to the outside world. It is the advanced technololgy and a variety of digital devices that enable this anytime and anywhere. However, as people are getting used to this situation, it becomes easier for them to jump from one source to another if they do not get what they want quickly enough, which brings up craving for interactivity and immediate response (Prensky, 2008). Thompson (2012) describes this as a "get in, get the answer, get out" approach to highlight on how digital natives are accustomed to acquiring information instantly.

Besides digital natives, Prensky also defined people who were not born in the digital era but adopted new technologies later in life. He referred to these people as "digital immigrants" (Prensky, 2001). Therefore, researchers have been investigating age as a potential to validate this argument. The literature suggests that digital natives have a distinct set of skills against those of the previous generation (Palfrey & Gasser, 2013; Prensky, 2001) and they tend to use ICTs with more experience and efficacy. Since digital natives grew up surrounded by technologies, their ICT skills and competencies are high and well-developed contrary to people from the previous generations that do not belong to the digital world (Jones & Czerniewicz, 2010). Digital natives are exposed to ICTs at initial times in life and they utilize sophisticated technologies more often than people from older age groups (Rainie, 2006). The generational gap between people that Prensky called digital natives and digital immigrants is the consequence of this exposure to and familiarity with ICTs (Zemke, Raines & Filipczak, 2000). Salaway, Caruso and Nelson (2008) also suggested age to be a powerful determiner especially in terms of using technologies such as text, instant messaging and social networking to communicate and collaborate with others. However, Teo (2013) claimed that not all young people could be digital natives and despite age being an important determiner, it would not be reasonable to regard it as the only one in defining digital nativeness in educational settings. A similar stand was taken by Thinyane (2010) who explained that learners of digital native age did not use ICTs as in the form that Prensky (2001, 2007) characterized. Jones et al. (2010) also reported that age was too simple to be considered as an indicator of digital nativity. Kızıl (2017) supported this view through a study showing that not any major differences were found between different age groups in terms of ICT competencies.

Although the claim is that digital natives are more talented in using ICTs than former generations, literature includes studies which lead to the exact opposite. Ben-David Kolikant (2010), for instance, collected qualitative data on learners' perceived self-efficacy regarding information processing activities applied in the learning environment. They found that the perceived self-efficacy level of almost half of the participating learners was relatively lower in comparison to the previous generation. Bandura (1986) described perceived self-efficacy as "people's judgements of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391) whereas the term computer self-efficacy concerns the effective use of information technologies (Compeau & Higgins,1995; Marakas, Mun & Johnson, 1998). Ben-David Kolikant's study showed that some learners perceived older generations to be better than themselves because they thought their familiarity with and affinity for the Internet caused them to feel less improved or less fruitful in learning than the previous generation who achieved their learning goals without the ease of Internet technologies. Therefore, they viewed their interaction with the Internet as disabling in terms of learning (Ben-David Kolikant, 2010) which confirms that the higher the computer self-efficacy is, the harder and longer the learner studies (Torkzadeh & Van Dyke, 2002). However, researchers cannot come to an agreement whether technology use and perceived self-efficacy indicate any difference between digital natives and past generations (Bennett, 2012; Prensky, 2001).

Guo, Dobson and Petrina (2008) also dealt with how learners between the ages of 20 and 40 perceived their skills in using ICT and found no significant difference between age groups. Selwyn (2009) claimed that a great number of people

from the past generations were quite good at using technology frequently both in their working environment and at home. According to Teo (2013), digital natives might display different learning preferences and styles; furthermore, interaction and collaboration with the new generation would help older people to develop ICT knowledge and skills. Therefore, experience and exposure pose a more significant role rather than age. In a subsequent study, Teo et al. (2016) found connection between ICT experience and learner perception regarding digital nativeness, which empirically supports previous studies (Li & Ranieri, 2010; Tapscott, 1998) that posit technology experience as a consideration for the definition of digital native. Bennett et al. (2008) mention that digital natives favor learning approaches that are different from the ones that previous generations possessed, which is mainly due to how they grow up and experiment with technology. Ben-David Kolikant (2010), on the other hand, draw attention to learners' background and principles regarding "technology, books, information and their interrelations" (p. 1390) instead of centering the idea of a digital native around their technical competencies or how frequently they use technology. However, these factors have also been found to be differing in digital natives and past generations. It is challenging to agree on the definition of digital natives taking into consideration their changing behaviors in using ICT and their connection to the digital contexts (Teo, et al., 2016).

Along with age, experience with and exposure to ICTs, previous research highlights several other factors such as discipline and gender differences when defining digital nativity. To illustrate, business and engineering learners reported higher rates of ICT use while learners doing social studies reported lower rates of ICT use (Kirkwood & Price, 2005; Margaryan, et al., 2011). In another study

conducted by Selwyn (2008), learners from medicine, business, law and social departments reported the greatest Internet use for educational purposes among all disciplines in contrast to Kennedy et al. (2010) who detected no disciplinary differences among learners. A few studies had indicated disciplinary differences by then (White & Liccardi, 2006; Czerniewicz & Brown, 2007). Selwyn (2008) also noted that males used the Internet less for academic purposes than females but he added that this division might not be acting in accordance with the findings obtained from the previous studies in the literature. In the mean time, Salaway et al. (2008) detected small differences between males and females as they reported similar levels of ICT competencies regarding the use of core applications for studying. Whether gender differences play a critical role in determining digital nativeness seems to be a controversial issue.

Among such determiners, Kennedy et al. (2010) observed demographic variables to be able to make a judgement on how learners build their experiences of ICTs. Benini and Murray (2013) focused on neighborhood and social society in defining digital nativeness since they concluded that "there is a different level of web technology and computer usage among the same demographic of digital natives in Australia and those in the UK as digital natives" (p. 26). Helsper and Eynon (2010) considered the range of ICTs used, learners' experiences of using ICTs and their computer self-efficacy and education to be either equally or more essential than age as a predictor variable.

How these variables should be interpreted in terms of defining the new generation of learners has attracted great attention in the field. As reflected in the previous research, there have been a considerable number of attempts to define and

describe digital natives within the scope of such key aspects. As a consequence of the sparsity of empirical evidence, the common claims regarding the nature of digital natives have been highly criticized by a lot of researchers (Bennett & Maton, 2010; Bennett, et al., 2008; Enyon, 2010; Helsper & Eynon, 2010; Jones & Healing, 2010). One of the most popular claims about digital natives was that they were expected to be particularly proficient in using ICTs. With a view to question this claim, Caruso and Kvavik (2005) worked on an ECAR study and came to the conclusion that learners felt more relaxed performing with fundamental ICTs whereas they felt less relaxed when some other expert level technologies were involved. In Cameron's case (2005), for instance, a sample of learners in the digital native age group reported that they were not quite proficient in the use of ICTs. Additional research conducted through the following years provided support for the idea that the new age learners did not actually use novel technologies as often as expected of them (Bennett, et al., 2008; Kennedy, et al., 2007; Kennedy, et al., 2008; Nagler & Ebner, 2009; Somyürek & Coşkun, 2013; Thompson, 2015). With their quantitative research findings, Kennedy et al. (2010) confirmed such studies by suggesting that typical learners supposedly of the digital native population were not so advanced technology users. In a similar perspective, Teo et al. (2016) studied digital nativeness and perceived self-efficacy. They found that how learners perceived themselves to be digital natives did not change depending on if they regarded themselves as proficient in using ICTs or not. As a contribution to the literature through qualitative research, Thompson (2015) pointed out that digital native learners were not good at multitasking and most of them did not even perceive themselves as digital natives. However, there have also been research findings suggesting that digital natives have an inclination towards using ICTs confidently (Jones & Czerniewicz, 2010; So, Choi, Lim & Xiong, 2012).

With all the contributing factors to consider, it is no doubt that the digital native debate has been attracting the attention of all researchers and educators for a long time. It takes a major part in understanding the way the digital learners behave, learn and use ICTs with the aim of transforming and shaping educational context and curriculum for both undergraduate and graduate learners. Therefore, researchers choose to use the aforementioned variables as the core elements to launch further discussion and draw educational implications regarding digital natives and their characteristics (Bennett & Maton, 2010; Li & Ranieri, 2010).

2.4. Technology Use in Education

Technology has been occupying a big space in the lives of millions around the world, both the young and the old. Particularly young people consider ICTs to be fundamental for personal and educational practices of every day life. The Kaiser Family Foundation Study (2005) informs that young people typically spend 6.5 hours per day using ICTs. Therefore, a considerable load of studies have been carried out so far to answer numerous questions regarding the ICT use of learners and teachers for common and educational purposes. ICT use in education is referred to as being appealing and empowering for the learners as well as having the potential to change things (Clark, Logan, Lukin, Mee & Oliver, 2009; Prensky, 2010). By showing several examples of how ICT is identified in some schools around the world, Venezky (2004) also reveals that the majority of those schools expect ICT to create a powerful shift in pedagogy posing as "a catalyst for educational change" (p. 8).

Among the benefits of proper ICT use, Lowther, Inan, Strahl, and Ross (2008) and Weert and Tatnall (2005) mention increasing the quality of education and

building a bridge between learning and authentic conditions. Aseri (2017) adds the metacognitive skills (e.g. problem solving, communication and creativity) that bring about the development of several core capabilities guiding the way to language abilities. Today's learners utilize ICTs more often in a meaningful fashion (Castro Sánchez & Alemán, 2011) through connecting, choosing, constructing and deciphering new knowledge and information (Fu, 2013). This enables them to benefit from and scrutinize the value of a variety of resources and information that they can apply to when learning. Learners get to learn through collaborative work, self-expression, self-reflection and peer feedback, and personal learning experiences while teachers are required to modify and adjust their teaching equipment more creatively, all thanks to ICTs (Fu, 2013). However, in terms of learning a language, ICT use has not been considered as a rooted exercise (Jung, 2006; MacLean & Elwood, 2009). Kvavik (2005) revealed that undergraduate learners in the USA were skilled at applying key computing practices such as sending e-mails and instant messages or online surfing. However, this situation was not enough for learners to demand more ICT use in the classroom or abilities to use these for studying. Similarly, Ben-David Kolikant (2009) examined how learners used the Internet outside school for coursework along with how they perceived it to affect learning and their capability to study. According to the results, all participating learners noted that they used the Internet for coursework but there was no consensus among the learners on whether it positively affected their learning ability. In fact, almost half of the learners who were interviewed for the study reported that they perceived the Internet to be decreasing their learning skills as it offered ease; thus, laziness. From the learner perspective, providing ease of use and shortcuts is apparently not the only factor that reduces the usefulness of ICTs in learning. Some other factors have also

been touched upon such as the fact that learners lack the above average technical skills to increase their ICT use for educational purposes, that there is neither enough number of academic staff nor enough amount of prompt feedback received from them, and that the teacher-learner interaction is diminished (Whelan, 2008). Bellini, Giebelen, and Casali (2010) contributed to the topic by developing a framework that referred to the technological restraints encountered when using ICTs:

> The framework is parsimonious and common sense due to its straightforward logic: people should (i) have access to technology and (ii) the cognitive potential to use it in order to (iii) put technology to use in practice (iv) for a specific purpose (v) according to effectiveness criteria arbitrarily defined and assessed by a given stakeholder. (Bellini, Filho, Junior & Pereira, 2016, p. 50)

The framework was built upon the circumstances that empower access to ICT, cognitive potential to apply ICTs and behavioral factors that play a role in taking advantage of ICT use, all of which are to be analyzed when determining one's digital limitations.

On the teachers' side, Fu (2013) presents a list of formerly mentioned obstacles for the productive adaptation of technology into learning and teaching. Accordingly, teachers are not sure about the advantages of ICT inclusion (Al-Bataineh, Anderson, Toledo & Wellinski, 2008; Yıldırım, 2007); have technical issues when they use ICTs in the class (Yıldırım, 2007); are not given adequate chances to acquire the use of software or incorporate ICTs in a class hour (Almekhlafi & Almeqdadi, 2010); do not possess the necessary skills (Frederick, Schweizer & Lowe, 2006) or the software competence (Göktaş, Yıldırım & Yıldırım, 2009) to manage the use of ICT for teaching materials; lack the knowledge to use and experience in specialized ICTs (Honan, 2008) as well as to blend them into the

academic knowledge to foster learning (Hutchison & Reinking, 2011). Alshahri (2015) and Starr (2012) also emphasize that teachers suffer from insufficient amount of resources and time to come up with modern ways to connect learners and technology and that a lot of them are not sure of their ICT capabilities or they are not impelled to make use of ICTs in their classes. Although efforts have been made and attention has been focused on the employment of ICTs for education, the struggle to build an authentic bridge between learners and ICTs still persists.

2.4.1. Learner ICT Use in Higher Education

After Prensky's much-debated image of digital natives and digital immigrants, controversy still exists among researchers concerning the characteristics and attributes of today's learners together with how it all influences higher educational practices. Whether these notions are accurate or to what extent their implications are significant is still a critical question to investigate internationally. Regardless of how they are named, it is no doubt that post-secondary learners have been practicing the use of a vast variety of ICT tools which the previous generation did not have (Brown & Czerniewicz, 2010). While exploring how learners in higher education perceive ICTs, The Digital Learners in Higher Education Research project shows no significant differences regarding technology use of net generation and non-net generation learners in a Canadian higher educational institution. This confirms that no matter what age they are, learners today are continuously accessing and using technology while building up on their ICT skills and providing themselves with the comfort that ICT brings along (Bullen, Morgan, Belfer & Qayyum, 2008; Bullen & Morgan, 2011; Bullen, Morgan & Qayyum, 2011). Technology is socially

changing the world and higher educational institutons are internationally working and trying to adapt to this situation by being more flexible in order to get the finest outcome (Johnson, Adams-Becker, Estrada & Freeman, 2014). As Andrade (2016) mentions, many universities worldwide are collaborating to set up and share open educational resources (e.g., OER Commons, OpenCourseWare, Connexions, Open Learning Initiative; Educause, 2010) for such reasons. This is especially noteworthy considering that learners in higher education are required to possess the necessary knowledge to upgrade their performance in the knowledge society and make correct use of ICT to find, utilize, analyze and interact with information in functional contexts (CRUE & REBIUN, 2009, 2012). The education that the learners receive in university consists of academic content knowledge as well as other general knowledge such as ICT competences (Redondo & Perales, 2011). Therefore, through findings obtained by research in higher education areas, "we may create and utilize rich, alternative typologies and theoretical frameworks that better inform and reflect the complexity of higher education technology issues facing generations today" (Smith, 2012, p. 14).

The question of whether learners in higher education have the digital native characteristics or not has been scrutinized and even criticized by a large number of researchers due to insufficient empirical evidence to support the digital native argument (Bennett, et al., 2008). Besides the need for further evidence, digital natives and their attributes have been touched upon in the field of higher education through the media, conferences or workshops (Hargittai, 2010; Jones & Czerniewicz, 2010). The University College London conducted a research project that showed how teachers expected university learners to have more advanced ICT skills than they actually had (Nicholas, Huntington & Jamali, 2008) and how contradictory it

was to label university learners as digital natives in terms of learner experiences (Luckin, Clark, Graber, Logan, Mee & Oliver, 2009; Littlejohn & Margaryan, 2010; Littlejohn, Beetham & McGill, 2012). Although digital natives are supposedly more eager and able to use ICT, literature reveals that the confidence with which digital native attributes are given to these learners does not meet the empirical evidence found (Bennett, et al., 2008; Echenique, 2014). The ECAR survey, for instance, helped collect data from more than 18.000 American university learners to find out about their technology use and experiences (Caruso & Kvavik, 2005). Findings revealed that learners were widely using ICTs and that they were quite comfortable with using particularly basic technologies but less confident when using more advanced technologies, which Thinyane (2010) confirmed through a study later. The 2008 ECAR survey indicated that more than 80% of the participating learners were using Social Networking with most of the learners logging in every day and spending around five hours every week. It also reported that learners needed a balanced approach towards ICT use and face to face activity (Salaway, et al., 2008). These surveys proved that a small number of participating learners wanted a "moderate" degree of exposure to ICT for learning (see Kvavik 2005; Salaway, et al., 2007, 2008; Smith, Salaway, Caruso & Katz, 2009). Similarly, Thinyane (2010) also found that in spite of having the skill to use specific technologies, learners did not prefer to escalate their ICT use in the classroom. "For many students, learning technologies are seen primarily as tools for facilitating access to information resources rather than as communication tools that enable new forms of collaborative learning" (Kennedy, et al., 2010, p. 333).

After the ECAR surveys, several other studies have also dealt with learners' use of ICT to reveal more about the issue. Kennedy et al. (2007; 2008), for instance,

investigated around 2.100 freshmen in the University of Melbourne in Australia, which led relevant research to some meaningful findings. The empirical study showed that there were no considerable differences regarding the characteristics alloted to digital natives and digital immigrants adding that only a small number of the participating learners could be considered to feature the claimed traits. They also found that although a majority of the learners used basic technologies such as websurfing and mobile phones quite often, other technologies that could be regarded as newer and more entrenched such as Blogs, Wikis, podcasting or social bookmarking were infrequently and only used by few learners. The figures reported by Thinyane (2010) in a study of almost 300 first year students in two South African universities reported comparable results concerning limited range of ICT use and heterogeneity among learners. Selwyn (2008) investigated this issue in UK and found out that there was no difference between the present generation of learners and the previous generations in terms of the assumption of digital natives' being a homogeneous group. Additionally, Sharpe (2010) analyzed how learners experimented with e-learning and claimed that it is not a good idea to make inferences on the digital capabilities learners possess when they become university learners. Relevant literature (Bennett, et al., 2008; Brown & Czerniewicz, 2008, 2010; Jones, et al., 2010; Li & Ranieri, 2010; Margaryan, Littlejohn & Vojt, 2011; Oliver & Goerke, 2007; Thompson, 2012) also revealed that digital native learners had a slight grasp; thus, very limited and specific use of the new ICTs and Web 2.0 technologies contrary to popular belief. In fact, Margaryan et al. (2011) indicated that learners' range of entrenched technology use was limited both for educational and social purposes. In fact, prior to several other researchers identifying parallel analyses (Corrin, Lockyer & Bennett, 2010; Guo, et al., 2008; Jones, et al., 2010;

Nagler & Ebler, 2009; Thinyane, 2010), Kennedy et al. (2007; 2008) concluded that the technology-related characteristics, the exposure to and use of ICTs did not show homogeneity across learners as "the patterns of access to, use of and preference for a range of other technologies show considerable variation" (Kennedy, et al., 2008, p. 117). They argued that these findings were against the digital native traits proposed by Prensky (2001) and Tapscott (1998; 2009). Other researchers supported this view by claiming that the idea of a digital native is too simplistic and useless in finding out what today's learners need in educational settings (Bennett & Maton, 2010; Helsper and Eynon, 2010; Jones & Healing, 2010).

About the diversity in technology use and preferences among university level learners, Thompson (2012) noted that variety in the ICT use patterns could be linked to variety in the approaches to learning. However, she mentioned that it was not possible to clearly confirm what the university learners needed and preferred in terms of technology and learning in different settings. Kennedy et al. (2008) also suggested that the empirical evidence they found did not guarantee the crucial educational adjustments which were offered to serve for the digital native claims due to the great deal of diversity in technology use among learners. The research Margaryan et al. (2011) conducted even confirmed that learners' approach to learning depended on the academic staff and a quite traditional pedagogy although technology and digital tools were actually used in teaching to some extent.

In her consecutive study, Thinyane (2010) examined how often and how skillfully university learners used technologies and compared the results to what Kennedy et al. (2008) found. She observed that there were similarities in types of technology use except for accessing course website, social networking and finding information for study purposes, for which South African university learners seemed

to be using ICTs much more than their Australian peers. Furthermore, participating learners ranked the benefits of web technologies and mobile phones the highest. The first three uses were receiving grades via sms, using web to access university services and receiving alerts by sms whereas the last two uses with the lowest ranking below average were keeping a blog and contributing to a blog, both being Web 2.0 technologies. Such findings brought about the possibility that there could be differences between learners from developed (e.g. Australia, United Kingdom) and developing countries (e.g. South Africa, Mexico, Brazil) in terms of their technology use (Echenique, 2014; Thinyane, 2010). In addition to location, differences regarding the cultural community have also been considered as determining variables of digital learners since learners in Australia and those in the UK vary in their ICT usage despite having the same demographic features (Benini & Murray, 2013).

In an effort to reveal further about university learners' ownership and access to ICTs, Jones et al. (2010) surveyed first year university learners from five universities in England. They found that a majority of the learners owned a laptop and around 40% of them owned a desktop computer while only a small minority reported no access to a computer, which confirmed literature (Kennedy, et al., 2008; Margaryan, et al., 2011; Salaway, et al., 2008). Followed by memory sticks, mobile phones were had by almost all of the participants contrary to games console which was less commonly owned. Two ICT activities that they perceived to be the most crucial were having access to course materials/resources and building communication. About how participating learners rated themselves to be accessing course and study materials, there seemed to be differences in terms of gender and age as defining variables. Findings revealed that it was the younger learners and males that considered the ICT to be more essential for these activities than older learners

and females. Further analysis showed differences even within younger learners that were considered to be digital natives. With regards to learners' perceived ICT skills and cofidence in using ICTs, a large majority of participants noted that they felt slightly confident with fundamental abilities in activities such as using presentation software, online library resources and spreadsheets. However, more than a third of learners showed minimal skills with little confidence in using learning management systems, writing blogs and wikis, and graphics software whereas around two thirds reported similar levels of confidence in using video/audio editing software. In terms of using spreadsheets, graphics, audio/video, computer maintenance and security, males were found to be more confident than females.

In a more recent study that Kızıl (2017) conducted, about 90% of the participating learners reported that they accessed the Internet by their mobiles, which were followed by laptops and desktop computers respectively. In addition to the social networking sites, mobile phones were also used to support learning a language by more than 70% of the learners while blogs, wikis and podcasts were used quite infrequently. In fact, more than 50% of learners reported that they had never used blogs, wikis or podcasts to support learning a language except for a small minority using games for learning purposes. More in-depth analysis pointed out that the participating learners had a tendency to reach information quickly and an ability to multitask but did not seem to be reliant on graphics for communication, which led to the conclusion that choosing graphics over written text may not be a characteristic attributed to digital natives. Finally, the relationship between learner achievement and ICT use was dealt with and no significant correlations were found. Kızıl (2017) noted that the learners who used ICTs often were inclined towards doing ICT activities that promoted language learning but this did not relate to success in

learning a language. Thompson (2012), on the other hand, mentioned that frequent ICT use was associated with "less productive learning behaviors including a difficulty in controlling multitasking" (p.23) but noted that this finding was not enough to imply a causal relationship. Overall, it is suggested that the learners of net generation have a tendency to use ICTs for learning and educational purposes.

Higher Education Strategy Associates (HESA) published a report concerning e-learning in higher educational institutions in Canada. In this report, Rogers, Usher and Kaznowska (2011) highlight that not many research studies have been implemented to find out how digital learners perceive their learning preferences with regard to ICTs. They also add that there is need for more thorough inquiry of the reasons for learners in higher education to consider some ICTs as more valuable than others. Thinyane (2009) underlines that serving for the great variety in university learners' experiences of ICT is challenging for both the educators and administrators in higher education; therefore, rather than making assumptions on learners' knowledge of technologies, focusing empirical research on how learners access and use ICTs is of utmost importance. The notion of today's university learners to be digital natives is still influential within higher education research and practice. As Smith (2012) stated, "questions remain regarding how we might reframe and reconsider new typologies or constructs around student technology uses, values, and needs" (p.14).

CHAPTER 3

METHODOLOGY

This chapter presents the context, participants, data collection and data analysis procedures in detail.

3.1. Context

The present study was implemented in 2018 fall semester in the EFL preparatory program of a foundation university in Turkey. The program has been at work since 2010 and currently applies a modular system which includes four English proficiency levels from A1 to B2 each consisting of eight weeks except for the first one with nine weeks. Learners receive 24 hours of English on a weekly basis in all levels. The curriculum in each level adopts an integrated approach towards teaching four basic language skills - listening, speaking, reading and writing. A process oriented approach is being followed in the evaluation of the learners through a midterm and a final exam, process writings, oral presentations or video projects, group discussions, homework, reading and vocabulary quizzes.

The main aim of this preparatory school language teaching program is to equip learners with the necessary skills to write and speak for communication and to comprehend what they read or hear in English, which is assumed to help them in their further academic life. As a team, instructors and administrators work collaboratively to assist learners in becoming more attentive towards education in and outside school by using the latest technology tools.

Objectives of the target program are determined according to the CEFR (Common European Language Framework). Thus, there are four language levels in the program. Learners take the placement test applied at the beginning of the year and are then placed in different classes and proficiency levels accordingly. In A1 level, learners improve basic vocabulary and grammar, the ability to read and listen as well as basic writing and speaking skills. They are required to do video projects by which they develop presentation skills, use laptop cameras to record their videos and speeches, and visit the online library to read books of their level. In A2 level, learners use functional language, strategies and organization skills so that they achieve tasks such as oral presentation for which they use presentation tools or PowerPoint software. In B1 level, learners start to master in listening and note-taking, reading and writing academic essays, and doing presentations and discussions on argumentative issues by actively using the internet and online library resources, accessing and reading academic articles, or doing research. In the final level, B2, learners are expected to use a variety of more complex structures, benefit from reliable sources to justify their opinions expressed in spoken and written language through referencing and citation. On condition that learners complete this level successfully, they take the proficiency exam so that they would go on to their departmental studies. For some of these requirements and tasks, learners need to use Moodle, a Learning Management System (LMS) that has been commonly used to; 1) upload and submit assessment components such as academic writings with an opportunity to check for plagiarism, 2) keep as a repository of important documents like calendar and study materials 3) access useful web pages and links to refer to for self-study purposes, 4) be notified of news and upcoming tasks, 5) communicate and interact with the classmates and the instructor through dashboard or personal

messaging when needed, and finally, 6) track grades, course participation and attendance. Learners have the chance to reach Moodle on and off campus through a username and password given by the internet technologies department at the beginning of the academic year. It is mostly dependent on the instructors to familiarize the learners with Moodle throughout the preparatory year. Meeting the requirements of the program may depend on the technology skills of learners. As it can be derived from the context of the target university preparatory program, it seems more advantageous for learners to be able to use technology tools in order to succeed in all four levels of language proficiency.

3.2. Participants

A total of 213 prep-school EFL learners from 17 different classes took part in this study by taking the online survey. The participating learners were randomly selected EFL learners from all four proficiency levels and their ages ranged between 18 and 35 years. One hundred and seven participants were males and 106 participants were females. The participants received at least 216 hours of English before participating in the study and they were from various departments such as humanities and social sciences, engineering and natural sciences, law, and, communications. Whether preparatory school year was obligatory or optional depended on the department.

In total, 50.2% of participants were male learners and 49.8% of them were female learners. 93% (n=198) were between the ages of 18-20 while only 7% (n=15) were between the ages of 21-22. As for the data analysis to be more convenient, 27 majors were categorized under 7 titles: humanities and social sciences, engineering

and natural sciences, architecture and design, management and administrative sciences, communications, law and Islamic studies. They were then split into two main groups: humanities and social sciences and natural and applied sciences.

Table 1. Majors of participating learners

Group	Title	Major	Participants	
			f	%
Humanities and Social Sciences	Humanities and Social Sciences	Political Science and International Relations Psychology Sociology Philosophy History Turkish Language and Literature English Language and Literature Translation and Interpretation	60	(28.2%)
	Law	Law	46	(21.6%)
	Islamic Studies	Islamic Studies	15	(7%)
	Communications	Cinema and Television Public Relations and Advertising New Media and Communication	5	(2.3%)
		Total	126	(59.2%)
Natural and Applied Sciences	Engineering and Natural Sciences	Industrial Engineering Computer Science and Engineering Electrical and Electronics Engineering Civil Engineering Mechanical Engineering	56	(26.3%)
	Management and Administrative Sciences	Management International Trade and Management Entrepreneurship Management Information Systems Economics International Finance	21	(9.9%)
	Architecture and Design	Architecture Interior Architecture and Environmental Design Industrial Design	10	(4.7%)
		Total	87	(40.8%)
			N=213	

Note. f for number of learners and % for whole group values

Among 213 participants, 71 (33.3%) were elementary learners, 55 (25.8%) were pre-intermediate learners, 51 (23.9%) were intermediate learners, and 36 (16.9%) were upper-intermediate learners.

As part of the demographic information, the participants' final exam scores were also collected. They took the final achievement exam on the ninth week of the first module. The final exam aimed to assess learner success in four language skills through several question types such as multiple choice, true/false, matching, open ended and short answer. While the highest score that could be received was 100, the mean score of the final achievement exam was 67.1. The scores ranged from the lowest score of 33 to the highest score of 92.50 (S=12.4). Accordingly, 191 (89.7%) learners passed the final exam while only 22 (10.3%) failed. In order to understand whether such findings hold statistical significance, further analyses will be presented later in the findings chapter.

3.3. Data Collection Procedure

3.3.1. Instruments

Both qualitative and quantitative data were collected from the participating EFL learners through a 57-item survey which was developed by ECAR (2005), adapted by Jung (2006) and was later adjusted based on the scope of the pesent study. The survey consisted of open-ended items, multiple choice items; five-point and eight-point Likert-type scales in addition to a semi-structured focus group interview. At the beginning of the survey, there was a short explanation on the aim of the study, the processes involved in the completion of the survey and focus group interview to take place later on. The three sections that made up the survey were;

demographic information part (5 items), a part questioning learners' use of ICT for general purposes (36 items), and another part that concerns learners' use of ICT for learning English (16 items), all of which was estimated to take 15 minutes for the participant learners to complete.

Considering the scope of the present study and how participating EFL learners in the preparatory program of the target university make use of technology for learning, some changes were needed to be made on ICTUS for Learning English survey. To get the consent to modify and use it, Ms. Sei-Hwa Jung was contacted via email. After her authorization, some items that were irrelevant to the extent of this study were eliminated or modified while some other additions were made (e.g. proficiency level, achievement scores, etc.). The survey was then translated into Turkish and back translation was done by an expert. Finally, it was transformed into an online survey through Google Forms for reasons of practicality as Turkish is the participant learners' mother tongue and it is usually easy and convenient for the participants to take part in online surveys rather than paper-based surveys.

In order to check for reliability of the quantitative part of the questionnaire, piloting was performed with the participation of 48 randomly selected learners. The Cronbach Coefficient Alpha test was applied and the alpha was found to be .86 in the pilot data and .87 in the main data whereas the alpha for ICTUS for Learning English (Jung, 2006) was .86. According to Cortina (1993), "a given level, perhaps greater than .70 is adequate" (p.101) and "alpha can be rather high and acceptable by the standards of many (greater than .70)" (p. 103).

3.3.1.1. Quantitative Data Collection

Quantitative data were collected through all three parts of the survey (see Appendix A). Items 2.26-2.36, 3.2-3.7 and 3.8-3.13 used a five-point Likert-scale. Items 2.26-2.36 asked the respondents to rate their level of perceived skills in using certain ICTs. Items 3.2-3.7 asked the respondents to rate their level of agreement/disagreement regarding the extent to which the use of ICTs in English courses helped them. Items 3.8-3.13 asked the respondents to rate their level of agreement/disagreement regarding whether the use of ICTs improved their language skills such as reading, writing, listening, speaking, grammar and vocabulary. Items 2.8, 2.9-2.25, and 3.1 used an eight-point Likert-scale to get the most precise data. Item 2.8 asked the respondents to rate the frequency of their weekly ICT use for pleasure. Items 2.9-2.25 asked the respondents to rate the frequency of their weekly use of certain basic (2.9-2.19) and more advanced (2.20-2.25) ICTs. Finally, item 3.1 asked the respondents to rate the frequency of their weekly ICT use for studying English.

3.3.1.2. Qualitative Data Collection

Qualitative data were collected through two open-ended items in the third part of the survey and semi-structured focus group interview.

The open-ended items asked the participating learners about whether they perceived the use of ICT in learning English beneficial and what the most valuable benefit of ICT use in learning English was for them.

The semi-structured focus group interview, on the other hand, included 11 open-ended questions that were meant to provide a deeper insight into learners'

technology skills and use, their technology use in courses, and future predictions and suggestions (see Appendix B). The questions were adapted from the qualitative interview questions used in ECAR Study of Students and Technology (2005) and translated into Turkish for the participants.

3.3.2. Procedures

On the first seventh week of fall semester when the questionnaire was ready to be used, a short link directing the participants to the questionnaire was delivered to 20 instructors via email. They were randomly picked among instructors who were teaching in different English proficiency levels. They were then asked to share the link with their classes sparing approximately the last 15 minutes of any class hour whenever they had a chance to. The participating learners were suggested to leave the final exam score section empty as they had not taken it yet. The data collection lasted for the following two weeks and 213 participant learners from all four different English proficiency levels took the questionnaire, which made up 20 classes in total. On the tenth week of the fall semester, the same instructors were contacted for their classes' final exam score sheets. The researcher added the scores to the collected data sheet by the participant learners' names. The data collected in an excel spreadsheet were transferred onto SPSS. In the last stage of data collection during the following two weeks, a focus group interview was done in Turkish with five voluntary learners who had participated in the survey beforehand. The interview lasted approximately 50 minutes and was recorded on the voice recorder of a smart phone. Finally, the recording was transcribed and back-translated to English before thematic analysis procedures.

3.4. Data Analysis

3.4.1. Quantitative Data Analysis

In order to gain a clearer picture of the target population, descriptive analyses such as percentages and frequencies were conducted after generating a codebook of the quantitative data on SPSS. Additionally, depending on the data levels of measurement and the results of normality tests, Chi-square Test of Independence and some other inferential analyses such as Independent Samples t-Test and One-Way Analysis of Variance (ANOVA) were applied to investigate how learners' ICT ownership, ICT use and perceived skills in using ICTs differed in terms of the learner variables (i.e. gender, major, proficiency level, and achievement in EFL).

3.4.2. Qualitative Data Analysis

Clarke and Braun (2017) defined thematic analysis as "a method for identifying, analyzing and interpreting patterns of meaning ('themes') within qualitative data" (p. 297). Thematic analysis enables the researcher to develop codes and themes in order to recap, analyze and construe the fundamental segments of the qualitative data in the light of the research questions. Hence, thematic analysis of the qualitative data for the present study was done by identification, naming, categorization and grouping of regularly appearing words and patterns. First, along with participants' answers to the open-ended items in the survey, the audio recordings of the semi-structured focus group interview was transcribed and prepared for the researcher to be able to read and make basic observations. Then, the research

questions were revisited in order to identify how the collected data could help answer them. While going through the responses, certain concepts and key terms were assigned codes to develop a framework and specify data more easily. Finally, the most common answers, associations and patterns were determined for the data to connect to findings, and thus, to research questions for further exploration.

CHAPTER 4

FINDINGS

The findings of the study will be presented by referring to each research question separately in this chapter.

4.1. Research Question 1: Ownership of Different Kinds of ICTs

The participants were asked to indicate which technological devices they possessed. Findings revealed that almost all the participants owned smart phones, a large majority had laptops, almost half of the participants owned tablets while only a relatively small number had desktops. The possession of other devices such as e-readers, smart watches or video game consoles was quite low. The number of participants who selected each device and their percentages are presented in Table 2. The total numbers in the table do not add up to 100% as the participants could select more than one device.

Table 2. Ownership of technological devices

Devices	Ownership	
	f	(%)
Desktop	52	(24.4%)
Laptop	160	(75.1%)
Tablet	97	(45.5%)
Smart phone	211	(99.1%)
E-reader	2	(0.9%)
Smart Watch	13	(6.1%)
Other	2	(0.9%)

Note.f for number of learners

4.2. Research Question 2: How Learners Use ICT

In order to find out learners' habits in using ICT, they were asked to specify how much time they spent per week using the given ICT activities. They also indicated how often they used ICT for general purposes and for studying English. As Table 3 and Figure 3 show, almost half of the participants revealed that they spent one to ten hours per week on ICT activities for general purposes such as surfing the Internet for pleasure, playing computer games or online shopping. Accordingly, the highest rate of ICT use was for more than 20 hours per week (24.8%) while the lowest was for less than an hour (0.5%).

Table 3. Weekly hours spent using ICT for general purposes

Scale	f	(%)
(1) Do not use	2	(0.9%)
(2) Less than an hour	1	(0.5%)
(3) 1-2 hours	10	(4.7%)
(4) 3-5 hours	50	(23.5)
(5) 6-10 hours	37	(17.4%)
(6) 11-15 hours	33	(15.5%)
(7) 16-20 hours	27	(12.7%)
(8) More than 20 hours	53	(24.8%)
TOTAL	213	(100%)

Note.f for number of learners

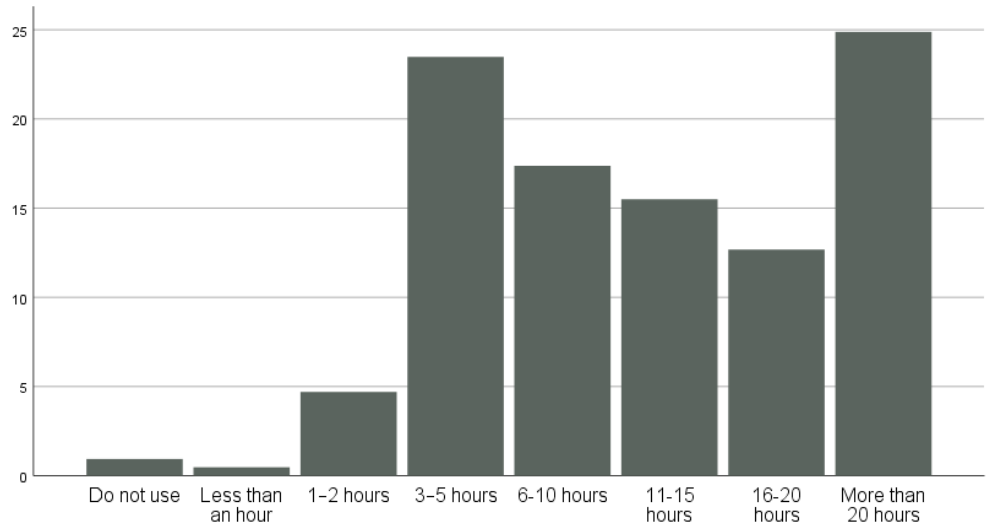

Fig. 3 Percentages of weekly hours spent using ICT for general purposes

Apart from the ICT use for general purposes, the participants were also asked to rate how much time they spent on ICT activities for studying English such as using technology for classroom activities and studying, writing documents for coursework or using a library resource to complete a course assignment. According to Table 4 and Figure 4, about 80% of the participants spent one to ten hours per week on using ICT for studying English, which is almost double the rate that was reported on using ICT for general purposes (see Figure 3). The highest rate of ICT use was for three to five hours per week (33.3%) while the lowest was for no use at all (0.5%). Only 13 participants spent more than 20 hours on ICT for studying English, which was about four times less than the figure for general purposes (see Table 3).

Table 4. Weekly hours spent using ICT for studying English

Scale	f	(%)
(1) Do not use	1	(0.5%)
(2) Less than an hour	5	(2.3%)
(3) 1-2 hours	51	(23.9%)
(4) 3-5 hours	71	(33.3%)
(5) 6-10 hours	48	(22.5%)
(6) 11-15 hours	16	(7.5%)
(7) 16-20 hours	8	(3.8%)
(8) More than 20 hours	13	(6.1%)
TOTAL	213	(100%)

Note.f for number of learners

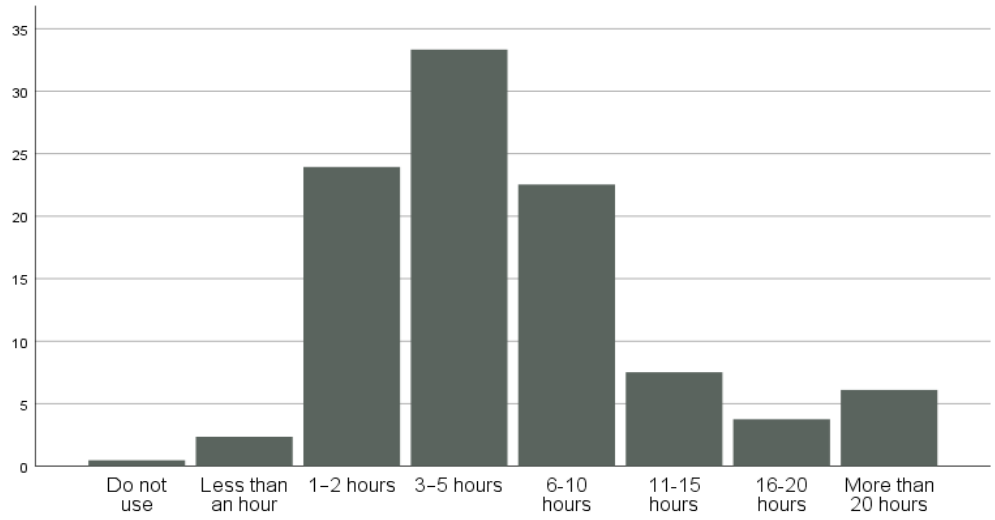

Fig. 4 Percentages of weekly hours spent using ICT for studying English

In relation to the habits of learners in using specific ICT activities, the participating learners reported using technology mostly for two to three hours for classroom activities and studying. In addition to this, the Internet was used by a vast majority for surfing the Internet for information to support coursework and surfing the Internet for pleasure as well as for music and videos. It is worthy of attention that they were most frequently engaged with surfing the Internet for pleasure, which took up five to six hours per week. Nonetheless, when it comes to some specialized activities such as creating web pages, graphics, spreadsheets or charts, editing video/audio, writing documents for pleasure or creating presentations, the participants either never used them or used them for less than an hour per week. Contrary to using technology for studying, creating web pages had the lowest rate of use among all the other activities. See Table 5 for the details.

Table 5. Means and standard deviations for the ICT activities of participating learners

Activity	N	Rate of Use	Mean of Hours (SD)
Using technology for classroom activities and studying	212	99.5%	3.58 (1.298)

Surfing the Internet for information to support coursework	208	97.7%	3.34	(1.263)
Surfing the Internet for pleasure	204	95.8%	4.63	(2.027)
Downloading or listening to music or videos/DVDs	203	95.3%	3.98	(1.885)
Creating, reading, sending e-mail	192	90.1%	2.52	(1.275)
Creating, reading, sending instant messages	190	89.2%	3.24	(1.880)
Writing documents for coursework	189	88.7%	2.93	(1.297)
Completing a learning activity or accessing information for a course using course websites	189	88.7%	2.68	(1.144)
Using a library resource to complete a course assignment	170	79.8%	2.52	(1.242)
Online shopping	144	67.6%	2.20	(1.392)
Playing computer games or online games	120	56.3%	2.52	(1.831)
Creating presentations	119	55.9%	1.90	(1.043)
Writing documents for pleasure	89	41.8%	1.82	(1.323)
Creating and editing video/audio	66	31%	1.44	(.825)
Creating spreadsheets or charts	56	26.3%	1.40	(.798)
Creating graphics	53	24.9%	1.35	(.728)
Creating Web pages	30	14.1%	1.23	(.664)

Note. Scale: *1=do not use, 2=less than an hour, 3=1-2 hours, 4=3-5 hours, 5=6-10 hours, 6=11-15 hours, 7=16-20 hours, 8=more than 20 hours*

4.3. Research Question 3: Perceived Skills in Using ICT

In order to understand how capable learners considered themselves of operating certain ICT activities, they were asked to report their self-perceived ICT skills on a scale from 1 (do not use) to 5 (very skilled). According to the mean scores that Table 6 shows below, the participants perceived themselves as either "very unskilled" or "unskilled" in all the listed activities including using word processing and presentation software. The two activities that received the lowest rating were creating web pages and creating and maintaining blogs, for both of which around 66% of participants answered "do not use". Nearly half of the participants answered "do not use" for several other activities such as creating graphics, creating and editing audio/video and using a library resource.

Table 6. Means and standard deviations of perceived ICT skills in using specialized activities

Activity	$\bar{X}$	SD
Word processing	3.35	(1.190)
Presentation software	3.26	(1.246)
Spreadsheets	2.70	(1.255)

Computer operating systems	2.48	(1.347)
Securing your electronic device	2.38	(1.310)
Computer maintenance	2.36	(1.334)
Creating and editing video/audio	2.24	(1.277)
Creating graphics	2.17	(1.267)
Online library resources	2.16	(1.246)
Creating and maintaining blogs	1.68	(1.077)
Creating Web pages	1.62	(.995)

Note.1=*do not use*, 2=*very unskilled*, 3=*unskilled*, 4=*skilled*, 5=*very skilled*

4.4. Research Question 4: The Role of Learner Variables

In order to see if and how participating learners differ in certain variables (i.e. gender, major, proficiency level, achievement) in terms of ICT ownership, ICT use and perceived ICT skills, descriptive analyses were computed first. As the next step, some inferential tests [e.g. Chi-square Test of Independence, One-Way ANOVA, etc.] were conducted through SPSS to see if there were significant differences among the learners.

4.4.1. ICT Ownership

With regard to ICT ownership and gender, all female learners had smart phones while only two male learners did not. More female learners had laptops, tablets and smart watches than male learners although more male learners had desktops than female learners by 3.8 percent. As Table 7 presents, the difference between male and female learners in terms of smart watch ownership appeared to be large with almost 70 percent.

Table 7. Ownership of technological devices by gender

	Male (n=107)		Female (n=106)	
Devices	f	(%)	f	(%)
Desktop	27	(51.9%)	25	(48.1%)
Laptop	78	(48.8%)	82	(51.2%)

Tablet	40	(41.2%)	57	(58.8%)
Smart phone	105	(49.8%)	106	(50.2%)
E-reader	1	(50%)	1	(50%)
Smart watch	2	(15.4%)	11	(84.6%)
Other	1	(50%)	1	(50%)

Note. % =values within ownership

To identify the relationship between ICT ownership and gender variable, Pearson Chi-square Test of Independence was performed, which revealed that there was a significant relationship between gender and ownership of tablet ($\chi 2(1, N= 213)= 5.7$, $p = .016$, $\Phi= 0.165$) and smart watch ($\chi 2(1, N= 213)= 6.7$, $p = .010$, $\Phi= 0.178$). Female learners had significantly more tablets and smart watches than male learners. See Table 8 for the details.

Table 8. Pearson Chi-square for the relationship between device ownership and gender

		Gender					
Ownership		Male	Female	Total	X^2	sd	p
Desktop	Owner	27	25	161	0.078	1	.779
	Non-owner	80	81	52			
Laptop	Owner	78	82	160	0.567	1	.451
	Non-owner	29	24	53			
Tablet	Owner	40	57	97	5.768	1	.016*
	Non-owner	67	49	116			
Smartphone	Owner	105	106	211	2.00	1	.498
	Non-owner	2	0	2			
Smart Watch	Owner	2	11	13	6.726	1	.010*
	Non-owner	105	95	200			
E-reader	Owner	106	105	211	0.000	1	1.00
	Non-owner	1	1	2			
Other	Owner	106	105	211	0.000	1	1.00
	Non-owner	1	1	2			

Note. $p<.05$*

In terms of ICT ownership and major, more learners from humanities and social sciences departments had desktops, tablets, smart phones and smart watches while more learners from natural and applied sciences departments had laptops, e-readers and video game consoles as Table 9 illustrates. Both groups had the highest

numbers in smart phone ownership. Specifically, tablet ownership held the highest difference between the two groups with 23.8 percent.

Table 9. Ownership of technological devices by major groups

	Humanities and Social Sciences (n=126)		Natural and Applied Sciences (n=87)	
	f	(%)	f	(%)
Desktop	31	(59.6%)	21	(40.4%)
Laptop	91	(56.9%)	69	(43.1%)
Tablet	60	(61.9%)	37	(38.1%)
Smart phone	125	(59.2%)	86	(40.8%)
E-reader	1	(50%)	1	(50%)
Smart watch	8	(61.5%)	5	(38.5%)
Other (i.e. game console)	1	(50%)	1	(50%)

Note. % = values within ownership

The Pearson Chi-square Test of Indepence was applied to find out if the differences between learners from the two major groups regarding device ownership were statistically significant. No significant association was observed between major and device ownership (α= .05). See Table 10 for the details.

Table 10. Pearson Chi-square for the relationship between device ownership and major

		Major					
Ownership		Hum&Soc	Nat&App	Total	X^2	sd	p
Desktop	Owner	31	21	52	0.006	1	.938
	Non-owner	95	66	161			
Laptop	Owner	91	69	160	1.383	1	.240
	Non-owner	35	18	53			
Tablet	Owner	60	37	97	0.538	1	.463
	Non-owner	66	50	116			
Smartphone	Owner	125	86	211	0.070	1	1.00
	Non-owner	1	1	2			
Smart Watch	Owner	8	5	13	0.033	1	.857
	Non-owner	118	82	200			
E-reader	Owner	1	1	2	0.070	1	1.00
	Non-owner	125	86	211			
Other	Owner	1	1	2	0.070	1	1.00
	Non-owner	125	86	211			

Note. $p<.05$

With regard to the relationship between EFL proficiency level of the participants and their device ownership, findings revealed that more A1 learners owned desktops and smart phones while more A2 learners owned tablets. Specifically, almost half of the learners who owned smart watches were B2 level learners while they had the lowest rates in desktop, laptop, tablet and smart phone ownership as can be seen in Table 11.

Table 11. Ownership of technological devices by proficiency level of EFL

	A1-Elementary (n= 71)		A2-Pre-intermediate (n= 55)		B1-Intermediate (n= 51)		B2-Upper-intermediate (n= 36)	
	f	(%)	f	(%)	f	(%)	f	(%)
Desktop	17	(32.7%)	15	(28.8%)	12	(23.1%)	8	(15.4%)
Laptop	42	(26.3%)	40	(25%)	42	(26.3%)	36	(22.5%)
Tablet	26	(26.8%)	29	(29.9%)	26	(26.8%)	16	(16.5%)
Smart phone	70	(33.2%)	55	(26.1%)	50	(23.7%)	36	(17.1%)
E-reader	0	(0%)	0	(0%)	1	(50%)	1	(50%)
Smart watch	1	(7.7%)	3	(23.1%)	3	(23.1%)	6	(46.2%)
Other	0	(0%)	1	(50%)	0	(0%)	1	(50%)

Note.%= values within ownership

According to Pearson Chi-square analyses, statistically significant association occurred between EFL proficiency level of participant learners and their laptop ($\chi 2(3, N= 213)= 23, p = .000, \Phi= 0.330$) and smart watch ownership ($\chi 2(3, N= 213)= 9.7, p = .020, \Phi= 0.214$). More A1 and B1 learners had laptops while more B2 learners had smart watches. See Table 12 for the details.

Table 12. Pearson Chi-square for the relationship between device ownership and proficiency level of EFL

		EFL Proficiency Level							
Ownership		A1	A2	B1	B2	Total	X^2	sd	p
Desktop	Owner	17	15	12	8	52	0.367	3	.947
	Non-owner	54	40	39	28	161			
Laptop	Owner	42	40	42	36	160	23.200	3	.000*

	Non-owner	29	15	9	0	53			
Tablet	Owner	26	29	26	16	97	4.050	3	.256
	Non-owner	45	26	25	20	116			
Smartphone	Owner	70	55	50	36	211	1.755	3	.825
	Non-owner	1	0	1	0	2			
Smart Watch	Owner	1	3	3	6	13	8.455	3	.023*
	Non-owner	70	52	48	30	200			
E-reader	Owner	0	0	1	1	2	3.114	3	.232
	Non-owner	71	55	50	35	211			
Other	Owner	0	1	0	1	2	2.963	3	.322
	Non-owner	74	54	51	35	211			

Note. $p<.05$*

In order to investigate how participating learners differ with respect to their device ownership and achievement in EFL, descriptive analyses were done. Table 13 shows that around 90 percent of the participating learners who owned desktop, laptop, tablet, smart phone and/or smart watch were successful in their final achievement exam whereas approximately 10 to 15 percent of such learners failed. Additionally, all the learners who owned e-readers or games console also got a passing score in the final exam.

Table 13. Ownership of technological devices by achievement

	Pass (n= 191)		Fail (n= 22)	
Devices	f	(%)	f	(%)
Desktop	44	(84.6%)	8	(15.4%)
Laptop	144	(90%)	16	(10%)
Tablet	86	(88.7%)	11	(11.3%)
Smart phone	189	(89.6%)	22	(10.4%)
E-reader	2	(100%)	0	(0%)
Smart watch	11	(84.6%)	2	(15.4%)
Other	2	(100%)	0	(0%)

Note. % =values within ownership

To be able to understand how device ownership was related to learner achievement, Pearson Chi-square tests were applied. Findings indicated no significant relationship between learners' device ownership and their achievement in EFL ($\alpha= .05$). See Table 14 for the details.

Table 14. Pearson Chi-square for the relationship between device ownership and achievement in EFL

		Achievement-Final Exam Score					
Ownership		Pass	Fail	Total	X^2	sd	p
Desktop	Owner	44	8	52	1.899	1	.168
	Non-owner	147	14	161			
Laptop	Owner	144	16	160	0.075	1	.784
	Non-owner	47	6	53			
Tablet	Owner	86	11	97	0.197	1	.657
	Non-owner	105	11	116			
Smartphone	Owner	189	22	211	0.233	1	1.00
	Non-owner	2	0	2			
Smart Watch	Owner	11	2	13	0.382	1	.629
	Non-owner	180	20	200			
E-reader	Owner	2	0	2	0.233	1	1.00
	Non-owner	189	22	211			
Other	Owner	2	0	2	0.233	1	1.00
	Non-owner	189	22	211			

Note. $p<.05$

4.4.2. ICT Use

The mean of hours spent by male and female learners on certain ICT activities were calculated. Table 15 indicates that female participants spent more time on instant messaging, writing/surfing for pleasure, online shopping, and using course websites. On the other hand, male participants spent more time on studying, using a library resource to complete a course assignment, surfing on the Internet for information, writing for coursework, e-mailing, playing games, and downloading music/videos/DVDs. In terms of the more specialized activities, females spent more time creating presentations and web pages while males spent more time creating spreadsheets/charts, graphics, and editing video/audio. Both males and females were least engaged with creating web pages.

Table 15. Means, standard deviations and Mann Whitney-U Test results for ICT activities by gender

	Male		Female			
	$\bar{X}$	SD	$\bar{X}$	SD	U	p
Studying	3.71	(1.426)	3.45	(1.147)	453	.124
Library resources	2.52	(1.176)	2.51	(1.310)	842	.875
Surfing for info	3.42	(1.339)	3.27	(1.183)	748	.384
Writing for course	3.03	(1.420)	2.83	(1.158)	425	.241
E-mail	2.54	(1.275)	2.50	(1.281)	623	.821
Instant messages	3.00	(1.740)	3.49	(1.991)	862	.060
Writing for pleasure	1.63	(1.031)	2.00	(1.546)	125	.040*
Playing games	3.14	(1.973)	1.90	(1.437)	123	.000*
Music/Videos/DVDs	4.03	(1.737)	3.92	(2.031)	526	.652
Surfing for pleasure	4.60	(1.931)	4.66	(2.128)	625	.853
Online shopping	2.02	(1.216)	2.38	(1.534)	478	.078
Spreadsheets/Charts	1.42	(.848)	1.37	(.749)	542	.620
Presentations	1.83	(1.103)	1.97	(.980)	234	.320
Graphics	1.35	(.676)	1.34	(.781)	452	.945
Editing video/audio	1.46	(.872)	1.42	(.780)	782	.704
Creating web pages	1.21	(.599)	1.24	(.727)	562	.724
Course websites	2.57	(1.099)	2.80	(1.182)	263	.125

Note. p<.05*

It was investigated whether there were significant differences between males and females in terms of the mean of hours they spent on certain ICT activities. Since the relevant data violated the assumption of normal distribution for gender variable, a non-parametric test, Mann-Whitney U, was applied. The test results in Table 15 show that statistically significant differences were found between gender and ICT activities only for writing documents for pleasure (U= 125, p= .040, η^2= .010) and playing computer/online games (U= 123, p= .000, η^2= .128). It was found that females' mean of hours spent writing for pleasure ($\bar{X}$= 2.00) was significantly higher than males' ($\bar{X}$= 1.63) while males' mean of hours playing computer/online games ($\bar{X}$= 3.14) was significantly higher than females' ($\bar{X}$= 1.90). See Table 15 for the details.

Two major groups were also compared in terms of how much time was spent on certain ICT activities. As the figures in Table 16 indicate, for studying purposes, participants from natural and applied sciences majors spent more time on classroom activities and studying using an electronic device, surfing the Internet for information to support coursework, and writing documents for coursework whereas participants from humanities and social sciences departments spent more time on using a library resource to complete a course assignment, and using course websites. For pleasure, participants from natural and applied sciences departments spent more time on playing computer/online games, downloading music/videos, surfing for pleasure and less time on writing for pleasure and online shopping. Moreover, for the more specialized activities, participants from humanities and social sciences departments spent more time on creating spreadsheets/charts, graphics and editing video/audio while they spent less time on creating presentations and creating web pages.

Table 16. Means, standard deviations and Independent Samples t-Test results for ICT activities by major groups

	Humanities and Social Sciences		Natural and Applied Sciences				
	$\bar{X}$	SD	$\bar{X}$	SD	t	df	p
Studying	3.53	(1.237)	3.66	(1.386)	-.744	211	.457
Library resources	2.53	(1.224)	2.49	(1.274)	.262	211	.794
Surfing for information	3.20	(1.168)	3.55	(1.370)	-1.975	211	.050*
Writing for coursework	2.88	(1.210)	3.01	(1.418)	-.721	211	.472
E-mail	2.42	(1.175)	2.65	(1.404)	-1.276	211	.203
Instant messages	3.32	(1.962)	3.13	(1.759)	.714	211	.476
Writing for pleasure	1.84	(1.286)	1.79	(1.382)	.261	211	.795
Playing games	2.16	(1.608)	3.04	(2.011)	-3.396	158	.001*
Music/Videos/DVDs	3.89	(1.950)	4.10	(1.791)	-.785	211	.433
Surfing for pleasure	4.55	(2.049)	4.74	(2.001)	-.677	211	.499
Online shopping	2.23	(1.341)	2.16	(1.469)	.397	211	.692
Spreadsheets/Charts	1.41	(.869)	1.39	(.688)	.196	211	.845
Presentations	1.87	(1.035)	1.94	(1.060)	-.477	211	.634
Graphics	1.36	(.722)	1.33	(.743)	.312	211	.755
Editing video/audio	1.50	(.927)	1.36	(.649)	1.224	211	.222
Creating web pages	1.19	(.645)	1.27	(.693)	-.835	211	.405

Course websites	2.71	(1.151)	2.64	(1.140)	.442	211	.659

Note. p<.05*

Statistical tests were implemented to reveal if there were significant differences between learners from two different groups of majors in terms of the mean of hours they spent on ICT activities. When the data was examined in two categories of majors, it was found to be normally distributed; therefore, the Independent Samples t-test was administered using SPSS. Among these activities, the results showed that there were significant differences between learners from two groups of majors regarding surfing for information ($t(211)= -1.975$, $p= .050$, $d= -.27$) and playing online/computer games ($t(158)= -3.396$, $p= .001$, $d= -.48$). The mean of hours that the participants from the natural and applied sciences majors spent surfing for information ($\bar{X}= 3.55$) and playing online/computer games ($\bar{X}= 3.04$) were significantly higher than the mean of hours that the participants from the humanities and social sciences majors spent surfing for information ($\bar{X}= 3.20$) and playing online/computer games ($\bar{X}= 2.16$). See Table 16 for the details.

Referring to the connection between hours spent on ICT activities and EFL proficiency level, A1 learners spent the least time on most of the ICT activities listed in Table 17. A2 learners spent the most hours on playing games and online shopping in addition to the specialized ICT activities such as creating spreadsheets/charts, presentations, graphics, web pages, and, editing video/audio. However, they spent the least time on using a library resource, instant messaging and writing for pleasure. On the other hand, B1 learners spent more time on using ICT for studying and entertainment than other levels. Similarly, B2 learners reported spending the most hours on writing for coursework, e-mailing, and, surfing the Internet for pleasure.

However, they spent the least hours on creating web pages, graphics, spreadsheets/charts, and, playing games.

Table 17. Means and standard deviations for ICT activities by EFL proficiency level

	A1-Ele		A2-Pin		B1-Int		B2-Upp	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Studying	3.45	(1.360)	3.58	(1.257)	3.86	(1.371)	3.47	(1.108)
Library resources	2.40	(1.102)	2.38	(1.269)	2.70	(1.346)	2.69	(1.305)
Surfing for info	3.26	(1.194)	3.29	(1.196)	3.49	(1.391)	3.38	(1.336)
Writing for course	2.59	(1.165)	3.00	(1.374)	3.11	(1.394)	3.25	(1.180)
E-mail	2.39	(1.048)	2.47	(1.230)	2.64	(1.411)	2.66	(1.549)
Instant messages	3.08	(1.583)	2.90	(1.724)	3.62	(2.217)	3.55	(2.062)
Writing for pleasure	1.76	(1.346)	1.67	(.982)	2.11	(1.507)	1.82	(1.323)
Playing games	2.46	(1.771)	2.70	(2.114)	2.54	(1.781)	2.33	(1.585)
Music/Videos/DVDs	3.64	(1.639)	3.85	(1.899)	4.37	(2.078)	4.27	(1.965)
Surfing for pleasure	4.35	(1.890)	4.56	(1.922)	4.86	(2.227)	4.97	(2.144)
Online shopping	2.11	(1.326)	2.36	(1.637)	2.21	(1.418)	2.13	(1.073)
Spreadsheets/Charts	1.36	(.615)	1.52	(1.033)	1.43	(.854)	1.25	(.603)
Presentations	1.54	(.732)	2.41	(1.197)	1.70	(1.005)	2.08	(1.052)
Graphics	1.35	(.698)	1.50	(.857)	1.29	(.756)	1.19	(.467)
Editing video/audio	1.46	(.650)	1.52	(1.069)	1.33	(.653)	1.44	(.939)
Creating web pages	1.19	(.550)	1.27	(.651)	1.25	(.796)	1.19	(.709)
Course websites	2.36	(.929)	2.76	(1.154)	2.88	(1.160)	2.91	(1.380)

As the data was found to be normally distributed for the variable of EFL proficiency level, a One-Way Analysis of Variance (ANOVA) was used to check if there were significant differences among the mean of hours that the learners from four different proficiency levels spent using ICT activities. Levene's test of homogeneity of variance was applied to check for the ICT acivities which met the assumption of equal variances among the four group means. Table 18 presents eleven such activities. The results indicated no significant difference between ICT activities and EFL proficiency level (α= .05).

Table 18. One-Way ANOVA results for the impact of EFL proficiency level on ICT activities

ICT Activities		SS	df	F	Sig.
Studying	Between Groups	5.672	3	1.123	.341
	Within Groups	351.971	209		
	Total	357.643	212		

Library resources	Between Groups	4.791	3	1.035	.378
	Within Groups	322.364	209		
	Total	327.155	212		
Surfing for information	Between Groups	1.729	3	.358	.783
	Within Groups	336.562	209		
	Total	338.291	212		
E-mail	Between Groups	2.841	3	.578	.630
	Within Groups	342.314	209		
	Total	345.155	212		
Writing for pleasure	Between Groups	4.587	3	.872	.457
	Within Groups	366.633	209		
	Total	371.221	212		
Playing games	Between Groups	3.473	3	.342	.795
	Within Groups	707.635	209		
	Total	711.108	212		
Music/Videos/DVDs	Between Groups	19.748	3	1.874	.135
	Within Groups	734.177	209		
	Total	753.925	212		
Surfing for pleasure	Between Groups	12.701	3	1.030	.380
	Within Groups	858.736	209		
	Total	871.437	212		
Online shopping	Between Groups	2.152	3	.367	.777
	Within Groups	408.759	209		
	Total	410.911	212		
Editing video/audio	Between Groups	1.036	3	.503	.681
	Within Groups	143.593	209		
	Total	144.629	212		
Web pages	Between Groups	.254	3	.189	.904
	Within Groups	93.474	209		
	Total	93.728	212		

Note $p<.05$

According to Levene's test of homogeneity of variances in ANOVA, for writing documents for coursework ($F(3, 209) = 2.818$, $p= .040$) creating/reading/sending instant messages ($F(3, 209) = 4.829$, $p= .003$), creating spreadsheets and charts ($F(3, 209) = 3.399$, $p= .019$), creating presentations ($F(3, 209) = 3.280$, $p= .022$), creating graphics ($F(3, 209) = 4.080$, $p= .008$), and using course websites ($F(3, 209) = 3.000$, $p= .032$), the assumption of equal variances between group means was violated. Therefore, in order to understand where the differences occurred between the groups, Games Howell Test was used as a Post Hoc test. Table 19 shows that statistically significant differences occurred among four

proficiency levels in writing documents for coursework ($F(3, 209) = 2.818$, $p = .040$, $\eta_p^2 = .039$) (A1-B2), creating presentations ($F(3, 209) = 3.280$, $p = .022$, $\eta_p^2 = .115$) (A1-A2, A1-B2, A2-B1), and using course websites ($F(3, 209) = 3.000$, $p = .032$, $\eta_p^2 = .041$) (A1-B1).

Table 19. Games Howell Test of Mutiple Comparisons between ICT activities and EFL proficiency levels

	(I)Prof Lev	(II)Prof Lev	Mean Difference	Sig.
Writing documents for coursework	A1 - ELE	A2 - PIN	-.40845	.295
		B1 - INT	-.52610	.131
		B2 - UPP	-.65845*	.038
	A2 - PIN	B1 - INT	-.11765	.972
		B2 - UPP	-.25000	.792
	B1 - INT	B2 - UPP	-.13235	.964
Instant messages	A1 - ELE	A2 - PIN	.17542	.936
		B1 - INT	-.54294	.445
		B2 - UPP	-.47105	.628
	A2 - PIN	B1 - INT	-.71836	.256
		B2 - UPP	-.64646	.410
	B1 - INT	B2 - UPP	.07190	.999
Creating spreadsheets/charts	A1 - ELE	A2 - PIN	-.16108	.736
		B1 - INT	-.06518	.966
		B2 - UPP	.11620	.786
	A2 - PIN	B1 - INT	.09590	.954
		B2 - UPP	.27727	.377
	B1 - INT	B2 - UPP	.18137	.653
Creating presentations	A1 - ELE	A2 - PIN	-.86889*	.000
		B1 - INT	-.15659	.780
		B2 - UPP	-.53404*	.042
	A2 - PIN	B1 - INT	.71230*	.007
		B2 - UPP	.33485	.500
	B1 - INT	B2 - UPP	-.37745	.343
Creating graphics	A1 - ELE	A2 - PIN	-.15698	.689
		B1 - INT	.05800	.973
		B2 - UPP	.15767	.511
	A2 - PIN	B1 - INT	.21497	.520
		B2 - UPP	.31465	.117
	B1 - INT	B2 - UPP	.09967	.873
Using course websites	A1 - ELE	A2 - PIN	-.39744	.165
		B1 - INT	-.51616*	.048
		B2 - UPP	-.55047	.149
	A2 - PIN	B1 - INT	-.11872	.952
		B2 - UPP	-.15303	.946
	B1 - INT	B2 - UPP	-.03431	.999

Note. significantly different*

The differences in the mean of hours learners spent on ICT activities with regard to learner achievement were also examined. Learners were categorized according to the criteria used in the preparatory program of the present study. Accordingly, learners who received a score between 0 and 49.49 were considered to fail whereas learners who received a score between 49.50 and 100 were considered to pass (Note that the maximum score to get was 100). As can be seen in Table 20, for almost all the listed ICT activities, learners who failed the final achievement exam spent more time than learners who passed the final achievement exam except for writing instant messages ($\bar{X}$= 3.30) and surfing for pleasure ($\bar{X}$= 4.63).

Table 20. Means, standard deviations and Independent Samples t-Test results for ICT activities by EFL achievement

	Pass		Fail				
	$\bar{X}$	SD	$\bar{X}$	SD	t	df	p
Studying	3.56	1.237	3.77	1.770	0.708	211	.480
Library resources	2.46	1.195	3.04	1.526	2.108	211	.036*
Surfing for info	3.28	1.194	3.86	1.69 8	1.546	23	.135
Writing for course	2.90	1.188	3.18	2.038	0.623	23	.539
E-mail	2.50	1.226	2.68	1.672	0.488	24	.630
Instant messages	3.30	1.895	2.77	1.716	-1.256	211	.211
Writing for pleasure	1.75	1.207	2.36	2.036	1.365	23	.186
Playing games	2.41	1.723	3.45	2.444	1.933	23	.065
Music/Videos/DVDs	3.92	1.830	4.45	2.303	1.038	24	.310
Surfing for pleasure	4.63	2.002	4.59	2.281	-0.105	211	.917
Online shopping	2.12	1.271	2.90	2.091	1.721	23	.099
Spreadsheets/Charts	1.37	.705	1.68	1.358	1.054	22	.303
Presentations	1.86	1.014	2.18	1.258	1.333	211	.184
Graphics	1.33	.727	1.50	.740	1.005	211	.316
Editing video/audio	1.43	.823	1.54	.857	0.595	211	.552
Creating web pages	1.19	.606	1.54	1.010	1.599	23	.124
Course websites	2.65	1.130	2.90	1.269	0.967	211	.334

Note. p<.05*

Statistical tests were run to detect the significant differences between learners who passed and failed the final achievement exam in terms of the mean of hours they spent on ICT activities. The data grouped in two categories of achievement were

found to be normally distributed; thus, the Independent Samples t-test was applied. Among these activities, the results in Table 20 show that there were significant differences between learners from two groups of achievement only in using library resources ($t(211)= 2.108$, $p= .036$, $d= .47$). Learners who failed the final achievement exam spent significantly more time for using library resources ($\bar{X}= 3.04$) than learners who passed the final achievement exam ($\bar{X}= 2.46$).

4.4.3. Perceived Skills in ICT Activities

With regard to the means of learners' ICT skill level categorized by gender, it was found that males ranked themselves closer to being skilled in spreadsheets, creating video/audio, creating web pages, computer operating systems, computer maintenance, and securing electronic device. On the other hand, females ranked themselves closer to being skilled in word processing, presentation software, creating graphics, and creating and maintaining blogs. See Table 21 for the details.

Table 21. Means, standard deviations and Mann Whitney-U Test results for perceived ICT skills by gender

	Male		Female			
	$\bar{X}$	SD	$\bar{X}$	SD	U	p
Word processing	3.28	(1.211)	3.42	(1.170)	821	.378
Spreadsheets	2.71	(1.219)	2.69	(1.295)	125	.901
Presentation software	3.19	(1.231)	3.33	(1.262)	714	.434
Creating graphics	2.14	(1.185)	2.20	(1.350)	256	.699
Creating & editing video/audio	2.27	(1.240)	2.22	(1.318)	263	.799
Creating Web pages	1.73	(1.058)	1.50	(.918)	1253	.093
Creating & maintaining blogs	1.65	(1.000)	1.70	(1.154)	365	.719
Online library resources	2.16	(1.145)	2.16	(1.346)	356	.964
Computer operating systems	2.76	(1.363)	2.19	(1.275)	314	.002*
Computer maintenance	2.69	(1.396)	2.03	(1.186)	365	.000*
Securing electronic device	2.61	(1.343)	2.14	(1.237)	356	.008*

Note. $p<0.05$*

Statistical tests were applied to find out the significant differences between males and females in terms of the mean of learners' ICT skill level. As the data violated the assumption of normal distribution for gender variable, Mann-Whitney U test was applied. The test results in Table 21 show that statistically significant differences were found between gender and perceived ICT skills for computer operating systems (U= 314, p= .002, η^2= .045), computer maintenance (U= 365, p= .000, η^2= .057), securing electronic device (U= 356, p= .008, η^2= .031), all for which males showed higher perceived ICT skills compared to females.

Regarding major, participants from natural and applied sciences departments claimed to have higher skill levels for almost all ICT activities listed, except creating and maintaining blogs, and online library resources in which participants from humanities and social sciences departments rated themselves to be more skilled. See Table 22 for the details.

Table 22. Means, standard deviations and Independent Samples t-Test results for perceived ICT skills by major groups

	Humanities and Social Sciences (n=126)		Natural and Applied Sciences(n=87)				
	$\bar{X}$	SD	$\bar{X}$	SD	t	df	p
Word processing	3.30	(1.203)	3.41	(1.176)	-0.627	211	.531
Spreadsheets	2.53	(1.262)	2.95	(1.209)	-2.395	211	.018*
Presentation software	3.11	(1.281)	3.47	(1.169)	-2.043	211	.042*
Creating graphics	2.11	(1.249)	2.25	(1.295)	-0.757	211	.450
Creating & editing video/audio	2.23	(1.315)	2.27	(1.226)	-0.256	211	.798
Creating Web pages	1.50	(.883)	1.79	(1.122)	-1.984	156	.049*
Creating & maintaining blogs	1.68	(1.070)	1.67	(1.094)	0.029	211	.977
Online library resources	2.17	(1.207)	2.14	(1.307)	0.145	211	.885
Computer operating systems	2.24	(1.281)	2.82	(1.374)	-3.160	211	.002*
Computer maintenance	2.05	(1.208)	2.81	(1.385)	-4.146	168	.000*
Securing electronic device	2.15	(1.209)	2.70	(1.390)	-2.949	168	.004*

Note. p<0.05*

For the significant differences between participant learners with regard to the mean of learners' ICT skill level, the data was categorised in two groups of majors, which were found to be normally distributed; hence, the Independent Samples t-test was applied. Accordingly, the results in Table 22 show that there were significant differences between learners from two groups of majors concerning perceived ICT skills in several activities such as using spreadsheets ($t(211)= -2.395$, $p= .018$, $d= -.33$), using presentation software ($t(211)= -2.043$, $p= .042$, $d= -.28$), creating Web pages ($t(156)= -1.984$, $p= .049$, $d= -.29$), computer operating systems ($t(211)= -3.160$, $p= .002$, $d= -.43$), computer maintenance ($t(168)= 4.146$, $p= .000$, $d= -.57$), and securing electronic device ($t(168)= -2{,}949$, $p= .004$, $d= -.41$). It was revealed that the participant learners from natural and applied sciences majors perceived themselves to be more skilled in all six ICT activities than the participant learners from humanities and social sciences majors in all six activities.

In terms of EFL proficiency level, the findings revealed that B2 learners ranked themselves the most skilled in more than half of the specified ICT activities such as creating spreadsheets, using presentation software, creating and maintaining blogs, using online library resources, computer operating systems, and, computer maintenance. A2 learners, on the other hand, ranked themselves highest in creating graphics, web pages, creating and editing video/audio, and, securing electronic device while it was only word processing for B1 learners. However, both A1 and B1 learners ranked themselves lowest in five activities each as Table 23 illustrates.

Table 23. Means and standard deviations of perceived ICT skills by EFL proficiency level

	A1-Ele	A2-Pin	B1-Int	B2-Upp
	$\bar{X}$ SD	$\bar{X}$ SD	$\bar{X}$ SD	$\bar{X}$ SD
Word processing	2.85 (1.355)	3.54 (1.050)	3.66 (1.016)	3.61 (.993)
Spreadsheets	2.35 (1.243)	2.74 (1.142)	2.84 (1.332)	3.16 (1.183)

Presentation software	2.70 (1.408)	3.58 (.936)	3.31 (1.240)	3.80 (.888)
Creating graphics	2.04 (1.224)	2.32 (1.306)	2.21 (1.361)	2.13 (1.174)
Creating & editing video/audio	2.23 (1.292)	2.32 (1.361)	2.15 (1.286)	2.27 (1.136)
Creating Web pages	1.66 (.984)	1.70 (1.100)	1.45 (.878)	1.66 (1.014)
Creating & maintaining blogs	1.64 (1.02)	1.60 (.954)	1.72 (1.250)	1.80 (1.116)
Online library resources	1.95 (1.114)	2.01 (1.096)	2.23 (1.365)	2.69 (1.410)
Computer operating systems	2.38 (1.302)	2.56 (1.424)	2.37 (1.413)	2.72 (1.233)
Computer maintenance	2.30 (1.304)	2.41 (1.342)	2.21 (1.404)	2.61 (1.293)
Securing electronic device	2.36 (1.278)	2.61 (1.283)	2.01 (1.256)	2.55 (1.423)

The data was examined and found to meet the assumption of normal distribution for the variable of EFL proficiency level. Therefore, a One-Way ANOVA test was used to see if there were significant differences between the mean of perceived ICT skills by four different proficiency levels of EFL. Levene's test results were consulted to find out about which ICT acivities meet the assumption of equal variances among the four group means. Table 24 presents eight such activities. The findings indicate that perceived ICT skills in creating spreadsheets ($F(3, 209) = 3.642$, $p = .010$, $\eta_p^2 = .050$) were significantly different among the four groups of proficiency level.

Table 24. One-Way ANOVA results for the impact of proficiency level on perceived ICT skills

ICT Activities		SS	df	F	Sig.
Spreadsheets	Between Groups	17.574	3	3.870	.010*
	Within Groups	316.379	209		
	Total	333.953	212		
Creating graphics	Between Groups	2.657	3	.548	.650
	Within Groups	337.915	209		
	Total	340.573	212		
Creating & editing video/audio	Between Groups	.806	3	.163	.921
	Within Groups	345.006	209		
	Total	345.812	212		
Creating Web pages	Between Groups	2.093	3	.701	.552
	Within Groups	207.860	209		
	Total	209.953	212		
Creating & maintaining blogs	Between Groups	1.098	3	.312	.817
	Within Groups	245.193	209		
	Total	246.291	212		
Computer operating Systems	Between Groups	3.789	3	.692	.558
	Within Groups	381.403	209		

	Total	385.192	212		
Computer maintenance	Between Groups	3.689	3	.688	.561
	Within Groups	373.748	209		
	Total	377.437	212		
Securing electronic Device	Between Groups	10.867	3	2.143	.096
	Within Groups	353.330	209		
	Total	364.197	212		

Note. p<.05*

Post hoc analyses using the Scheffe post hoc criterion for significance were applied to reveal among which groups there were differences in perceived ICT skills. Findings indicated a significant difference among two groups (i.e. A1-B2) in terms of ICT skills in creating spreadsheets ($F(3, 209) = 6.232$, $p = .000$, $\eta_p^2 = .053$). See Table 25 for details.

Table 25. Scheffe Test of Mutiple Comparisons between perceived ICT skills and EFL proficiency levels

	(I)Prof Lev	(II)Prof Lev	Mean Difference	Sig.
Spreadsheets	A1 - ELE	A2 - PIN	-.39334	.369
		B1 - INT	-.49102	.196
		B2 - UPP	-.81455*	.017
	A2 - PIN	B1 - INT	-.09768	.983
		B2 - UPP	-.42121	.468
	B1 - INT	B2 - UPP	-.32353	.692

Note. significantly different*

According to Levene's test of homogeneity of variances in ANOVA, the assumption of equal variances among group means was violated for the activities word processing ($F(3, 209) = 6.232$, $p = .000$), presentation software ($F(3, 209) = 12.585$, $p = .000$), and online library resources ($F(3, 209) = 3.551$, $p = .015$). Therefore, in order to understand among which groups the differences occurred, Games Howell Post hoc Test was used. Table 26 shows that statistically significant differences occurred among four proficiency levels in perceived ICT skills using word processing ($F(3, 209) = 6.232$, $p = .000$, $\eta_p^2 = .087$) (A1-A2, A1-B1, A1-B2), using presentation software ($F(3, 209) = 12.585$, $p = .000$, $\eta_p^2 = .117$) (A1-A2, A1-

B2) and using online library resources ($F(3, 209) = 3.551$, $p = .015$, $\eta_p^2 = .044$) (A1-B2).

Table 26. Games-Howell Test of Mutiple Comparisons between three perceived ICT skills and proficiency levels

	(I)Prof Lev	(II)Prof Lev	Mean Difference	Sig.
Word processing	A1 - ELE	A2 - PIN	-.68630*	.009
		B1 - INT	-.78790*	.002
		B2 - UPP	-.75196*	.008
	A2 - PIN	B1 - INT	-.10160	.958
		B2 - UPP	-.06566	.990
	B1 - INT	B2 - UPP	.21835	.998
Presentation software	A1 - ELE	A2 - PIN	-.87759*	.000
		B1 - INT	-.60950	.061
		B2 - UPP	-1.10133*	.000
	A2 - PIN	B1 - INT	.26809	.598
		B2 - UPP	-.22374	.660
	B1 - INT	B2 - UPP	-.49183	.145
Online library resources	A1 - ELE	A2 - PIN	-.06044	.990
		B1 - INT	-.27755	.632
		B2 - UPP	-.73670*	.040
	A2 - PIN	B1 - INT	-.21711	.806
		B2 - UPP	-.67626	.081
	B1 - INT	B2 - UPP	-.45915	.434

Note. significantly different*

Participating learners rated themselves with regards to their self-perception of ICT skills. Data were examined to determine how passing and failing learners varied in their perceived ICT skills. Results proved that for almost all the listed ICT activities the failing learners considered themselves to be more skilled than the passing learners. It was only for creating graphics ($\bar{X}$= 2.18) and using online library resources ($\bar{X}$= 2.17) that the passing learners rated themselves as more skilled.

Table 27. Means, standard deviations and Independent Samples t-Test reults for perceived ICT skills by EFL achievement

	Pass		Fail				
	$\bar{X}$	SD	$\bar{X}$	SD	t	df	p
Word processing	3.32	(1.201)	3.54	(1.100)	0.804	211	.423
Spreadsheets	2.70	(1.238)	2.72	(1.420)	0.072	211	.942
Presentation software	3.25	(1.244)	3.31	(1.286)	0.213	26	.833

Creating graphics	2.18	(1.266)	2.09	(1.306)	-0.323	211	.747
Creating & editing video/audio	2.22	(1.280)	2.45	(1.262)	0.797	211	.426
Creating Web pages	1.60	(.978)	1.81	(1.139)	0.964	211	.336
Creating & maintaining blogs	1.66	(1.037)	1.81	(1.401)	0.631	211	.529
Online library resources	2.17	(1.239)	2.04	(1.326)	-0.472	211	.638
Computer operating systems	2.47	(1.332)	2.59	(1.501)	0.394	211	.694
Computer maintenance	2.29	(1.301)	2.95	(1.495)	2.204	211	.029*
Securing electronic device	2.36	(1.306)	2.50	(1.371)	0.452	211	.652

Note. $p<0.05$*

To reveal the significant differences between participating learners' ICT skills in terms of their achievement in EFL, the data was categorised in two groups as pass and fail, which were found to be normally distributed; thus, the Independent Samples t-test was conducted. Findings in Table 27 present that there were statistically significant differences between passing and failing learners only in computer maintenance ($t(211)= 2.204$, $p= .029$, $d= .49$). When the mean scores were analyzed, it was observed that passing learners perceived themselves to be less skilled in using ICTs than failing learners.

4.5. Research Question 5: Perceived Benefits of Using ICT in Learning English

The participants were asked to indicate their perception of how beneficial ICT was in improving their English language skills (i.e. reading, writing, listening, speaking, grammar and lexis) on a five-point Likert scale in which 1 equals to strongly disagree and 5 equals to strongly agree. As Table 28 shows, findings pointed out that learners considered the use of ICT to develop their lexical skills the most and their speaking skills the least. Almost half of the learners agreed that the use of ICT benefited all skills except speaking. A lot of learners either remained neutral or agreed that the use of ICT benefited their reading (69%), writing (63.4%) and speaking (60.1%). On the other hand, a great majority of the learners either agreed or

strongly agreed that the use of ICT benefited their listening (76.5%), grammar (70.9%) and lexis (83.1%). In total, only 5.5% of all responses indicated strong disagreement towards the benefit of ICT in improving any of the six skills.

Table 28. Means and standard deviations for the benefits of ICT use on improving language skills

	M	SD
Reading	3.62	1.023
Writing	3.53	1.100
Speaking	3.31	1.189
Listening	3.94	1.078
Grammar	3.79	.983
Lexis	4.07	.897

To indicate their perceptions regarding the benefits of using ICT in English courses, the participants rated six statements on a five-point scale from 1 (strongly disagree) to 5 (strongly agree). Findings suggested that taking greater control of course activities was considered to be the biggest benefit among all, as shown in Table 29. More than half of the learners agreed with all the statements except helping in better communication and collaboration with classmates which about 67% of the learners either remained neutral or agreed to. A majority of the learners either agreed or strongly agreed to the benefit of using ICT in resulting in prompt feedback from the instructors (77.9%), allowing to take greater control of course activities (76.1%) and helping improve the language skills (74.2%).

Table 29. Means and standard deviations for the benefits of ICT in English courses

	$\bar{X}$	SD
Courses that use information technology allow me to take greater control of my course activities.	3.88	(1.00)
The use of information technology in courses resulted in prompt feedback from my instructors.	3.87	(.958)
The use of information technology in courses has helped me improve my language skills.	3.84	(.964)
The use of information technology in courses has helped me	3.68	(.981)

better communicate with my instructors.		
The use of information technology in courses has helped me better understand complex or abstract concepts.	3.65	(.901)
The use of information technology in courses has helped me better communicate and collaborate with my classmates.	3.35	(1.146)

4.5.1. Open-ended Questions in the Survey

To help enable a deeper understanding of their perception concerning ICTs, participating learners were asked two open-ended questions in the final part of the online survey that they took.

The first question asked the learners if they believed that using technology for learning English was beneficial. Out of 213 learners, 203 (95.3%) said "yes" whereas only 10 (4.7%) said "no". The second question asked what the most valuable benefit of using technology for learning English was for learners. The responses collected through this item were first listed, and then, coded and categorized under "learning", "access" and "effectiveness" themes which were defined to serve as umbrella terms for the categories and codes as listed in descending order in Table 30. The numbers in the brackets signify the frequency of appearances.

Table 30. The most valuable benefits of using technology in learning English

Themes	Categories	Codes
Learning (109)	Skills development (45)	TU*. improves my listening skills (18) TU. improves my vocabulary (11) TU. improves my speaking skills (7) TU. improves my writing skills (4) TU. improves my reading and understanding skills (3) TU. improves my grammar knowledge (2)
	Appeal for Different Learning Styles (36)	Ls***. learn through visuality (21) TU. fosters long-term memory (8) Ls. do concrete learning (5) Ls. learn through hearing (1) TI**. provides opportunities to use different senses and abilities (1)
	Self-development (23)	Ls. learn English easily (9) Ls. comprehend content better by practicing

		(7) TU. provides opportunities for self development (3) Ls. realize and correct mistakes in English (1) Ls. spare time for learning and development (1) Ls. follow the global agenda and developments (1) Ls. familiarize technological tools (1)
	Affective Factors (5)	Ls. do not lose interest in the lesson (3) TI. attracts attention (1) TI. deepens interest in learning English (1)
Access (71)	Information (38)	Ls. reach more/extra/recent/unlimited information/resources (29) Ls. follow course program (e.g. lesson plans, student calendar) (5) Ls. view grades on LMS (4)
	Immediacy (23)	Ls. reach information easily (13) Ls. reach information quickly (9)
	Contacting (10)	Ls. have contact with others (7) TI. enables interactive education (2)
Effectiveness (46)	Course Success (41)	TU. provides ease of use (21) Ls. improve learning efficiency (17) TU. saves time (3) Ls. learn English quickly (1)
	Course Management (5)	Ls. easily do course planning (3) Ls. improve systematically(1) Ls. manage course activities (1)

TU:Technology use, TI.**:Technology integration, Ls.***:Learners*

There were 109 accounts of "learning" as the most valuable benefit of using technology in learning English. For this theme, learners mentioned how technology helped improve their language skills, how it addressed a variety of learning styles, how they developed themselves and the affective factors that played a role in learning. The most commonly mentioned benefit of technology in terms of language development was that it improved learners' listening skills while the least popular response in the same segment was improving learners' grammar knowledge. Six accounts pointed that learners could watch videos through technology and such opportunities made information more memorable by triggering their visual memory. Self-development opportunities provided by the use of technology were touched upon 23 times and it was mentioned five times that learners did not get bored or lost

interest towards the subject matter as technology was used for learning in the class. The second most commonly mentioned benefit of technology was concerning "access". Reaching a vast amount of learning resources such as music, movies and games in English conveniently was considered to be a valuable benefit mentioned four times whereas six accounts highlighted reaching teacher materials such as powerpoint presentations on LMS to be beneficial for learners. There were seven accounts of how learners could have a contact either with other learners, native speakers of English or teachers of English thanks to ICTs. The third and final most commonly suggested benefit of technology was about how effective it was with regards to improving course success and management. Learners reported that they could easily use technology for efficient learning while saving themselves time and developing their learning pace personally. They also noted that using ICTs in class helped them improve systematically as they could easily do course planning (e.g. adjusting themselves to a student calendar of learning activities and exams) enabling them to fulfill better course management.

4.5.2. Focus Group Interview Responses

To provide the researcher with more insight on the answers to the research questions of the study, a semi-structured focus group interview was run with five voluntary participating learners a short while after the survey was implemented. There were six questions in the first set and they were about learners' ICT use and skills; four others in the second set regarding learners' technology use for study purposes; and a final question on the future inclusion of technology into education.

Based on the learners' responses, one spontaneous question was asked for the clarification of further ideas.

Item 1.1 asked the learners how skillful they perceived themselves in using technology to do tasks that were required for their courses, what the source of these skills were and how they improved (RQ3). Items 1.2 and 1.3 aimed to find the technology skills that the learners perceived themselves to be good and bad at respectively (RQ3). Item 1.4 intended to get the learner opinion about skills of digital natives based on Teo's (2013) MIMIC Model (RQ3). Item 1.5 asked if the learners used computers and the Internet for fun, if so, how often, for approximately how long in a day, and for what kind of activities (RQ2). Item 1.6 asked learners their opinion about what kind of an impact a learner's major had on their technology use and skills (RQ4). See Table 31 for the details.

Table 31. Learner responses on their ICT use and skills

Item	N	Learner Responses
1.1 ICT skills for course work & source of those skills	L1	I don't really think I am skilled because computer is not my thing. I mean I have never played any games ever since I was a child. I have never been on good terms with computer [...] I do whatever is necessary for me or I confer with a few people and learn if I need to [...]. In highschool or even secondary school, we need to be given a little online education.
	L2	I would give myself a three out of five. I can use it as much as I have to. I hadn't even known how to send an e-mail-wasn't good at it-until highschool years because I didn't use to use technological devices. Later on because I had to, I started [...] you know you learn when you have to. That's why I improved.
	L3	I consider myself skilled enough. I improved by using technology. I am familiar with it as I have been with technology since my childhood.
	L4	I am pretty good at this. It's because I am educated since in primary school, I had a course named "computer technologies". That's why I improved.
	L5	Not much really but I can use it to satisfy my needs. Maybe because I was born into technology and nowadays I have to use it all the time and because I am aware of the benefits of using it. At some point, I think I need it, makes it easier for me as I can invest in myself, I can understand things better. I improve in this way, discovering by my own, not by training.
1.2 Good	L1	[...] I can use everything if I really have to. As long as there is obligation, a person can do anything but still I can't use it really well. I don't know every detail about it.

ICT skills in general	L2	For example, I watch videos, write on word processing, powerpoint slideshows. I more often use course materials that teach subjects.
	L3	Using the computer, especially word processing.
	L4	I love using photo and video editing programs. I generally use technology more for fun than from [getting] information.
	L5	I am confident in using word processing thanks to previous training I got. I can't really say I am good at researching on the Internet but I can use it to the extent of my needs for now.
1.3 Bad ICT skills in general	L1	I am terribly bad at powerpoint, excel; photo, video and audio editing. Awful.
	L2	I can't use programs such as word processing effectively [...] Probably because I never really use it. Or maybe because I don't have an inclination for it.
	L3	I am bad at using applications such as Youtube both on mobile and computer. I am not really good at working on powerpoint or excel whenever I need to edit, I just can't seem to manage it.
	L4	Maybe in researching for detailed and acurate information that my skills are not fully developed as I may not be enough for this task. Honestly, I really don't know much about applications or software. I had never really been familiar with Internet until university and then I had to use powerpoint or word processing.
1.4 Ideas on digital nativity	L1	[...] For instance, my little brother, who is five years younger than me, always expects reward and they can do several different things at once such as playing games, checking on social media or listening to music [...] Actually, we all do this. Like both eating and doing homework.
	L2	We have multiple intelligences [...] and technological products appeal to them. They're good for the ones who know how to use them but for kids I don't really think so. They need to be away from technology a little as they need to experience things first [...]They can instantly reach information now [...].
	L3	As babies are born into this, they can use everything easily and they want reward instantly. I agree.
	L4	[...] I don't think technology is necessary for learners if it goes beyond its true purpose.
	L5	I can agree that they demand instant feedback and they can be a little impatient. [...] this [having too many things in mind] distracts our attention and that's why we can't focus on long sessions of course at school.
1.5 ICT use for fun	L1	Usually at night for less than an hour. Instagram, following news, maybe Twitter.
	L2	Not really much. Around an hour every day. Social media, taking photographs and editing them with filters. Nothing much really.
	L3	Every day. Approximately it gets 4-5 hours. Watching videos on Youtube or Instagram or online newspaper and magazine when I want to read something.
	L4	Every day. I don't play games. That's why I don't have anything to do with computers except when I do homework on word processing. I also use my mobile to watch foreign TV series.
	L5	Mostly watching video or checking on social media.
1.6 Major as a factor	L1	[...] I study politics and how am I supposed to learn if I don't follow news, follow what presidents have done, etc. [...] Likewise, if an engineer doesn't follow what's new, like new buildings, he will fall behind his colleagues as this era is changing fast.
	L2	Absolutely. I will study history so I won't have a lot to do with computer

		except collecting information but a computer engineer or others will have more to do with it. Thus, even if they don't like it, they will still be familiar to using it, they will be a lot better than me. Major is definitely connected to this.
	L3	Think of interior designers, for example, if they were good at using computer as a child, they can now easily use programs such as Autocad. However, I think my major, politics, doesn't really have much to do with technology.
	L4	I study law and I will need to memorize a lot for my studies and I will need to go through textbooks. I don't think I have a connection with technology but for computer engineers, medical and engineering students, it will be more important and necessary.
	L5	[...] Researching skills do not develop according to major, they are dependent on the type of personality.

Note. Spontaneous question*

The first item in the second part of the interview was item 2.1 and it investigated if learners believed that the skills obtained while using the Internet for fun transferred to their coursework, and if so, what the components of such skills were (RQ2 & RQ3). Item 2.2 asked about the types of technology use that instructors had exposed learners to in their courses by then (RQ2). Item 2.3 aimed to find out about the most important advantages of using technology in courses (RQ5). Item 2.4 regarded learners' beliefs on if, how and why using technology in courses helped learning (RQ5). See Table 32 for the details.

Table 32. Learner responses on their technology use for studying

Item	N	Learner Responses
2.1 Transfor mation of skills gained using ICTs for fun into academic skills	L1	Very rarely I mean what game would give me skills. Maybe because I'm not a game playing person [...] maybe like if I read an article about tips on being successful or if I see an example, I would apply it to myself. Maybe this [...] Doing things faster and easier, making life easier so you can transfer what you get from one to another.
	L2	I think it reflects, you gain practicality. So I think it does. Using technology and being exposed to it since childhood.
	L3	It does as, for example, when we do assignments, we have to upload on learning management systems; it is convenient since we are familiar with it through mobile or computer [...] Depends on what people want and tend to do.
	L4	[...] Graphics learners generally use photo or video editing programs to add or cut videos in presentations and they need skills for these.
	L5	[...] People say they focus on problem solving when they play games. Maybe it improves people in that sense. Other than that, I don't think it makes you gain skills; on the contrary, it wears our creativity away.

2.2	L1	We use ICT for coursework and developing listening skills or powerpoint slides for visuality. We sometimes play games in English.
How ICTs are used in course	L2	Computer and projector are used a lot which is really good because all class can see them on board and they support textbooks. We use learning management system for concrete learning [...]
	L3	[...] In prep school, we are always surrounded by technology. We mostly use technology for our coursework to upload homework, practice for exams, etc.
	L4	Instructors show videos, visuals and samples for us to see more examples and familiarize with visual learning. For grammar, they used beneficial slideshows.
	L5	Powerpoint slideshows and interactive whiteboard materials are used [...] I am happy with the prep program because it is educating [...]
2.3	L1	Listening as it's a big plus. We didn't have these at highschool so we couldn't develop this much.
Pros of ICT use in course	L2	Seeing stuff on board as a whole class is different. Less problems about focusing this way. [...] Classroom management becomes easier for teachers.
	L3	Homework. I mean I can more easily hand in my homework to teachers.
	L4	Using interactive whiteboard materials or the Internet to see visuals or videos during the lesson.
	L5	Maybe seeing things to learn all at one place and find them there (learning management system) when needed. [...] we can see related videos or practice with sample questions which makes us learn better with a better reflection of what's learnt in our heads.
2.4	L1	Listening. It improves my listening skills when I practice listening online.
Help of ICT use in learning	L2	It helps us focus better and gathers learners in one common place. We can always do listening thanks to the Internet [...]
	L3	We can learn quickly and better by using the Internet and computer while studying. It provides learning easily and conveniently.
	L4	For example, when there is grammar presentation, our tacher uploads it on the learning management system the very same day. We can check it and it becomes useful for us.
	L5	It is beneficial to use it in the class because those activities improve my repertoire of knowledge.

The third part of the interview consisted of only one item which questioned if learners would add or change anything in the present preparatory school program to improve the use of technology for coursework (RQ2). See Table 33 for the details.

Table 33. Learner responses on the future integration of technology into education

Item	N	Learner Responses
3.1	L1	Tutoring through more visuals would be better for us [...] as our generation understands concepts better when explained with visual aids
ICT related changes/ additions		[...] There could be online quizes about the topics of the week and a general assessment of these or bonus points could be given through learning managment system. Besides this, I think it's just right because when it is too much technology, the sincerity of the classroom

suggested for the current program being studied		environment is lost. Here it's well-balanced. [...]
	L2	Not everything should be technological neither completely traditional. They must find the medium and keep it like that [...] We could collect learning documents in a flash drive or our computers as checking the learning management system may not be enough for some of us. Technology training could be provided about things such as how to use excel, powerpoint to prepare presentations and elaborate on them because we really don't know how to. It's probably the same for my other friends in prep school. Some of us don't even know how to send an e-mail [...] teachers could mentor learners about these or give seminars [...] if learners are going to use technology, then they should first be trained.
	L3	I am in favor of not having any time limits (deadlines) for homework. While instructors are teaching, we could use something like a tablet at the same time. We could use more electronic devices. I think mobile phone can be used in class.
	L4	There could be more videos, content and visuals because we mostly forget what we hear but it is more diffiult for us to forget what we see. I think we should get training about programs like Turnitin because it's important for our studies and we need to learn how to use it. Also, we have computers in the library at school but it is not enough. Not everyone has a laptop so we could have more. Apart from that, nothing much is needed in prep school by learners.
	L5	There should be a format that wouldn't get the learners bored. It shouldn't be writing all the time but more visuals or listening. This way would attract learners' attention more and get them more interested in the lesson [...] also if teachers gave us information about what was coming for us (the technological requirements and expectations) at the beginning of the semester, this would ease our job a lot.

4.6. Summary of Findings

This part offers a summary of findings that have been introduced in the present chapter.

In terms of the ownership of technological devices, most of the participating learners had laptops, tablets and smart phones while only few had desktops, e-readers, smart watches or game consoles. The highest rate of ICT use for general purposes was reported to be more than 20 hours per week whereas the lowest rate was for less than an hour. For studying English, it was reported to be three to five hours per week or, especially for specialized ICT activities such as creating Web pages in which they rated themselves as very unskilled or unskilled, no use at all.

Findings indicate that learners use ICTs more for pleasure than for studying on a weekly basis.

A significant difference occured between male (M) and female (F) learners in terms of tablet (F>M) and smart watch ownership (F>M) and between EFL proficiency levels and laptop (A1, B1>A2, B2) and smart watch ownership (B2>A1, A2, B1). However, no significant association was found between device ownership and major or achievement.

The amount of time males and females spent on ICT activities significantly differed in writing documents for pleasure (F>M) and playing computer/online games (M>F). Humanities and social sciences learners (HSs) and natural and applied sciences learners (NAs) significantly differed in the amount of time they spent surfing for information (HSs>NAs) and playing online/computer games (HSs>NAs). Learners from four EFL proficiency levels significantly differed in the amount of time they spent writing documents for coursework (A1<B2), creating presentations (A1<A2, A1<B2, A2>B1), and using course websites (A1<B1). Passing (Pa) and failing (Fa) learners significantly differed in the amount of time they spent using library resources (Fa>Pa).

Statistically significant differences were found between perceived ICT skills of males and females for computer operating systems (M>F), computer maintenance (M>F), and securing electronic device (M>F). The perceived ICT skills of humanities and social sciences learners and natural and applied sciences learners significantly differed in using spreadsheets (HSs<NAs), using presentation software (HSs<NAs), creating Web pages (HSs<NAs), computer operating systems (HSs<NAs), computer maintenance (HSs<NAs), and securing electronic device

(HSs<NAs). Perceived ICT skills of learners from four EFL proficiency levels significantly differed in creating spreadsheets (A1<B2), using word processing (A1<A2, A1<B1, A1<B2), using presentation software (A1<A2, A1<B2) and using online library resources (A1<B2). Perceived ICT skills of passing and failing learners significantly differed only in computer maintenance (Pa<Fa).

Learners believed that the use of ICT improved their lexical skills the most and their speaking skills the least. Taking greater control of course activities was rated as the biggest benefit of ICT in the survey item 3.6. However, for the open-ended item 3.16, learners reported that improving language skills was the most valuable benefit of using ICT in learning English. Apart from learning benefits, learners also mentioned access to materials and course effectiveness as other valuable benefits of ICT.

The semi-structured focus group interview provided further details to help answer the research questions. Findings showed that learners took the benefit of using ICT in learning English. They seemed to have ICT knowledge and skill that were sufficient for their coursework although they did not have the command of ICT with its details. They reported that they learned about ICTs whenever they had to use them and improved by practice. It was suggested that being born into technology made learners familiar with ICTs. Some learners even had ICT training as a child; therefore, they believed ICT training was necessary if possible prior to university years or at the beginning of the preparatory program for applications and tools such as Turnitin, Excel and Powerpoint. They used ICTs mostly for learning and studying. (i.e. watching course-related videos, using word processing, powerpoint presentations) and sometimes for fun (i.e. photo/video editing, social media,

following news or reading magazine, watching foreign TV series). Although they frequently used ICTs, they considered themselves bad at using Powerpoint, Excel, word processing, photo/video/audio editing and some applications like Youtube and researching for detailed and accurate information. The necessity of ICTs for learning was considered questionable as it could be distracting learners from studying at times. They reported that using ICTs in course developed their language skills the most. Learners used ICTs in course mainly to improve listening and grammar, to upload and hand in homework or to practice for exams and to learn better. They played games and they used learning management system, powerpoint slideshows and the projector for interactive whiteboard material (which made focusing on the lesson easier for learners and classroom management easier for the instructors), and saw visuals and learning videos on the Internet. They believed that they learned more easily, more quickly and conveniently with ICTs even though they thought too much technology destroyed the sincerity of the classroom environment. Their perceived ICT skills for coursework were of moderate level and they believed in the power of learners' age and major as determining factors in their ICT use and skills. About the future integration of ICTs into their course, they noted that they needed more visuals, videos, listening and learning content; more learning resources available to them, less deadlines for homework, less boredom with more interesting lessons, online quizzes and a general assessment of them and tablets, laptops and more electronic devices like mobile phones to use in the classroom.

CHAPTER 5

DISCUSSION

This chapter summarizes the results, discusses how the findings relate to the literature, offers implications and recommendations for future research, and finally, lists the limitations of the study.

5.1. Conclusion

The present study employed a within-stage mixed model research pattern to answer the following research questions:

1. What kinds of information and communication technologies (ICTs) do the English language learners in the preparatory program of the target university own?
2. How do the learners use ICTs for general purposes and for language learning?
3. How skilled do the learners perceive themselves in using ICTs?
4. Are there any significant differences in the learners' ICT ownership, use and perceived skills in terms of gender, major, proficiency level and achievement?
5. How do the learners perceive the benefits of using ICT in learning English?

Quantitative data were collected from randomly selected 213 preparatory school learners through an adapted version of the ICTUS for Learning English survey of Jung (2006) with the aim of investigating the learners' ICT ownership and use patterns. Statistical analyses were conducted by using SPSS in order to detect the

significant results. Qualitative data were collected through both open-ended survey items and a semi-structured focus group interview run with five voluntary participating learners. Thematic analysis was applied for the grouping and categorizing of qualitative data. All findings were presented in the previous chapter.

The quantitative data obtained through the ICTUS survey were analyzed by means of descriptive analyses as well as inferential analyses such as Chi-Square Test of Independence, Mann Whitney-U Test, Independent Samples T-Test and One-Way ANOVA. These analyses provided frequencies, means and standard deviations in addition to enabling the observation of statistically significant differences in ICT ownership, use and perceived ICT skills of learners in terms of learner variables. To measure the effect size, *p*-values, eta squared and partial eta squared measures as well as Cohen's *d* were calculated. The findings of the analyses revealed that statistically significant differences occured between gender/EFL proficiency level and ICT ownership; gender/major/EFL proficiency level/EFL achievement and ICT use patterns/ perceived ICT skills. In brief, the quantitative analyses brought about significant differences in ICT ownership, use and perceived ICT skills of participating learners with regard to gender, major, proficiency level and achievement**.**

The qualitative data gained from the open-ended survey items and the semi-structured focus group interview were analyzed using thematic analysis. The findings revealed that participating learners found the use of ICT beneficial for learning and they believed it mostly improved their language skills. They considered themselves to have moderate ICT skills for coursework and they thought a learner's age and major was closely connected to their ICT use and skills.

The findings obtained by the present study provide support for what was found by Caruso and Kvavik (2005), Jung (2006), Kennedy et al., (2010) and Kızıl (2017). Caruso and Kvavik (2005) surveyed around 18000 and interviewed 82 undergraduates in different states of US to find out about how they made use of different types of ICTs and how they perceived their effect in learning as well as the skills in using those ICTs. The participants were either studying their first or final year at university. Jung's study (2006) was conducted in China aiming to investigate similar aspects of learner ICT use with almost 600 participants from a variety of departments, classes and backgrounds. Kennedy et al. (2010) also used a survey for about 2600 learners that were studying their first year at three different universities in Australia with the purpose of examining their ICT use from similar perspectives. In Turkey, Kızıl (2017) administered a study in the preparatory program of a public university with around 1200 learners in order to analyze how those learners used ICTs in relation to whether they considered themselves as part of the Net generation.

In terms of ICT ownership, Caruso and Kvavik (2005) reported a high degree of computer and mobile phone adoption as well as access to the Internet by a great number of participating learners. It was also seen in Kızıl's study (2017) that a vast majority of learners had Internet access through mobile phones, laptops and desktops respectively. Nevertheless, around 50% of the learners did not have any game consoles. Similarly, a considerable number of participating learners in the present study owned laptops, tablets and smart phones but fewer learners had desktops, e-readers, smart watches or game consoles, which confirms the findings of Kennedy et al. (2008) that university learners are heterogenous in their ICT ownership. Additionally, it was observed that learners differed in their ICT ownership in terms

of gender and EFL proficiency level; however, no difference was found among learners based on their majors or achievement. Among possible reasons for this, one could be that male and female learners showed different inclinations towards using; thus, having ICTs. For instance, the present study found that female learners spent significantly more time on writing documents for pleasure while males spent significantly more time on playing computer/online games. Depending on this, females had more tablets, in particular, and half the learners who had game console were males. Another reason could be that there were different course requirements and assignments in each of four different proficiency levels and that this had an effect on whether learners needed to own technological devices or which ones they needed to have so as to pursue their academic studies. In sum, findings indicate that the ICTs that the learners own are changing in synchrony with the quickly evolving technology along with the aforementioned factors. Therefore; it is becoming more of a prerequisite for learners to have access to popular types of ICTs both for general and learning purposes. "Higher education has spent considerable resources on technologies aimed at satisfying learner preferences and expectations and on facilitating students' maturation from exuberant social and recreational technology users to purposeful and effective users who are well-socialized network citizens" (Caruso & Kvavik, 2005, p. 11). Thus, descriptive findings regarding ICT ownership among learners provide both the learners and the educators valuable feedback for today's and the future's technological and educational requirements.

Regarding the ICT use patterns of learners, Caruso and Kvavik's study (2005) reported that learners used ICTs 13 hours on average every week on course-related activities such as writing documents, surfing for information and sending e-mails and

instant messages whereas they spent less time on specialized activities such as creating graphics or Web pages. They also found that apart from learning purposes, learners also used ICTs for communication and entertainment for which differences occured among male and female learners. Most of the learners that participated in Jung's study (2006) rated their ICT use between three and ten hours per week for general purposes but for studying and learning, the number of hours spent using ICTs was down to less than an hour. They mostly used ICTs for surfing for fun, music/video listening or downloading or for coursework. The study by Kennedy et al. (2010) reported using mobile phone for communication to be the most frequently performed activity while more specialized activities such as using social networking software and creating blogs or wikis were the least frequently performed activities. Almost half of the participants used ICTs very infrequently while around a 30% were average users with experience in mostly basic ICTs leaving very little room for few learners to use a wide range of ICTs including the specialized activities. A similar finding was provided by Kızıl (2017) with the participants using mobile phones frequently for learning purposes while doing activities such as using word processing, spreadsheets or presentations and creating blogs, wikis or podcasts all very rarely. The participants in the present study reported that they used ICTs for general purposes for less than an hour to 20 hours a week whereas they used ICTs for studying for three to five hours a week, which shows a tendency to use ICTs more for pleasure than for studying. However, they almost never used specialized activities such as creating web pages. Additionally, learners differed in their ICT use in terms of gender, major, proficiency level and achievement.

There are some common conclusions concerning learners' ICT use that all these studies have together with the present study. Firstly, it can be seen that today's learners are not homogeneous in their ICT use as they show obvious variations in the range of ICT activities and the time spent doing those. This is parallel to the literature suggesting that differences could stem from the types of ICT activities learners prefer or enjoy doing, the amount of time spent on ICT activities (Caruso & Kvavik, 2005; Kennedy et al., 2010), the learners' gender, majors (Caruso & Kvavik, 2005) or, as in the present study, proficiency level and achievement. In other words, "there are a number of demographic variables other than age that may predict a student's technology experience" (Kennedy et al., 2010, p. 341). To illustrate, the present study found that learners from humanities and social sciences majors spent significantly more time on surfing the Internet for information and playing online/computer games than learners from the natural and applied sciences majors. Learners who passed the final exam spent significantly less time on using library resources than learners who failed. There were also significant differences among proficiency levels in writing documents for coursework, creating presentations and using course websites. It is important to note that such variables could be determiners of learners' ICT ownership and use patterns. Secondly, university learners seem to be more experienced in; thus, more comfortable using basic ICTs but less experienced; thus, less comfortable using more advanced ICTs (Caruso & Kvavik, 2005). This may be the reason why the majority of participants report using particularly basic ICTs while only a small minority report doing specialized ICT activities. Learners reveal that they spend a lot of time using ICTs for pleasure, learning and communicating most of the time and while they do so, they do not seem to use so wide range of ICTs as they are claimed to for being a part of digital native

generation. Kızıl (2017) pointed out that these learners were considered to be moderately digital and that the digital learner claim would only be valid with regard to the core ICTs. Finally, learners prefer to have a balanced amount of ICT in the classroom that is neither too little nor too much for them. It can be derived from the learner comments below:

> [...] when it is too much technology, the sincerity of the classroom environment is lost. Here it's well-balanced. [...] *(Learner 1)*

> Not everything should be technological neither completely traditional. They (instructors) must find the medium and keep it like that [...] *(Learner 2).*

In brief, the findings of the present study strengthen the body of literature in relation to how university learners use ICTs.

Taking learners' perceived ICT skills into consideration, it was seen that there were differences in terms of variables such as gender or major. For instance, Caruso and Kvavik (2005) found that males were more skilled than females in many ICT activities except for online library resources, learning management systems and word processing. Especially regarding specialized ICTs such as computer maintenance and security, males considered themselves to be much more skilled. Learners perceived themselves as quite skillful in using word processing and computer operating system; however, not as skillful in creating graphics, Web pages or video/audio, which was thought to be affected by the learners' majors and course requirements. Similar findings were reported by Jung (2006). In her study, male learners rated themselves as a lot more skilled than female learners. However, a large number of participants reported that they did not use specialized activities such as computer maintenance or

creating and editing video/audio. The present study also found that there were significant gender, major, proficiency level and achievement-related differences in learners' perceived ICT skills. In doing specialized activities, male learners were significantly more skilled than female learners and learners from humanities and social sciences majors were significantly more skilled than learners from natural and applied sciences majors. Also, it was found that learners in the upper level of proficiency (i.e. B2) were significantly more skilled than learners in the lower level of proficiency (i.e. A1). This supports Caruso and Kvavik's (2005) view that learners' ICT skills which significantly differ are affected by departmental demands and necessities they have and that "the curriculum requirement of the academic discipline matters" (p. 54). Therefore, it can be said that how learners perceive their skills in doing specific ICT activities is strongly linked to their majors. Four out of five learners (i.e. L1, L2, L3 & L4) pointed to this outcome with their comments in the semi-structured focus group interview:

> [...] I study politics and how am I supposed to learn if I don't follow news, follow what presidents have done, etc. [...] Likewise, if an engineer doesn't follow what's new, like new buildings, he will fall behind his colleagues as this era is changing fast *(Learner 1).*

> [...] I will study history so I won't have a lot to do with computer except collecting information but a computer engineer or others will have more to do with it. Thus, even if they don't like it, they will still be familiar to using it, they will be a lot better than me. Major is definitely connected to this *(Learner 2).*

> Think of interior designers, for example, if they were good at using computer as a child, they can now easily use programs such as Autocad. However, I think my major, politics, doesn't really have much to do with technology *(Learner 3).*
>
> I study law and I will need to memorize a lot for my studies and I will need to go through textbooks. I don't think I have a connection with technology but for computer engineers, medical and engineering students, it will be more important and necessary *(Learner 4).*

According to the findings of the present study, a similar inference can be made about learners' proficiency levels as well. This brings the conclusion that the upper the proficiency level is, the more specialized ICT activities the learners are required to do. In terms of perceived ICT skills, there was no significant difference between learners who passed and who failed the final exam except for computer maintenance. When the learners were asked if the ICT skills they gained while using ICTs for fun transferred to their coursework, a learner noted, "It does as, for example, when we do assignments, we have to upload (it) on learning management systems; it is convenient since we are familiar with it (i.e. learning management system) through mobile or computer." Another learner reported, "People say they focus on problem solving when they play games. Maybe it improves people in that sense." Besides these, there were not many accounts of support for the transfer of skills. In fact, learners believed the ICT skills they gained out of activities for fun were neither connected to their academic skills nor made them more successful. One learner even said that playing games damaged learners' creativity instead of gaining them ICT skills. Through their qualitative analysis, Caruso and Kvavik (2005) came to the final

conclusion that this type of an assumption of skill transfer was controversial and that there was a definite need for more empirical evidence.

Overall, as four out of five learners in the semi-structured focus group interview reported so, participating learners in the present study considered themselves moderately skilled in using ICTs for coursework and following the findings of previous studies (Caruso & Kvavik, 2005; Jung, 2006; Kızıl 2017), learners noted that they needed training and mentoring on how to use ICTs more effectively. The following quotes that were provided by two learners (i.e. L2 and L5) during the semi-structured focus group interview highlight this issue:

> Technology training could be provided about things such as how to use excel, powerpoint to prepare presentations and elaborate on them because we really don't know how to. It's probably the same for my other friends in prep school. Some of us don't even know how to send an e-mail [...] teachers could mentor learners about these or give seminars [...] if learners are going to use technology, then they should first be trained *(Learner 2).*
>
> [...] also if teachers give us information about what's coming for us (the technological requirements and expectations) at the beginning of the semester, this would ease our job a lot *(Learner 5).*

With reference to the perceived benefits of using ICT in English courses, Caruso and Kvavik (2005) reported that more than 60% of the participants believed the benefit and help of ICTs in developing learning. Learners rated communication,

convenience, connectedness, course management and learning respectively as the most important benefits. In Jung's study (2006), learners highlighted the importance of ICTs in improving certain language skills, aiding to comprehend the English speaking world with helping to grasp difficult or conceptual issues being the most rated. Jung grouped these benefits into four categories as learning, convenience and efficiency, motivation and being up-to-date (about rich resources of information). Among these, learners mentioned getting a lot of information quickly, being more motivated to study with a real engagement in language learning and getting to know about the global issues. However, they rated course management as the least important benefit of ICT and reported only restricted use of ICTs for contacting and working with the instructors or friends. Comparable findings were obtained for the present study. Around 95% of the participating learners said that they found ICTs beneficial, which supports the previous studies. Improving vocabulary was the most important while improving speaking was the least important benefit of ICT in terms of developing language skills. The quantitative data also revealed that taking greater control of course activities was the most important benefit of using ICT in courses, which is in stark contrast with Jung's findings. This may stem from the fact that there is almost a 15-year time interval between the two studies and within this period of time, a lot has changed regarding ICTs and how learners make use of them for learning purposes. In today's digital world equipped with unimaginable improvements in educational technology, in particular, it has become a lot easier, quicker and more practical for learners to follow their own learner profile through the use of learning management systems and personalized learning tools or applications. Due to this, getting prompt feedback from the instructors, for instance, is now a more significant benefit for the learners. Furthermore, learners rated better understanding

complex issues and better contacting and working with friends as the two least important benefits of ICT use; the former again contradicts but the latter supports what Jung found. In order to understand whether the causes of such differences and similarities are significant, more detailed evidence and close observation is necessary.

These studies including the present study share some noteworthy findings concerning learners' perceived benefits of ICT use. To begin with, learners believe that using ICTs in learning English is beneficial. Through ICTs being used both inside and outside the classroom, learners get to use the Internet for learning, see visuals, watch videos, do listening practice, use learning management systems and focus more on the lessons. Secondly, the highest rated benefits are all connected to learning. Among the most popular benefits are improving language skills, having quick access to abundant learning materials and efficiency in learning. Finally, it is clear that learners value the role of ICTs in opening the door to the outside world. Thanks to technology, learners can develop an understanding of what is going on around the world, keep themselves informed about the latest advancements and innovations, develop themselves intellectually and stay in contact with others regardless of where they are. All these opportunities make learning easier, quicker, more efficient and more fun for learners and learners are aware of this for sure.

To conclude, the present study adressed how learners in a prepratory school program used ICTs for general and for learning purposes as well as their ICT ownership, perceived ICT skills and perceived benefits of ICTs. The findings are comparable to previous studies and they provide support for the existing literature in many ways. Results suggest that university learners are heterogeneous in terms of their ICT ownership, ICT use and skills. Besides, findings indicate that among other

factors, learners' gender, major, proficiency level and achievement might be determiners of how much and how well they used technology.

5.2. Implications and Recommendations for Future Research

The findings obtained from the present study have brought about a number of meaningful findings and implications for institutions and teachers of higher education. To begin with, it is clear that learners have quite a wide range of ICT-related features including technology ownership, use and skills; and these features may have been influenced by learner variables such as gender, major, proficiency level and achievement. Kennedy et al. (2010) emphasized this by pointing to the big diversity that they observed in the learners' ICT use habits. It was previously suggested that these habits could have been affected by differences in learners' major (Czerniewicz & Brown, 2007; Selwyn, 2008) or gender (Selwyn, 2008). Therefore, it makes sense for learners with specific ICT-related features, for example, to have enrolled in certain faculty departments which appeal to them correspondingly. Likewise, male and female learners may tend to vary in the types of ICTs they use depending on the time when they first encounter ICTs (Salaway et al., 2008), or their perceived ICT skills (Arrosagaray et al., 2019). Margaryan et al. (2011) notes that more evidence is needed to be obtained from learners studying different majors to be able to make such judgements. According to Thinyane (2010), learners' ICT experiences differ because they start university with diverse backgrounds of ICT; therefore, for the benefit of their learners, neither should teachers be immersed in technology nor should they disregard it. Kennedy et al. (2007) suggested that teachers acted more selectively in choosing the ICTs to use in class in order to

provide for various learning environments and learner features. The present study offers a similar suggestion that it is best to keep teacher technology use at a moderate level for such reasons as well as to cater for learners who are either incompetent or proficient in ICT use. If educators wish to raise the bar and want learners to use more technology for learning, they should first make sure that all learners in their target population have access to and use ICTs and possess the ICT capabilities required for the desired coursework. Otherwise, it will create a gap among learners who can meet those requirements and who cannot.

Secondly, since learners are not homogeneous in their digital identities, in particular, how they use basic and specialized ICT activities, teachers should avoid overgeneralizing the learner population based on digital native attributes and abilities. To illustrate, a learner may frequently visit plenty of websites in his free time but he may not have a single idea on how web pages are created. Hence, it is highly important for teachers not to rely their opinion of the learner on popular assumptions and to make reasonable judgments as there will always be learners who do not even have access to or experience with several ICTs. As a remedy for such cases, scaffolding and explicit ICT training have been suggested in several studies (Kennedy et al., 2010; Kızıl, 2017; Thompson, 2012, 2015; Whelan, 2008). It is believed that through instruction and training on ICTs, learners will benefit from what technology offers them to a great extent, improve their capabilities to use tools, applications, software and search engines more efficiently, develop critical thinking and problem solving skills and discover methods to overcome the times when technology interferes in and interrupts their study time. When the comments and responses of the participating learners in this study are taken into consideration, similar deductions can be made. Especially for the ones who have very little

knowledge of and experience with basic ICT tools and software, providing specific training or organizing small workshops highlighting on how to use technology for their course requirements may be of great use. Thereby, they will be more aware of how technology use can foster learning and develop the desired 21st century skills. Apart from this, the heterogeneity in the learner population in terms of how they use basic and specialized ICT activities may stem from the fact that teachers prefer to avoid ICT use for content creation. Rather than encouraging the consumption of ICTs, teachers should promote production and content creation through ICTs so that the learners can go beyond basic ICT-related competencies.

Also, teachers should use ICTs "to support the pedagogical goals of teaching that encourages learning, rather than as a means to an end in itself" (Thinyane, 2010, p. 412). This implies that it is not a good idea to consider technology as a bunch of tools and applications which are solely used for learners' entertainment; it is only when technology use is serving educational objectives that it is purposeful. Kennedy et al. (2010) previously supported this view by noting that "it is the use of technology based on misguided assumptions about the technological experiences and educational expectations of students that should be discouraged" (p. 340). It is clearly not feasible to make big curricular transformations and shifts that are totally counting on diginal native assumptions. Therefore, as Andrade (2016) pointed out, educators must identify the learning objectives for their courses and arrange the course requirements and syllabus in the light of those pre-defined objectives, intended learning experiences and framework.

In conclusion, it can be said that there is always a need for more elaborate research patterns and findings for researchers and educators to be able to understand the effects of learner ICT use and skills and make precise judgment about it; and

come up with sound solutions and straightforward recommendations that will help higher education institutions to involve more technology in educational settings. Further research should dwell on collecting empirical evidence on if and how university learners access and make use of ICTs for both general and learning purposes before making any decisions on adjusting ICTs into the current educational programs under the already existing circumstances. Another recommendation for future research would be to collect data from language teachers on how they perceive learners' ICT use, the role of technology and the assets and barriers of using ICTs for teaching. It may provide fruitful ideas to know about teachers' self-efficacy beliefs, teaching beliefs and attitudes regarding technology along with their intentions for the future use of ICTs.

5.3. Limitations of the Study

Since this study used a questionnaire as a tool for data collection, the findings reflected on the participants' self-perception and opinions on their use of and skills in ICT. It was assumed that the responses provided were authentic and honest.

The participants were selected from the preparatory school of a foundation university in Turkey, which may have limited the opportunity for the study results to be generalized to a bigger population as a representative of Turkish preparatory school learners of EFL.

The study relied on coding as part of thematic analysis when interpreting the unlimited range of findings obtained from the focus group interview questions and open-ended items in the survey. In such a process, the researcher and/or participant bias could have a significant impact on whether the findings are interpreted precisely.

Also, some participants may have preferred not to respond to the open-ended questions leaving them unanswered simply because it is time consuming and difficult to do.

REFERENCES

Al-bataineh, A., Anderson, S., Toledo, C., & Wellinski, S. (2008). A study of technology integration in the classroom. *International Journal of Instructional Media, 35*(4), 381–387.

Almekhlafi, A. G., & Almeqdadi, F. A. (2010). Teachers' perceptions of technology integration in the United Arab Emirates school classrooms. *Educational Technology and Society, 13*(1), 165–175. Retrieved from https://www.learntechlib.org/p/75229/

Alshahri, A. (2015). Evaluating the Online Courses of the Master of Curriculum and Instruction from Specialists` and Practitioners` Perspectives. In *Proceedings of E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 6-9). Kona, Hawaii, United States: Association for the Advancement of Computing in Education (AACE). Retrieved from https://www.learntechlib.org/primary/p/161792/

Agbo, I. S. (2015). Factors influencing the use of information and comunication technology (ICT) in teaching and learning computer studies in Ohaukwu local governament area of Ebonyi State- Nigeria. *Journal of Education and Practice*, *6*(7), 71-86.

Anderson, J. Q., & Rainie, L. (2012). *Millennials will benefit and suffer due to their hyperconnected lives. PEW Internet and American Life Project.* Retrieved from https://www.pewresearch.org/internet/2012/02/29/millennials-will-benefit-and-suffer-due-to-their-hyperconnected-lives/

Andrade, M. S. (2016). Curricular Elements for Learner Success—21st Century Skills. *Journal of Education and Training Studies*, *4*(8) Retrieved from http://dx.doi.org/10.11114/jets.v4i8.1743

Arrosagaray, M., González-Peiteado, M., Pino-Juste, M., & Rodríguez-López, B. (2019). A comparative study of Spanish adult students' attitudes to ICT in classroom, blended and distance language learning modes. *Computers & Education, 134,* 31–40. Retrieved from https://doi.org/10.1016/j.compedu.2019.01.016

Aseri, S. (2017). Children's experiences of engaging with ICT in learning EFL: A case study from Saudi Arabia. *International Journal of Social Sciences and Education Research, 3*(4), 1090-1103. doi: 10.24289/ijsser.312270

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.

Barbosa Granados, S., & Amariles Jaramillo, M, L. (2019). Learning Styles and the Use of ICT in University Students within a Competency-Based Training Model. *Journal of New Approaches in Educational Research, 8,* 1-6. doi: 10.7821/naer.2019.1.296

Bellini, C. G. P., Isoni Filho, M. M., de Moura Junior, P. J., & de Faria Pereira, R. d. C. (2016). Self-efficacy and anxiety of digital natives in face of compulsory computer-mediated tasks: a study about digital capabilities and limitations. *Computers in Human Behavior, 59,* 49–57. Retrieved from https://doi.org/10.1016/j.chb.2016.01.015

Bellini, C. G. P., Giebelen, E., & Casali, R. R. B. (2010). Limitações digitais. *Informação & Sociedade: Estudos, 20*(2), 25–35. Retrieved from https://periodicos.ufpb.br/ojs2/index.php/ies/article/view/4393

Ben-David Kolikant, Y. (2009). Digital students in a book-oriented school: Students' perceptions of school and the usability of digital technology in schools. *Educational Technology & Society, 12*(2), 131–143. Retrieved from https://www.learntechlib.org/p/75321/

Ben-David Kolikant, Y. (2010). Digital natives, better learners? Students' beliefs about how the internet influenced their ability to learn. *Computers in Human Behavior*, *26*(6), 1384–1391. Retrieved from https://doi.org/10.1016/j.chb.2010.04.012

Benini, S., & Murray, L. (2013). Critically evaluating Prensky in a language learning context: the 'digital natives/immigrants debate' and its implications for CALL. In: Bradley L, Thouësny S (eds) *20 Years of EUROCALL: Learning from the Past, Looking to the Future*. *Proceedings of the 2013 EUROCALL conference*. Dublin/Voillans: Research-Publishing.Net, 25–30.

Bennett, S. (2012). Digital natives. In Z. Yan (Ed.), *Encyclopedia of cyber behavior*, *1*, 212–219. New York: IGIGlobal.

Bennett, S., & Maton, K. (2010). Beyond the 'digital natives' debate: Towards a more nuanced understanding of students' technology experiences. *Journal of Computer Assisted Learning*, *26*(5), 321–31. Retrieved from https://doi.org/10.1111/j.1365-2729.2010.00360.x

Bennett, S., Maton, K., & Kervin, L. (2008). The 'digital natives' debate: A critical review of the evidence. *British Journal of Educational Technology, 39*(5), 775–786. doi: 10.1111/j.1467-8535.2007.00793.x

Brown, C., & Czerniewicz, L. (2008). *Trends in student use of ICTs in higher education in South Africa*. Paper presented at the 10th Annual Conference of WWW Applications, Cape Town, South Africa.

Brown, C., & Czerniewicz, L. (2010). Debunking the 'digital natives': Beyond digital apartheid, towards digital democracy. *Journal of Computer Assisted Learning*, *26*(5), 357–369. Retrieved from https://doi.org/10.1111/j.1365-2729.2010.00369.x

Bullen, M., & Morgan, T. (2011). Digital learners not digital natives. *La Cuestión Universitaria*, *1*(7), 60–68. Retrieved from http://polired.upm.es/index.php/lacuestionuniversitaria/article/view/3367

Bullen, M., Morgan, T., Belfer, K., & Qayyum, A. (2008). *The digital learner at BCIT and implications for an e-strateg y.* Paper presented to the EDEN Research Workshop, Paris.

Bullen, M., Morgan, T., & Qayyum, A. (2011). Digital learners in higher education: Generation is not the issue. *Canadian Journal of Learning and Technolog y*, *37*(1), 1–24. Retrieved from https://doi.org/10.21432/T2NC7B

Cameron, D. (2005). *The net generation goes to university?* Paper presented at the Journalism Education Association Conference, Queensland, Australia.

Carstens, A., & Beck, J. (2004). Get ready for the gamer generation. *TechTrends: Linking Research & Practice to Improve Learning*, *49*(3), 22–25. Retrieved from https://doi.org/10.1007/BF02763643

Caruso, J. B., & Kvavik, R. (2005). ECAR study of students and information technology 2005: Convenience, connection, control, and learning. EDUCAUSE. Retrieved from https://library.educause.edu/resources/2005/10/ecar-study-of-students-and-information-technology-2005-convenience-connection-control-and-learning

Castro Sánchez, J. J., & Alemán, E. C. (2011). Teachers' opinion survey on the use of ICT tools to support attendance-based teaching. *Journal Computers and Education, 56,* 911-915. Retrieved from https://www.learntechlib.org/p/50829/

Clark, W., Logan, K., Lukin, R., Mee, A., & Olver, M. (2009). Beyond web 2.0: Mapping the technology landscapes of young learners. *Journal of Computer Assisted Learning*, 25, 56–69.

Clarke, V., & Braun, V. (2017). Thematic Analysis. *The Journal of Positive Psychology*, *12*(3), 297-298 Retrieved from https://doi.org/10.1080/17439760.2016.1262613

Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly*, *19*(2), 189–211. http://dx.doi.org/10.2307/249688

Corrin, L., Lockyer, L., & Bennett, S. (2010). Technological diversity: An investigation of students' technology use in everyday life and academic study. *Learning, Media and Technology*, *35*(4), 87–401. Retrieved from https://doi.org/10.1080/17439884.2010.531024

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, *78*(1), 98–104. Retrieved from https://doi.org/10.1037/0021-9010.78.1.98

Crockett, L. W. (2016). The Critical 21st Century Skills Every Student Needs and Why. Retrieved from https://www.wabisabilearning.com/blog/skills-every-student-needs

Crockett, L., Jukes, I., & Churches, A. (2011). *Literacy is not enough: 21st-century fluencies for the digital age*. Kelowna, B.C.: 21st Century Fluency Project.

CRUE- Conferencia de Rectores de las Universidades Españolas- y Rebiun (2012). *Competencias informáticas e informacionales (CI2) en los estudios de grado. Edición revisada y ampliada.* Madrid: CRUE –TIC-REBIUN. Retrieved from https://rebiun.xercode.es/xmlui/bitstream/handle/20.500.11967/62/IIIPE_Linea2_2012_Competencias_inform%c3%a1ticas_informacionales_CI2_FINAL.pdf?sequence=4&isAllowed=y

CRUE-TIC-REBIUN Commission (2009). Competencias informáticas e informacionales en los estudios de grado. Retrieved from http://rebiun.xercode.es/xmlui/bitstream/handle/20.500.11967/49/documento_competencias_informaticas-2009.pdf?sequence=1&isAllowed=y

Czerniewicz L. & Brown C. (2007). Disciplinary differences in the use of educational technology. In *Proceedings of Second International E-learning Conference* (pp. 117-130). NewYork, NY: ICEL.

Dede, C. (2010). Comparing frameworks for 21st century skills. In *21st century skills*, Edited by: Bellanca, J. and Brandt, R. 51–76. Bloomington, IN: Solution Tree Press.

Echenique, E. G. (2014). An integrative review of literature on learners in the digital era. *Studia Paedagogica, 19*(4), 161–184. doi: 10.5817/SP2014-4-8.

Enyon, R. (2010). Supporting the "digital natives": What is the role of schools? In L. Dirckinck-Holmfeld (Ed.), *7th international conference on networked learning* (pp. 851–858). Retrieved from https://www.lancaster.ac.uk/fss/organisations/netlc/past/nlc2010/abstracts/PDFs/Eynon.pdf

Foehr, U. G. (2006). *Media multitasking among American youth: Prevalence, predictors and pairings.* Report. Menlo Park, CA: Kaiser Family Foundation. Retrieved from https://www.kff.org/other/media-multitasking-among-american-youth-prevalence-predictors/

Frederick, G. R., Schweizer, H. & Lowe, R. (2006). After the inservice course: Challenges of technology integration, *Computers in the Schools*, *23*, 73-84. Retrieved from https://www.learntechlib.org/p/98972/

Fu, J. S., (2013). ICT in education: A critical literature review and its implications. *International Journal of Education and Development Using Information and Communication Technology (IJEDICT), 9*(1), 112-125.

Göktaş, Y., Yıldırım, S. & Yıldırım, Z. (2009). Main barriers and possible enablers of ICT integration into pre-service teacher education programs. *Educational Technology and Society, 12*, 193–204. Retrieved from https://www.learntechlib.org/p/75176/

Guo, R. X., Dobson, T., & Petrina, S. (2008). Digital natives, digital immigrants: an analysis of age and ICT competency in teacher education. *Journal of Educational Computing Research, 38*(3), 235–254. Retrieved from https://www.learntechlib.org/p/69462/

Hargittai, E. (2010). Digital Na(t)ives? Variation in internet skills and uses among members of the "net generation". *Sociological Inquiry, 80*, 92–113. Retrieved from https://doi.org/10.1111/j.1475-682X.2009.00317.x.

Hashemi, B. (2013). The investigation of factors affecting the adoption of ICTs among English language teachers in ESL context. *International Journal of Language Learning and Applied Linguistics World*, 58. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.681.4200&rep=rep1&type=pdf#page=59

Helsper, E. J., & Eynon, R. (2010). Digital natives: where is the evidence? *British Educational Research Journal, 36(*3), 503–520. Retrieved from https://doi.org/10.1080/01411920902989227

Honan, E. (2008). Barriers to teachers using digital texts in literacy classrooms. *Literacy, 42*, 36–43. Retrieved from https://doi.org/10.1111/j.1467-9345.2008.00480.x

Hubbard, P. (2013). Making a case for learner training in technology enhanced language learning environments. *CALICO Journal*, *30*(2), 163-178. Retrieved from https://doi.org/10.1558/cj.30.2.163-178

Hutchison, A. & Reinking, D., (2011). Teachers' perceptions of integrating information and communication technologies into literacy instruction: a national survey in the United States, *Reading Research Quarterly, 46*, 312–333. Retrieved from https://www.learntechlib.org/p/110816/

International Society for Technology in Education (ISTE) (1998). *National educational technology standards for students.* Eugene, OR: ISTE. Retrieved from https://www.iste.org/docs/pdfs/nets_for_students_1998_standards.pdf?sfvrsn=2

International Society for Technology in Education (ISTE) (2007). *National educational technology standards for students*. Eugene, OR: ISTE. Retrieved from http://www.kellogglc.com/tpc/nets.pdf

Johnson, L., Adams-Becker, S., Estrada, V., & Freeman, A. (2014). *NMC Horizon Report: 2014 Higher Education Edition*. Austin, Texas: The New Media Consortium.

Johnson, R., & Onwuegbuzie, A. (2004). Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Educational Researcher, 33*(7), 14-26. Retrieved from http://www.jstor.org/stable/3700093

Jones, C., & Czerniewicz, L. (2010). Describing or debunking? The net generation and digital natives. *Journal of Computer Assisted Learning*, *26*(5), 317–320. Retrieved from https://doi.org/10.1111/j.1365-2729.2010.00379.x

Jones, C. & Healing, G. (2010). Net generation students: agency and choice and the new technologies. *Journal of Computer Assisted Learning*, *26*, 344–356. Retrieved from https://doi.org/10.1111/j.1365-2729.2010.00370.x

Jones, C., Ramanau, R., Cross, S., & Healing, G. (2010). Net generation or digital natives: is there a distinct new generation entering university? *Computers &Education*, *54*(3), 722–732. Retrieved from https://www.learntechlib.org/p/67144/

Junco, R., & Cotton, S. R. (2012). No A 4 U: The relationship between multitasking and academic performance. *Computers & Education*, *59*, 505–514. Retrieved from https://doi.org/10.1016/j.compedu.2011.12.023

Jung, S. H. (2006). *The use of ICT in learning English as an international language.* (Doctoral Dissertation). University of Maryland, College Park, United States - Maryland, ProQuest Dissertations & Theses database. (UMI No. 3222610)

Kaiser Family Foundation. (2005). *The role of media in childhood obesity.* Menlo Park, CA: Author.

Kaznowska, E., Rogers, J., & Usher, A. (2011). The State of E-Learning in Canadian Universities, 2011: If Students Are Digital Natives, Why Don't They Like E-Learning? Toronto: Higher Education Strategy Associates.

Keating, T., & Evans, E. (2001). Three computers in the back of the classroom: Preservice teachers' conceptions of technology integration. In R. Carlsen, N. Davis, J. Price, R. Weber, & D. Willis (Eds.), *Proceedings of society for information technology & teacher education international conference 2001* (pp. 1671–1676). Chesapeake, VA: AACE.

Kennedy, G., Dalgarno, B., Gray, K., Judd, T., Waycott, J. & Bennett, S. J. (2007). The Net Generation are not big users of Web 2.0 technologies: Preliminary findings. In Atkinson R, McBeath C, Soong S, et al. (eds), *Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education*. Singapore: Nanyang Technology University, 517–25.

Kennedy, G., Judd, T., Churchward, A, Gray, K. & Krause, K. (2008). First year students' experiences with technology: are they really digital natives? *Australasian Journal of Educational Technology, 24*(1), 108–22. Retrieved from https://doi.org/10.14742/ajet.1233

Kennedy, G., Judd, T., Dalgarno, B., & Waycott, J. (2010). Beyond natives and immigrants: Exploring types of net generation students. *Journal of Computer Assisted Learning, 26*(5), 332–343. Retrieved from https://doi.org/10.1111/j.1365-2729.2010.00371.x

Kızıl, A. Ş. (2017). EFL Learners in the Digital Age: An Investigation into Personal and Educational Digital Engagement. *RELC Journal, 48*(3), 373–388. Retrieved from https://doi.org/10.1177%2F0033688216684285

Kirkwood, A., Price, L. (2005). Learners and learning in the twenty-first century: What do we know about students' attitudes towards and experiences of information and communication technologies that will help us design courses? *Studies in Higher Education, 30*(3), 257–74. doi: 10.1080/03075070500095689

Kvavik, R. (2005). Convenience, communications, and control: How students use technology. In D. G. Oblinger, & J. L. Oblinger (Eds.), *Educating the net generation, an Educause e-book publication.* Retrieved from: http://www.educause.edu/ir/library/pdf/pub7101.pdf

Lee, J., Lin, L., & Robertson, T. (2011).The impact of media multitasking on learning. Learning, *Media & Technology, 37*(1), 94–104. Retrieved from https://doi.org/10.1080/17439884.2010.537664

Li, Y., & Ranieri, M. (2010). Are "digital natives" really digitally competent? A study on Chinese teenagers. *British Journal of Educational Technology, 41*(6), 1029–1042. Retrieved from https://doi.org/10.1111/j.1467-8535.2009.01053.x

Littlejohn, A., & Margaryan, A. (2010). Sharing resources in educational communities. *International Journal of Emerging Technologies in Learning, 5*(2), 25–30. doi: 10.3991/ijet.v5i2.857

Littlejohn, A., Beetham, H., & McGill, L. (2012). Learning at the digital frontier: A review of digital literacies in theory and practice. *Journal of Computer Assisted Learning, 28*(6), 547–556. Retrieved from https://doi.org/10.1111/j.1365-2729.2011.00474.x

Lombardi, M. M. (2007). Authentic Learning for the 21st Century: An Overview. Boulder, CO: EDUCAUSE Learning Initiative. Retrieved from http://www.educause.edu/ir/library/pdf/ELI3009.pdf

Lowther, D. L., Inan, F. A., Strahl, J. D. & Ross, S. M. (2008). Does technology integration work when key barriers are removed?. *Educational Media International, 45*, 195-213. Retrieved from https://www.learntechlib.org/p/101534/

Luckin, R., Clark, W., Graber, R., Logan, K., Mee, A., & Oliver, M. (2009). Do web 2.0 tools really open the door to learning? Practices, perceptions and profiles of 11–16-year-old students. *Learning, Media and Technolog y, 34*(2), 87–104. Retrieved from https://www.learntechlib.org/p/103872/

MacLean, G., & Elwood, J. A. (2009). Digital natives, learner perceptions and the use of ICT. *Handbook of research on Web 2.0*, 156–179. Hershey: Information Science Reference.

Marakas, G. M., Mun, Y. Y., & Johnson, R. D. (1998). The multilevel and multifaceted character of computer self-efficacy: Toward clarification of the construct and an integrative framework for research. *Information Systems Research, 9*(2), 126–163. http://dx.doi.org/10.1287/isre.9.2.126

Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality?: Students' use of technologies for learning. *Computers & Education, 56*(2), 429-440. Retrieved from https://doi.org/10.1016/j.compedu.2010.09.004

Nagler, W. & Ebner, M. (2009). Is Your University Ready For the Ne(x)t-Generation?. In G. Siemens & C. Fulford (Eds.), *Proceedings of ED-MEDIA 2009--World Conference on Educational Multimedia, Hypermedia & Telecommunications* (pp. 4344-4351). Honolulu, HI, USA: Association for the Advancement of Computing in Education (AACE). Retrieved from https://www.learntechlib.org/primary/p/32114/

Nicholas, D., Huntington, P., & Jamali, H. R. (2008). User diversity: as demonstrated by deep long analysis. *The Electronic Library, 26*(1), 21–38. Retrieved from http://dx.doi.org/10.1108/02640470810851716

Oblinger, D. G. (2004). The next generation of educational engagement. *Journal of Interactive Media in Education, 2004*(8). [Special Issue on the Educational Semantic Web]. Retrieved from http://doi.org/10.5334/2004-8-oblinger

Oblinger D.G., & Oblinger J. L. (2005). Educating the net generation. *An Educause E-Book*. Retrieved from: http://net.educause.edu/ir/library/pdf/pub7101.pdf

Oblinger, D., Oblinger, J. L., & Lippincott, J. K. (2005). *Educating the net generation.* Boulder, Colo.: EDUCAUSE. c2005.

Oliver B. & Goerke V. (2007). Australian undergraduates' use and ownership of emerging technologies: Implications and opportunities for creating engaging learning experiences for the Net Generation. *Australasian Journal of Educational Technology, 23*(2), 171–186. Retrieved from https://www.learntechlib.org/p/44588/

Palfrey, J., & Gasser, U. (2013). *Born digital: Understanding the first generation of digital natives.* Basic Books.

Partnership for 21st Century Skills. (2006). A state leader's action guide to 21st century skills: A new vision for education. Tucson, AZ: Partnership for 21st Century Skills.

Pedró, F. (2006). *The new millennium learners: Challenging our views on ICT and learning*. Retrieved from http://www.oecd.org/edu/ceri/38358359.pdf

Philip, D. (2007). The Knowledge Building Paradigm: A Model of Learning for Net Generation Students. *Innovate: Journal of Online Education, 3*(5). Retrieved from https://www.learntechlib.org/p/104343/

Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the Horizon, 9*(5), 1–6.

Prensky, M. (2005). Listen to the natives. *Educational Leadership, 63*(4), 8–13.

Prensky, M. (2007). How to teach with technology: Keeping both teachers and students comfortable in an era of exponential change. In S. Crowne, *Emerging Technologies for Learning* (pp. 40–46), Coventry: Becta.

Prensky, M. (2008). Backup education? Too many teachers see education as preparing kids for the past, not the future. *Educational Technology 48*(1), 1–3.

Prensky, M. (2010), *Teaching Digital Natives: Partnering for Real Learning*. London: SAGE.

Rainie, L. (2006). *Digital 'natives' invade the workplace*. Washington, DC: Pew Internet & American Life Project.

Redondo, A. J., & Perales, J.M. (2011). *Competencias transversales en el EEES. Herramienta CertiUni CRUE.* Comunicación presentada a las IX Jornadas CRAI. Evaluación y acreditación de las competencias informáticas e informacionales. Universidade de Santiago de Compostela, 16 y 17 Junio. Retrieved from http://hdl.handle.net/10347/3575

Roberts, D. F., Foehr, U. G., & Rideout, V. (2005). *Generation M: Media in the lives of 8–18 yearolds.* Report. Menlo Park, CA: Kaiser Family Foundation. Retrieved from https://www.kff.org/other/event/generation-m-media-in-the-lives-of/

Rosen, L. D. (2010). *Rewired: Understanding the iGeneration and the way they learn.*Macmillan.

Rowlands, I., Nicholas, D., Williams, P., Huntington, P., Fieldhouse, M., Gunter, B., Withey, R., Jamali, H. R., Dobrowolski, T. & Tenopir, C. (2008). The Google generation: The information behaviour of the researcher of the future. *Aslib Proceedings*, *60*(4), 290-310. doi: 10.1108/00012530810887953

Saavedra, A. R., & Opfer, V. D. (2012). Learning 21st-Century Skills Requires 21st-Century Teaching. *Phi Delta Kappan*, *94*(2), 8–13. https://doi.org/10.1177/003172171209400203

Salaway, G., Caruso, J. B., & Nelson, M. R. (2008). The ECAR study of undergraduate students and information technology, (Research Study, Vol. 8). Boulder, CO: EDUCAUSE Center for Applied Research. Retrieved from http://www.educause.edu/ecar

Salaway G., Caruso J. B., & Nelson M. R. (2007). *The ECAR Study of Undergraduate Students and Information Technology, 2007*. 85–88. Educause Center for Applied Research, Boulder, CO.

Selwyn, N. (2008). An investigation of differences in undergraduates' academic use of the internet. *Active Learning in Higher Education*, *9*(1), 11–22. Retrieved from https://doi.org/10.1177%2F1469787407086744

Selwyn, N. (2009). The digital native-myth and reality. *Aslib Proceedings: New Information Perspectives, 61*(4), 364–379. Retrieved from https://www.emerald.com/insight/content/doi/10.1108/00012530910973776/full/html

Serrano-Puche, J. (2013). Vidas conectadas: tecnología digital, interacción social e identidad. *Historia y Comunicación Social*, *18*, 353-364. Retrieved from https://doi.org/10.5209/rev_HICS.2013.v18.44249

Sharpe, R. (2010). *Conceptualizing differences in learners' experiences of e-learning: A review of contextual models (HEALD Report)*. doi: 10.13140/RG.2.1.2285.8002

Simoneaux, S., & Stroud, C. (2010). Bridging the generation gaps in the retirement services workplace. *Journal of Pension Benefits: Issues in Administration*, *17*(2), 66–75. Retrieved from http://www.scs-consultants.com/docs/SCS_JournalPensionBenefits_Bridging.pdf

Smith, E. E. (2012). The digital native debate in higher education: A comparative analysis of recent literature. *Canadian Journal of Learning and Technolog y / La Revue Canadienne de L'apprentissage et de La Technologie*, *38*(3), 1–18. Retrieved from https://doi.org/10.1002/9781118326732.ch

Smith S.D., Salaway G., Caruso J.B. & Katz R.N. (2009) *The ECAR Study of Undergraduate Students and Information Technology, 2009*. Educause Center for Applied Research, Boulder, CO. Retrieved from https://er.educause.edu/-/media/files/articles/2008/8/ers0706w.pdf?la=en&hash=B58D6709B30353FFF0E2A34FD104B941BA964F27

So, H., Choi, H., Lim, W. Y., & Xiong, Y. (2012). Little experience with ICT: Are they really the Net Generation student teachers? *Computers & Education*, *59*(4), 1234–1245. Retrieved from http://dx.doi.org/10.1016/j.compedu.2012.05.008

Somyürek, S., & Coşkun, B. K. (2013). Digital competence: is it an innate talent of the new generation or an ability that must be developed? *British Journal of Educational Technology*, *44*(5), E163–E166.

Starr, L. (2012). Encouraging Teacher Technology Use. *Education World*. Retrieved from https://www.educationworld.com/a_tech/tech159.shtml

Tapscott, D. (1998). *Growing up digital: The rise of the net generation.* New York: McGraw-Hill.

Tapscott, D. (2009). *Grown up digital: How the net generation is changing your world*. New York: McGraw Hill.

Teo, T. (2013). An initial development and validation of a digital natives assessment scale (DNAS). *Computers & Education, 67,* 51–57. Retrieved from https://doi.org/10.1016/j.compedu.2013.02.012

Teo, T. (2016). Do digital natives differ by computer self-efficacy and experience? An empirical study. *Interactive Learning Environments,* 24(7), 1725-1739. Retrieved from https://doi.org/10.1080/10494820.2015.1041408

Teo, T., Kabakçı Yurdakul, I., & Ursavaş, Ö. F. (2016). Exploring the digital natives among pre-service teachers in Turkey: a cross-cultural validation of the Digital Native Assessment Scale, *Interactive Learning Environments,* 24(6), 1231-1244. Retrieved from https://www.learntechlib.org/p/194283/

Thinyane, H. (2010). Are digital natives a world-wide phenomenon? An investigation into South African first year students' use and experience with technology. *Computers & Education, 55*(1), 406–414. Retrieved from https://doi.org/10.1016/j.compedu.2010.02.005

Thompson, P. (2012). The digital natives as learners: technology use patterns and approaches to learning. *Computers & Education, 65,* 12–33. Retrieved from https://doi.org/10.1016/j.compedu.2012.12.022

Thompson, P. (2015). How digital native learners describe themselves. *Education and Information Technologies, 20,* 467–484. Retrieved from https://doi.org/10.1007/s10639-013-9295-3

Toledo, C. (2007). Digital culture: Immigrants and tourists responding to the natives' drumbeat. *International Journal of Teaching and Learning in Higher Education, 19,* 84–92. Retrieved from http://www.isetl.org/ijtlhe/pdf/IJTLHE152.pdf?q=digital

Torkzadeh, G., & Van Dyke, T. P. (2002). Effects of training on Internet self-efficacy and computer user attitudes. *Computers in Human Behavior, 18*(5), 479–494. Retrieved from https://doi.org/10.1016/S0747-5632(02)00010-9

Veen, W. & Vrakking, B. (2006). *Homo Zappiens, growing up in a digital age*. London: Network Continuum Education.

Venezky, R. L. (2004). Technology in the classroom: Steps toward a new vision. *Education, Communication and Information, 4*(1), 3–21. Retrieved from https://doi.org/10.1080/1463631042000211024

Wagner, T. (2008). *The global achievement gap: Why even our best schools don't teach the new survival skills our children need — and what we can do about it.* New York, NY: Basic Books.

Wallis, C. (2006). The multitasking generation. *Time Magazine, 167(*13), 48–55.

Weert, T. V. & Tatnall, A. (2005). *Information and Communication Technologies and Real-Life Learning: New Education for the New Knowledge Society*, Springer, New York.

Weiler, A. (2005). Information-seeking behavior in generation Y students: Motivation, critical thinking, and learning theory. *The Journal of Academic Librarianship, 31*(1), 46–53. Retrieved from https://doi.org/10.1016/j.acalib.2004.09.009

Whelan, R. (2008). Use of ICT in education in the South Pacific: Findings of the Pacific eLearning Observatory. *Distance Education, 29*(1), 53–70. Retrieved from https://doi.org/10.1080/01587910802004845

White S. & Liccardi I. (2006) Harnessing insight into disciplinary differences to refine e-learning design. Paper presented at the *36th ASEE/IEEE Frontiers in Education Conference,* San Diego, CA, 2006, 5-10. Retrieved from https://doi.org/10.1109/FIE.2006.322553

Wood, E., Zivcakova, L., Gentile, P., Archer, K., De Pasquale, D., & Nosko, A. (2012). Examining the impact of off-task multi-tasking with technology on real-time classroom learning. *Computers & Education, 58,* 365-374. Retrieved from http://dx.doi.org/10.1016/j.compedu.2011.08.029

Yıldırım, S. (2007). Current utilization of ICT in Turkish basic education schools: A review of teachers' ICT use and barriers to integration. *International Journal of Instructional Media, 34*(2), 171–186.

Zemke, R., Raines, C., & Filipczak, B. (2000). *Generations at work: Managing the clash of Veterans, Boomers, Xers, and Nexters in your workplace*. New York: AMACOM.

APPENDIX A

İngilizce Öğrenmede Bilgi ve İletişim Teknolojileri Kullanımı ve Becerileri

Değerli katılımcı,

Bu çalışmanın amacı İngilizce hazırlık okulu öğrencilerinin bilgi teknolojileri ve bu teknolojilerin İngilizce öğrenmede kullanımı hakkındaki düşünce ve deneyimlerini incelemektir. Bu doğrultuda katılımınızın tamamen isteğe bağlı olduğu yaklaşık 15 dakikanızı alacak bir anket doldurmanızı rica ediyorum. Anketin orijinal versiyonu Sei-Hwa Jung tarafından 2006 yılında oluşturulmuş olup mevcut anket orijinal anketin günümüz koşullarına ve üniversite hazırlık okuluna uyarlanmış halidir. Çalışmanın bir sonraki aşamasında mülakata kalmayı ve iletişim bilgilerinizi paylaşmayı kabul etmeniz durumunda teknoloji kullanımınızı etkileyen değişkenleri daha yakından inceleyebilmek adına kısa bir mülakat yapacağız. Mülakatlar esnasında ses kaydı alınacaktır. Bu bilimsel bir çalışmadır ve kullanıcı bilgilerinin gizliliği esas tutulmaktadır. Kayıtlarda ve çalışmada isminiz yerine bir numara ya da takma isim kullanılacaktır. Ses kayıtları tamamen güvenli bir ortamda saklanıp çalışma son bulduğunda silinecektir. Sizi bu ankete katılmaya davet ediyor, yardımlarınız için teşekkür ediyorum.

Öğretim görevlisi,
Kübra ERDEM

BÖLÜM I. Özgeçmiş

1.1 Cinsiyet: **(***Lütfen size en uygun seçeneği (✓) ile işaretleyiniz.***)**

Kadın ___ Erkek ___

1.2 Yaş: ___

1.3 Bölüm: **(***Lütfen size en uygun seçeneği (✓) ile işaretleyiniz.***)**

İnsan ve Toplum Bilimleri ___ Mühendislik ve Doğa Bilimleri ___

İşletme ve Yönetim Bilimleri ___ Mimarlık ve Tasarım ___

Hukuk ___ İletişim ___ İslami İlimler ___

1.4 İngilizce Yeterlik Seviyesi: **(***Lütfen size en uygun seçeneği (✓) ile işaretleyiniz.***)**
Başlangıç - A1 (ELE)___ Alt-Orta - A2 (PIN**)** ___
Orta - B1 (INT) ___ Üst-Orta - B2 (UPP)___

1.5 Güncel Sınav Skorları Final ___

BÖLÜM II. Genel Teknoloji Kullanımı

2.1-2.7 Aşağıdaki elektronik cihazlardan hangilerine sahipsiniz?
(Sizin için geçerli olanlar seçeneklerin tümünü (✓) ile işaretleyiniz.)

2.1 Masaüstü bilgisayar		**2.2** Dizüstü bilgisayar	
2.3 Tablet		**2.4** Akıllı telefon	
2.5 E-okuyucu		**2.6** Akıllı saat	
2.7 Diğer (*Lütfen belirtiniz*):			

2.8 Genellikle haftada kaç saat keyif için bir elektronik cihaz kullanıyorsunuz?
(*Lütfen size en uygun seçeneği (✓) ile işaretleyiniz.***)**

Kullanmıyorum ___ Bir saatten az ___ 1-2 saat ___

3-5 saat ___ 6-10 saat ___ 11-15 saat ___

16-20 saat ___ 20 saatten fazla ___

2.9-2.19 Aşağıdaki etkinlikler için bir elektronik cihaz kullanarak haftada genellikle kaç saat harcıyorsunuz?
(Lütfen tercihinize karşılık gelen harfi tablodaki uygun satırlara yerleştiriniz.)

A Kullanmıyorum **B** 1 saatten az **C** 1-2 saat **D** 3-5 saat
E 6-10 saat **F** 11-15 saat **G** 16-20 saat **H** 20 saatten fazla

	Haftalık saat
2.9 Bir elektronik cihaz kullanarak ders çalışma ve sınıf aktiviteleri	
2.10 Bir ödevi tamamlamak için bir kütüphane kaynağı kullanmak (örn. resmi okul kütüphanesi veya web sitesi üzerindeki bir kütüphane kaynağı)	
2.11 Derslerinizi destekleyici bilgiler bulmak için internette gezinmek	
2.12 Dersleriniz için belge yazmak	
2.13 E-mail oluşturmak, okumak ve göndermek	
2.14 Anlık mesaj oluşturmak, okumak ve göndermek	
2.15 Keyif için belge yazmak (örn. blog)	
2.16 İnternet oyunu veya bilgisayar oyunu oynamak	

2.17 Müzik dinlemek/indirmek veya video/DVD indirmek	
2.18 Keyif için internette gezinmek (örn. Facebook, Twitter, Instagram, Snapchat kullanmak, video izlemek, yayın okumak, vs)	
2.19 Internet üzerinden alışveriş yapmak	

2.20-2.25 Aşağıdaki etkinlikler için bir elektronik cihaz kullanarak haftada genellikle kaç saat harcıyorsunuz?
(Lütfen tercihinize karşılık gelen harfi tablodaki uygun satırlara yerleştiriniz.)

A Kullanmıyorum **B** 1 saatten az **C** 1-2 saat **D** 3-5 saat
E 6-10 saat **F** 11-15 saat **G** 16-20 saat **H** 20 saatten fazla

	Haftalık saat
2.20 E-tablolar veya çizelgeler oluşturma (örn. Excel)	
2.21 Sunum hazırlama (Powerpoint, vs)	
2.22 Grafik oluşturma (Photoshop, Flash, vs)	
2.23 Video/Ses kaydı oluşturma ve düzenleme (Premiere, Windows Movie Maker, vs)	
2.24 Web sayfası oluşturma (Dreamweaver, Frontpage, vs)	
2.25 Bir öğrenme etkinliğini tamamlama veya ders web sitesi (Weebly) ya da öğrenme yönetim sistemi (LMS, Moodle) kullanarak bir derse yönelik bilgilere erişme	

2.26-2.36 Aşağıdaki bilgisayar teknolojileri ve uygulamalarını kullanmaktaki beceri seviyeniz nedir?
(Lütfen size en uygun seçeneği (✓) ile işaretleyiniz.)

1 Kullanmıyorum
2 Çok beceriksiz (=yazılımı biliyorum ama henüz hiç kullanmadım)
3 Beceriksiz (=yazılımı kullandım ama düzensiz olarak)
4 Becerikli (=temel özellikleri tam olarak kullanabiliyorum ama gelişmiş özellikleri değil)
5 Çok becerikli (= gelişmiş özellikleri kullanma, yazılımı diğer yazılımlarla ilişkilendirme,sorunları giderme, yazılım yükseltme/yama becerisine sahibim)

Beceri seviyesi

	Kullanmıyorum (1)	Çok beceriksiz(2)	Beceriksiz (3)	Becerikli (4)	Çok becerikli (5)
2.26 Kelime işlem (Word, vs)					
2.27 E-tablolar (Excel, Google Drive, vs)					
2.28 Sunum yazılımı (PowerPoint, vs)					
2.29 Grafik (Photoshop, Flash, vs.)					
2.30 Video/Ses kaydı oluşturma ve düzenleme (Premiere, Windows Movie Maker, vs)					
2.31 Web sayfası oluşturma (Dreamweaver, Frontpage, vs)					
2.32 Blog oluşturmak ve tutmak					
2.33 Çevrimiçi kütüphane kaynakları					
2.34 Bilgisayar işletim sistemleri (Windows, OS X, Linux, vs)					
2.35 Bilgisayar bakımı					
2.36 Elektronik cihazı güvence altına alma (güvenlik duvarları, antivirus yazılımı, vs)					

BÖLÜM III. İngilizce Öğrenmede Teknoloji Kullanımı

3.1 İngilizce çalışmak için bir elektronik cihaz kullanarak haftada genellikle kaç saat harcıyorsunuz?

(Lütfen size en uygun seçeneği (✓) ile işaretleyiniz.)

Kullanmıyorum ___ Bir saatten az ___ 1-2 saat ___

3-5 saat ___ 6-10 saat ___ 11-15 saat ___

16-20 saat ___ 20 saatten fazla ___

3.2-3.7 İngilizce derslerinde bilgi teknolojisi kullanımı size ne ölçüde yardımcı oldu?

(Lütfen size en uygun seçeneği (✓) ile işaretleyiniz.)

	Kesinlikle katılmıyorum (1)	Katılmıyorum (2)	Nötr (3)	Katılıyorum (4)	Kesinlikle katılıyorum (5)

3.2 Karmaşık veya soyut kavramları daha iyi anlamama yardımcı oldu.					
3.3 Eğitmenlerimle daha iyi iletişim kurmamı sağladı.					
3.4 Sınıf arkadaşlarımla daha iyi iletişim kurmama ve işbirliği yapmama yardım etti.					
3.5 Eğitmenlerimden hızlı geri bildirim almamı sağladı.					
3.6 Ders faaliyetlerimin kontrolünü daha daha iyi sağlamama izin verdi. (örn. planlama, paylaştırma zamanı, başarı ve başarısızlık kaydı).					
3.7 İngilizce dil becerilerimi (okuma, yazma, dinleme, konuşma) geliştirdi.					

3.8-3.13 Bilgi teknolojilerinin kullanımı aşağıdaki dil becerilerini geliştirmemi sağladı.
(Lütfen size en uygun seçeneği (✓) ile işaretleyiniz.)

	Kesinlikle katılmıyorum (1)	**Katılmıyorum (2)**	**Nötr (3)**	**Katılıyorum (4)**	**Kesinlikle katılıyorum (5)**
3.8 Okuma					
3.9 Yazma					
3.10 Konuşma					
3.11 Dinleme					
3.12 Dilbilgisi					
3.13 Kelime bilgisi					

3.14 İngilizce derslerinizde bilgi teknolojisinin kullanılmasının aşağıdaki yararlarından hangisi sizin için en değerli olanıdır?
(Lütfen size en uygun seçeneği (✓) ile işaretleyiniz.)

Faydası yok ___
Öğrenmemi geliştirdi ___
Kolaylık sağladı ___
Ders faaliyetlerimi (planlama, ilerlememi izleme, vs) yönetmeme yardımcı oldu ___
Sınıf arkadaşlarım ve eğitmenlerimle iletişim kurmama yardımcı oldu ___
Diğer(Lütfen belirtiniz): _____

3.15 İngilizce öğrenmede teknoloji kullanımının yararlı olduğuna inanıyor musunuz?

Evet ___ Hayır ___

3.16 Evet ise, İngilizce öğrenmede teknoloji kullanımının en değerli faydası nedir? Lütfen yazınız.

_____
_____
_____
___

Hayır ise, neden böyle düşündüğünüzü lütfen yazınız.

_____
_____
_____
___

APPENDIX B

Focus Group Interview Questions

1. ICT Kullanımı ve Becerileri

1.1 Dersleriniz için gerekli çalışmaları yapmak amacıyla bilgisayar teknolojisi kullanma konusunda ne kadar yeteneklisiniz? Varsa yeteneklerinizin kaynağı sizce nedir? Bu becerileri nasıl geliştirdiniz?

1.2 Genel olarak ne tür teknolojik becerilerde iyisinizdir?

1.3 Genel olarak ne tür teknolojik becerilerde kötüsünüzdür?

1.4 Mevcut nesil öğrencilerin teknolojiyi kullanmada ve teknoloji hakkında yetenekli olmaları konusunda çok şey söyleniyor ve yazılıyor. Bu konuda ne düşünüyorsunuz?

1.5 Eğlence için bilgisayarları ve interneti kullanıyor musunuz? Eğer öyleyse, ne sıklıkta? Ortalama günlük kaç saat? Eğlence için ne tür aktiviteler yapıyorsunuz?

1.6 Bir öğrencinin okuduğu bölümün teknoloji kullanımı ve becerileri üzerinde ne gibi bir etkisi olduğunu düşünüyorsunuz? Örnek verebilir misiniz?

2. Derslerdeki Teknoloji Kullanımı

2.1 Interneti eğlence için kullanırken edinebildiğiniz becerilerin okul çalışmalarınıza transfer olduğunu düşünüyor musunuz? Eğer öyleyse, bu becerilerin bileşenleri nelerdir? Değilse, niçin?

2.2 Şimdiye kadar almış olduğunuz derslerde öğretim elemanları teknolojiyi hangi şekillerde kullandılar?

2.3 Derslerinizde teknoloji kullanımında gördüğünüz en önemli avantajlar nelerdir?

2.4 Derslerinizde teknoloji kullanımının öğrenmenizde size yardımcı olduğunu

düşünüyor musunuz? Eğer öyleyse, nasıl? Değilse, niçin?

3. Gelecek Uygulamalar

3.1 İngilizce derslerinde etkin teknoloji kullanımını konusunda mevcut hazırlık programı için ne gibi tavsiyelerde bulunurdunuz? Sizce ne gibi değişiklikler veya eklemeler yapmalılar?