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DOCTORAL DISSERTATION TOPIC:

DO STUDENTS PREFER A DIGITAL OR IN-PERSON ENVIRONMENT WHEN LEARNING IN EFL/ESP CLASSROOMS?

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CHAPTER 1

INTRODUCTION TO THE STUDY

1.1 Background of the Problem

Nowadays teachers are witnessing how student learning extends outside the traditional settings. The classroom itself is no longer the primary learning space. This reshaping of learning is inevitably followed by fundamental redesign of the formal and informal learning spaces. The formality of the classroom is transformed by the development of the digital content. Thus, the classroom turns into a collaborative learning space where the students bring in their outside learning experience and combine it with in-class learning. The technological tools used in class only enhance the transformation enabling students to work and learn as teams.

Outside the classroom, students tend to learn in an informal setting using interaction and collaboration. In this sense, online education can be helpful by connecting learners from various places for synchronous group discussions, collaborative projects and different hands-on learning assignments.

In a fast changing educational setting, ways of learning technological possibilities are emerging and replacing the old ways of teaching. The face of education is evolving and the schools of the future should be open to different trends and resources that haven't been used previously in education, but show significant potential for teaching and learning. Ware and Helmich (2014) point out that the use of technology in education encouraged educators to guess how this digital turn can be use to reconsider the ways in which teaching and learning connect.

The essential nature of learners in today's world is the one of constantly connected students who are surrounded by different digital devices. Today's learners' lives are also greatly dependent on technology. As a result, students are bringing attitudes, beliefs and perceptions to learning environments around their own learning experiences there, and the role that technology should play in it. Technology can shape, and reshape, who is the

learner and who is the teacher. It can open up knowledge and content that otherwise would be less available.

After all, language education does not only happen in the classroom and should not stop after the learners leave the classroom. Thus, technological devices should be frequently used by students and the teachers in order to provide an interaction between language learners and teachers or peer-to-peers. The development of Web-based language teaching and learning activities continue to be a stimulating and growing field allowing language teachers to create their own web-based language activities and use the communication tools.

In this sense, digital learning can increase flexibility of access, eliminate geographical barriers, and improve convenience of use and effectiveness of collaborative learning. Additionally, some studies also show that students are likely to perform better in an online learning environment than in a traditional classroom environment (Liu, Ho, & Song, 2011). Digital teaching and learning activities have continued to develop as an alternative to traditional face-to-face teaching and learning. According to Dickinson, et al. (2008), if instruction takes place in a less traditional setting learners experience a more comfortable learning environment.

Furthermore, Lam (2009) suggests that Web-based instruction has been regarded as most effective when the course is based more on practical knowledge and problem solving. The arguments from the previous studies suggest that Web-based instruction should be more effective than classroom-based when students have greater control of the learning environment and when practical knowledge is being taught. Better students' performance is a combination of technology, and students' control of learning and their learning objectives, not because of the web-based instruction per se.

As a result of this new awareness, the philosophy behind European Higher Education is being altered with university educational models that initiate new methodologies aimed at students' life-long learning for personal or professional purposes. Preparing students to be able to communicate successfully in the international labor market is one of the biggest challenges of university degrees, i.e. the acquisition of English written and spoken skills. Technological advancements had a significant effect on learning styles: learners use

computer-mediated communication to further their written and spoken skills, although the effectiveness on these innovations greatly depends on the way they are used.

1.2 Statement of the Problem

Technology is inevitably connected to the teaching/learning process. It helps instructors but at the same time, technology transfers some responsibility for learning to students. Students can guide their learning at their own pace, direct their progress and have access to course content by participating in an online learning.

Tapscott (2009) describes today's students as the "Net Generation" learners. They grow up with technology; technology becomes unavoidable part of their lives that shapes their personalities and learning preferences. Likewise, Prensky (2001a) coined the term "Digital Natives" to point out towards the theoretical affinity and digital literacy of the new generation. But on the other hand, Prensky also referred to the lack of digital literacy among educators by naming them "Digital Immigrants". The term refers to the educators being outsiders in the land of the digital natives. He indicates that there is a discrepancy between the natives and the immigrants regarding the education process. The teaching practice of the immigrants is not compatible with the natives' skills and preferences.

However, according to Kennedy (2008), the arguments used to support these opinions need closer examination before university educators start changing curricula and learning practices (p.9). These arguments are established on a hypothesis that all the students coming to universities have the same digital background and educational experience. This implies that students coming to universities are all digital natives and they all have more or less consistent technological experiences. Moreover, these students are believed to have advanced knowledge and understanding of technology. But this generalization hinders the objective point of view regarding students' technological skills, knowledge and preferences.

Digital Learning needs to be applied to computer-assisted language learning because it can promote collaborative learning. Language courses should be designed for promoting

learners' immersion in the target language and for creating opportunities with meaningful and authentic interaction. Language learners need to be equipped with necessary tools for social and cultural explorations in the target language with the integration of new technologies in language classes (Warschauer & Meskill, 2000). The proper use of autonomy in class ultimately leads to enhancing students' team work, encourages them to work in groups, revise their own work, give constructive feedback and reinforces classroom materials. In addition, the new technologies offer the potential for autonomous language learning, especially in the context of "globalized online spaces" as defined by Benson and Chick such as Flickr, YouTube, and FanFiction.net, where it is possible to share and discuss a range of digital artifacts (Hafner & Miller, 2011, p. 68).

Digital learning environments are technical solutions for supporting learning, teaching and studying activities (Suhonen, 2005). According to Suhonen (2005, p. 43) a digital learning environment can be educational software, a digital learning tool, an online study program or a learning resource. Anohina (2005) points out that a digital learning environment may thus consist of a combination of different technical solutions; a digital learning environment may thus be used as the basis for an e-learning program. The development of effective digital learning environments is not a simple task. Digital learning done outside the classroom may be a cost-effective and flexible alternative to classroom learning, but if not executed appropriately it may be a waste of time and money as well. The challenge when developing such a learning environment is to use technology skillfully and creatively to solve problems and meet the needs that arise in various learning contexts (Kähkönen et al., 2003). The best designed methods are those that help designers to develop innovative and effective solutions by clearly depicting the most important procedures and aspects of the development process (Design-Based Research Collective, 2003).

Digital learning technologies help students:

- **Learn more <u>efficiently</u>:** digital learning tasks provide students with immediate feedback, thus helping students and instructors focus more where further understanding is needed

- **Learn more completely:** digital learning provides a richer learning environment consisting of immediate assessment, gamefications, variety of videos and simulations. In addition, discussion and ideas sharing is supported by the use of collaborative learning tools. All of this provides fuller and more complete learning experience.
- **Learn the best way:** digital learning is a combination of best learning practices that involves hands-on experience, discussions, flipped classrooms, and blended learning. All of them combined create more active and engaging learning environment that uses the contemporary theories of learning.
- **Learn anytime, anywhere:** digital learning makes education easily accessible and available to students on a global scale. Due to asynchronous classroom students can learn anytime, anywhere which helps students access various information needed for their studies and promotes and facilitates lifelong learning.

Furthermore, when it comes to digital learning environments, according to Groff (2013, p.5) there is a distinction between 'first-order 'innovations and second-order innovations. The following table illustrates the distinction:

Table 1. Emerging innovations of technology-rich innovative learning environments

First-Order Innovations	Second-Order Innovations
• social networking sites	• simulations
• virtual learning environments	• digital games
• laptops, smartphones and tablets	• console games
• interactive whiteboards	• remote-response systems
• Web apps	• mobile/handheld computing
• digital cameras, scanners, projectors	• programming applications
• e-learning	• pico projectors
• digital portfolios	• electronic books

Groff, 2013, http://www.oecd.org/education/ceri/Technology-Rich%20Innovative%20Learning%20Environments%20by%20Jennifer%20Groff.pdf

As the table demonstrates, 'first-order' innovations are those that can be found among many technology-rich learning environments, and that are widespread in the educational

settings. They fall in the category of Web 2.0 technologies (tools for collaboration, interactivity and communication). The 'second-order' innovations are just beginning to show their full potential and will likely see increased development and application over the next decade.

Perhaps surprisingly, little empirical research has been published on students' common use of technology in the context of Macedonian higher education. Furthermore, no relevant study has been done with the students at the SEEU regarding their expanding preferences for both in-class learning and technological resources for learning English. This study is important because it will help to further develop the English syllabus, especially the one concerning ESP learning. The study is investigating the merits of technology in ESP instruction. EFL instruction will be mentioned as well, but the digital learning environment in ESP will be pinpointed.

In addition, there has not been a lot of research done in Macedonia that takes the student's point of view into account to determine their preferences when faced with using technology to learn English. Most of the researches are based on the teachers' perception and how they implement technology in their teaching. This research is intended to show how the researcher applies technology in the instruction of ESP but, at the same time, investigates students' perceptions on whether they really learn better in a digital environment (the one, which according to Prensky, would be their 'natural' environment) or in an in-person learning environment. Which environment leads to better understanding and greater learning? This research aims to establish a solid ground for further development of syllabus design especially in the field of ESP, taking both sides of the teaching/learning process into consideration. The key findings from the literature review about digitally enhanced learning in EFL classes will be provided in this paper in order to give background on the research done in this field and to show how it can be developed further. The importance of this study is the fact that it will impact not only the researcher's teaching as a foreign language lecturer, but also the instruction of other lecturers at SEE University and elsewhere since it has significant implications for ESP/EFL.

1.3 Purpose of the Study

1.3.1 Importance of the Study in the Scholarly Research and Field Literature

There are various studies comparing face-to-face teaching to teaching with a variety of different technologies, such as video lectures, computer-based learning, online learning, or comparing face-to-face teaching with distance education. These studies will be discussed later in the second chapter where detailed analysis will be provided. These studies especially cover online learning as opposed to in-class learning and the majority of them find little noteworthy difference in the teaching methods and their effect on students' learning or performance (Means et al., 2010; Bernard et al., 2004). For instance, Means et al. (2010), in meta-analysis of research on blended and online learning for the U.S. Department of Education, concluded that in contrasting blended instruction (combination of online and face-to-face instruction) with traditional face-to-face instruction it was shown that blended instruction has been more effective. On the other hand, when online instruction was used by itself it appeared to be as effective as the traditional face-to-face instruction, not better and not worse.

Overall, Means at al. assigned the somewhat better performance of blended learning to students spending more time on the given tasks. They concluded that the meta-analysis demonstrated that online learning is not superior to traditional learning and the strongest advantage for the blended learning is that the online and classroom conditions differ especially in terms of time spent, curriculum and pedagogy. This common finding puts an accent to the fact that the differences in the modes of instruction are accredited to factors other than the teaching methods. In another comparative study covering 40 years of research, Tamim et al. (2011) found there is a small tendency for students who study with technology to do better than students who study without technology. However, this difference was quite weak, and according to the authors it was due to different factors including the effective teaching, subject matter, age of learners, the pedagogy and not necessarily the nature of the technology involvement.

This study finds its value in further developing the claim that technological tools used in the ESP/EFL have positive effects in students' language learning. Furthermore, the findings of the study suggest that the use of different modes of delivery can create higher levels of students' engagement and increase their motivation for learning English. This can happen only when the digital instruction is embedded systematically in the syllabus. Finally, this study further adds to the ongoing debate of the face-to-face instruction opposed to digital instruction, especially in Macedonia. Taking the side of the students, the study wants to demonstrate that they can choose their preferred way of learning for different assignments, when learning in different environments.

1.3.2 How will this study improve practice?

Switching back and forth between in-class and digital instruction can provide necessary hands-on experience for the students. By learning digitally they can immerse themselves in authentic learning environments. This shift can also offer an alternative to large lecture classes enabling students to demonstrate skills and competencies that would otherwise have gone unnoticed. The study describes the ways in which students' learning can be more active and accessible through the use of digital environment.

Furthermore, this study demonstrates that the instructors can provide the most beneficial learning environment for their students if they understand whether students prefer a digital learning environment, either in some situations, not at all or always. Moreover, the study aims to establish a solid ground for further development of syllabus design, particularly in the field of ESP by taking both sides of the teaching/learning process into consideration.

Instructors need to realize that the sole moving of lectures into a digital environment does not necessarily mean effective and efficient learning. The challenge is to systematically embed both modes of delivery by identifying the values of face-to-face instruction and digital instruction. They should also be able to recognize what teaching is more convenient for the students and can be done better in a different environment. Finally, they should be

able to combine the two modes of delivery in order to get better learning outcomes. This is where this particular study finds its purpose.

1.3.3 How will this study improve policy?

According to Kennedy and Levy (2009), successful use of students' out-of-class time is a primary goal of the computer-based language instruction. This is particularly valid in a university environment, where in-class language practice time is limited. When an out-of-class learning is aimed at, limited in-class time can be dedicated to face-to-face communication and helpful guidance for students on how to utilize out-of-class learning opportunities and to "support students' development as independent strategic learners (p. 449)."

When it comes to a decision about the mode of delivery, policy makers, instructors, and everyone involved in higher education should focus on the question of the appropriateness, namely, when it is the most suitable to use face-to-face, digital or combined learning. Instructors who are in favour of planning the learning far in advance and controlling the course content by using digital tools will be attracted by the digital environment. Those who, on the other hand, appreciate more the social interaction in class will opt for the face-to-face environment. Nevertheless, this study shows that students should also have their saying in selecting the most appropriate learning environment. A suitable learning environment can be more challenging to students, engaging them in interactivity, collaborative learning and enhancing their learner autonomy at the same time.

Technology can connect students with other students, with experiences, and with authentic settings much more easily and cost effectively. Due to technology, learning can happen anywhere, anytime and does not need to be constrained to classroom wall. Nevertheless, some activities will still be more effective when they happen inside the classroom, but using digital tools the world can also become a learning place.

When investigating the effectiveness of digital learning over the in-class instruction, it is more likely that the comparison can be made when the content in question is controlled. In this case, the researcher is the conveyor of the course and the sole

responsible person for the course content. Instructors can provide the most beneficial learning environment for their students if they understand whether students prefer a digital learning environment, either in some situations, not at all, or always.

Having an evidence-based opinion on what students' technological experiences are is essentially important when creating higher education policies. As Kennedy, Jud, et.al. (2008) suggest, "a thorough understanding of students' technological experiences will have implications for areas such as student access, equity, and transition. Institutional decision-making associated with the management and administration of information and communications technologies – technological infrastructure support, resource investment, student and staff support – would also benefit from evidence about students' existing experiences with technology. Finally, an investigation of students' current technological experiences will have implications for ways in which technology could potentially be harnessed in pedagogically sound ways to improve teaching and learning (p. 108)."

1.4 Research Questions

Technology can equip students to independently organize their learning process. Instead of being passive recipients of information, students using technology become active users. At the same time, there is a transfer of responsibility for the learning from the instructor to the student. Technology enhanced learning offers flexibility, self-direction and autonomy in the learning process.

The proposed research will try to answer the following questions, especially in the context of the EFL (language learner):

1. Do Digital Natives prefer to learn (as well as 'play') in a digital environment when studying in the EFL classroom?
2. Do students consider online learning activities to be an effective way to learn course content?
3. Do students consider online learning activities to be an efficient process for learning course content?

4. Do students find online learning activities to be a satisfying component of the courses?

Also, to ensure relevance and validity, the following questions are asked:

5. What does the literature reveal about the correlation between the face-to-face and online instruction?

6. Is the extent to which students use technology in their everyday life related to their preferences for their use of technology at the University?

7. Do students prefer face-to-face instruction over digitally embedded instruction?

8. What should good digital learning environments contain to stimulate and motivate students to learn?

9. What is the potential of emerging technologies to help to broaden opportunities for student-centered learning?

10. What types of digital learning experiences do ESP students at SEEU prefer?

11. Can ESP/EFL learning be enhanced by the use of digital devices?

This research examines the impact of learning activities and materials that are assigned, created, and assessed within an environment that more closely reflects students' own authentic engagements with collaborative technology and Web 2.0 tools.

1.5 Definitions of Key Terms

It is necessary to define terms that individuals outside the field of study may not understand and that go beyond common language (Locke et al., 2000). Wilkinson (1991) indicates that "scientists have sharply defined terms with which to think clearly about their research and to communicate their findings and ideas accurately (p.22)."

Autonomous Learning. If students are included in making decisions about their own learning and language competence that will be more motivated about learning. Also, this way, learning will be more purposeful and focused (Littlejohn, 1985; Dam, 1995). That is the underlying principle of learner autonomy.

Țurloiu and Stefánsdóttir (2011), when talking about fostering autonomy in the classroom, cite Nunan according to whom "fostering is done by providing learners with

opportunities to make significant choices and decisions about their learning" in an informed way (p. 12)." Furthermore, that means the learners have a say in what and how they learn, and the teacher encourages this by giving the learners opportunities and tools to make informed decisions regarding their learning. This applies both to choosing appropriate material and learning strategies.

Blended Learning. Online learning tools are part of a blended learning environment. They're most often used in the classroom during class time. In the blended learning environment students use online learning for one part of the class while the second part consists of discussions, skills practice, lectures and class projects

Blogs. The term "blog" is an abbreviation of "weblog." Blog is a term describing "a web application that displays serial entries with date and time stamps (Thorne & Payne, 2005, p. 382). Blogs also include a comments section where the readers can engage in a discussion by posting their opinions on the blog entry. Blogs can be used as a collaborative tool for student groups, and instructors can use them for delivering news, messages, and resources, encouraging discussion, and giving feedback and comments.

Cloud Computing. In general, cloud computing may be defined as a set of hardware and network resources that combine the power of multiple servers to deliver different kinds of services via the web. The U.S. National Institute of Standards and Technology (SP 800-145, 2011) gives the following definition of cloud computing: "cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction."

Collaborative Learning. Collaborative learning is learning that happens when peers work together on a same task. During this interaction, students work together in groups thus influencing each other's learning. Through collaboration the given topic can be understood and viewed from different perspectives providing successful task completion which would not happen otherwise. Collaborative learning can happen within traditional face-to-face environment where students learn together at the same time or outside the

classroom by using different collaborative technology tools (definition is provided by the Center for Learning and professional development, Australia).

Computer Assisted Language Learning (CALL). Beatty (2003) defines CALL as a process in which the student learns the language by using a computer and enhances knowledge because of that (p. 7).

Digital Books. According to the Merriam-Webster dictionary, a digital book is a book composed in or converted to digital format for display on a computer screen or handheld device.

Digital Immigrants. Digital immigrant is a term coined by Mark Prensky in 2001 used to describe the generation of people who did not grow up in the digital age. These are the people who were born before 1985 and who have adopted technology later in life.

Digital Learning Environment. The term digital learning environment as used in this thesis includes the full range of technological tools and resources used to support the learning process. Authentic digital learning environments are the spaces that are created when students collectively and consistently interact through web 2.0 tools. When this type of engagement is embedded thoroughly within the syllabus, the authentic digital learning environment takes the role of a traditional LMS and does so in a way that can lead to new learning opportunities for students.

***Digital Literacy*.** According to ALA, Digital literary taskforce, digital literacy is defined as the ability to use information and communication technologies to search for, assess, develop, and communicate information, involving both cognitive and technical skills (2011).

Digital Natives. The term was coined by Prensky in 2001 and it was used to refer to people who were born and raised in the digital age. They are comfortable with technology and computers and regard them as vital and integral part of their lives.

Distance Learning. The United States Distance Learning Association defines distance learning as education program whereby students may complete all or part of an educational program in a geographical location apart from the institution hosting the program.

English for Academic Purposes (EAP). Dudley-Evans and St. John (1998) note that English for Academic Purposes (EAP) and English for Occupational Purposes (EOP) are the two branches of ESP instruction. They define EAP as the teaching of English with the specific

goal of helping students to study, do research or teach in that language (Flowerdew & Peacock, 2001, p. 8).

English as a Foreign Language (EFL). EFL refers to the use and study of English language by non-native speakers where English is not used as a primary medium of communication. The instructional approaches of EFL and ESL differ. ESL is based on the idea that English is the language of the school and the community and students have access to the language, whereas, EFL is learned in settings where English is not the language of the community, but another language is (Gunderson, 2009).

English for General Purposes (EGP). EGP differs from ESP in terms of being based on students' general needs. They also differ in the approach of needs analysis, although when designing the courses, both ESP and EGP learners' needs are primary focus. According to Pradhan (2013) EGP courses focus on students' general needs simply because students may not know what their specific needs are at that stage of learning.

English for Occupational Purposes (EOP). According to Dudley-Evans & St. John (1998), EOP is defined as English for professional purposes in administration, medicine, law and business, and vocational purposes for non-professionals in work or pre-work situations (p, 7).

English for Specific Purposes (ESP). ESP is a general term covering a vast range of professional sub-languages. Robinson (1991) considers ESP to be goal-oriented and based on students' specific learning needs. According to Pradhan (2013) ESP is a branch of English Language Teaching named as applied ELT because it is based on students' specific needs. These needs include the communicative aspect of the language and not just the grammatical structure.

Face-to-Face Instruction. This is also called traditional classroom instruction where the teaching and learning take place at the same time without the use of online learning and instruction.

Learning Management System (LMS). LMS is a software-based platform through which the management, delivery and assessment of educational eLearning programs are facilitated.

Literacies. According to Kalantzis and Cope (2016), the traditional idea of literacy - being able to read and write - is now changing the focus and becoming 'literacies' that differ due to various cultural contexts, experiences, personal interests, social objectives and many more. The idea of these literacies is to learn how to negotiate the differences in meaning and not just to learn how to communicate in one way.

Mobile Assisted Language Learning (MALL). MALL is defined as language learning facilitated and enhanced by the use of mobile devices (Valarmathi, 2011, p. 2).

Multiliteracies. This term covers two aspects of language use. The first is the meaning of literacy in different socio-cultural context where the focus only on the rules of the standard form of the language is not enough. The second refers to the characteristics of the new information and communication media. Learners need to develop the ability to learn in a variety of forms thus learning to effectively gather information, understand and reflect their knowledge (Kalantzis and Cope, 2016).

Online Learning. Online learning falls under the broad category of distance learning. It includes learning with the help of the Internet and a personal computer. The term e-learning, or electronic learning, often is used as equivalent to online learning.

Open Educational Resources (OER). The term refers only to digital resources used in generally online or hybrid learning environments, although electronic content can be used in face-to-face environments as well. Hylén (2006) considers OER as a mean to spreading knowledge broadly, increasing the pace of development and, thus, increasing the quality of education and decreasing social inequalities.

Web 2.0 Tools. This term refers to Internet tools that the user is using not only to receive information but to interact and create content with other users. These tools are used to enhance collaborative teaching and learning.

1.6 Summary

The traditional classroom where the instructor is in front of the class and the job of students is to listen and copy is no longer the primary learning space. This reshaping of learning is inevitably followed by fundamental redesign of the formal and informal learning

spaces. The formality of the classroom is alleviated by the development of the digital content thus transforming the classroom into a collaborative learning space where the students bring in the outside learning experience and combine it with the in-class learning. The technological tools used in class enhance the transformation and enable students to work and learn as teams.

However, the choice of each tool should be connected to a specific purpose. A tool should not be used if it doesn't have a learning purpose or does not improve certain skill. Students continue their learning outside the classroom, by interaction and collaboration. In this respect, combined education both face-to-face and digital can be helpful by connecting learners for synchronous group discussions, collaborative projects and different learning assignments.

Educators can further work on improving the implications of the digital learning by offering more meaningful assessments, more graded feedback, more sophisticated simulations, improve peer interaction and many other things. Such advancements can and will transform both teaching and learning English language.

Technology as a new and evolving practice shows numerous potential benefits for students. In situations where the English language is only learnt and practiced in a face-to-face environment, the digital instruction can be used as an alternative setting. By providing more challenging and motivating activities, enhancing and promoting learner autonomy and life-long learning, students can learn at their own pace. Thus, digital learning environment can be used to make students' learning experiences more substantial, appealing and lasting.

CHAPTER 2

REVIEW OF THE LITERATURE

2.1 Teaching learning via digital applications

Since the early decades of this century, distance or virtual education has become an increasingly common alternative to classroom-based learning. Although digital education may provide an excellent opportunity to access education, this method is not ideal for everyone. Some researchers have indicated that the most preferred form of training delivery is still face-to-face. Nevertheless, researchers (Beare, 1989; McCleary & Egan, 1989) mostly indicate that the outcomes from digital learning are similar to the ones from traditional classroom settings.

Results from Bernard et al. (2004, p. 379–439) and other reviews of the distance education literature (Cavanaugh 2001) point to no significant differences in effectiveness between distance education and face-to-face education, suggesting that distance education, when it is the only option available, can successfully replace face-to-face instruction. Moreover, they suggested that "good" distance education applications and "good" classroom instruction should be relatively equal to one another, regardless of the media used, especially if the media are used simply for the delivery of content. However, when the medium is placed in the hands of learners, to make learning more constructive or more efficient, the balance of effectiveness may shift. In fact, in distance education, media may transform the learning experience in ways that are unexpected and not frequently available in face-to-face instructional situations. According to Bernard et al. (2004) there was a time when distance education was regarded as a logical alternative to campus-based education, mainly for students who were restricted from campuses because of geography or other reasons. At that time distance education was restricted to geographical boundaries (e.g., in the beginning the UK Open University was available only to students in Britain) using the limited communication facilities that existed at that period (mail, telephone, etc). However, "anywhere, anytime" learning assisted by the newly spread technological resources offered by the Internet changed the educational focus from the traditional learners to online

learners. In their study Bernard and al. wonder if educational institutions should continue to develop online learning opportunities without knowing whether they will be as effective as the classroom-based instruction, or, whether they will be effective at all. The most important suggestion from their study is the fact only because the medium of delivery exists that cannot and mustn't be a sufficient reason for having a technology-based course. However, the study shows that the opposite is happening and prevailing, thus there is an increase of the online courses and online programs offered worldwide. In addition, they point out that such courses and programs should be carefully planned by the policy makers to establish in which content domains, with what kind of learners and under what circumstances their existence is acceptable and justifiable.

Results from a job-related course that compared web-based and classroom-based learning (Sitzmann et al. 2006) indicated that web-based learning is better than classroom-based learning when it comes to remembering facts, trends, criteria and verbally stated information, However, the two types of learning are equal when it comes to practical knowledge of how to do things. The findings in the study suggested that web-based instruction was considerably more effective than its classroom-based alternative in situations when students were more autonomous in their learning and had control over it, when they were provided with feedback and when their assignments had practical value. Likewise, Lam (2009) and Olson & Wisher (2002) in their studies argue that the effectiveness of the web-based instruction over the classroom-based depends on level of control students have on their learning, that is, the level of their learner autonomy and the type of knowledge faculty is providing the students with. Therefore, web-based courses that included procedural knowledge and problem solving were the most effective. Similarly, Schaber, Wilcox, Whiteside, Marsh, & Brooks (2010) and Young, Klemz, & Murphy (2003) suggested that web-based instruction was superior to classroom-based instruction when the course in question included course management software that the students used consistently and when project-oriented materials were part of the instruction. In summary, the arguments from these studies suggest that web-based instruction is more effective than classroom-based instruction when students are in control of their learning and procedural knowledge is taught. However, students' performance is a combination of technology,

students' control of learning and their learning objectives, and not because of the web-based instruction per se.

Earlier analysis of online courses done by Machtmes and Asher's (2000) did not find out any difference between distance and face-to-face learning overall. However, they found results more in favor of online courses when classrooms had two-way, as opposed to one-way, interactions. It is evident that we should always be careful to use technology wisely in class. According to Richardson, teachers must "incorporate technology as seamlessly as possible. The technology is the means, not the content of the presentation. It should not overwhelm the lesson, but enhance it. If a non-technology-based means of presentation would be more effective, then by all means use it. The simplest, most intriguing tool to impart instruction is the best tool. Paper and pencil can sometimes be more effective than computer equipment - and paper does not crash! (2004, p. 14)."

As a result, in the recent years an increased number of universities offer online studies and online courses, guided by the idea that students born in a digital age may find in-person learning less contemporary and demotivating. But, is this really true? To answer this question, Prensky (2001) published his paper on a new generation of students: the 'Digital Natives.' Prensky's argument is based on the acknowledgment that a new group of students coming into universities has been fundamentally different from any that educators had seen before. Educators need to realize that Digital Natives have "spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age (p.1)." Prensky pointed out that the digital culture and environment in which the Digital Natives have grown up has changed the way they think: "It is now clear that as a result of this ubiquitous environment and the sheer volume of their interaction with it, today's students think and process information fundamentally differently from their predecessors (p.1)."

Prensky (2001) not only pointed to the hypothetical natural technological affinity and literacy of the Digital Natives, he also expressed concern at an evident lack of technological literacy among educators. He labeled lecturers in higher education 'Digital Immigrants,' meaning they are foreigners in the digital lands of the Net Generation. Further, Prensky regarded the discrepancy between the Natives and the Immigrants as the "the

biggest single problem facing education today (p. 2)." This radical claim has been tested and retested over the years among students worldwide. The question that educators are trying to answer is whether is it true that students are really *digital natives* when it comes to learning and whether educators are *digital immigrants* when it comes to technology enhanced instruction.

Similarly, Kvavik (2005) surveyed 4,374 freshman and senior college students and found they were regular users of email, instant messaging, word processing and Internet browsing, just as Prensky did. Kvavik notes that, in addition, students are beginning to report use of word processing (often associated with coursework), and digital use varied by students' majors. These technological habits of students today point to teaching in a new way. Kvavik (2005) also points out that software applications such as PowerPoint and Excel and the classroom management systems are tools and by themselves they do not contribute to an improved learning experience. In order to support and improve the learning their performance and needs to be understood so they can be used accordingly. Reproducing Kvavik's findings, other researchers again found that high levels of use and skill did not necessarily translate into preferences for increased use of technology in the classroom and that students prefer technology to a moderate degree and as a supplement in courses.

2.1.1 When is digitally embedded instruction the best choice?

The main subject of this research is to consider the learning accomplished in a digital environment as opposed to that accomplished in a traditional class. In recent years, a great interest in using technology (mainly computers, but now even smart phones and tablets) has developed for language teaching and learning. Autonomous learning has become a point of interest for both teachers and students. Especially with the advent of the Internet, the role of computers in language instruction has now become an important issue that great numbers of language teachers throughout the world must confront. Instructors can provide the most beneficial learning environment for their students if they understand whether students prefer a digital learning environment, either in some situations, not at all, or always.

Digital learning may be a cost-effective and flexible alternative to classroom learning, but if not implemented properly it may be a waste of time and money. Arsham (2015) points out that online courses do not diminish the connection between the students and the instructor, although it is believed to be the case. On the contrary, online learning provides numerous possibilities for creating personalized and highly effective learning environment. Moreover, he indicates that online teaching and learning are not connected to a fixed time or space. Therefore, online learning is regarded as a practical alternative to classroom learning that is fixed. Online courses can also create interactive learning environment where students and instructors interact, exchange ideas, discuss course related topics and initiate new discussions. According to Arsham, in a successful online discussion students build on one another's perspectives to get deeper understanding of the topics in the same way they do in in-person discussion. In both types of discussion the point is to understand the material from different standpoints.

According to Kennedy, Jud, et al. (2008), higher education policy and practice should depend on evidence-based understanding of students' technological experiences. This is particularly vital in areas such as student access, equity and transition. In addition, these experiences would be beneficial in providing technological infrastructure support, resource investment, as well as student and staff support. Finally, a study on students' existing technological experiences will have implications for ways in which technology could potentially be harnessed in pedagogically sound ways to improve teaching and learning (p. 109).

Technology can provide the tools for independent organization of the learning process. In such environment, students who use technology become active users, not just passive information receivers (EDC, 2011). For that purpose, students need to use different technological tools in the classroom. Hamilton (2007) indicates that by limiting the classroom to one technological tool the most important element of integration is eliminated. The learning becomes valid and genuine only by combining the technology of today with life skills students will need in the future. That way the learning becomes significant and meaningful. Melville (2005) points out that today's students have different preferences for how the information is presented. Their preferences are based on their

experience with technology. In addition, Marzano, et al. (2001) suggest using different technological tools with different learning strategies such as: summarizing, note taking, homework and practice, collaborative learning, setting objectives, providing feedback, and generating questions. These tools can be in the form of presentations, students' portfolios, vocabulary with pictures and matching, creating graphs and organizers, writing dialogues, in-depth topics research and many more.

Not only that it enhances learning, at the same time, technology transfers some responsibility for learning to students and it creates individualized learning experience. Students can control and direct their individual progress through online learning which provides increased access to course content and better access to alternative education choices and alternative media such as digital games and project-based learning (EDC, 2011).

2.1.2 The Merits of Technology in the ESP instruction

Baron and Goldman (1994) suggest that students who have access to technology can more easily learn to organize and classify complex information, recognize patterns, draw conclusions and present findings. Additionally, Zorfass, Corley & Remz (1994) who carried out studies including students with disabilities, indicate that access to technology can immensely help these students by providing easier access to educational resources. Moreover, access to technology can improve students' memorization ability and information processing.

According to Arnó-Macía (2012), the relationship between information technology and ESP is still under the influence of computer–assisted language learning (CALL) together with the newest developments in language teaching and applied linguistics. As ESP classrooms welcomed technology, instructors started using interactive multimedia, web-based resources, the Internet and a range of different technological tools in order to promote students' learning and connect that learning to pertinent situations.

Technology has been utilized in ESP instruction since the introduction of the computer into the classroom, throughout the development of the Internet and the World Wide Web and to the very invention of mobile and cloud-computing technologies.

According to Bloch (2013), technology in ESP teaching has provided access to authentic texts and has been used as a tool for helping with traditional (face-to-face) type of language learning. Furthermore, technology has been used as an ESP repository for authentic materials such as online newspapers and magazines, news broadcasts, lectures etc. Technology has additionally helped bring relevant language experience from outside and has helped teachers utilize authentic materials such as digital media (Facebook, Twitter, etc.) within the classroom setting, providing students with opportunities to engage in significant and genuine discourses related to their areas of study.

Technology also offers various visualization tools that can be used in language learning (Krajka, 2015). When it comes to ESP instruction, these tools can be utilized for content and topics visualization as well as for the vocabulary learning.

According to Dashestani and Stojkovic (2015), the specific merits of using technology in ESP instruction consist of providing interactive and communicative activities related to professions, majors, or specific purposes of students; appreciating the socio-cultural dimensions of the language and the specific content; nourishing students with adequate specific input related to students' needs which can foster their language production; providing strategies that students need to learn languages for specific purposes; assisting with the integration of task-based instruction in ESP instruction; using authentic learning materials related to students' specific needs and content area; promoting critical thinking and cognitive abilities in ESP students; encouraging collaborative and group learning; creating learner-centered and needs-specific learning environments; adapting teaching to students' learning styles and preferences and affective aspects of learning; and providing appropriate tools for giving feedback and assessing students' language knowledge and knowledge of the specific content (p. 436). It is very important for ESP teachers to develop a variety of strategies for using technology in the classroom. Through the use of diversity of methodologies and strategies the instructor can increase students' motivation and their engagement in the learning process. Dashestani and Stojkovic (2015) conclude that even though research on ESP instruction and technology has prospered in recent years, many claims related to the use of technology in ESP instruction have not been supported by adequate and solid empirical evidence. Finally, they suggest that wide range of new

technologies (ePortfolios, virtual games, social networking, mobile phones, grammar checkers and so on) should be part of future research. The use of these technologies in ESP instruction should become vital. However, without having a clear understanding of the benefits and weaknesses of each technology, its integration in ESP instruction would not be a wise approach.

Butler-Pascoe (2009) argues that the use of technology has brought a revolution in the way ESP course designers create learning materials for ESP instruction. Additionally, Dudley-Evans and St. John (1998) propose that ESP is an independent and a separate activity that has its own research agenda within applied linguistics. In that sense, ESP instruction has interdisciplinary research and its own methodology. Therefore, the findings of the use of technology in EFL context should not be generalized to the field of ESP instruction.

Klopfer, et al. (2009) point out that technology can have reciprocal relationship with teaching. On one side, the emergence of new technologies pressures the instructors to understand the use of such technologies in the classroom. On the other side, the in-class implementation of these technologies impacts the manner in which they will continue to take shape.

Providing learners with optimal learning conditions and opportunities to meet the ESL standards for language learning is only part of the instructional technology. It is essential for teachers to also consider how to use technology so that it supports effective learning. Egbert (2005) in her study of implementing CALL in the classroom describes five guidelines which are compiled and summarized from the educational technology literature. They are similar to those for general educational technology and typical classroom settings, but they may be applied differently in language learning contexts. Although these guidelines are written broadly for any CALL audience, they should be considered for implementing in ESP instruction as well:

1. *Use technology to support the pedagogical goals of the class and curriculum* - Rather than designing instruction to use the technology and to learn technology skills (a technocentric approach), the technology use must be subordinated to the learning

goals. In other words, teachers should not use the computer simply for its own sake (p.7).

2. *Make the technology accessible to all learners* - The technology should be used to address the learners' needs and be useful for a variety of instructional purposes. For example, some students prefer visual activities and others prefer verbal ones; hence, technology that allows learners to choose whether information is presented through pictures or written text would meet more students' needs than technology that does not offer learners a choice (p.7).
3. *Use the technology as a tool* - Computers are often said to play at least three roles in the classroom: tutor, teacher, and tool (Levy, 1997). The computer as tutor presents drills and practice, usually with some explanatory rules. The computer cannot actually serve as a teacher, either, because it is not intelligent or capable of individualized, creative feedback. The most useful way to look at technology is as a tool that supports learning in a wide variety of ways (p.7).
4. *Use technology effectively* - *Effective* means that students learn language better or faster using the technology than they would have using the tools that would ordinarily be available (p.7).
5. *Use technology efficiently* - *Efficient* indicates that technology accomplishes learning goals with less time and work for teachers and learners (p.7).

According to Bloch (2013), another key problem that has to be researched more is how to put into practice new technologies that are continually being introduced. He believes that the choice of the most suitable technology in the ESP classroom depends on various factors, the most important of them being the problem the teacher wants to address and the learning objective that needs to be accomplished, which in numerous cases involves a belief that learning to use the technology itself can fulfill the needs of the learner.

Summing up the previous research one can conclude that the research on technology and ESP instruction is still at the beginning stages. There are a number of topics and technologies that haven't been adequately researched. More needs to be done, specifically innovative and inventive applications need to be further investigated and examined. Additionally, taking the specific nature of ESP into consideration, it can be

concluded that the use of technology in ESP instruction should be based on students' preferences, requirements and learning styles. This is what the proposed study is trying to demonstrate.

2.2 Learning via digital applications

When computer-assisted language learning (CALL) first appeared it was considered as, according to Levy (1997), a study of applications of the computer in language teaching and learning (p. 1). Scholars in the field of CALL agree that by using technology the overall goal must be to achieve a balance between attention to meaning and attention to form, or, in Skehan's terms (1998), a balance between the pedagogical goals of fluency and accuracy as well as complexity in the learning of the grammatical system, which enables learners to use more difficult language (p. 135).

Yaratan (2010) notes that it is widely agreed that technology is well established in our lives. People live in an era where no one can imagine a proper life without the use of any technological means. According to him, education has become a well-established field affected by engaging technological developments. Furthermore, Yaratan states that educational settings have so far been significant environments for technology. For him, making use of educational technology has been inevitable as a way for students to keep in step with the swift changes in the modern educational systems. Finally, he states that the field of education has quickly familiarized itself with technology, and the outcomes have been outstanding. Therefore, instructional technology has offered quick and effective solutions to educational goals (p. 161).

The Digital Revolution is changing how people spend their free time, from watching television, playing video and computer games and chatting on the Internet to engaging in social networking, and expansion of smartphones usage. Hanson-Smith (1997) points out that where education has long been controlled by schools and universities, information is now accessible by the individual at his or her own discretion. Moreover, it is a commonly held belief among language teachers that students have a variety of learning preferences or styles. Researchers also note that the more different neuro-systems are deployed in

learning, the better something is learned and the more easily it is accessed again later. Computer technology is superbly adapted to this concept in that it can provide sound, color, graphics, animation, video-in addition to or layered onto text (Hanson-Smith, 1997).

Students need not only a vast choice of materials, they also need to engage in quality activities. The resources used should be meaningful and have a purpose that learners understand. The tools and resources that technology provides expose students to a greater authenticity and improve their English skills. To provide authentic experiences, teachers at schools together with the students must plan activities that can meet a variety of knowledge levels, learning styles and life experiences. This is a valuable strength of the model for the students, but could be a weakness for the teacher. It may be difficult—even overwhelming—to access adequate resources.

Combined use of traditional textbooks and the use of the Internet can be a solution. Undoubtedly, technology has its benefits but it can never be a replacement for a teacher in a face-to-face environment. Computers will not replace teachers because they cannot do most of the significant things teachers can: lesson planning, individual counseling, preparation and selection of materials, evaluation of process and product, and so on. Teachers of the future will perform the very same functions they do now, in terms of planning and evaluation, but will make use of technology to give students a richer, more stimulating learning environment. But teachers will find that, as computers become new tools, the technology demands new kinds of student-teacher relations. Students must become more autonomous, active learners, and so teachers must hand over some of their power and authority—not to the computer, but to the students themselves (Hanson-Smith, 1997, p. 3). For instance, Sottilo (2000) notes that in the hands of professors who know what they are doing, online instruction is superior to face-to-face instruction. It appears that synchronous electronic discourse is more efficient in terms of time on task than ordinary classroom discourse, and that a decrease in teacher domination of discussions creates more opportunities for the production of more complex language (p. 83). In this technological era, learners are different from learners of previous decades. Tapscott (2009) describes students today as the “Net Generation” learners. They grow up with the technology, which crafts new norms and characteristics in their personalities. They want to customize things and

have freedom of choice. Today's students, according to Tapscott, are natural collaborators who enjoy a conversation, not a lecture. They also want fun, even at school and at work and innovation is part of their life.

Many studies have been conducted to support the claim that technology tools used in EFL have positive effects on the students' language proficiency. Huang (2012) stated that the use of CALL software facilitates vocabulary acquisition for EFL students. In addition, Cooper, Tsukada, Yamaguchi, and Naruse (2011) suggested that with the current increase of student numbers in the classrooms, students do not have the chance to speak and practice their conversational skills. Thus, having a virtual interview with the computer via specific software will improve the students' communicative competency in English.

2.3 Technology as a means for motivation

Motivation is one of the most important factors when it comes to learning a second language and especially learning that language in school. Different opinions occur regarding what is motivation and even more importantly how to motivate students to fully learn the language. Unfortunately, there is not universal way to achieve this because the techniques that work in certain conditions with certain students do not necessarily give the same results in other conditions.

The sources of motivation are either internal or external. For an effective learning of a second language it is necessary to pay equal attention to both motivational sources. Internal motivation includes those elements that the student carries in the school environment, i.e. his internal attributes - attitudes, values and needs. Contrary to this is external motivation regarding external factors that shape the behavior of the student. This, initially, considers the influence that the teacher has over the student and his motivation to learn.

Internal or external, the motives for learning a second language are interconnected and influence each other. Gardner and Lambert (1972) proposed the terms *integrative motivation* – that refers to the language learning for personal development and cultural enrichment (the desire to learn something about the culture of the native speakers of the

second language) and *instrumental motivation* – language learning for more direct and more practical goals (language learning for finding a better job).

Where does technology fit in such learning circumstances? Can technology enhance and promote students' motivation? Online learning increases flexibility of access, eliminates geographical barriers, and improves convenience of use and effectiveness of collaborative learning. Learners' intention to use e-learning is influenced by perceived usefulness and self-efficacy (Liaw, 2008; Liaw, Huang, & Chen, 2007). Furthermore, some studies also indicate that students tend to perform better in an online learning environment than in a conventional classroom instruction (Liu, Ho, & Song, 2011; Yusuf & Afolabi, 2010). Online teaching and learning activities have continued to expand as an alternative to traditional face-to-face teaching and learning. In addition, computer-assisted language learning can promote collaborative learning, when learners' experience centered knowledge construction and learners have more comfortable and less face-threatening environment for interaction than if they are experiencing instruction and discussion in a traditional classroom setting (Dickinson, et al., 2008).

Online tools, such as blogs for example, do not automatically motivate students and turn them into independent learners who use the L2 outside the classroom; institutional as well as cultural factors also play a role. In that sense, time, motivation and training are needed on the part of teachers, as well as on the part of the students. Task design and intercultural issues play a role as well as the way such tools are integrated into a language course (Lamy & Hampel, 2007). Furthermore, blogs can be used to enhance language learning by encouraging interaction among students and thus promote collaborative learning.

2.4 Autonomy as a by-product of the digital learning

The concept of learner autonomy emphasizes the role of the learner rather than the role of the teacher. Learner autonomy focuses on the process rather than the product and according to Jacobs & Farell (2001), it supports learners in further developing their own learning objectives and perceiving learning as a lifelong process. Promoting learner

autonomy in the classroom involves a shift towards what Finch (2002, p. 8) calls *informed learning*. The more a learner is consciously aware of their learning, the greater the chance of being more independent.

Little (2009) suggests that we are social beings and the development of learner autonomy depends on social interaction. Therefore, it is important that one views the classroom as a place where learners collaborate to learn and share knowledge. According to Little and Dam (1998), we learn from one another, and thus, collaboration should be seen as a useful resource in encouraging greater independence in learning.

Learners' active participation in the learning and responsibility for their own learning process are crucial in the field of foreign language teaching according to Dam (1995). As Dam (1995) points out, the learner needs to be willing to act independently and in co-operation with others, as a socially responsible person. Learners become autonomous by becoming responsible for their own learning. This includes being involved in all aspects of the learning process: planning, implementation (monitoring) and assessment. Their autonomy grows as they become conscious of the process of learning as Little, Ridley, & Ushioda (2003) emphasize.

Language courses should be designed for promoting learners' immersion in target language and creating opportunities for meaningful and authentic interaction. Language learners need to be equipped with necessary tools for social and cultural explorations in the target language with the integration of new technologies in language classes (Warschauer & Meskill, 2000). The proper use of autonomy in class ultimately leads to enhancing students' team work, encourages them to work in groups, revise their own work, give constructive feedback and reinforces classroom materials.

Al Shehri (2011) indicates that evidence is required to understand how the potential of out-of-class learning can be enhanced by understanding language learners' interaction with their immediate environment and by exploiting the functionalities of the mobile phones learners use daily. Additionally, more significant research is needed in the area of learner autonomy and student-center learning as well as collaborative learning based on mobile social networking. These areas, according to Al Shehri, have not been sufficiently researched so far. According to Nah (2008), computer and Internet technologies have been

often used in language learning contexts to improve and promote student-centeredness, students' engagement, interaction, and collaboration.

The quality of new technologies makes it possible for individuals to participate in the production and sharing of digital media and interact with a potentially global audience, in a way that is largely self-directed (Ito et al., 2008, p. 2). In addition, the new technologies offer the potential for autonomous language learning, especially in the context of "globalized online spaces" such as Flickr, YouTube, and FanFiction.net, where it is possible to share and discuss a range of digital artifacts (Benson & Chik, 2010, p. 63).

According to Hafner and Miller (2011), learner autonomy is often mistakenly associated solely with independent out-of-class learning in which learners are in control of all aspects of their learning process. However, learner autonomy can also develop in the structured learning environment of the classroom and become part of the pedagogical objectives of a language course (p.69). Furthermore they state that we have now entered a digital age which is characterized by widespread participation in globalized, online spaces which offer rich opportunities for informal, self-directed learning. In this sense, language educators may draw upon the architecture of such spaces in order to design opportunities for autonomous learning in formal contexts (p.86).

2.5 Digital literacy

Defining the digital literacy needed for reading in digital environments has been challenging, with many terms proposed by researchers including "multiliteracies," which suggests that meaning occurs in settings where written text is part of visual, audio, and spatial patterns of meaning (Cope & Kalantzis, 2000), and "new literacies," which focuses on the skills and strategies necessary to work with rapidly changing ICTs (Leu, 2002; Leu, Kinzer, Coiro, & Carrmack, 2004).

Representatives at the 21st Century Literacy Summit (2005) used the following definition of literacy to guide their work: *"21st century literacy is the set of abilities and skills where aural, visual and digital literacy overlap. These include the ability to understand the power of images and sounds, to recognize and use that power, to manipulate and transform*

digital media, to distribute them pervasively, and to easily adapt them to new forms" (as cited in Richardson et al., 2009, p. 2).

Expectations for readers now include being information literate (Henderson & Scheffler 2004) — that is, able to find and use information in any paper or electronic form- and being critically literate (Hall & Piazza, 2008) — that is, able to analyze information to determine multiple meanings or political connotations. Students are also expected to analyze information for relevance, accuracy, and authenticity and synthesize content from multiple sources (as cited in Richardson et al., 2009, Castek, Coiro, Hartman, Henry, Leu, & Zawilinski, 2007).

2.6 What is the potential of emerging technologies to help broaden/deepen opportunities for student-centered learning on site and digitally?

In a fast changing educational setting, learning technological possibilities are emerging and they are replacing the old and obsolete ways of teaching and learning. The face of education is evolving and the schools of the future should be open to different trends and resources that haven't been used previously in education, but show significant potential for teaching and learning. According to Aaron and Roche (2012), today's millennial students are digital natives having technology so well-established in their lives that they don't even recognize they are using it (p. 101). Ware and Helmich (2014) point out that the digital twist in education has encouraged many scholars to think how educators might influence new technologies to reconsider how schooling and learning intertwine.

Below are listed a number of technologies that can support student-centered learning and can be potentially used in a digital or face-to-face instruction:

- **Digital books/Digital storytelling**

Digital storytelling is one way to increase both students' engagement and commitment particularly students who do not cope well with traditional academic reading assignments. Storytelling makes interaction personal, engaging, and immediate (Aiex, 1988). According to Barrett (2006), digital storytelling can be explained as the intersection of four student-

centered learning strategies including student participation and engagement, preference for deep learning, project-based learning, and the successful combination of technology with instruction.

Digital storytelling can be used to improve learners' writing skills with modeled writing of digital texts (Oakley, 2011). According to Jakes (2006), during digital storytelling process all of the 21st century necessary students' skills are used and develop. As a pedagogical tool, digital storytelling provides the students with a powerful means of communication and in turn forces a deeper learning experience (Kleckner, 2007).

In order to cut publishing costs and the use of paper, universities have started using more and more digital books, especially through the use of Learning Management Systems. Digital books become more popular and their use slowly becomes ubiquitous. Additionally, e-readers such as Kindle or the iPad, laptops and smartphones are commonly used in digital storytelling setting. They provide access to digital books and enable students to customize their learning thus making it more autonomous and student-centered.

- **Cloud-based-technologies**

Cloud computing refers to digital programs and storage that live in networked computers (rather than a local server), and that can be accessed anywhere using personal computers or mobile devices connected to the Internet. Many applications that people use every day, such as gmail or GoogleDocs, are cloud applications. There are various free software application options that can be used for learning without being installed on the computer. Cloud-based technologies can be useful in second language learning, facilitating both teaching and learning.

As Diaz (2011) indicates, cloud-based technologies "...refer to the vast array of socially oriented, free or nearly free, web-based tools" (p. 95). Furthermore, O'Reilly (as cited in Stevenson & Liu, 2010), explains cloud-computing as "a collaborative environment in which users have the opportunity to contribute to a growing knowledge base, assist in the development of web-based tools, and participate in online communities (p. 233)."

One example of a cloud-based technology and a collaborative tool is Google Drive. When Google Drive was released in 2012, it provided file storage and synchronization

services and enabled cloud storage, file sharing, and collaborative editing. Google Docs are part of Google Drive TM and are considered as a leading cloud-based productivity application.

Another type of a cloud-based technology are generative web tools whose purpose is to create something new that can be seen and/or used by others (Diaz, 2011). Examples of generative web tools are mashups, virtual communities of practice, and virtual learning worlds. Mashups are used for developing computing environment, particularly in accessing, organizing, distributing, and recommending information (Huang, Yang, & Liaw, 2012). Cloud-based technologies concentrate on social connectivity and are guided by user contributions and interactions and communication; they focus on and sustain collaboration, negotiation of meaning, and sharing information which is essential for language learning.

- **Learning Management System (LMS)/Open Educational Resources (OER)**

Although there is scarce research done on the use of LMS in the EFL instruction, there are quite a few studies that examine the use of LMS in the ESP instruction. There is sufficient qualitative and quantitative evidence which demonstrates that integrating LMS particularly in ESP instruction would amplify student engagement and participation in the classroom. For instance, Al-Mazeedi (2011) used the Blackboard Learning System and concluded that it led to greater class contribution.

The use of LMS can also improve student autonomy and independence. Crnjac Milic, Martinovic, & Fercec (2009) researched the use of LMS in an online ESP course and concluded that it improved students' independent learning. Kuzmina & Golechkova (2012) used LMS for a blended ESP course and that increased students' engagement. In addition, Kučírková, Kučera, & Vydrová (2012) used MOODLE LMS in their ESP course and proved that it enhanced students' listening comprehension ability.

The term Open Educational Resources (OER) refers mainly to digital resources that can be used in an online learning environment, blended learning environment or face-to-face learning as well. Each of these open resources is issued under a license (Creative Commons being the first and most popular). The license clarifies the usage of the resources, namely, some of the materials can only be used in their original forms, while other can be modified,

copied, distributed. The creators of the resources should choose on the type of license they want to apply in their work.

The term OER was first introduced at a conference organized by UNESCO in 2000 and its use was in the area of providing free access to educational resources worldwide. The most often used definition of OER is, "digitized materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research" (OECD, 2007, p.30). With regard to this working definition, it is important to note that resources are not limited to content but comprise three areas (OECD, 2007):

- *Learning content* – includes full courses, courseware, collections, and journals and so on.
- *Tools* – include development support software, use and delivery of learning content, Learning Management Systems (LMS), Content Management Systems (CMS), tools for developing content and online learning communities.
- *Implementation resources* - include intellectual property licenses under which materials are issued, localized content and standards for best practices, and localized content (p.30).

Among the first to give early overview of OER and its application and value were Johnstone and Poulin (2002) by illustrating the Massachusetts Institute of Technology (MIT) OER initiative. On the other hand, Moore (2002) is among the first to make a distinction between open source development tools (the material) and open source courseware (the content). These are examples of early articles describing the initial stages of exchanging learning resources among educators.

According to Tuomi (2006) a higher level of openness is about the right and ability to modify, repackage, and add value to the resource. However, most existing initiatives offer the most basic level of openness— "open" means "without cost" but it does not mean "without conditions." OER initiatives aspire to provide open access to high-quality education resources on a global scale. The expression "open content" was first coined by Wiley (1998). When it became popular among Internet users, the idea that open source software movement could be also applied to content was embraced and promoted.

The following well-known initiatives present important steps toward creating, sharing, and reusing open source materials and content:

1. *Open Source Initiative* - (see References for website links, p.176) – According to Yuan, MacNeill and Kraan (2008) during February 1998, Eric Raymond and Bruce Perens founded OSI, the Open Source Initiative, with the purpose of "managing and promoting the Open Source Definition for the good of the community, specifically through the OSI Certified Open Source Software certification mark and program (p.2)."
2. *Open Content Initiative* –(see References for website links, p.176) Inspired by the success of Open Sources Initiative (OSI), David Wiley founded "Open Content Project" in 1998 to popularize the principle of OSI for creating and reusing learning objectives and content.
3. *Connexions* – (see References for website links, p. 176) initially funded by Rice University, the Connexions attempts to bring the three strands of content, communities, and software together in one intuitive and dynamic teaching and learning environment.
4. *MERLOT (Multimedia Educational Resources for Learning and Online Teaching)* – (see References for website links, p. 176) has been developed by the California State University Centre for Distributed Learning. The MERLOT model tries to engage the user community in shaping the open content to apply to different educational objectives. It is a user-centered, searchable collection of peer reviewed online learning materials, categorized by registered members and faculty support services (2008, p.9)

One important issue that shouldn't be overlooked when talking about OER is the fact that localizing OER material is not only a question of language but also one of culture. It is important to be aware of cultural and pedagogical differences between the original context of use and the intended new use of the material.

Finally, the purpose of using OER in education is to enhance learning, particularly the kind of learning that facilitates the growth of both individual and social capacities for understanding. OER are also used for non-formal learning outside formal educational

settings. It is sometimes argued that to recognize and reinforce the importance of this role of OER, the term “education” should be replaced by “learning” and a better term would be “open learning resources.” For now, the terminology stays unchanged because more people learn about the phenomenon under the name of OER and it would be imprudent to change it.

There are thousands of OpenCourseWare from distinguished higher educational institutions available to students on a global scale worldwide. In such circumstances it’s inevitable that students compare their curriculum with others. Also, the role of the teacher as a sage on the stage and sole provider of teaching materials will decrease as well. Given the opportunity to self-direct their learning and choose their learning resources by making the most of OER and online learning, students will opt for autonomous learning. Nevertheless, this can only happen if the learning is planned, guided and executed properly.

- **collaborative environments/blogs**

Digital collaborative environments range from small single-purpose tools (e.g., GoogleDocs and wikispaces) to complete collaborative virtual learning environments (e.g., Blackboard, Moodle, Schoology, Edmodo). Social networking platforms are also included in this category. Moeller & Reitzes (2011) in their comprehensive study on integrating technology with student-centered learning suggest that these collaborative tools can assist synchronous and asynchronous collaboration starting from small assignments to semester-long projects between classmates, between students at different schools, students and teachers, and teachers and teachers.

Previous research (Bensoussan, Avinor, Ben-Israel, & Bogdanov, 2006) shows that the use of online discussion forums in ESP instruction enhances students’ participation, interaction, and communication quality. That study suggests that the forum created a motivating environment for students to participate in language learning and discussions. In general, the use of the forum had benefits for learning and students had positive attitudes towards it.

Tajeddin & Alemi (2012) point out that the use of online discussion forums motivates ESP students to use interactional meta-discourse markers. These meta- markers are

important element of online discussion forums. Yang, Hwang, & Yang (2013) demonstrated that the online forum fostered intercultural interaction among ESP students.

Moreover, von der Emde et al. (2001) also discuss the educational uses of MOOs (text-based online virtual reality system) in language classrooms by pointing out five emerging pedagogical advantages:

1. Language content through authentic communication,
2. Learner autonomy and support for learner-centered curriculum,
3. Safe individualized learning for shy students,
4. Experimentation and play with the target language,
5. Students as researchers in the target language and culture (p. 213).

They also discuss the community-based structure of these environments as they support peer-teaching since students begin to learn from each other (p. 215). In addition to the findings above, they also point out that there are three primary ways of student facilitation in virtual learning environments. First of all, the activities need to be designed in a student-centered fashion with explicit content-based goals. Second, teachers need to promote learner autonomy by allowing them to determine their individual learning goals and monitor their own progress. Third, instructors need to respond regularly to the students' ongoing portfolios as well as to their efforts (p. 217).

Blogs have been widely researched in the field of ESP. Many studies support the fact that using blogs in ESP/EFL instruction is beneficial for the students. One of the benefits of using blogs in the instruction is the prospect for self-directed learning and self-reflection (Blackstone, Spiri, & Naganuma, 2007; Murray, Hourigan, & Jeanneau, 2007). The other benefit is that blogging improves students' writing proficiency and enables students' reflection and interaction during writing tasks (Blackstone, et al. 2007). Two independent studies focus on the opportunities to have collaboration in the classroom as the biggest advantage of blogs (Chong, 2010; Nicolaou & Constantinou, 2014). Finally, blogging facilitates students' autonomous learning as well. They provide a chance for more authentic communication.

- **Mobile devices/Smartphones**

Newly released large-screen mobile devices, or tablets, such as the Apple iPad, Google Tablet, and HP Slate, along with smart phones, iPods, and mp3 players that students are already using, offer a variety of educational affordances.

Yamada et al. (2011) tested the effectiveness of learning materials through mobile phones and the findings revealed that the use of mobile learning materials increased students' listening comprehension and motivation to learn. Burston (2011) points out that students constantly view the use of mobile technology in a positive way due to its 'anytime, anywhere' possibilities. Several studies carried by O'Malley et al. (2003), Roschelle (2003), Furuya, Kimura & Ohta (2004), Kukulska-Hulme (2005), Thornton & Houser (2005), have shown that Mobile Assisted Language Learning (MALL) motivates students, thus increasing the time they are exposed to the second language away from the classroom.

Read and Kukulska (2015) carried out a research on the use of Audio News Trainer (ANT) mobile app among students and concluded that the app had positive effects on the listening comprehension and enhancing their motivation.

3.7 Conclusion

As the literature review shows, much of the presented evidence on the effectiveness of online learning comes from research that has focused on higher education and professional development contexts (Barbour & Reeves, 2009; Means et al., 2010; Smith, Clark, & Blomeyer, 2005). A meta-analysis done by Means et al (2009) of the available research (mainly carried out in post-secondary settings) indicated that on average, students in online learning conditions performed better than those receiving face-to-face instruction. Students who participated in blended online learning experiences outperformed students in face-to-face settings by a larger degree than students who participated in online courses that were conducted entirely online. However, in such circumstances, it should be mentioned that these blended courses usually have additional instructional elements not

included in the face-to-face instruction, so the success in the learning outcome cannot be attributed solely to the online learning.

In addition, some studies also indicate that students tend to perform better in an online learning environment than in a conventional classroom instruction (Liu, Ho, & Song, 2011; Yusuf & Afolabi, 2010). Online teaching and learning activities have continued to expand as an alternative to traditional face-to-face teaching and learning. In addition, computer-assisted language learning can promote collaborative, learner centered knowledge construction and offer a more comfortable and less face-threatening environment for interaction than do instruction and discussion in a traditional classroom setting (Dickson, et al., 2008).

Both learning environments differ. Online learning depends on technologies of delivery. In order to promote student-teacher interaction and provide feedback, different technological tools are used, such as: online materials and resources, video lessons, conferencing platforms, emails, Learning Management Systems, multimedia computer technology. In the face-to-face environment still the most important factor for learning is the teacher. The role of the teacher in the classroom is connected to students' perceptions and learning outcomes. The stronger the teacher is, the more engaged students are. Dedicated and passionate teachers produce more confident students. On the other hand, researchers and educators believe that integrating technology into the classroom and combining it with the face-to-face instruction increases student's performance (Sommers, Owens, & Piliawsky, 2009).

However, choosing a technological tool for learning should be with a specific purpose on mind. According to Peridore & Lines (2011) if a teacher selects a tool that does not have a purpose or stops students from learning the content and gaining required learning skills, this tool should not be used. This is in line with Warschauer and Meskill (2000) who point out that "the key to successful use of technology in language teaching lies not in hardware or software but in "humanware"; our human capacity as teachers is to plan, design, and implement effective educational activity (p.316)."

This review of the literature about digital instruction and learning provides the base for the study described in chapter three. Technologies used and questions asked of the

students are designed to confirm and add to the knowledge of how best to use digital applications with students enrolled in ESP classes.

CHAPTER 3

METHODOLOGY

3.1 Introduction to Mixed Methods

In order to conduct this research and gather useful information, both quantitative and qualitative methods of data collection were used with an emphasis on qualitative methods. As Creswell (2009) points out, the concept of mixing different methods probably originated in 1959, when Campbell and Fiske used multiple methods to study validity of psychological traits. They recommended that others should use their "multi method matrix" to study various approaches to data collection in a study.

3.1.1 Quantitative Methods

Quantitative methods rely on mathematical and statistical analysis of data and leave little space for ambiguity. But, to research personal opinions, motivation and stimulus, a yes/no or a scaled answer (from 1-5) is not enough. Because research in the field of education should consider the actions of students, studies should include more than statistical analysis. That is the reason why the author opted for a combination of quantitative and qualitative methods. Qualitative methods produce data that is more perceptive and shows underlying reasons for a chosen option.

Qualitative research can be defined as collection, analysis, and interpretation of data that are not easily reduced to numbers. These data relate to the social world and the concepts and behaviors of people within it (Anderson, 2010, p.1). She further suggests that qualitative research can sometimes provide a better understanding of the nature of educational problems and thus add to insights into teaching and learning in a number of contexts. Qualitative methods don't require as large a sample size as quantitative methods do because the participants are studied in more depth. For instance, students' interviews

can produce relevant results with just a small sample group, which proved to be correct for this study.

According to Morse (2005), the latest direction is in the area of mixed-method design, more specifically in the combined use of qualitative and quantitative strategies within a single data set. In relation to this, she states that qualitative results inform and guide practice, dictate interventions, and produce policy. Qualitative methods can be reliably and validly used to assess, to document mechanisms of change micro analytically and to record macro-level changes in society. Furthermore, Morse argues that mixed-method research consists of designs that are either mainly qualitative or quantitative and that integrate strategies of the other method (either qualitative or quantitative) into the same research project.

Berg (2001, p.3) acknowledges that qualitative methodologies have not predominated in the social sciences. After all, qualitative research is more time-consuming, requires greater precision of goals during design stages, and cannot be analyzed by running computer programs. Nevertheless, in recent years there is a rise in the computer-aided qualitative data analysis software (e.g.Nvivo, QDA Miner, etc…).

Opposite to the qualitative research is the quantitative approach. Qualitative research can be defined as collection, analysis, and interpretation of data that are not easily reduced to numbers. These data relate to the social world and the concepts and behaviors of people within it (Anderson, 2010, p.1). She further suggests that qualitative research can sometimes provide a better understanding of the nature of educational problems and thus add to insights into teaching and learning in a number of contexts.

According to Aliaga and Gunderson (2002), quantitative research can be defined as explaining phenomena by collecting numerical data that are analysed using mathematically based methods (particularly statistics). Therefore, quantitative research is mainly about collecting numerical data to explain a particular phenomenon. Essential parts of such research are the research variables that can be independent and dependent. The variables are factors that can be controlled and measured during the research process. It is up to the researcher when creating the research design to decide which variables need to be controlled and manipulated and which are measured as a result of that control. According

to Kerlinger (1986), the independent variable is the one manipulated by the researcher. The result of that manipulation is the dependent variable.

3.1.2 Qualitative Methods

According to Gantley et al. (as cited in Barbour, 2000) “qualitative research generally aims to answer research questions which are rather different from those addressed by quantitative research. ‘Qualitative research is essentially ’exploratory',’ setting out to describe, understand and explain a particular phenomenon. It may address ’what?'', ‘why?’ and ‘how?’ but not ``how many?’ or ‘how frequently?’ (p. 156).” She further explains that the qualitative model is characterized by the use of a particular range of methods used either (1) to generate data- including semi-structured interviews and focus group discussions, or (2) to study naturally occurring events -such as observational fieldwork or video recordings, or (3) to analyse independently produced materials -i.e. document or textual analysis.

The main characteristic of qualitative methods is the emphasis on context and the ways in which features of a particular situation or setting influence the phenomenon that is examined. This approach as such does not aim for objectivity but identifies the influence of the researcher on the data collected and applies this on the analysis, in other words it is `reflexive.’

Qualitative research is appropriate for providing in-depth contextualized description. Qualitative research can, occasionally, provide explanations for unexpected findings produced by quantitative studies (Black 1994); or it may provide an insight on the mechanisms that are responsible for connections or relationships identified by a quantitative study. Together with quantitative methods or as stand-alone in-depth studies, qualitative research can provide `knowledge for use' or what Macnaughton (cited in Barbour, 2000) refers to, as `practical wisdom.’ Harding & Gantley (as cited in Barbour, 2000) argue that qualitative research can offer `an understanding both of social processes and how they may be modified in the pursuit of desired ends' (Harding & Gantley 1998, p.79).

Geertz (1973) explains that, by using a technique called ‘thick description’ qualitative studies frequently intend to include enough contextual information to provide readers with a sense of what it was like to have been part of the research setting. However, qualitative study can offer more than `thick description' — it can provide explanations. **Thick description** refers to the detailed account of field experiences in which the researcher makes explicit the patterns of cultural and social relationships and puts them in context (Holloway, 1997).

Another technique that is often used in qualitative studies is triangulation, with which a researcher uses various methods or perceptions to help create more complete set of findings. Triangulation is defined as employing several ways to check that the findings can be trusted. Triangulation was first used in the social sciences describing a form of *multiple operationalism* or *convergent validation* (Campbell, et al., 1966; Campbell & Fiske, 1959). A study can triangulate data, using different sources of data to examine a phenomenon in different contexts; it can also triangulate methods, collecting different types of data (for example, interviews, focus groups, observations) to increase insight into a phenomenon (Kuper, et al. 2008, p.687). This type of analysis is directed toward drawing out a complete picture of the observed events, the actors involved, the rules associated with certain activities, and the social contexts in which these elements arise. In the context of this study, the thick analysis is accomplished by presenting the narration (observation notes, additional responses), followed by the analysis of the structural components of situations, meanings, reactions and patterns of the students involved in the study.

According to Heyink & Tymstra (1993), theoretically reliability and validity cannot be separated in qualitative research. According to Barbour (2000), although qualitative findings are not statistically generalizable, they can be `theoretically generalizable'. She refers to Lincoln & Guba (1985) (p. 158) who insisted that instead of using the term `generalizability,’ it is more useful to talk about `transferability' of qualitative findings. This relates to their relevance for understanding similar issues and processes involved in other situations, other specialties, other illnesses or other types of consultation.

Research is called qualitative if it is about determining "what things 'exist' rather than to determine how many such things there are" (Walker, 1985a, p. 3). Even clearer,

'quality' refers to the nature of things, rather than to their quantity. Whereas quantitative research initially is product oriented, such as "What is the impact/outcome of the programme?", qualitative research is especially suitable for analyzing processes, such as "Why does the programme work, or what is exactly the reason why it does not?" (Walker, 985a; Andriessen, 1987; Welters, 1977). The qualitative method aims at clarification, interpretation and — to a certain degree — at explanation.

In general, according to Heyink & Tymstra (1993) research contains the following elements: (1) establishing the objective, (2) collecting data, (3) encoding/processing, (4) interpretation, (5) reporting. That goes for both quantitative and qualitative research. In quantitative research the sequence of these steps is fixed. In qualitative research of an inductive nature, however, this is not so. While in quantitative research some iterative elements can be identified now and then, the iterative procedure makes up the essence of the qualitative method.

3.2 Research Design

There has not been lot of research done in Macedonia that takes into consideration the student's point of view to determine their preferences when faced with using technology to learn English. Most of the researches are based on the teachers' perception and how they implement technology in their teaching. This research is intended to show how the researcher applies technology in the instruction of EFL but, at the same time, investigates students' perceptions on whether they really learn better in a digital environment (the one, which according to Prensky, would be their 'natural' environment) or in an in-person learning environment. Which environment leads to better understanding and greater learning?

The researchers' choice of the research method and the data collecting instruments for this study was based on the current teaching load of the author in the semester of 2015 within the limits of the provided situation. The choice was a combination of both qualitative and quantitative methods for ensuring both validity and reliability. Opinion based research methods that involve collecting quantitative data were used. In particular, questionnaires as

an effective way of quantifying data and testing preferences were utilized. Questionnaires are a good method of measuring intensity, which in this case was particularly important.

This study uses a combination of both qualitative and quantitative methods for ensuring both validity (truthfulness) and reliability (consistency). In this research, which is mainly qualitative, quantitative variables will be used: however, statistical tests will not be used. The independent variables were the types of activities given to the students, the amount of time designated for each task and the alternation of the class instruction (students switching between digital and in-class learning groups). By ensuring that certain variables are manipulated, the validity and the reliability of the research are amplified. The dependent variables were the motivation, efficiency and the effectiveness of learning in the digital learning environment.

The qualitative research in this study is based on an ethnographic model. Ethnography is the study of social interactions, behaviours, and perceptions that occur within groups, teams, organisations, and communities. As Reeves et al. (2008) point out, the main aim of ethnography is to provide deep, holistic understanding of people's views and actions, as well as the nature of the location they dwell in, through the collection of detailed observations and interviews. He goes a step further by outlining the key features of ethnographic research. They are as follows:

- A strong emphasis on exploring the nature of a particular social phenomenon, rather than setting out to test hypotheses about it
- A tendency to work primarily with ‘unstructured data’, that is, data that have not been coded at the point of data collection as a closed set of analytical categories
- Investigation of a small number of cases (perhaps even just one case) in detail
- Analysis of data that involves explicit interpretation of the meanings and functions of human actions; the product of this analysis primarily takes the form of verbal descriptions and explanations (p.512).

Ethnography is regarded as a particularly effective research strategy. Van Maanen (1982), as cited in Berg, 2001), suggests that ethnography has become the method "that involves extensive fieldwork of various types including participant observation, formal and

informal interviewing, document collecting, filming, recording, and so on (p. 103)." One other important aspect of ethnography is the distinction sometimes made between *micro* and *macro-ethnography* (sometimes referred to as *general ethnography).* Macro-ethnography tries to describe the total way of life of a group. On the contrary, micro-ethnography focuses on a particular part at particular points in the larger setting or group. Usually, these specific points are selected because they in some way represent the most relevant elements in the lives of participants and in turn, in the life of the larger group. Also, micro-ethnography focuses more directly upon the face-to-face interactions of members of the group under investigation. In this study, micro-ethnology is applied.

Ethnographers usually collect participant observations, requiring direct engagement and involvement with the world they are studying. In order to enhance the quality of their work, according to Geertz (1973), ethnographers will often provide a detailed or thick description of the research setting and its participants, which will be based on many hours of direct observation and interviews with several key informants.

To secure the validity and reliability of this study, students' observations and responses are triangulated. According to Reeves (2008), ethnographic work frequently uses methodological triangulation, which is a technique designed to compare and contrast different types of methods to help provide more comprehensive insights into the phenomenon under study. Apart from this methodological triangulation, Denzin (1978) outlines three other types:

- Data triangulation, where different data sources are used to explore a phenomenon in different settings and different time and space points,
- Investigator triangulation, where several different researchers are used to create a complex array of data perspectives and
- Theory triangulation, where data is approached with different concepts and theories in order to secure the complete data understanding (p. 295).

3.3 Research Questions

Mixed methods research presents challenges in writing research questions (or hypotheses) because so little of the literature has addressed this design step (Creswell, 1999). Thus, there is a distinct lack of models on which to base guidelines for writing research questions into mixed methods studies (Creswell, 2009). The research questions in this study resulted after the researcher reviewed the literature to discover what the literature reveals about the correlation between the face-to-face and online instruction. Then she started thinking about what issues were important and how those issues might be measured. This required the researcher to consider various concepts and definitions.

This research will answer the following questions, especially in the context of the EFL language learner:

1. Is the extent to which students use technology in their everyday life related to their preferences for their use of technology at the University?
2. Do students prefer face-to-face instruction over digitally embedded instruction?
3. What should good digital learning environments contain to stimulate and motivate students to learn?
4. What is the potential of emerging technologies to help to broaden opportunities for student-centered learning?
5. What types of digital learning experiences do EFL students at SEEU prefer?
6. Can EFL learning be enhanced by the use of digital devices?
7. Do Digital Natives prefer to learn (as well as 'play') in a digital environment when studying in the EFL classroom?
8. Do students consider online learning activities to be an effective way to learn course content?
9. Do students consider online learning activities to be an efficient process for learning course content?
10. Do students find online learning activities to be a satisfying component of the courses?

The study will explore the processes that go on in both the face-to-face and digital environment and it will describe students' experiences during those processes.

3.4 Setting

This research was conducted at SEEU, more specifically at the Language Centre. The study spread over one semester during the academic year 2015. The time frame was September –December 2015 with total of 15 instructional weeks. The students had four hours of the ESP 1 course twice a week. The period of one semester provided enough time for the students to get accustomed to the idea of studying from home as opposed to study in class. Moreover, the students were a crucial part of the research and their continuous feedback served as a basis for the study.

The author provided the same content, course materials, assignments and the same period for completing the tasks to both groups. They were all given the same pre and post learning questionnaire, writings and final exam. Additionally, both groups were required to participate in discussions (in-class or on LIBRI) and debates to develop skills for learning EFL and demonstrate mastery.

3.5 Participants

Saunders (2012) points out that within qualitative research the choice of research participants is, invariably, constrained by what is practicable (p. 37). Saunders further elaborates that the choice of research participants should be determined by the focus of our research, thereby enabling us to meet our research aim and answer our research question. When choosing the participants for this study, the researcher has adopted what Buchanan et al. (1988, p.53) refer to as an "opportunist approach" to both getting access and choosing research participants. Simply put, the author chose to work with the group that was available at the time when the research was carried out. And as Saunders puts it "in some cases compromises may be necessary regarding the choice of participants (2012, p.38)."

When a non-probability sampling technique is used the researcher actively chooses suitable cases to be in the sample whilst actively excluding others (Saunders 2012). This is important for a research where the aim is to gain new insights into phenomena or for phenomena to be evaluated in a new light. Such generalizations involve logical judgment regarding how the research findings might apply to other situations through the use of supporting evidence and clear argument (Kvale and Brinkmann, 2009). This is referred to as the 'transferability' of findings. In purposive samples, as the most frequently used form of non-probability sampling (Miles and Huberman, 1994), the researcher uses his judgment to choose cases that will best enable him to answer the research question and meet the proposed objective. They are usually used to choose a rather small number of participants, such as those that are mainly informative (Neuman, 2005). And as Saunders (2012) states, there is convenience sampling that involves using those participants that are easiest to obtain for our sample, for example choosing MBA students for research about managers. The same is done here, namely using an ESP group for research on digital embedded learning in ESP/EFL. In this study, the researcher chose one class from those she was teaching that would purposefully meet the objectives; the data was easy to obtain from this selected class. So, the sampling is both convenient and purposeful.

Furthermore, as Patton (2002) suggests, sample size depends on what we want to find out, what will be helpful, what will have credibility and reliability and what we can do with the available resources. In addition, Patton also points out that the validity of the qualitative data we collect and the understanding we gain will rely more on our data collection (for example observation or interviewing) skills than on the size of our sample, still a vital concern is, the number of observations or interviews that will be enough. In such circumstances for example, if the aim is to understand cohesion within a rather homogenous population, Guest et al. (2006) suggest a carefully selected purposive sample of 12 participants. According to them, such a sample is likely to suffice.

The participants of this study were the authors' students from the ESP 1 group who study Computer Sciences and Business Informatics and who are 15 in total. The class was a mix of first and second year students; that is, the students were in their first and third semester. Prior to taking this course 13 of them had two semesters of Basic Skills English at

the Language Center and two had come directly from high school. Their level of proficiency was high and they were expected to be at B2 according to the CEFR upon completion of ESP 1. They have used various materials in the classroom due to the multidisciplinary character of their studies and no single textbook was appointed. The group comprised 12 male and 3 female students, all between 19-20 years of age. They have all been studying English for approximately 12 years, starting from their primary education, secondary school and now at the tertiary level.

The small number of female students who undertook the study may raise the issue of gender bias. That connected with the fact that the participants were students from the Faculty of Contemporary Sciences and Technologies, meaning that they were already adept at using technology for studying. For the issue of gender balance, as mentioned before, in an ethnographic study one needs to take who the participants are in the setting. Having less females can be a possible limitation. In such case there is a recommendation for more research similar to this research, but attempting to include more females. However, the interview done in this study included four students, among which were two female students and two male students Having more in-depth insight on their learning preferences should help sort out the issue of the gender bias.

3.6 Data Collection Procedures

Creswell (2009) suggests that it is useful to consider the full range of possibilities for data collection in any study, and to organize these methods by their degree of predetermined nature, their use of closed-ended versus open-ended questioning, and their focus for numeric versus non-numeric data analysis (p.20). Furthermore, Creswell argues that in some forms of data collection, both quantitative and qualitative data are collected. Instrument data may be improved with open-ended observations, or census data may be followed by in-depth exploratory interviews.

In addition, Creswell (2009, p.21) outlined several typical scenarios of research based on the research elements (knowledge claims, strategies and methods) combined in practice. There are two scenarios that are of an important value for this study:

- Qualitative approach: constructivist knowledge claims, ethnographic design, and observation of behavior.

In this situation the researcher seeks to establish the meaning of a phenomenon from the view of participants. This means identifying a culture-sharing group and studying how it developed shared patterns of behavior over time (i.e., ethnography). One of the key elements of collecting data is to observe participants' behaviors by participating in their activities.

- Mixed methods approach: pragmatic knowledge claims, collection of both quantitative and qualitative data consecutively.

The researcher bases the examination on the assumption that collecting various types of data best provides understanding of a research problem. The study begins with a wide survey in order to generalize results from a population and then focuses, in a second phase, on detailed qualitative, open-ended interviews to collect detailed views from participants. These two scenarios are the basis for this study.

The author of this study also uses the five guidelines described below by Egbert (2005, p.7) to design her study of implementing Computer Assisted Language Learning (CALL) in the classroom. The guidelines are explained in chapter 2 (see p. 29-30). Here they are presented in the way they were used in this study:

1. *Use technology to support the pedagogical goals of the class and curriculum* – The researcher designed the technology around the learning goals, not simply as a way to use technology but as a way to enhance learning with technology.
2. *Use the technology as a tool* – The technology was not the goal but a support system for learning.
3. *Use technology effectively* - The technology was selected because it was effective.
4. *Use technology efficiently* - The technology was selected because it was efficient.

The abovementioned guidelines postulated by Egbert are used as signposts for implementing digital learning in this particular ESP classroom. They ideally describe what the main use of technology should be in the classroom and should be used as underlying principles for creating digital learning environment.

When investigating the effectiveness of digital learning over the in-class instruction, it is more likely that the comparison can be made when the content in question is controlled. In this case, the researcher is the conveyor of the course and the sole responsible person for the course content. A range of new technologies and Web 2.0 platforms were integrated into the course content in order to create a technologically rich learning environment.

In order for the learning to be meaningful the instruction should be authentic. Teachers need to set the instruction so that students are enabled to move beyond sole memorization of facts by creating experiences that require critical thinking on topics that are relevant in their everyday life. To help teachers set such authenticity of classroom assignments and experiences, Newmann and Wehlage (1993) formulated five standards. Each standard is measurable on a scale of 1 to 5. The proposed standards are:

1. Higher order thinking
2. Depth of knowledge
3. Connectedness to the world beyond the classroom
4. Substantive conversation
5. Social support for student achievement

These standards according to Newmann & Wehlage (1993) are designed to quantitatively represent the degree of authentic instruction observed within discrete class periods (p.11). These standards are used as a framework for teachers to plan and assess critically their goals, strategies, and outcomes. They find their value in this particular study as well.

In conclusion, qualitative research is interpretative research, with the researcher typically involved in a continued and intensive experience with participants. This introduces a range of strategic, ethical, and personal issues in to the qualitative research process (Locke et al., 2000).

These important guidelines have influenced the data collection and analysis for this study.

3.7 Data Collection Instruments and Analysis

3.7.1 Data Collection Instruments

The data collection steps include setting the boundaries for the study, collecting information through unstructured (or semi-structured) observations and interviews, documents, and visual materials, as well as establishing the protocol for recording information. The determination of which data-gathering technique to use is essentially related to the type of research question being asked. When the researcher in this study was interested in how frequently students used technology for learning, a quantitative questionnaire was used. However, when the interest was on the students' actual motivation and challenge in using technology, the better option was the open-ended interview.

First, the researcher examined questionnaires from distinguished experts in digital and in-person EFL instruction in order to design questionnaires that reflect questions from the current research. In addition, the strategies and activities that seem to be most research-based and that relate to both technology and autonomy were identified. By selecting some of these strategies and activities in the classes, the author determined which collection instruments would be best for this study, in order to determine if students recognize the need for digital learning environment by use of such strategies and activities.

For the purpose of conducting the research one class of ESP students with compare-contrast of types of digital literacy was used. The following methods and techniques for collecting data were used:

3.7.1.a Questionnaire of student experiences with using digital literacy to learn

The objective behind this technique was to collect data that should reinforce what the researcher found in the literature. To investigate students' experience and satisfaction with the digital learning a pre – learning questionnaire was used.

As Walliman (2011, p.97) indicates, asking questions is an obvious method of collecting both quantitative and qualitative information from people. Questionnaires are an

especially suitable tool for getting quantitative data but can also be used for qualitative data. According to him, a questionnaire is useful data collection method because it enables you to organize the questions and receive replies without actually having to talk to every respondent. As a method of data collection, the questionnaire is a very flexible tool and is easy and convenient for respondents (p. 97). In addition, Ruane (2005, p.124) sees questionnaires as popular tools for data collection precisely because they are so versatile. Any one of the several goals of research (exploration, description, explanation, or evaluation) can readily be pursued via survey research. Similarly, there is no limit to the *kinds of information* we might obtain via questions. However, she points out that successful survey research requires that we secure respondents' *cooperation.* We must convince potential respondents that our questionnaire is worth their time and effort and we must convince them that the questions are worthy of honest, accurate answers (p.124).

The questionnaire in this study consisted of 18 questions and it was adapted and combined from two different questionnaires from Kennedy (2008) and ECAR (2009). The questionnaire consisted of both closed and open format questions. With the closed format questions, the students had to choose from a set of given answers. These questions are quick to answer and easier to code. Providing a pre-determined set of responses is wise when it is possible to expect the full range of possible responses and when these responses are relatively few in number. On the other hand, they limit the array of possible answers.
Below is an example of a closed format question:

1. Digital learning will motivate me more to learn English.

Strongly agree	Agree	Neither agree nor disagree	Strongly disagree	Not applicable

The open format questions involve writing free answers adjusted to students' content and style. The students can also qualify their responses and there is freedom of expression. There is a lack of bias in such responses but also the answers are more prone to researcher interpretation. These questions are also more difficult to code. The open ended

approach is also recommended when we are interested in obtaining the respondent's unique views on an issue or topic (Ruane, 2005, p. 131).

Here is an example of an open-ended question:

1. Do you prefer digital or in person environment for learning English? Please explain your choice, or explain why you prefer one or the other in different situations.

In this particular questionnaire six questions were open-ended were students could openly comment on the use of technology in the classroom. Five questions were based on 1-5 point Likert scale of *strongly agree, agree, neither agree or disagree, strongly disagree and not applicable* on the positive aspects of digital learning. Three questions were also Likert-scale based starting from *daily, weekly, monthly, over monthly to not used* on the students' use of different technologies. One question examined students' skill level of using the Internet; one explored their use of different technology tool throughout the semester and the last two questions focused on the use of LIBRI and their overall experience in its use.

The analysis of the questionnaire included two aspects, the quantitative and the qualitative one. The quantitative aspect of the questionnaire was the counting of students' responses and comparing the before and after responses. The qualitative was interpreting the open-ended questions and looking for patterns. The complete pre-questionnaire can be found in the Appendix, p.177.

3.7.1.b Observation notes on how students do with each task

In an ethnographic study, according to Creswell (2009, p. 214), the researcher takes field notes on the behavior and activities of individuals at the research site. In these field notes the researcher records, in an unstructured or semi-structured (using some prior questions that the researcher wants to know) way, activities at the research site. The qualitative observer may also engage in different roles ranging from a non-participant to a complete participant. Furthermore, Bailey (1996, pp. 80-81) claims that field notes initially consist of *mental notes,* collected while interacting in the research setting. These are then

transformed into *jotted notes,* or brief reminder notes actually written down and used later to jog the researcher's memory when he or she writes more complete field notes.

According to Reeves (2008), participant observation also gives ethnographers opportunities to gather empirical insights into social practices that are normally "hidden" from the public eye. Additionally, ethnographic research can recognize, examine, and connect social phenomena that, on the surface, have little connection with each other.

Students in this study were asked to rate their interest and engagement in learning after every given assignment. Then the researcher observed their interest in each task and sketched her observation. Later, these observation notes were written down and coded appropriately. The analysis of data typically began by reading the observation note. The purposes of this initial reading of the notes are to reinforce any hypotheses or themes developed during the data-collection phase and to generate new hypotheses and themes previously unrealized—in short, to ground themes and hypotheses to the data (Glaser & Strauss, 1967). As Berg (2001, p. 161) points out, as researchers jot brief, cryptic notes, they should indicate their observed sequence of events: what occurred before the noted action, what was observed, and what occurred following this noted event. Then, the researcher should begin to methodically create records of patterns in the conversations and activities of people involved in the notes. The model for the observation notes is added in the Appendix, p.216.

Here is one example of an observation when the first in-class/digital environment task was assigned:

Student 1 exhibits great enthusiasm after being assigned for the blog writing. He sees this as an opportunity not to come to classes. After several weeks, the enthusiasm is notably reduced. He reports having many distractions while working from home and spending a lot of time on one task.

3.7.1.c Post-Questionnaire of student preferences for using digital literacy to learn

What is said previously about the use of the pre-questionnaire applies here as well. The main purpose of this post-questionnaire was to determine whether students'

perceptions and views have changed by the end of the course. The analysis was done both in qualitative and quantitative manner with tallying the responses and comparing the pre and after answers. When questionnaires are used in a research, one must have in mind the length and the time allocated for completing the questionnaire. According to Smith (1994), as the length of questionnaires increases, the response rate decreases. It is generally advised that questionnaires should be designed so that they take no more than 30 minutes to complete (Monette et al. 1998). The post-questionnaire can be found in the Appendix, p. 182 of this study.

Here is an example of a close format question:

1. The digital learning brought new opportunities for learning.

Strongly disagree	Agree	Neither agree nor disagree	Strongly agree	Not applicable

Given below is an example of an open-ended question:

1. Of all the things done this semester which one was the most challenging in learning English? Please explain your choice.

3.7.1.d Interviews with 4 students from the class

The interview is an especially effective method of collecting information for certain types of research questions and, as noted earlier in this chapter, for addressing certain types of assumptions (Berg, 2001, p.73). Generally, interviewing is defined simply as a conversation with a purpose. Specifically, the purpose is to gather information (Berg, 2001, p. 67). Although there is a consensus on what the interview is, the same cannot be said about how to conduct an interview. For example, interviewing is described as some sort of face-to-face interaction, although what precisely differentiates this type of interaction from others is often left to the imagination (Leedy, 1993; Salkind, 1991). In that sense, Gorden

(1992) offers a clear, step-by-step description of how to go about the process of interviewing.

According to Heyink & Tymstra (1993, p. 294), beyond any shadow of doubt, the method most used and best documented in qualitative research is the interview. Much has been written on the merits of the qualitative interview (for example, Denzin, 1970; Silverman, 1993). Heynik provides a brief summary of these merits:

- The respondent himself has the opportunity to raise issues he finds essential (for the research).
- Misunderstandings about questions asked and answers given can be clarified there and then.
- The flexibility of the interview situation offers the possibility to test out fresh hypotheses straightaway.
- The degree of response from and involvement of the respondent can be stimulated by building 'rapport': a relationship between the two discussion partners, based on confidence, security and the establishment of a mutuality of purpose (p. 295).
- The interview is a 'wide-band method': many themes can be checked for relevance at short notice.
- The interview is considered pre-eminently appropriate for research into feelings, attitudes, intentions and motivations of behavior.

Some researchers mention only two types of interviews—namely, formal and informal (Fitzgerald & Cox, 1987, pp. 101-102). Others refer to this research process as either structured or unstructured (Leedy, 1993). Nevertheless, three main categories may be identified (Babbie, 1995; Denzin, 1978; Gorden, 1987): (1) the standardized (formal or structured) interview, (2) the unstandardized (informal or non-directive) interview, and (3) the semi-standardized (guided-semi-structured or focused) interview.

The *standardized (structured) interview* uses a formally structured schedule of interview questions. The interviewers are required to ask subjects to respond to each question. The rationale here is to offer each subject roughly the same incentive so that responses to the questions, ideally, will be comparable (Babbie, 1995). Overall, standardized interviews are designed to elicit information using a set of predetermined questions that are

expected to elicit the subjects' thoughts, opinions, and attitudes about study-related issues. Standardized interviews thus operate from the perspective that one's thoughts are related to one's actions.

On the other hand, *unstandardized (unstructured) interviews* do not use schedules of questions. In an unstandardized interview, interviewers must develop, adjust, and create questions and follow-up studies appropriate to the given situation and the fundamental purpose of the investigation. Schwartz and Jacobs (1979, p. 40) note that this results in appropriate and relevant questions arising from interactions during the interview itself.

Finally, there is the *semi-standardized (semi-structured) interview.* This type of interview includes the execution of a number of prearranged questions and/or particular topics. These questions are typically asked of each interviewee in an organized and consistent order. Nevertheless, the interviewers have the freedom to deviate. They are allowed to ask beyond the answers to their prepared and standardized questions. As Heynik (1993) states, in research practice usually a type of interview is selected that is located somewhere on the continuum between the 'standardized' and 'unstandardized' poles.

When it comes to the actual formulation of the interview questions, Denzin (1970) offers the following guidelines for creating the questions:

‘Questions should accurately convey meaning to the respondent; they should motivate him to become involved and to communicate clearly his attitudes and opinions; they should be clear enough so that the interviewer can easily convey meaning to the respondent; they should be precise enough to exactly convey what is expected of the respondent (p.129).’

According to Berg (2001, p.103), analysis is without question the most difficult aspect of any qualitative research project. This is because the data gained cannot be simply processed through a computer program like in a quantitative study. Nevertheless, insights obtained from qualitative research add texture to an analysis and also demonstrates meanings and understandings about problems that would otherwise be unidentified. And as Berg further argues, qualitative should not be taken quickly and lightly and this is its greatest strength.

Repeating a qualitative interview will not lead to an exact reproduction of the original findings. Other information will appear as well. Because of this, reliability will get a

different meaning. In qualitative research the question is not of repetition in detail, but whether new information is compatible with the information found before. "Therefore, rather than test-retest reliability or research replication reliability, qualitative research calls for something akin to an internal consistency measure of reliability" (Kidder, 1981, p. 248-249). Moreover, if a phenomenon is found more often, this is a sign of a greater reliability. Then there is some assurance, that a concept developed on the basis of the phenomenon, has not been based on an incidental observation. In such a case, a repeated observation can also be considered a validity-check.

As said by Berg (2001), the most obvious way to analyze interview data is *content analysis.* Although one may certainly abstract reducible items from interview data in order to quantify them, the analysis immediately ceases to be qualitative. The interview in this study was semi-structured, face-to-face interview done in class after the end of the semester. It contained structured as well as unstructured sections with open ended questions and additional responses. The analysis from the interview was done by looking for similarities and dissimilarities (patterns) in the data. The patterns were looked at systematically. While recording what is said the researcher also recorded different emotions, reactions. The interviewees had the questions in front of them, but all the additional responses were recorded as well. Every behavior that depicted interest or engagement was noted. The questions from the students' interview are added in the appendix.

Here is an example of a structured question:

1. What are my strengths for study when I am using a paper environment?

Here is an example of an unstructured question:

2. Discuss what you would do when faced with a specific study task in digital or paper based environments.

3.8. Digital and in-class activities

When choosing the particular tasks for the instruction, the researcher had two potential questions in mind:

1. What should good digital learning environments contain to stimulate and motivate students to learn?
2. Is the extent to which students use technology in their everyday life related to their preferences for their use of technology at the University?

The ultimate goal for every language teacher is to have motivated, challenge-driven, ready to learn students. Unfortunately, in numerous occasions, the worlds of the teachers and the students collide. Those are the worlds of Prensky's (2001) digital immigrants and digital natives.

How can we motivate our students? Motivation is one of the most important factors when it comes to learning a second language and especially learning that language in school. Different opinions occur regarding what is motivation and even more importantly how to motivate students to fully learn the language. Unfortunately, there is no universal way to achieve this, because the techniques that work in certain conditions with certain students do not necessarily give the same results in other conditions. However, using what they are familiar with in our instruction can lead to greater motivation. Here is where the digital environment plays its crucial role. Students play, communicate, share information mostly online using their smartphones, tablets, etc. Educators should find a way to utilize their avid desire to be online for language learning purposes. The ultimate goal in the classroom is letting go of the control on the side of the teacher and put more emphasis on the autonomy of the students.

To examine students' motivation, satisfaction and effectiveness in learning in a digital or face-to-face environment, the researcher of this study selected and adapted various classroom materials and assignments. They were carefully selected having in mind the research questions. More details on the activities are provided in the following sub-chapters.

3.8.1 BLOGS VS. IN-CLASS REPORTS

Online tools, such as blogs, do not automatically motivate students and turn them into independent learners who use the L2 outside the classroom; institutional as well as cultural factors also play a role. In that sense, time, motivation and training are needed on the part of teachers, as well as on the part of the students. Task design and intercultural issues play a role as well as the way such tools are integrated into a language course (Lamy & Hampel, 2007). Furthermore, blogs can be used to enhance language learning by encouraging interaction among students and thus promote collaborative learning.

Blogs can be used as a collaborative tool for student groups, and instructors can use them for delivering news, messages, and resources, encouraging discussion, and giving feedback and comments. Many studies also pointed out some advantages of using blogs in education and its positive effects on improving students' performance. Many studies suggested integrating blogging with instruction may erase the limitation of classroom walls and provide students with more possibilities to connect with others outside of the classroom as well as to enhance the effect of teaching and learning (Chen et al, 2011; Liu and Lin, 2007).

Both face-to-face instruction and electronic feedback, including asynchronous feedback and discussion, can facilitate the productive overall use of feedback (Hyland & Hyland, 2006). As a result, the form of blogs can be used in an ESP course for L2 learners at the college level to enhance student learning motivation, satisfaction, and performance as well as to improve the instructor's teaching effectiveness.

In this particular ESP course, blogs were assigned as a task done outside the classroom. They were individual blogs written in *WordPress*, a popular platform used for blogging. Before the task was assigned, students were distributed a rubric and a guideline for blog writing.

In addition, in-class reports were assigned as well, but they were written in class. A rubric and guideline for writing these in-class reports was distributed also. The blog/report guideline given in its integral form can be seen in the Appendix, p. 187-188.

Students had different topics for their entry blogs. Here is one short example of a blog entry about their experience at the University:

Today I wanted to write about my first semester university experience. The first day was so strange. Here everybody knew someone and they had a friend with them but not me. I was all alone and just looking at my phone pretending not to be weird. So the semester stared with me all alone with no friends and I also had a very big issue that was to consider. I had decided to study computer science without knowing the slightest thing about computers or maybe programming. It was very hard for me to adjust, but eventually I started understanding everything.

3.8.2. IN-CLASS DISCUSSION (DEBATE) VS. ON-LINE DISCUSSION

Although there is scarce research done on the use of Learning Management System (LMS) in the EFL instruction, there are quite a few studies that examine the use of LMS in the ESP instruction. There is sufficient qualitative and quantitative evidence which demonstrates that integrating LMS particularly in ESP instruction would amplify student engagement and participation in the classroom. For instance, Al-Mazeedi (2011) used the Blackboard Learning System and concluded that it led to greater class contribution.

The use of LMS can also improve student autonomy and independence. Crnjac, Milic, Martinovic, & Fercec (2009) researched the use of LMS in an online ESP course and concluded that it improved students' independent learning. Kuzmina & Golechkova (2012) used LMS for a blended ESP course and that increased students' engagement.

In this study, the use of LIBRI as an example of a LMS used by our University will be discussed. Unfortunately, LIBRI is no longer in use at our University and it is replaced by a better and more improved version of an LMS provided by GOOGLE, Google Classroom (GC). In the time of the research, LIBRI was the sole LMS used in class and it had more or less the same functions as Google Classroom.

LIBRI could be only used by the SEEU students who got their credentials *(user name/password)* upon registering in their faculty. The students were asked to participate in

an online discussion forum and they were awarded points for that. The discussion forum followed after the in-class discussion on the topic that students choose themselves. However, the online discussion topic was chosen by the instructor. The idea of the two opposing types of discussion was to estimate the power of the social interaction in the classroom and the impact it has on the successful learning.

The question for the discussion forum on LIBRI was the following:

1. Everything is amazing and nobody is happy. Why?

Here is one student's answer:

The thing about our society is that we became very dependent on technology. We depend on it in almost everything. Even though technology has many positive uses, it has led humanity into a state of laziness which has become the top word in describing our generation.

The question for the in-class debate was the following:

1. Video games – friends or foes? What are the advantages and disadvantages of playing videos games?

3.8.3. Traditional lecture vs. Open Educational Resources

The term Open Educational Resources (OER) generally refers to digital resources used in online or hybrid learning environments, though electronic content can be used in face-to-face environments as well. Each resource is issued under a license that explains how it can be used: some materials can only be used in the original form; some resources can be modified, remixed, and restructured. The primary aim of using OER in education is to improve learning, especially the one that facilitates the development of individual and social competences for understanding.

Unfortunately, there are no initiatives for creating OER in higher education in Macedonia at the moment. Nonetheless, individuals can still make use of the existing OER and find a way to incorporate them within the syllabus. For the purpose of increasing authenticity in this particular ESP course a variety of OERs was used. Materials are taken

from courses on Udemy, Khan Academy and Edx. The samples of the materials and tasks assigned are given below:

1. Udemy course - https://www.udemy.com/lift-your-storytelling-to-improve-your-public-speaking/ - Teaching you to engage others through the power of your own stories.
2. EDx course - Introduction to Computer Science - An introduction to the intellectual enterprises of computer science and the art of programming.
3. Khan Academy course - Becoming a better programmer - Now that you understand the basics of programming, learn techniques that will help you be more productive and write more beautiful code.

The selected lessons were assigned for homework. The purpose was for students to analyze a course on a specific IT topic, but from a language point of view. They watch, read, analyze, take notes and then come to class and share their experiences. Then they answer the following questions: What did they find interesting? What was the most motivating task? How did it improve their English? What techniques did they use to learn vocabulary?

3.8.4. READING IN CLASS VS. READING DIFFERENT WEBSITES (WEB QUEST)

The Internet is the defining technology for reading, writing and communication of the 21st century. However, without having the ability to find the information in an efficient and effective manner, students' access to information will be limited. The teachers need to equip students with necessary critical thinking skills, analyzing and synthesizing information skills in order to assist them in becoming good readers in the web-based environment. As Leu (1997) points out, "individuals unable to keep up with the information strategies generated by the new information technologies will quickly be left behind" (p.65).

Web quests are inquiry-oriented Web-based activities that involve students in using web-based resources and tools to transform their learning into meaningful understandings and real-world projects (Dodge, 1995).

This activity has raised the question whether students use different strategies when reading print texts than when reading digital text. The answer to this question may lead us into redesigning the traditional classroom reading practice.

Below is the list of the websites used for practicing reading:

1. https://www.technologyreview.com/ - The mission of MIT *Technology Review* is to equip its audiences with the intelligence to understand a world shaped by technology.
2. https://gizmodo.com/ - Gizmodo is a design, technology, science and science fiction website
3. https://www.digitaltrends.com/ - Digital Trends is your premier source for technology news and unbiased expert product reviews of HDTVs, laptops, smartphones and more.
4. https://www.theverge.com/ - The Verge covers the intersection of technology, science, art, and culture.

All of the included websites have a long history in delivering technology news and presenting the newest trends in the IT industry. Once more, students were assigned different texts to read and they analyzed the texts from a language point of view. The WebQuest activity consisted of comparing different Computer Science Departments around the world and their syllabuses. Afterwards, students had to choose 5 courses they would like to have as a part of their curriculum and elaborate on the choice. The complete WebQuest assignment can be found in the Appendix, p.192.

3.8.5. DO ACTIVITIES IN CLASS VS. WATCH SAME ACTIVITIES ON VIDEO

It is clear that the opportunities provided by the technology have considerable implications in the educational setting. That means learners need to learn and develop a new set of skills and learning strategies. Teachers on their side need to find a wide range of different digital resources that will help develop these new skills.

Johnston and Milne (1995) have used controlled multimedia in their research and concluded that the use of video has effectively developed listening skills and grammar.

Furthermore, the use of a teacher-controlled multimedia tool increased the amount of communicative discourse in the classroom by both teachers and students. In such a learning environment students become more active and autonomous. The learning is self-directed and the role of the teacher is more of a guide rather than of a knowledge-giver.

In this sense, videos are very powerful tools in helping English language learners improve and further develop their language skills. They provide the learner with content, context, and language. Videos present information and ideas in a dynamic and interactive way. Videos can be accessible and engaging substitute for a face-to-face learning environment. This will work provided that teachers offer support and make sure that learner's role is not a passive one.

According to some researchers (Bello, 1999; Stempleski, 1992) for English language learners, video has the additional benefit of providing real language and cultural information. Video can be controlled (stopped, paused, repeated), and it can be presented to a group of students, to individuals, or for self study.

The advantage of using vocabulary from different course books is that the course books provide ready-to-go exercises to practice particular vocabulary. They also provide different use and context for every set of vocabulary. But, the course books, especially in the field of IT, outdate quickly and the given vocabulary becomes obsolete. They no longer satisfy the needs of a Computer Science student. That is why the vocabulary apps and mobile learning are used to add up to vocabulary learning. Students spend so much time online, playing games or chatting and they are bound to bring some of the vocabulary they learn there to class.

When choosing the videos for use in the face-to-face and digital environment the author had the following questions on mind (adapted from Burt, 1999):

1. Will the video appeal to my students? Will it make them want to learn? Will it arouse their interest?
2. Does the content match my instructional goals?
3. Is the instructional message clear to my students?
4. How will the students benefit from the content?

After a careful examination the following videos were selected for use:

1. TED ED - https://ed.ted.com/lessons/can-machines-read-your-emotions-kostas-karpouzis#watch
2. https://www.youtube.com/watch?v=U6ZBa5b5pqA - Internet Technologies (lesson 1)
3. https://www.youtube.com/watch?v=V-jFymQEqds – IT & Computing: Web 2.0
4. https://www.youtube.com/watch?v=AVpsLauNkBs – Internet Technologies (lesson 2)
5. http://film-english.com/2014/09/29/look-up/ - the theme of isolation caused by the use of new technology.

Half of the students were watching the activities/videos in class and the other half did the same thing from home. The next time groups changed the environment they had to report what way of learning was easier/more motivating/more efficient/. Three of the video lessons were more vocabulary oriented and this activity was closely related to the next one described below. In order to provide variety different vocabulary items were learned. The two video lessons were complete lessons that focused on one aspect of technology and included mixture of activities.

3.8.6. LEARN SET OF VOCABULARY WORDS IN TRADITIONAL MANNER VS. USING VOCABULARY APP

Mobile phones with wireless Internet access offer a world of possibilities for classroom instruction. Teachers can realize the great instructional potential of phones in the classroom, particularly now with the advancements of smartphones and their various functions and features. Mobile learning adds on students' interests, needs and experiences. Keegan (2013) defines mobile learning as running of education on PDAs, pocket PCs and mobile phones. Norbrook and Scott (2003) point out that the most motivating factor when using a mobile device is the immediate availability of the device. Laurillard (2007) suggests that the mobility of digital technologies changes the nature of the relations between the teacher, the student and the object of learning, especially in the terms of the physical presence of students.

Jarvis and Achilleos (2013) focus on the use of cell phones in L2 learning outside the classroom and support a change of acronym from computer assisted language learning (CALL) to mobile assisted language use (MALU). In addition, Kukulska-Hulme (2009) suggests using the texting function on phones to build vocabulary. Furthermore, Kiernan and Aizawa (2004) investigated different ways of using mobile phones in the classroom and found out that that texting, accessing e-mail for practice reading and writing, and using phones for speaking activities can all be effective activities in the language classroom. Also, Bibby (2011) conducted a study on students' preferences between PCs and mobile phones in language learning, with the phones being the apparent favourites. According to Aaron and Roche (2012), today's millennial students are digital natives with technology well-established in their lives that they don't even realize they are using it.

The vocabulary assigned for learning in this ESP group was taken from different reading materials. There was no particular textbook used in class. One of the learning objectives for the course was to study vocabulary related to computer components, the *phubbing phenomenon*, the difference between activism and *slacktivism,* IT careers, different types or corporate culture, programming languages, networks, marketing and online presentations and videoconferencing.

A set of vocabulary words was learned in class during class time. The learning was done traditionally, by reading, explaining the meaning and using the word in context. The digital learning was done using vocabulary app or a website specialized in technology. The following apps/websites were used:

1. English 4 IT - https://www.english4it.com/, during the research period this site was free to use, but now it requires subscription fee.
2. Memrise – www.memrise.com - students used the app for learning a set of Business English words
3. Duolingo – www.duolingo.com – one of the most popular apps for learning vocabulary.

After few sets of vocabulary words were assigned for learning, the students took a short quiz. This way, the author could measure the level of understanding of certain words.

The level of satisfaction and motivation in learning in class or digitally was jotted down in the observation notes.

3.9 Data Analysis

Berg (2001) in his study claims that the immediately collected raw data are not *immediately* available for analysis. The raw data needs some sort of organizing and processing before it can actually be analyzed. He cites Huberman and Miles (1994) who support this by suggesting, "How data are stored and retrieved is the heart of data management. . . ." (p. 34).

Data analysis mostly involves using open-ended data. This requires asking general questions and developing an analysis from the information provided by the participants. Firstly, the data should be organized and prepared for analysis. This stage includes transcribing interviews, arranging and typing field notes, or generally categorizing and organizing the data into different categories according to the sources of information. Then detailed analysis with a coding process is next. According to Rossman and Rallis (1998), coding is the process of organizing the material into “chunks”. Later on, those “chunks” are categorized and meaning is given to them. The coding process involves taking text or pictures, separating sentences or paragraphs and putting them into different categories, and finally labeling those categories. Bogdan and Biklen (1992) as cited in Creswell have their own list of possible types of codes:

- Setting and context codes
- Perspectives held by subjects
- Subjects’ ways of thinking about people and objects
- Process codes
- Activity codes
- Strategy codes
- Relationship and social structure codes
- Pre-assigned coding schemes

To analyze the results of the questionnaire, the researcher looked for a pattern in the open- ended responses, tallied the numbers per each Likert category and summarized self-assessed skill level with different technologies and use of Internet and LIBRI.

3.10 Conclusion

A mixed methods design is useful to when the study wants to present the best of both quantitative and qualitative approaches. According to Creswell (2009), the advantages of collecting both closed-ended quantitative data and open-ended qualitative data prove advantageous to best understand a research problem. The researcher of this study had precisely this on her mind when opting for mixed method study. However, as stated previously, this study is more inclined towards the qualitative methodology showing appropriate sampling, data collection, and data analysis. The transferability of this qualitative research depends on the provided context and is enhanced by using theory.

Qualitative research methods can provide useful data on a range of topics and research questions which are not open to study using conventional quantitative methods. However, as Peshkin states (1993) “no research paradigm has a monopoly on quality” (p. 28). No one can deliver promising outcomes with certainty. None have the grounds for saying "this is it" about their designs, procedures, and anticipated outcomes.’ Many types of good results are results of qualitative research.

Kuper (2008) offered guidance for readers on how to assess a study that uses qualitative research methods by providing six key questions to ask when reading qualitative research. However, the comprehensive assessment of qualitative research is an interpretive act and requires informed insightful thought rather than a simple application of the scoring system. The questions are as it follows:

1. Was the sample used in the study appropriate to its research question?
2. Were the data collected appropriately?
3. Were the data analysed appropriately?
4. Can I transfer the results of this study to my own setting?
5. Does the study adequately address potential ethical issues including reflexivity?

6. Overall: is what the researchers did clear?

These questions will be addressed again in chapter 4 (findings) and the final chapter will interpret the data along with providing recommendations.

CHAPTER 4

RESEARCH FINDINGS

4.1 Research findings

In this chapter, the results from each data collection instrument will be summarized and examples of each finding will be presented. The complete set of instruments and tallies are in the Appendices. The primary data was collected from using qualitative research methods complemented by a quantitative survey for systematic data collection.

When it comes to analyzing qualitative data, Bryman and Burgess (2002) indicate that many of the volumes on qualitative research emphasized the research process and demonstrated that qualitative research cannot be reduced to particular techniques nor to set stages, but rather that a dynamic process is involved which links together problems, theories and methods (p. 2). In addition, they point out that there is no standard approach to the analysis of qualitative data; in fact data analysis relates not only to technical procedures but also to the social relations aspects of fieldwork. Finally, Bryman and Burgess (2002) conclude that a great deal of the work in which researchers engage in this point of the research process is both implicit and explicit to a certain extent (p. 12).

4.1.1 QUESTIONNAIRE OF STUDENT EXPERIENCES WITH USING DIGITAL LITERACY TO LEARN

The analysis of the first questionnaire included two aspects, the quantitative and the qualitative one. The quantitative aspect of the questionnaire was the counting of students' responses and comparing the before and after responses. The qualitative was interpreting the open-ended questions and looking for patterns.

Question one asked if students know the term "*digital natives*." Responses indicate that students do not know this term. Six of them left the question unanswered and six said they are not familiar with the term. Only three students answered the question and the best definition was: *a person who was born in the tech world*; partial definition was: *people who*

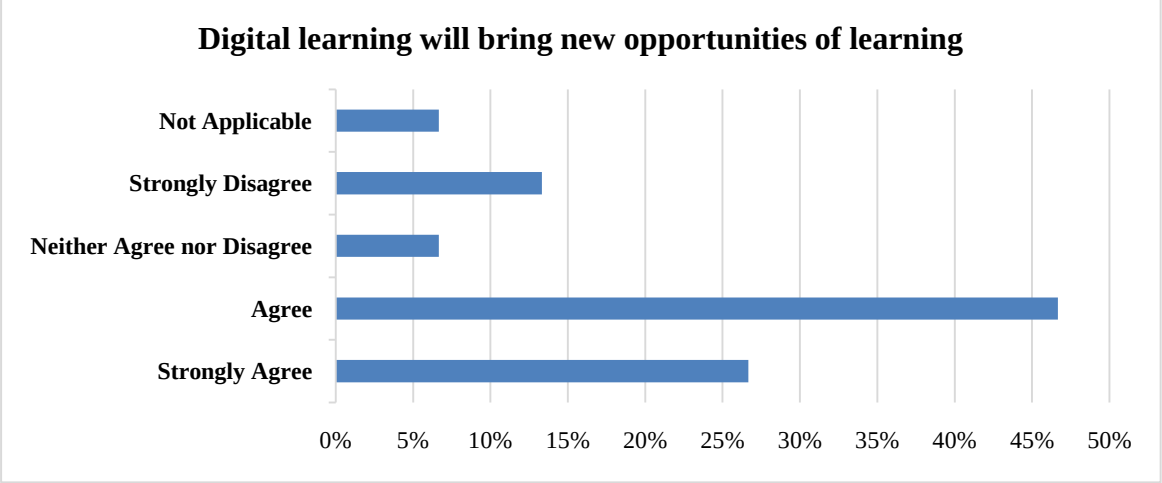
use too much technology in their life; the least successful definition was: *people that stay on Internet and learn*.

The second question asked how the students evaluate the reliability of the materials they find on the Internet. Five students answered that they have no idea how to do that. Two students gave an identical answer: *I do cross-checking with other sources.* Other answers included the following: *I use Google search to find the best and the most important materials; it's easy to find materials but it's difficult to know which are good; materials from the Internet are the best thing about technology. We can learn so many things from them; it depends on what matters. Some are reliable and some are not; we have so many materials on the Internet and most of them are not reliable; it usually depends on the webpage. The popular ones are reliable but if I use materials from unknown resource I usually double check it's reliability.* Two students left the question unanswered. Responses suggest that students do not know how to evaluate the reliability of the materials they find on the Internet. They rely on popular sites and Google for searching.

4.1.1.a Close-format Questions

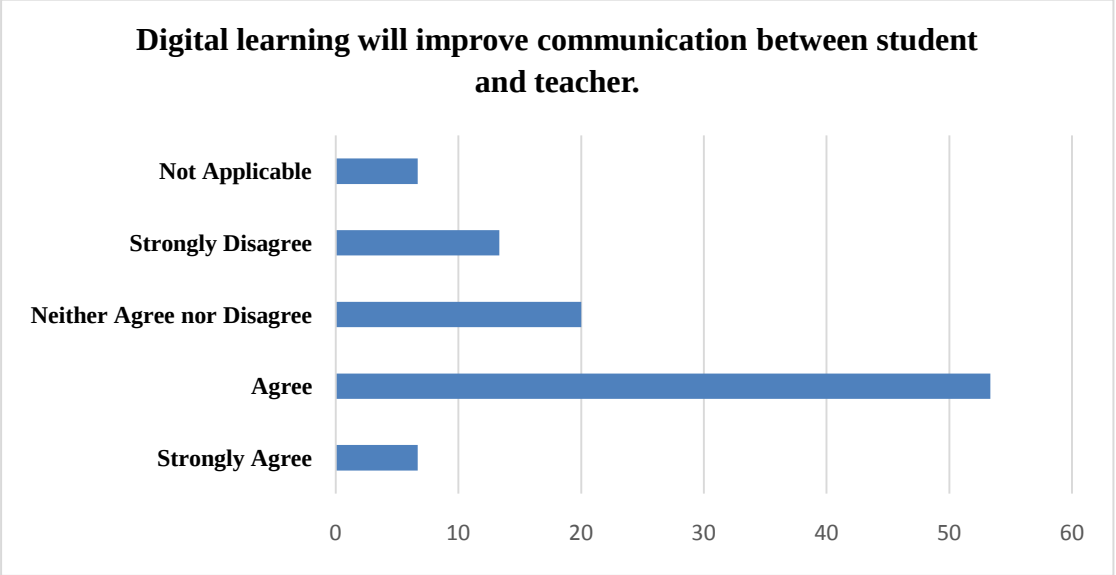
Question three is an example of a quantitative analysis. It is based on counting students' responses on the question below. It is found in the pre-learning experiences questionnaire, statement 2, on page 175 in the Appendices:

Table 2. Digital learning will bring new opportunities of learning. (Also found in the Appendix, page 207)



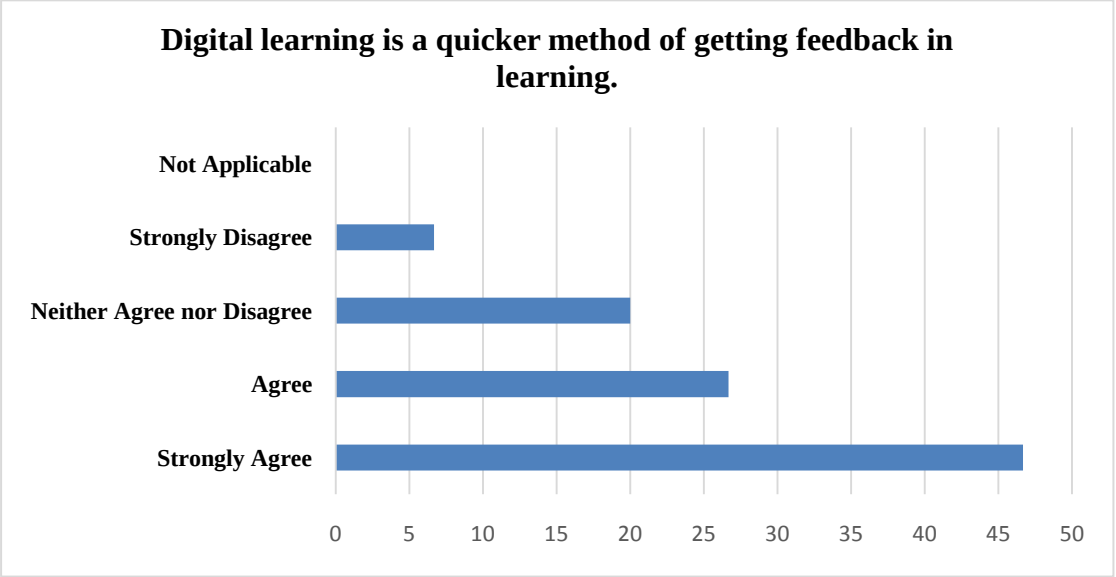
As it can be seen in the first chart, the majority of the students, that is, seven of them agreed that digital learning will bring new opportunities of learning in the class. This is followed by four students who strongly agreed with this statement. One student neither agreed nor disagreed and one didn't think this statement is applicable in the given situation. Two students strongly disagreed with the statement and one thought that the statement wasn't applicable at that particular point.

Table 3. Digital learning will improve communication between student and teacher. (Also found in Appendix, page 207)



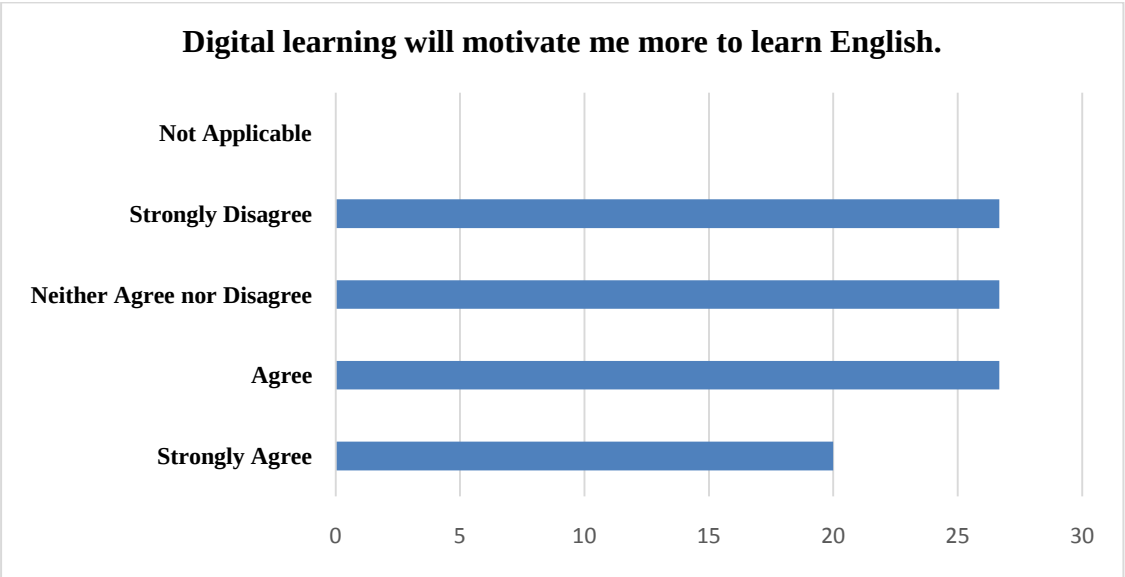
As the chart shows, the majority of the students (eight of them) agreed with this statement. Three students didn't have an opinion, so they opted for the "neither agree nor disagree" option, two students strongly disagreed, one strongly agreed and the last remaining student thought the statement was not applicable in the given situation.

Table 4. Digital learning is a quicker method of getting feedback in learning. (Also found in Appendix, page 208)



On the next question, the majority of the students, that is seven of them, responded that digital learning is a quicker method of getting feedback in learning. This was followed by four students who agreed with the statement, three that neither agreed nor disagreed and one student who strongly disagreed.

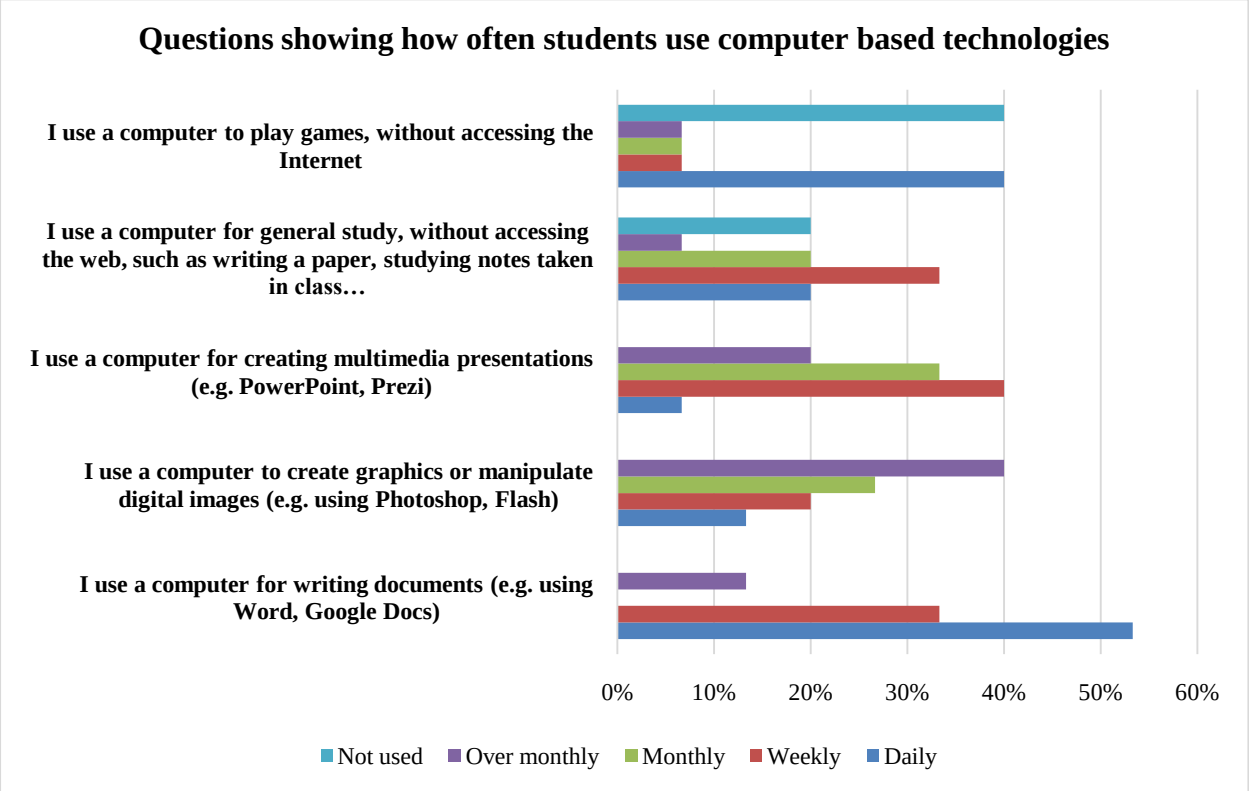
Table 5. Digital learning will motivate me more to learn English. (Also found in Appendix, page 208)



This question had the biggest diversity of answers. In the previous questions there wasn't a lot of variation between the students. There was always one answer chosen by the majority of the students. Here the situation was somewhat different. Four students strongly disagreed with the given statement believing that digital learning will not motivate them more to learn English. However, four other students responded that they agree with the statement. On the other hand, four different students answered that they neither agreed nor disagreed with the proposed statement and three students strongly agreed that digital learning will motivate them to learn English.

Also in the Pre-Questionnaire, students were asked to indicate how often they used the computer for different tasks. The following bar graph shows how often students use computer-based technologies not just for learning English, but for other subjects as well. (Also found in Appendix, page 177).

Table 6. Questions showing how often students use computer based technologies. (Also found in Appendix, page 209)



As this bar graph shows, the vast majority of the students, that is, eight of them used the computer for writing documents on a daily basis. Five students used the computer for general study without Internet on a weekly basis and six of them used it weekly to create class presentations. Students used Photoshop or Flash the least (over monthly) to create graphics or manipulate digital images.

4.1.1.b Open-ended Questions

In order to investigate students' unique views on their preferred way of learning English, the questionnaire contained four open-ended questions. The students were given freedom of expression and the questions were adjusted to the researched topic. The complete set of questions and students' responses are provided below:

15. What are the major advantages in using technology in the classroom? Please comment.

Two students answered that they don't know what the advantages are. The rest of them gave the following answers:

1. *Besides theory, we get to practice the things we learned in class and also the professor being present in class is great asset since usually some misunderstandings occur and she is there to fix it and explain it.*
2. *We learn new things.*
3. *Infinite access to information.*
4. *Using technology automatically in class*
5. *Presentations, having the opportunity to learn from slides, learn even on your phone if you are not home*
6. *The technology changes every day and if we combine its use with teacher in class we'll know more, it will make learning easier.*
7. *Omitting paper work, having power point presentations, electronic class attendance.*
8. *Having access to absolutely everything offline and online.*

9. *With technology we have more interactive classes and this has good influence on us.*
10. *Using projector in class is good, because teachers don't waste time writing on the board.*
11. *We can find every information we don't know.*
12. *We can understand things better.*
13. *Our classes are easier with the use of technology.*

The next question was the following:

16. What are the major disadvantages in using technology in the classroom? Please comment.

This time, three students did not provide answer to this question. These students were not the same ones that didn't respond to the previous question. Additionally, six students said that there are no disadvantages in using technology in the classroom. Below are the remaining six responses:

1. *Distractions.*
2. *The major disadvantage is that sometimes we use it for other reasons besides learning: Facebook, Twitter…*
3. *Some students tend to play games, spend time on Facebook, and in my opinion that is irrational.*
4. *If we can't use technology in the classroom we can't learn may new things.*
5. *It depends on the teachers and the students, some of them use technology for playing games.*
6. *We cannot focus in class by using Facebook or WhatsUp.*

The penultimate question in the questionnaire was:

17. Do you think that using technology in the classroom will help you learn better? Explain how.

Four students answered with a simple yes without providing additional explanation. The rest of them answered as the following:

1. *It is true because you can find the information you need faster.*
2. *Yes, because it's like theory and practice – you understand something better.*

3. *Technology saves time; we don't have to write when we have Power Point slides.*
4. *Yes, using technology will help us learn better because teachers don't spend time on writing, instead they explain more through presentations.*
5. *Yes, we learn more in class than we can at home.*
6. *I think it will but I don't know why. We'll see in the end.*
7. *I think it might in the aspect of visually presenting the material. Also, because of the possibility to access books, homework and materials from anywhere and anytime.*
8. *I don't think that using technology in the classroom will help to learn better, it can make it easier, but not better.*
9. *I can lose my books, my notes but not my account.*
10. *Of course. With the help of technology we get to listen to different presentations and learn new different words and add them to our vocabulary.*
11. *Maybe, but I really don't know.*

The last question of the questionnaire (refer to the questionnaire in the Appendix, page 181) was:

18. Do you prefer digital or in-person environment when learning English? Please explain your choice, or explain why you prefer one or the other in different situations.

One student didn't provide any answer to this question, while four others only wrote both combined, one wrote in-person and two said that they didn't have any preferences. Some of the students' responses in their integral form are given below:

1. *I'd say both combined would make the best way of learning English because there would be more interaction.*
2. *I prefer digital environment because this way we can exchange our ideas from home, at work, at University and not necessarily being present in class.*
3. *I prefer in-person environment because while learning online I could easily "leave" the classroom because it is simply a box with X in the top right corner. It's not that simple in an actual in-person class.*
4. *I prefer both choices. Digitally I can learn English from someone who speaks it better than me by watching videos and attending online classes.*

5. *In-person because most teachers tend to give far better explanations and simplify a lot of things.*
6. *I prefer digital because I will learn from home and I will be more concentrated.*
7. *Digital, because with technology we can find more information for every problem.*

In summary, the majority of the students, six of them, preferred both ways of learning, an equal number of students responded that they liked either in-person or digital learning, and two didn't have any preferences up to this point.

4.1.1.c The Coding System

The qualitative aspect of the questionnaire was to interpret the open-ended questions and comments and to look for patterns, as was explained in Chapter 3 when the author shows how she set up the analysis of the questionnaire. In this particular questionnaire students were asked to comment after every close-format question and the majority of the students commented. The author analyzed and interpreted the comments based on a previously set coding system. As discussed in chapter 3, coding represents an essential step in the process of research. Bryman and Burgess (2002) cite Charmaz (1983) who defines coding as 'simply the process of *categorizing* and *sorting* data', while 'codes' are described as serving to 'summarize, synthesize, and sort many observations made out of the data' (p. 5). Furthermore, they point out that coding of open-ended questions in survey research is used to quantify different categories of a variable (p. 5).

In this study, the author created a coding frame out of the initial reading of the answers provided to the open-ended questions and comments under the close-format questions. This initial categorization is important because it provides potentially emerging background to the research. The coding frame in this case was simple, as shown below:

Table 7. The coding frame

Lack of social interaction
Easy/fast access to information
Time saving
Quicker feedback
Students motivation

Not all students decided to comment on the open-ended questions. Nine students gave additional comments below the closed questions, while six only chose among the possible answers. Of those students that commented, few were reflecting on the same issues. Therefore, the students' comments are categorized and summarized below:

1. Lack of social interaction – *in a digital environment maybe we won't have immediate communication with the teacher and not everything will be clear; digital learning affects social communication; it really depends on the teacher; in-class learning will improve the communication between the teacher and the student because you get to talk in-person with the teacher; we can send email to the teacher and she will respond immediately; if we learn alone at home not everything will be clear and we need direct communication with the teacher.*
2. Easy/fast access to information – *everything now is digitalized; you can find everything online but you have to cross-check with other resources; students use LMS for easy access to learning materials; everything is a click away.*
3. Time saving – *we can find books, tutorials for free and quickly; it's easier to learn at home and come to class prepared, it saves time for class explanations; you can learn on your mobile while on the go; I can revise vocabulary while coming to class.*
4. Quicker feedback – *feedback will be available digitally; I will know the answer to this at the end of the semester; it depends on the teacher, if she is good she will be able to provide good feedback digitally and in class; in digital learning*

environment we can see quicker where we are with the learning, the feedback will be digital and we don't need paper copies;

5. Students motivation – *it has to do with student's own motivation, it does not depend on the way of learning; digital learning won't motivate students because the professor is responsible for the motivation; if I want to learn English I will, no matter what the instruction is; the best way to learn English is with technology; most of the materials online are in English so it will motivate me more.*

4.1.2 Observation notes on how students do with each task

Students were asked to rate their interest and engagement in learning after every given assignment. Then the researcher observed their interest in each task and sketched her observation. Later, these observation notes were written down and coded appropriately. The author developed a coding system based on the 'families of codes' as Bryman (2002, p. 7) names them. As he explains, these codes are generic and can apply to different contexts. They include: setting/context, informants' perspectives, how informants think about objects/people/ideas/, process codes, activity codes, strategy codes and personal relationship codes.

In addition, Lofland (1971) has provided the basis for a coding scheme:

1. *Acts* - action in a situation that is temporally brief, consuming only a few seconds, minutes, or hours.
2. *Activities* - action in a setting of more major duration—days, weeks, months—consuming significant elements of persons' involvements.
3. *Meanings* - the verbal production of participants that define and direct action.
4. *Participation* - persons' holistic involvement in, or adaptation to, a situation or setting under study.
5. *Relationships* - interrelationships among several persons considered simultaneously.
6. *Settings* - the entire setting under study conceived as the unit of analysis (1971:14–15, Lofland, as cited in Bryman, p. 8)

The observation notes taken in class were not only a means of data collection, but they also served as an important tool for analysis through commentary and coding. They provided an additional understanding of the study background.

In this study, the author focused on observing the interest and engagement of the students when faced with a particular assignment in a specific study environment. Additionally, she observed the interrelationships among students when working together, the setting and students' participation and reaction to the given situation.

The observation notes were firstly randomly written down and then systematically checked and put in the coding system. An example of a few of the observation notes is given below while the entire set of notes can be found in the Appendix, p.216 of this study:

Table 8. An example of observation notes

	Interest	**Engagement**	**Participation**	**Reaction**
Student 1, female	Seems excited to try new learning environments	Diligent and hard-working	Very involved in class, online tasks done on time	Thrilled when first task was assigned for home
Student 2, male	Shows particular interest	The online tasks were done in timely manner, shy during class presentations	Quiet in class	Interested, but keeps it to himself

The vast majority of students, that is, twelve of them, showed particular interest when the syllabus was presented and the assignments explained. However, three of them were less enthusiastic and were reserved. Over time all of the students were actively engaged in the tasks and their reaction was always positive. In summary, most students seemed interested, although not everyone participated equally in the beginning. That changed as the learning gradually progressed and students switched back and forth between in-class and digital learning at home.

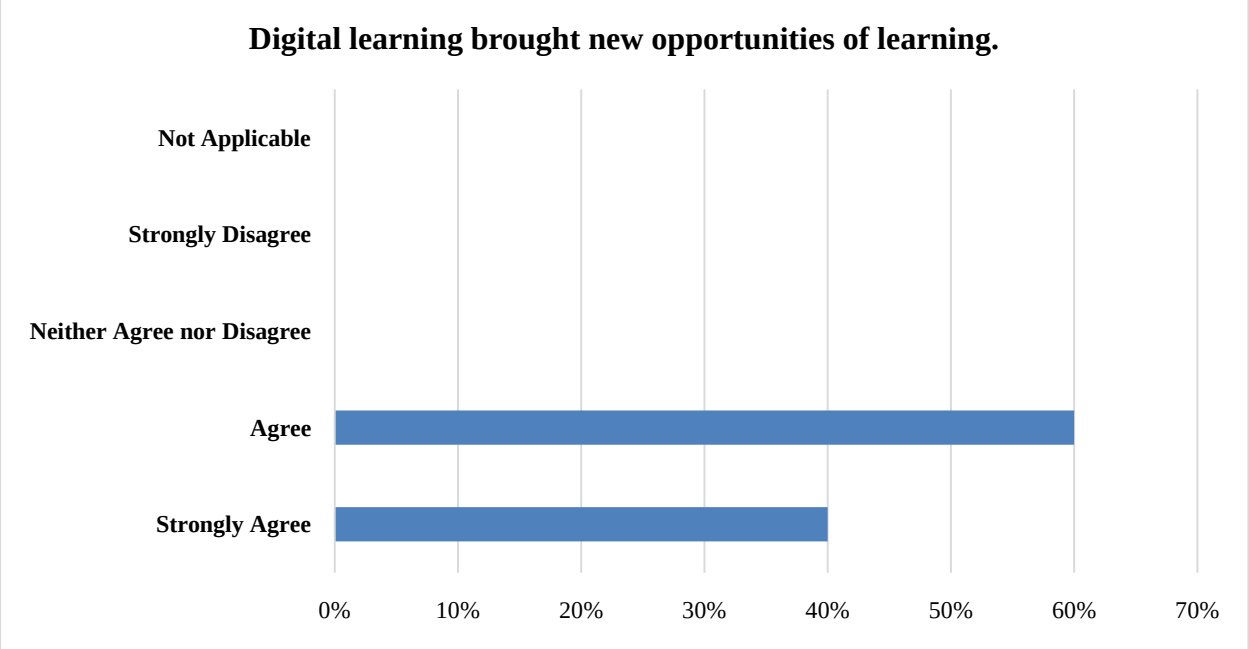
4.1.3 POST-QUESTIONNAIRE OF STUDENT PREFERENCES FOR USING DIGITAL LITERACY TO LEARN

The main idea behind this post-questionnaire was to find out whether students' perceptions and opinions have changed by the end of the course. The analysis was done both in qualitative and quantitative manner with counting the responses and comparing the pre and after answers.

4.1.3.a Close-format Questions

Given below is the table that shows how students' perceptions have changed after a whole semester of divergent learning environment for question one (see page 208 in the Appendix for all tallies):

Table 9. Digital learning brought new opportunities for learning. (Also found in Appendix, page 208)

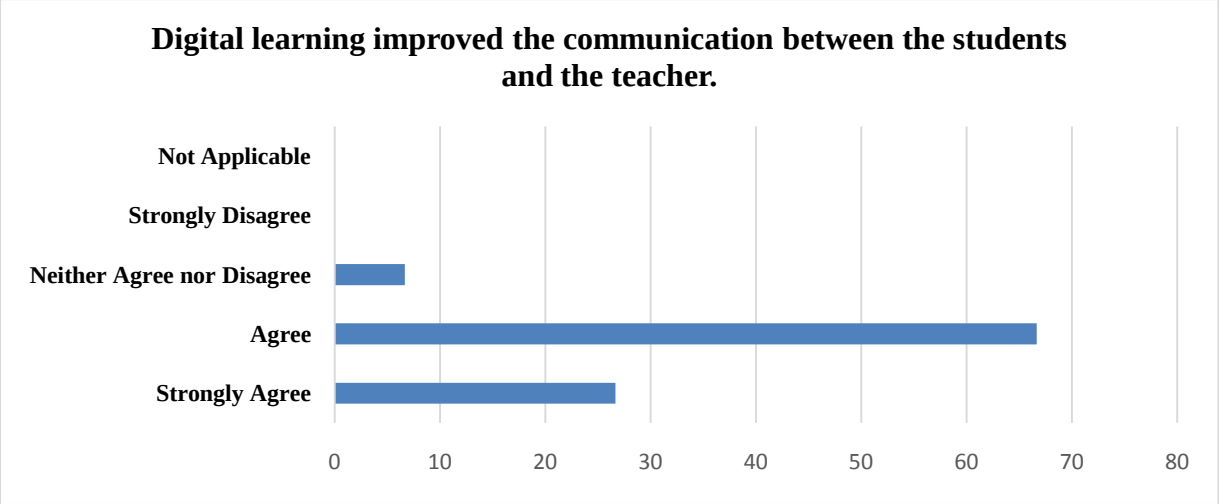


After being exposed to different learning environments the majority of the students replied that they agree with the corresponding statement. The answers from the pre

questionnaire differ from those in the post questionnaire. These results, which demonstrate a change, will be considered in chapter five.

The second question was the following:

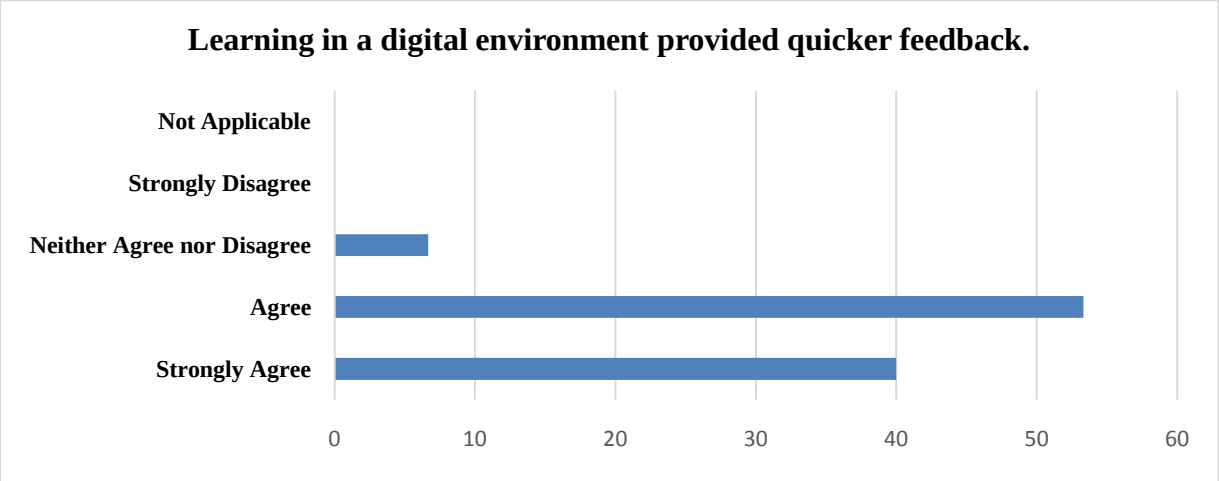
Table 10. Digital learning improved the communication between the students and the teacher. (also found in Appendix, page 209)



The students' responses clearly indicate that most of the students, that is, ten of them, agreed with the statement, four strongly agreed and only one student neither agreed nor disagreed. These responses again slightly differ from the ones in the pre-questionnaire where eight students agreed, one strongly agreed, three neither agreed nor disagreed, two strongly disagreed and one thought this question wasn't applicable.

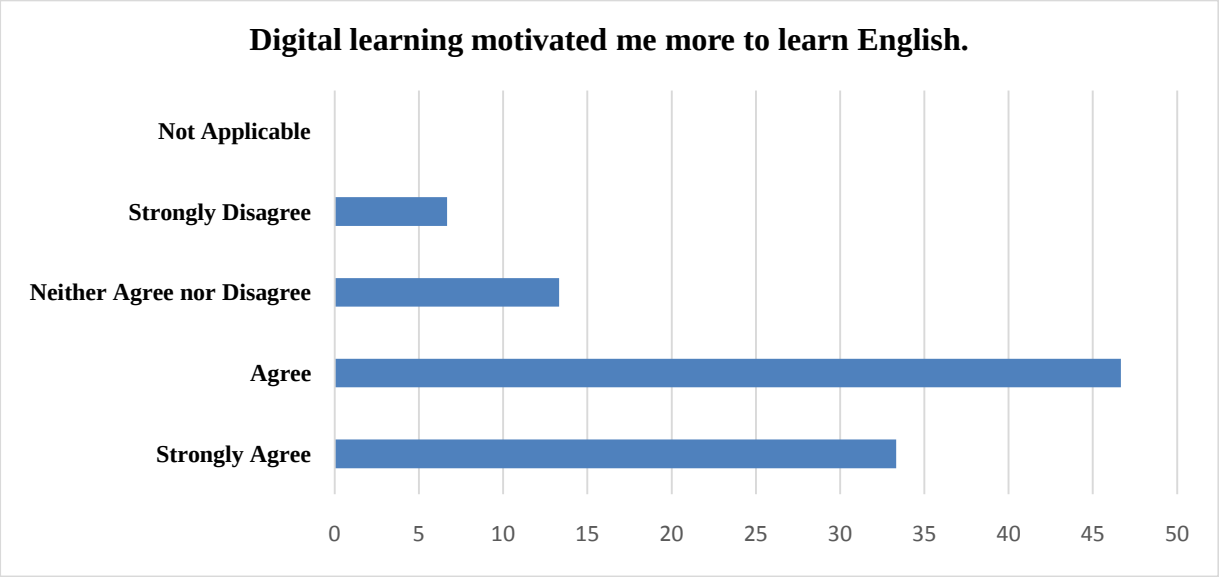
The third question on this questionnaire was:

Table 11. Learning in a digital environment provided quicker feedback. (Also found in Appendix, page 210)



As the chart demonstrates, eight students agreed with the statement, six strongly agreed and one neither agreed nor disagreed. This again varies from the same question in the pre-learning questionnaire where there is a diversity of answers. Namely, seven students agreed with the statement, one strongly agreed, four neither agreed nor disagreed, two strongly disagreed and one decided for not applicable. The responses indicate that after being exposed to feedback in the digital environment, students changed their perceptions. The last question from this set of questions here was:

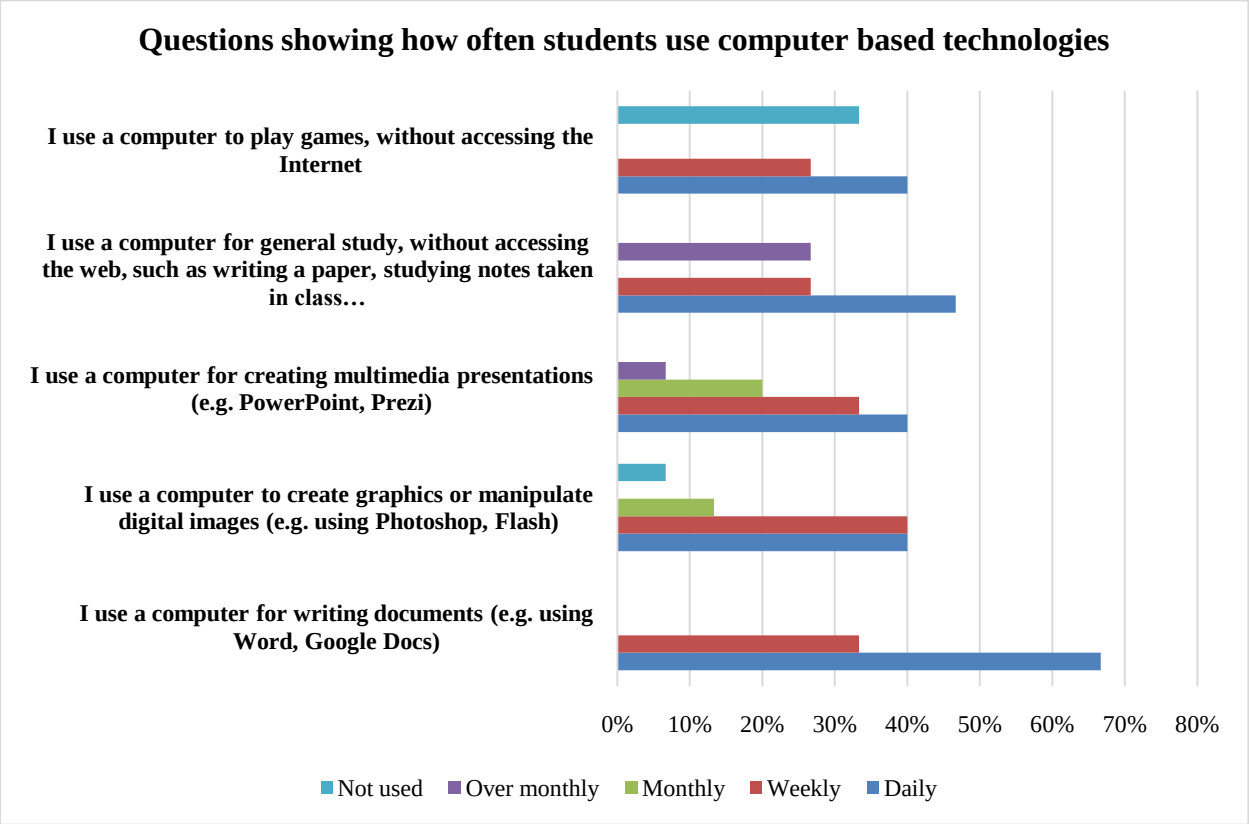
Table 12. Digital learning motivated me more to learn English. (Also found in Appendix, page 210)



As with previous responses, the majority of the students, that is, seven of them agreed with the statement, five strongly agreed, two neither agreed nor disagreed and only one strongly disagreed. If one compares the answers to the same question in the pre-learning questionnaire, it is clear that the students have changed their perceptions. They indicate that they were more motivated to learn English when exposed to digital learning environment. In the pre-learning questionnaire, the situation was the following: four students agreed with the statement, three strongly agreed, four neither agreed nor disagreed, and four strongly disagreed.

The next question is part of the questions focused on showing how often students use computer based, mobile based and web based technologies. The following table presents the change in the use of computer-based technologies. There is an obvious shift here as well with a slight increase of the usage of presentation tools, using the computer for general study and creating graphics. This is in line with the assignments students were exposed to and this was an expected outcome. The following table demonstrates students' responses:

Table 13. Questions showing how often students use computer based technologies. (Also found in Appendix, page 211)



The following question rated students' interest in the class assignments (see page 185 in Appendix):

9a. Of all the things done this semester which one was the most effective in learning English? Please explain your choice.

- On-site classes
- Learning from home
- Writing the in-class report
- Writing the online blog
- Prezi presentations
- Website evaluations
- In-class debate
- Discussion forum on LIBRI

Ten out of 15 students responded that in-class debate was the most effective assignment. For instance, some students explained that they liked the direct interaction they had with their peers. For others it was the exchange of ideas during the debate that prevailed in making the choice. The debate was followed by the Prezi presentations. Here the common explanation was that this presentation tool was different than the usual Power Point. By learning how to use Prezi they also learned English. The third of the most effective assignments was writing the online blog. Again the reason was experiencing new things in a new environment.

Besides commenting on these three assignments, students didn't comment a lot on the other tasks. There are scattered comments for some of the tasks followed by sole ranking of the assignments. By far the least effective task was the discussion forum on LIBRI. Students responded that having a debate in class was more interesting that having to discuss virtually with the peers. They didn't find this task particularly motivating and exciting.

This is how the final ranking of the assignments looks:

1. In-class debate
2. Prezi presentations
3. Writing the online blog
4. Website evaluation
5. On-site classes
6. Learning from home
7. Writing the in-class report
8. Discussion forum on LIBRI

4.1.3.b Open-ended Questions

In order to investigate whether students' views on their preferred way of learning English changed by the end of the semester the questionnaire contained the same four open-ended questions as before. Again, students were free to express their ideas and

opinions once the semester was finished. The complete set of questions and students' responses are provided below:

11. What were the major advantages in using technology in the classroom? Please comment.

Five students gave the same answer that technology helped them understand some things quicker. The rest of them had diverse responses given below:

1. *The major advantage is that we can finish the assignments at home.*
2. *We were able to quickly access certain webpages, we had laptop, internet access and great, fast projector.*
3. *We learned to use Prezi, it was interesting and fun to learn.*
4. *It was really helpful.*
5. *Well organized lessons and we learned a lot.*
6. *Presenting our work to other students.*
7. *It is connected to what I study, the classes were contemporary and there was a lot of information available.*
8. *It was easier to study this way, the best choice that teacher did.*
9. *I liked using WordPress.*
10. *It was a good way to learn English for CST.*

12. What were the major disadvantages in using technology in the classroom? Please comment.

On this question there were only two students who gave comments. The rest of them just wrote that there were no disadvantages in using technology in the classroom. The only comments were the following: *sometimes we weren't serious enough in class as we were supposed to be; sometimes we couldn't find a free computer lab.* Even these two comments don't have to do with the instruction, but more with students' behaviour and logistics.

The next question was the following:

13. Do you think that using technology in the classroom helped you learn better? Explain how.

Four students commented that due to technology they were able to find information easier and four others responded that the classes were more effective due to technology. The rest of the students gave the following responses:

1. *Yes, it gave me a lot of information in less time.*
2. *Yes, because that way of learning is more familiar to us.*
3. *Yes, by learning how to make better presentations.*
4. *I could see my colleagues commenting online and that helped me understand better certain things.*
5. *Yes, we had the explanations visually.*
6. *In some cases yes, in others no.*
7. *Yes, our presentations were easier and technology helped me a lot.*

The last question in this post-learning questionnaire was about students deciding which environment worked better for them. Here they had a chance to decide between the in-class learning, the digital or the combination of both modes of learning. However, students only wrote down their preferred way of studying without getting into too many details about their choice.

14. After the semester is finished can you tell if you prefer digital or in-person environment for learning English? Please explain your choice, or explain why you prefer one or the other in different situations.

Four students just wrote down that they prefer a combination of both environments. The rest (eleven students) gave these responses:

1. *I prefer digital learning because it is more useful for us. We can search for information and learn at the same time.*
2. *Digital environment. Why? It makes learning easier and it is the best way to learn English fast and communicate better.*
3. *I prefer digital learning better.*
4. *Both combined would be the best choice. Something works better from home and something better in class.*
5. *I prefer digital because it is faster and more creative.*
6. *I would choose digital because it easier and more successful.*

7. *I haven't made up my mind. There dis(advantages) in both cases, like being online all the time and not paying attention. Or getting things done in less time.*
8. *In-person environment so I can learn English better by communicating in class.*
9. *Digital environment because I can do the tasks from home and I don't have to come to classes.*
10. *In-person because I don't like doing tasks alone at home. I want to talk to other students and exchange ideas in class. And I learn better if I listen to the teacher.*
11. *Both. That way I can do something from home and still come to class.*

In summary, six students responded that they prefer a combination of learning environments, six opted for the digital environment only and two chose in-person environment as their preferred way of learning. Only one student wasn't sure which environment suits her/his needs better. If one compares the results here, it is clear that again there was slight change of mind in favour of the digital learning. Before the beginning of the semester, only three students preferred digital environment, whereas at the end of the semester the number of students who preferred digital environment increased to six.

However, the majority of the students decided that combination of both learning environments (blended learning) best suited their learning needs. One student, who preferred in-person environment at the beginning of the semester, opted for digital learning at the end. Another student, who chose both environments in the pre-learning questionnaire, decided on digital at the end, because the teaching/learning process was more creative according to him.

4.1.4 Interviews with four students from the class

The analysis from the interview was done by looking for similarities and dissimilarities (patterns) in the data. The patterns were looked at systematically. While recording what is said the researcher also recorded different emotions, and reactions. The interviewees had the questions in front of them, but all the additional responses were recorded as well. By recording the author means taking notice and writing side-notes, and

not actual use of getting words on voice memo. Every behavior that depicted interest or engagement was noted.

The interview was done the last week of the semester after all the assignments were finished and submitted. The researcher allocated two class hours for the interviews, having two interviews per class. The students firstly wrote down the answers and then the researcher went through each and every question separately with the student. All the additional responses, remarks and suggestions were marked down carefully.

Given below are the students' responses on the questions, given in their primary form (complete set of interview questions is provided in the Appendix, p.186):

1. What are my strengths for study when I am using a digital environment?

Student 1, M (a) – *The strengths include fast and effective way to conduct a given task, using vast majority of the information which is readily available.*

Student 2, F (a) – *It is more relaxing environment so I can manage my time as I want.*

Student 3, M (b) – *The things are visual and I'm a visual learner*

Student 4 F (b) – *I can be focused and finish the task earlier*

2. What are my weaknesses for study when I am using a digital environment?

Student 1, M (a) – *None.*

Student 2, F (a) – *I'm not as serious as I need to be, I get easily distracted.*

Student 3, M (b) – *I can't read when there is a long boring text to read.*

Student 4 F (b) – *I don't have any specific weakness, except for the Internet that is so slow sometimes*

3. What are my strengths for study when I am using a paper environment?

Student 1, M (a) – *For it easier to remember things when I use paper and pen*

Student 2, F (a) – *I get connected better with the book*

Student 3, M (b) – *I can better analyize things if I write them on paper*

Student 4, F (b) – *I can't think of any strengths*

4. What are my weaknesses for study when I am using a paper environment?

Student 1, M (a) – *It is time-consuming.*

Student 2, F (a) – *I need to have lots of breaks.*

Student 3, M (b) – *My handwriting.*

Student 4, F (b) – *It's boring environment to study in.*

5. How do I use my strengths?

Student 1, M (a) – *I have the ability to learn fast and effective which allows me to focus on different assignments.*

Student 2, F (a) – *I use them wisely.*

Student 3, M (b) – *To save time while learning because I learn visually, I can draw and connect things.*

Student 4, F (b) – *Effective scheduling.*

6. How can I correct my weaknesses?

Student 1, M (a) – *Deadlines are my biggest weakness. I can make a schedule and to-do list.*

Student 2, F (a) – *With self-discipline, strong determination and focusing on my goals.*

Student 3, M (b) – *By trying to overcome them, but I still need to learn how.*

Student 4, F (b) – *Making to-do lost and see the things I need to do.*

7. Discuss what you would do when faced with a specific study task in digital or paper based environments.

Student 1, M (a) – *I would first check the Internet and find how to deal with the task and for additional information I would go to the library.*

Student 2, F (a) – *In digital environment I would google it and maybe copy-paste it. In paper-based I would still google it and write it down so that I remember it.*

Student 3, M (b) – *In both environments I would google it.*

Student 4, F (b) – *I don't know, but if I have to choose, I would chose a task in digital environment.*

8. When you are learning in a digital environment, how do you manage your time? Do you schedule enough time for the task? Do you rely on the objectives stated by the instructor in class?

Student 1, M (a) – *I tend to organize it pretty well, the objectives stated by the instructor help me greatly.*

Student 2, F (a) – *It is harder to organize the time in the digital environment. We have a lot of things that distract us there.*

Student 3, M (b) – *I am a man of principles and when I schedule something I do it on time.*

Student 4, F (b) – *I schedule my time and assign different time for different tasks. I also study at night, it is easier that way for me.*

9. Did you have a realistic study plan and enough time to study when learning in a traditional (class) environment?

Student 1, M (a) – *Yes, I did.*

Student 2, F (a) – *Yes, I can say I had.*

Student 3, M (b) – *Yes, I listen carefully and write everything down.*

Student 4, F (b) – *No. (the additional comment was that the in-class lecture does not depend on students, teachers have already a plan what to do beforehand).*

10. Did you have a realistic study plan and enough time to study when learning in a digital environment?

Student 1, M (a) – *No, I didn't. Sometimes I just rushed through things.*

Student 2, F (a) – *No, there was always something unexpected happening.*

Student 3, M (b) – *Actually not, because I was most of the time on Facebook.*

Student 4, F (b) – *Yes, I liked this better, because I could organize my own time and pace.*

11. Were the designated assignments helpful? Why or why not?

Student 1, M (a) – *Yes, they were. They helped me improve my language and my critical thinking skills*

Student 2, F (a) – *Yes, they were because we learned a lot from exploring and preparing for each task*

Student 3, M (b) – *Yes, they were very helpful because we debated and enriched our vocabulary*

Student 4, F (b) – *Yes, we prepared a lot and learned how to work autonomously and later share the ideas.*

Throughout the interviews there was a positive feeling on the side of the students. They expressed their opinion that they learned a lot by being exposed to different assignments in different environments. They commented that it boosted their self-confidence and helped them increase their critical thinking skills.

4.1.5 DIGITAL AND IN-CLASS ACTIVITIES

The complete set of activities can be found in the Appendix of this study as part of the course syllabus, pages 193-204.

4.1.5.a Blogs and Class Reports

Blogs can be used in an ESP/EFL course for L2 learners to enhance student learning motivation, satisfaction, and performance as well as to improve the instructor's teaching effectiveness. In this context, the role of both face-to-face and electronic feedback is important because it can facilitate the overall productive use of feedback. Students were specifically satisfied with the feedback provided by their peers and the instructor on the blogs. By the end of the semester the majority of students reported that they enjoyed the blogging and found it helpful for enhancing their writing skills. The first group of seven students assigned to blog from home wrote with great enthusiasm and interest, although only one of all the students continued blogging after the semester finished. Some of the students didn't like the idea of writing a blog, but they did it nevertheless because it was required. A few students reported that they didn't like the idea of writing a blog alone at home. They preferred writing during class time in the computer lab. In summary, writing blog entries was new to students and they embraced the idea and did the best they could. When asked if the instructor should keep in the syllabus writing blogs as part of the grading criteria all of the students answered with yes.

In this class, students were also required to write an in-class report on what they had learned in class throughout the semester. The reports did not have to follow any particular guidelines and should have been written in an informal style. The blog was written in WordPress and the students had two posts, all written on different given topics previously

agreed upon and written in an informal style as well. Each student could choose two different topics to write about. The blog was published and students could comment on each post. The two types of writings were used to compare their effectiveness and motivational impact on the students.

Based on the instructor's observation, students' most interesting reaction was when they were given the option to write in class in an informal manner. They have never done that in an English class before and they were excited to do it. Also, it was the instructors' perception based on what was seen in class and during the interviews that the blog proved to be a really challenging task, far more exciting than the in-class writing.

In class the instructor can facilitate and monitor students' work. It is easier to observe the students' reactions and examine their behavior. The instructor can see if students went right into the writing task without procrastination, or if they spend the whole time writing. This is more difficult to be done with the group that was writing in the digital environment. Here, the instructor relied mainly on what students reported later. And they reported having a lot of distractions at home and not being able to set a schedule for them. Procrastination was a bigger problem in the digital environment than it was in the in-person environment.

The initial idea of the in-class reports was for them to serve as counterbalance to blog writing. As the mode of instruction delivery interchanged, so were class reports supposed to also. However, as the semester progressed it was clear that there wouldn't be enough time to go through every item with the equal amount of attention. The instructor then decided to keep one report writing at the end of the semester where students can write what they learned all through the semester, again in an informal manner. When assigned with this task, many of the students didn't like it, because they felt it was a repetitive writing, having done the blogs, and the pre and post learning questionnaire.

Given below are screenshots of two blog posts that were on the following topics:

1. My favourite TV series and the educational aspect behind it
2. Choose any IT topic that is of interest to you and write about it

Table 14. Blog post 4 (also found in Appendix, page 214)

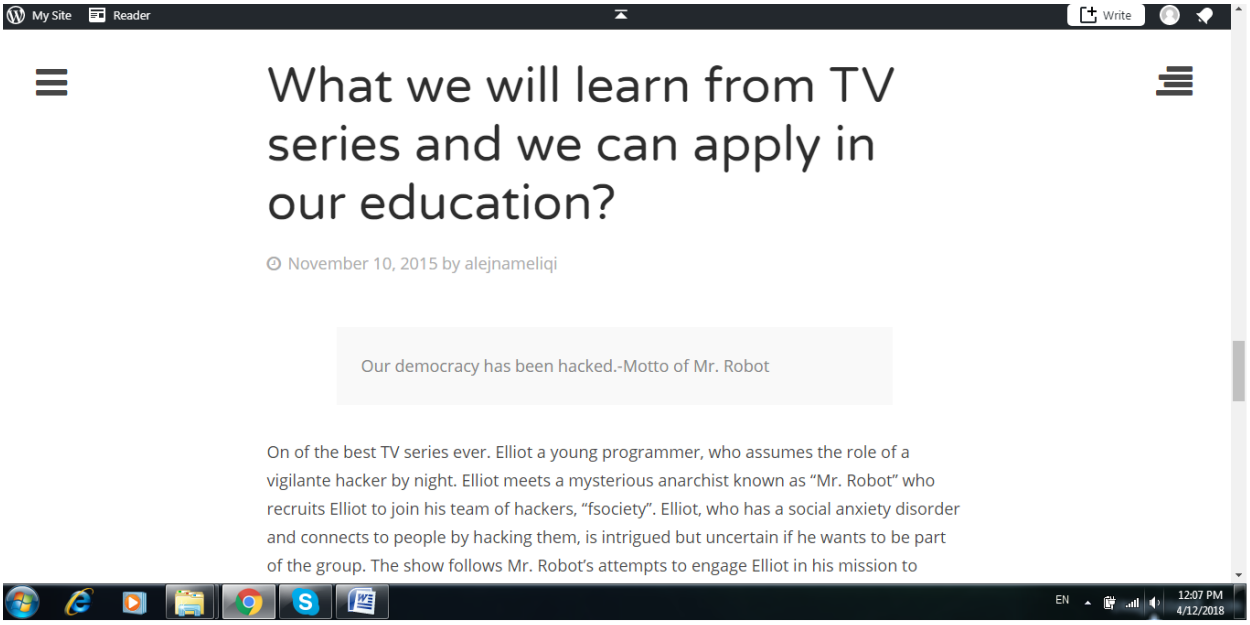


Table 15. Blog post 6 (also found in Appendix, page 215)

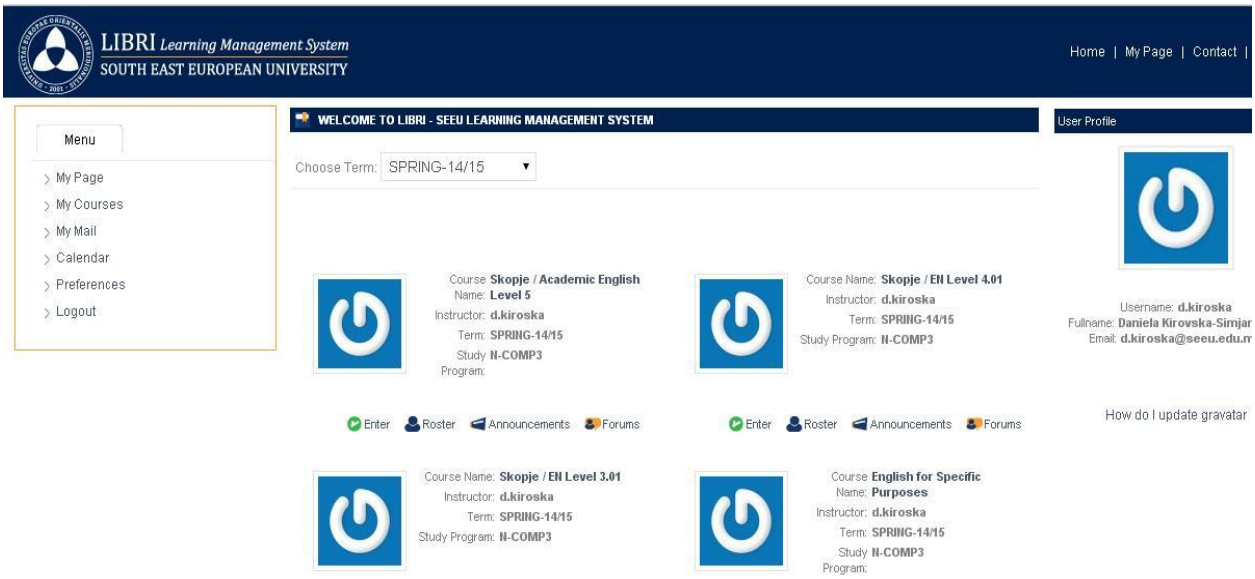
Print screens of the blogs can be found in the Appendix of this study, pp.213-215.

4.1.5.b In-class discussion (debate) vs. on-line discussion

The Learning Management System (LMS) that was used at SEEU at the time of the research was named LIBRI. It was a system that was used for over 5 years and it is now replaced with Google Classroom. LIBRI was only used by the SEEU students who got their credentials (user name/password) upon registering in their faculty.

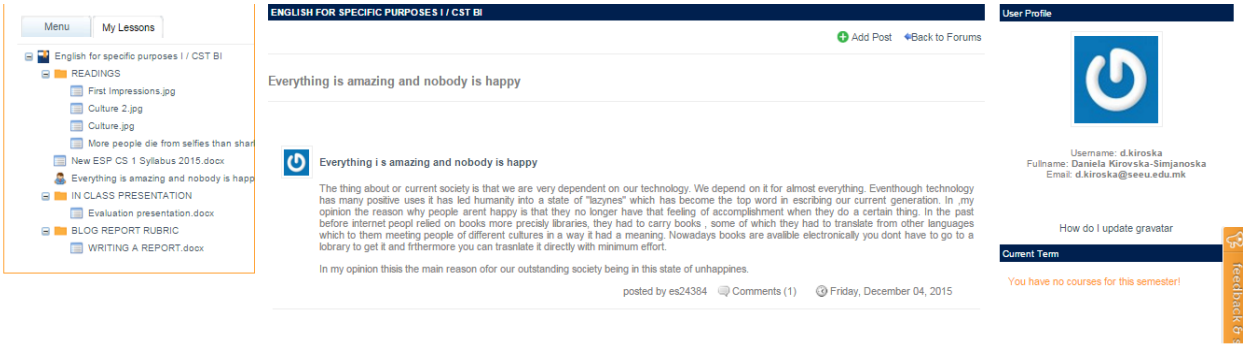
The picture below shows how the home page of LIBRI at the time of the research looked like:

Table 16. LIBRI Homepage



The next picture shows how the discussion forum thread looked:

Table 17. Discussion forum thread



Using LIBRI was an integrated part of the syllabus and students were awarded points for using it. It was mainly used for uploading class materials, assigning homework and engaging in discussion forums. As it was shown in the pre and post questionnaire supported with observations and interviews, students weren't particularly keen on using LIBRI in learning English. The lack of enthusiasm was principally based on the slow upload and download of the materials. If more students used it simultaneously the system would stop responding. The students complained about its inefficiency and slowness and they emphasized the fact that some of its features like the *dropbox* for example can be easily replaced with the email. For instance, one student commented: *I don't like using LIBRI because it is very slow and it doesn't always work.* Another student comment was: *I can send the homework on email, it's faster and easier.* Also some of the comments included the following*: I like class debates more than discussion forum on LIBRI. I just copy and paste from Internet and post it there, whereas in class I should prepare more; It takes forever to upload homework on LIBRI; I only use LIBRI because we get points for that.*

These comments are in line with students' responses in the pre-learning questionnaire on how often they use LIBRI. Six students responded that they use it several times a week, five used it once a week, two used it daily, one never used it and one student used LIBRI only once in the semester. And on the question regarding students' overall experience using LIBRI, ten students responded that their experience is neutral and five said it was a positive experience.

Whereas the LIBRI discussion forum was not very interesting for students, the in-class debate was chosen as the most effective assignment in learning English by the students. The question for the in-class debate was the following:

1. Video games – friends or foes? What are the advantages and disadvantages of playing videos games?

Debates have already been proven to be an effective tool in teaching English. This proved to be correct for this particular class as well. Students were first asked to state their opinions for or against video games and then the instructor put them in the opposite team. They had to do a research and prepare to defend a position that they didn't believe in. Initially, students' reactions weren't positive because they commented that it is difficult for

them to support the other side. After the debate, all of the students agreed that it was challenging and motivating to do this task.

Students' comments on the effectiveness of the debate were the following: *I like talking to my colleagues; it's good to prepare home and then talk in class; debates are always interesting especially if the topic is controversial; I liked the idea of joining the team that is opposite of what I think about video games, I got the see the other side as well.* Not all of the students gave comments on the ranking; they just decided to rank the assignments.

4.1.5.c Traditional lecture vs. Open Educational Resources

The rapid growth of Open Educational Resources (OER) provides new opportunities for teaching and learning, because at the same time, they challenge established views about teaching and learning practices in higher education. Macedonia has paid little attention to the growing popularity of OER and e-learning as well, especially in the higher educational setting and instruction leading to inability to see the OER potential in facilitating new styles of learning and teaching. One important issue that shouldn't be overlooked when talking about OER is the fact that localizing OER material is not only a question of language but also one of culture. It is important to be aware of cultural and pedagogical differences between the original context of use and the intended new use of the material.

The aim of using OERs in this study was to demonstrate whether they play a big role in the support of learning and teaching. For that purpose students' understanding of, attitudes towards, and usage of OERs were investigated. Therefore, the use of OERs was opposite of traditional lectures. As it was already mentioned in Chapter 3, the OER materials were taken from courses on Udemy, Khan Academy and Edx. The samples of the materials and tasks assigned are given below:

1. Udemy course - https://www.udemy.com/lift-your-storytelling-to-improve-your-public-speaking/
2. EDx course - Introduction to Computer Science
3. Khan Academy course - Becoming a better programmer

The students were divided into two categories: traditional (eight of them) and non-traditional category (seven of them). The groups were switched after the first assignment was done. That way all of the students could experience both modes of learning, through traditional lectures and form OER. The selected lessons were assigned for homework. The purpose was for students to analyze a course on a specific IT topic, but from a language point of view. They watched, read, analyzed, took notes and came to class and shared their experiences. Then they answered the following questions: What did they find interesting? What was the most motivating task? How did it improve their English?

Students shared their answers in class discussion and the instructor took down notes. Here the students were divided in deciding what type of lecture was more important to them. Half of the students thought that the face-to-face lectures were more important than the lectures assigned from the OER. Some of the comments were: *I feel like I'm missing out on something important if I'm not in class; I don't like studying alone at home; I get constantly distracted at home and cannot focus on the task; nothing can replace class time and talking with other people.* The other half thought that the OER lectures were more interesting than the ones provided in the face-to-face environment. Their comments were: *It was very interesting to watch videos and learn different things at home; Learning this way is better because we never have enough time in class to go through everything; I like the best the fact that I can pause, repeat the things I don't understand.* However, all of the students indicated that the use of OER had a positive impact on their learning and helped them learn English better by searching different word meanings, looking for phrases etc. They also agreed that the use of OER improved the quality of their learning experience and also the quality of the course.

4.1.5.d Reading in class vs. reading different websites (Web Quest)

The purpose of these activities was to get students exposed both to print and digital reading and find out what type of reading best suited their needs. The digital readings were handpicked based on students' syllabus and their immediate need for learning English for CST. The students were assigned selected texts to read and analyze from a language point

of view. The websites used for practicing reading were the one with long history in presenting the newest trends in the IT world, such as: https://www.technologyreview.com/; https://gizmodo.com/; https://www.digitaltrends.com/; https://www.theverge.com/.

There was no single book assigned for this course, but rather a selection of various reading texts from different sources. However, the most of the readings in class were taken from the *Business Result upper intermediate,* OUP (2008). This book was selected due to the interesting texts that covered both Business English and English for Computer Sciences. It was a starting point for discussions and other class activities. The whole set of reading texts can be found in the syllabus in the Appendix of this study, p.193.

The WebQuest activity consisted of comparing different Computer Science Departments around the world and their syllabuses. Afterwards, students had to choose five courses they would like to have as a part of their curriculum and elaborate on the choice. The complete WebQuest assignment can be found in the Appendix, p.192.

The biggest difference between the print and the digital reading that the students pointed out was the linearity of reading. While the in-class print reading was pretty much linear and straightforward, the digital reading was nonlinear. The students could click anywhere while reading, go to other links then come back again to the reading. For some students this was acceptable and normal, and it helped them understand the content of reading better; for the others it was a waste of time. They reported not being able to concentrate and finish the reading on time. Nevertheless, all the students agreed that no matter if it is done in print or digital the purpose of the reading stays the same.

4.1.5.e Class activities vs. watch same activities on video

As explained in chapter three, videos were used in the course to enrich students learning experiences. Videos can provide real-life examples, authentic language and initiate discussions. The purpose of using videos in this study was to examine which learning environment was easier/more motivating/more efficient when students are faced with using videos when learning vocabulary or different aspects of technology. Half of the students were watching the activities/videos in class and the other half did the same thing

from home. In order to check which group learned better, a short quiz containing the vocabulary from this assignment combined with the one from the vocabulary apps described below was administered after the first 'digital' group finished the task. By having two different groups it was easier to verify which one learned the vocabulary more. The quiz can be found in the Appendix, p. 205.

The purpose of the videos was also to allow more personalized learning for the 'digital' group and to increase class time for interactive activities for the 'in-person' group. In both environments students had control over their learning with slightly more control on the side of the teacher in face-to-face-environment. In order for the students to see the relevance of using videos, the video lessons were connected to class discussions and assessment.

Students' comments in class indicated that there was no difference in the type of environment when learning vocabulary only. But when it came to watching the TED ED and the short film, students said the activities would work better in class. The reason for that is that such activities sparked a lot of discussion that is interesting in class. At home they only had to write themselves. This is in line with the results from the short quiz. There wasn't significant difference in the result between both groups. Both groups of students did well on the vocabulary quiz. All ten questions were answered correctly by both groups, with one incorrect answer from the in-class group. Therefore, the vocabulary learning proved to be successful regardless of the way it was learned.

In summary, students agreed that alone vocabulary learning can be done efficiently and effectively in class and at home. However, when it comes to more interactive videos a combined (blended) environment would work better. Based on students' comments the instructor concluded that students can do the online activities in class and later on a discussion can be initiated. This way the students can see video lessons as useful resources that add to their learning experiences.

4.1.5.f Learning set of vocabulary words in traditional manner vs. using vocabulary app

The vocabulary assigned for learning in this ESP group was taken from different reading materials. There was no particular textbook used in class. One of the learning objectives for the course was to study vocabulary related to computer components, *the phubbing phenomenon*, the difference between activism and *slacktivism,* IT careers, different types or corporate culture*,* programming languages, networks, marketing and online presentations and videoconferencing. The reasons for learning vocabulary traditionally and with vocabulary apps were provided and discussed in the previous chapter. The purpose of these activities was to determine whether students like learning vocabulary online with vocabulary apps as much as they like spending their time online. The question that the author was trying to answer through these tasks was: Is the extent to which students use technology in their everyday life related to their preferences for their use of technology at the University? Particularly, the question referred to the use of mobile phones and mobile apps and their role in learning vocabulary.

A set of vocabulary words was learned in class during class time. The learning was done traditionally, by reading, explaining the meaning and using the word in context. The digital learning was done using vocabulary app or a website specialized in technology. For the groups of students that learned from home there was a self-progress check test after every set of learned vocabulary. However, *t*o check which group learned better a short vocabulary quiz consisted of vocabulary learned through the previous task as well was administered after the first assignment. This way, the author could measure the level of understanding of certain words.

The quiz can be found in the Appendix, p. 205.

For the group that learned the vocabulary in a digital environment the following apps/websites were used:

1. English 4 IT - *https://www.english4it.com/*
2. Memrise – *www.memrise.com*
3. Duolingo – *www.duolingo.com*

Beside the formal assessment of acquired vocabulary, the level of satisfaction and motivation in learning in class or digitally was jotted down also. The results from the quiz are shown in the section above. The notes indicated that students, similar to the video tasks, didn't see any significant difference where they learned the vocabulary. Moreover, the majority of them pointed out that they liked the idea of downloading an app and learning the words on the go. A few students, however, thought that the vocabulary learning should only happen in class with the assistance of technology. One thing that all the students were concerned about is the fact that they were not always sure whether they really learned the words or not when learning in a digital environment. Students commented that they use their phones for being online, but they are not used to using them for actual learning.

4.6 Conclusion

This chapter has presented the findings from each data collection instrument used in the study. The findings are consistent across the several data instruments used. From the responses it can be concluded that students are not able to define the term '*digital natives*', they have never heard of it before; they agree that they like digital learning; they use many digital tools, although sometimes not for learning.

Students are not particularly certain how to evaluate the reliability of the materials they find on Internet. They sometimes do cross-checking but are generally not sure if the materials they come across are reliable or not. Most of the students believe that digital learning will bring new opportunities of learning, especially having more motivating and challenging tasks. They report using technology for learning, but mostly for writing in word and checking the LMS for homework. The major advantage for using technology in the classroom, according to students, is the infinite access to information, while the biggest disadvantage is being distracted by social media. Students agree that technology will help them learn better and when given the option to choose the learning environment most of them would opt for a combined (blended) learning.

After being exposed to divergent learning environments throughout the semester, the students agreed that digital learning motivated them more to learn English. The digital learning also improved teacher-student communication. During the interviews there was a positive feeling that learning different things in different environments was very motivating and interesting. It helped students increase their critical thinking skills and improved their autonomous learning. Students' comments indicate that some learning activities work better in the classroom, because they require social interaction, while others work better in a digital environment outside of classroom walls. Students' learning styles and personality are also key factors in determining what works best and where.

In Chapter five the researcher will interpret these findings, answer the research questions posed in chapter 3, provide recommendations, and consider limitations of the study.

CHAPTER 5

INTERPRETATIONS, CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

5.1 Introduction

This study was designed to identify student perceptions about the strengths and weaknesses of the face-to-face learning and digital learning. The purpose of the study is not only to show how the instructor applies technology in the instruction of ESP, but also to examine students' understanding of both modes of language learning and which one suits them better. The researcher's main goal was to discover whether students learn better in a digital or in an in-person environment, having in mind that the students are 'digital natives' or Generation Z whose "natural" environment would be the digital one. Additionally, the study intends to set up solid foundations for the further ESP syllabus development taking both sides of the teaching/learning process into account. The importance of discovering students' perceptions and preferences is because, when the instructors know what works best for their students, they can easily decide on what is best done in class and what outside of it.

Nowadays, due to technology, learning can happen anywhere, anytime and does not need to be confined to classroom walls. Nevertheless, some activities will still be more effective when they happen inside the classroom, but using digital tools the world can also become a learning place. Technology brings the world to the classroom; the times are changing and education together with the society enhances students' motivation. As Ellis (1994) indicates, effective language teachers should be enthusiastic and creative because language learners easily lose their motivation and desire to learn (p. 56).

The assignments used in the study were carefully selected in order to reflect the current need for assessing what students actually do and what are their perceptions as they study. That is the reason why quantitative and qualitative research methods were used. Whereas quantitative methods are good for tallying answers and creating checklists, qualitative methods provide more in-depth analysis of students' perceptions and reactions

towards different tasks and environments. The study aimed to validate the fact that students need to self-select appropriate learning environment based on their own learning preferences. Only then the learning will be effective and successful.

5.2 Interpretations

This section will consider each instrument used and what the findings mean. Every instrument will be compared and findings will be interpreted. The most significant findings are presented below in different sections.

5.2.1 Pre and Post-Questionnaire of student preferences for using digital literacy to learn

Students were given the pre-questionnaire at the beginning of the semester and the post-questionnaire in the end of the semester. Some of the questions were the same on both the pre and post, and some required their opinion after the end of all the assignments. Each question has been rephrased in terms of a finding (using the coding procedure) resulting from the pre to post responses. Refer to chapter four and Appendix, pp.177-185 to see the specific questions and responses.

- **Students weren't familiar with the term 'digital natives' nor did they associate the term with themselves. Later in the semester they understood the meaning of the term.**

Students were given the pre-questionnaire at the beginning of the semester and the post-questionnaire in the end of the semester. Some of the questions were the same and some required their opinion after the end of all the assignments. Not surprisingly for the instructor, the students didn't know what 'digital natives' were, which was the first question on the questionnaire. Students, by their own recognition, were interested in different tech news, and new innovations, but they weren't particularly familiar with the terminology used to describe the new generation. By the end of the semester students understood more fully the meaning of the term digital natives, although knowing the term is not as important as

actually being digital natives. Through class discussions they shared their ideas on how they envision themselves in the digital world. However, they were somewhat familiar with the term digital learning or digital learning environment. They perceived the digital learning environment as one where technology is used to enhance the learning. This wasn't included as a question in the questionnaire, but it was posed as a question afterwards. The idea was for the question to initiate a discussion were all students would be engaged.

- **Students lack the necessary skills to evaluate the reliability of online materials.**

When it comes to evaluating the reliability of the materials students find on Internet, the answers indicate that students do not know how to assess whether a site is trustworthy or not (refer to chapter four and to Appendix p.177). They mostly rely on popular sites and Google as a search engine. This is due to the fact that although students are skillful in using technology, they cannot simply evaluate everything they find online. They don't possess the necessary skills for assessing the validity and reliability of the online materials. They had never had any kind of training or information how to do that. They solely rely on their intuition and occasionally they do cross-checking with other sources. It is believed that the exposure to technology in the early years gives students greater understanding of technology, but this is an area where that is not the case. Just because students are able to search and find different materials on the Internet that does not necessarily mean they can evaluate the authenticity and the relevance of such materials.

This question wasn't used in the post-questionnaire, but instead it was part of the self-assessment skills question which is discussed later in the chapter. However, students were required to use references after their class presentation. These reference sites were analyzed after each presentation in terms of why they were chosen, what they think of their validity and so on. In addition, students had a website evaluation assignment where they were expected to evaluate the reliability of a chosen site in terms of its authority, purpose, coverage, currency, objectivity and accuracy. These criteria dealt with the content of the websites rather than the design. The complete guideline for the website evaluation can be found in the Appendix, pp.218-219. Students found this to be of a great importance since they were never taught to look at websites in this manner. This small training proved to be

beneficial and it improved students' skills and confidence in searching for the right materials online.

5.2.1.a Close-format Questions

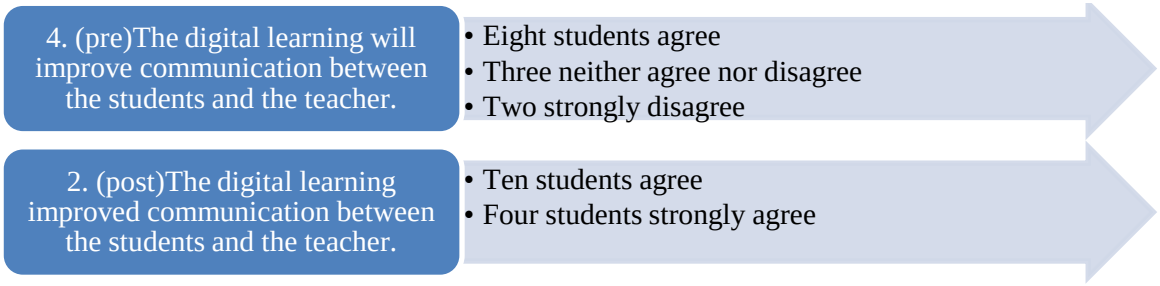
In this section the close-format questions will be compared and interpreted. For further consultation the complete charts can be found in chapter four and in the Appendix, pp.207-212. Given below are the most frequent answers to these questions:

- **Students believe that digital learning is a positive learning experience.**

3.(pre) Digital learning will bring new opportunities of learning.	• Seven students agreed • Four students strongly agreed •Two students strongly disagree
1.(post) Digital learning brought new opportunities for learning.	• Nine students agree • Six students stronlgy agree

The answers on this question from the pre-questionnaire differ from those in the post-questionnaire. It is clear that there has been a change of mind in favour of the digital learning. The change of perception occurred due to the challenging assignments that students needed to do alone at home. If the majority of the students believed that learning English is best done face-to-face at the beginning of the semester, the end reshaped their opinions. Students seemed to discover that spending time in the digital world can be helpful not only for gaming but also for learning. They appreciated tasks that demonstrated how digital learning puts to use what they are already familiar with daily for personal entertainment. Students seemed interested to further explore the possibilities of digital learning and expand their knowledge and skills. They were interested in the potential of mobile phones and how they can be used not only for social media but for learning as well. The fact that they have access to every possible type of information made them realize how to value that access and how to further utilize that information for learning. In summary, students recognized the potential of digital learning in not only bringing new opportunities for learning but also in connecting their own digital world with the academic setting. That way their natural environment where they 'play' becomes a space where they also learn.

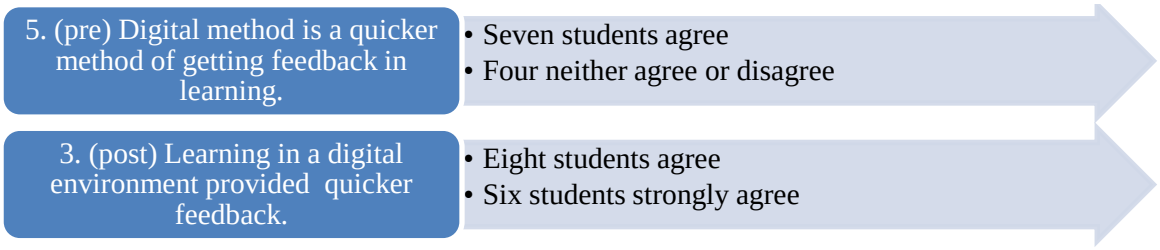
- **Not all face-to-face instruction is interactive. The teacher can also create interactive online learning environment (the complete chart can be found in chapter 4 and Appendix, p.207).**



The responses on this question again slightly differ from the ones in the pre-questionnaire where eight students agreed. The responses suggest that students think that due to digital learning the teacher-student communication has improved. Initially, students put a lot of emphasis on the verbal and social interaction between the students and the teacher. They suggested that they rely heavily on verbal cues used by the teacher when explaining the assignments. Thus, they expected that the ability to decide what was important when learning in a digital environment would not provide verbal clues and would be an insufficient communication process. Through interaction with the instructor in the face-to-face environment, the instructors' tone or emphasis on certain parts of the task was a signal for the students what they should be paying attention to. They were not sure that they can infer that through email.

However, at the end of the semester almost all of the students (14 in total) agreed that digital learning improved the teacher-student communication. The change occurred because they understood the reliability of the online communication and how fast the information can be exchanged. Students appreciated the fact that they don't have to wait until the next class to ask a question or express their concern. Some of the shy students benefited from writing emails as well, because their lack of confidence to ask in class was substituted with the opportunity to freely ask for additional information. In summary, email as a form of communication was greatly accepted by the students and they all found it to be very beneficial.

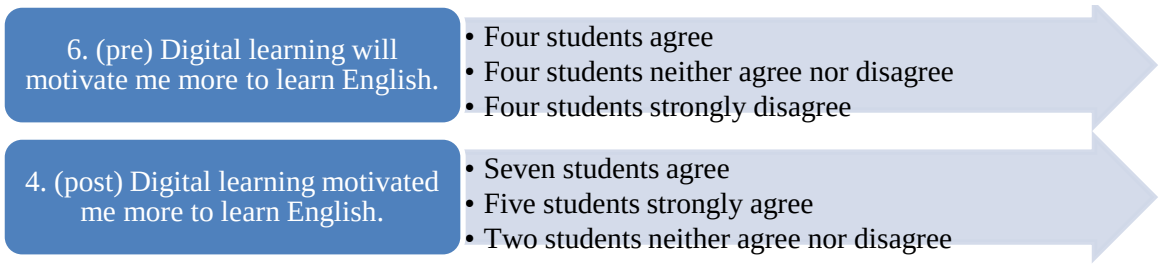
- **The feedback provided in a digital environment can be as effective as the one provided in the face-to-face environment.**



The responses indicate that being exposed to feedback in the digital environment is quicker than what can be provided during in-class learning, as it can be seen in chapter 4, and Appendix, p. 208 and p. 211. These responses demonstrate substantial change of perception on the side of the students who were undecided about the question in the beginning of the course. The shift happened because the students realized the significance of the feedback in the digital environment. Their tasks were assessed swiftly and once the assessment was done they were informed on the points. Providing quick feedback happens in the class also. But this mainly depends on the type of assignment that is assessed. It works for immediate presentations, and for class debates, but it doesn't for writing exercises or learning sets of vocabulary. However, the change of perception occurred also due to the fact that in the digital learning environment the instructor wasn't the only provider of the feedback. Many of the vocabulary assignments were assessed immediately as students learned them on their phones through the vocabulary apps. Furthermore, the same is true for the video lessons where there was an immediate feedback after the completion of the task.

In summary, during the face-to-face lectures the students rely mostly on the teacher's feedback. Sometimes peer feedback is used also. However, in the digital learning environment students face a different feedback provider, which is no longer the teacher. For most of the students this proved to be motivating enough to change their initial perception.

- **Digital learning increases students' motivation.**



Initially, there was considerable diversity in the answers on this question (see chapter 4 and Appendix p. 208 and p. 211 for further consultation). It was the students' perception that motivation for learning cannot be connected to the learning environment or the type of assignments. They felt that they would not be motivated enough to engage in the course or complete the work without attending a physical classroom. However, if one compares the answers to the same question in the pre-learning questionnaire, it is clear that the students have changed their perceptions. They indicate that they were more motivated to learn English when exposed to digital learning environment.

Furthermore, students' responses demonstrated that the use of two different modes of delivery increases students' motivation and their intrinsic desire to learn, thus intensifying their level of engagement and learner efficiency. This is in accordance with methodically integrated digital instruction in the syllabus. Students' responses also indicated that having two different learning environments helped them learn how to prioritize various tasks thus becoming more independent learners.

- **Students spent a lot of time online. During that time, they commonly use core technologies, and not so much specialized technologies.**

The next question is part of the questions focused on showing how often students use computer-based, mobile based and web based technologies. The following table presents the change in the use of all three technologies. Although it presents findings, the table is placed here because it is necessary to view it as interpretations are made. Both the pre and post responses can be found in the Appendix, p. 209 and p.212.

Table 18. Time spent on technology-related activities

THE COMPUTER	**Daily Pre/Post**	**Weekly Pre/Post**	**Monthly Pre/Post**	**Over monthly Pre/Post**	**Not used Pre/Post**
I use a computer for writing documents (e.g. using *Word, Google Docs*)	8/10	5/5		2	
I use a computer to create graphics or manipulate digital images (e.g. using *Photoshop, Flash*)	2/6	3/6	4/2	6/0	1
I use a computer for creating multimedia presentations (e.g. *PowerPoint, Prezi*)	1/6	6/5	5/3	3/1	
I use a computer for general study, without accessing the web, such as writing a paper, studying notes taken in class…	3/7	5/4	3/0	1/4	3/0
I use a computer to play games, without accessing the Internet	6/6	¼	1/0	1/0	6/5
THE MOBILE PHONE	**Daily Pre/Post**	**Weekly Pre/Post**	**Monthly Pre/Post**	**Over monthly Pre/Post**	**Not used Pre/Post**
I use a mobile phone to call people	15/15				
I use a mobile phone to text/ SMS people	15/15				
I use a mobile phone as a personal organizer (e.g. diary, address book)	8/10	¾	1/0	3/1	
I use a mobile phone to access information/ services on the web	14/15	1			
I use a mobile phone to send or receive email	12/13	3/2			
THE INTERNET	**Daily Pre/Post**	**Weekly Pre/Post**	**Monthly Pre/Post**	**Over monthly Pre/Post**	**Not used Pre/Post**
I use the web to access the SEEU website or LIBRI	8/9	5/6		1/0	1/0

I use the web to look up reference information for study purposes (e.g. online dictionaries)	7/9	6/5	0/1		1/0
I use the web to browse for general information	14/15	1/0			
I use social networks (Facebook, Twitter)	14/14	1/1			
I use the web to send or receive email	13/15	1/0	1/0		
I use the web to make phone calls (e.g. *Skype, GoogleFi*)	4/5	4/8	3/0	0/1	4/1
I use the web to keep my own blog	1/6	¼	6/3	0/1	7/1
I use the Internet for general study	11/15	4/0			

On the pre-learning questionnaire nearly all students indicated that they use computers for writing documents and creating class presentations. The mobile phones were mainly used for calling people, texting, sending/receiving emails and accessing information on the Internet. The web-based technologies were mostly used for surfing the Internet for general information, visiting social networking sites and for coursework. More specialized technologies were less commonly used. The least used activity was creating graphics and manipulating digital images. This was followed by keeping an online blog. At the end of the semester there was an obvious shift with a slight increase of the usage of presentation tools, keeping online blog and creating graphics. As Table 6 in chapter 4 and the appendices show, time spent on technology-related activities was in line with the assignments students were exposed to and this was an expected outcome.

There was one significant finding here that was somewhat expected. The mobile phones have taken the place of the computers, becoming more popular tools for learning and searching for information. This was expected because students have access to their phones 24/7, and with available Wi-Fi or 3G, 4G they can connect to the Internet everywhere, anytime. This makes mobile phones very powerful learning tools when used wisely in class and at home.

There was also a significant increase in the number of students who used graphics on a daily basis. This is connected to the fact that students needed different digital images to place in their presentations and blogs. In addition to this, there was a noteworthy increase in the use of presentation tools — especially Prezi — in the post-questionnaire answers. Students found Prezi to be an excellent substitute to the PowerPoint. All of them had positive experiences when using Prezi and that transferred into their responses.

- **Students are comfortable with using a core set of technology for learning.**

Here students rated themselves as skilled and experts in using a core set of technologies, such as: Power Point, LMS Libri, and the Internet. They constantly used them for other subjects, besides English, and they thought they don't need additional training. The following chart is placed here because it helps make interpretations clearer. Both pre and post questions can be found in the Appendix, p.177 and p. 182.

Table 19 . Students' self-reported skill level pre and post

	Not at all skilled Pre/Post	**Not very skilled Pre/Post**	**Very skilled Pre/Post**	**Expert Pre/Post**
1. Using LIBRI		5/0	6/6	4/9
2.Using Presentation Software (PowerPoint, Prezi)			10/3	5/12
3.Using the Internet to search for information			5/3	10/12

However, after being exposed to different tools (e.g. Prezi), students reported that they needed additional explanation of their use. They felt that they cannot just simply transfer their knowledge of some technology tools to learning English. It certainly helped them that they are skilled, but that only wasn't enough. Also, they didn't think they are particularly skilled when it comes to searching information for learning. That is the reason there was a slight change in reporting students' skills for the last statement.

When it comes to the use of presentation software such as PowerPoint or Prezi, it is clear that there was an obvious shift in students' perceptions on their skill level. The

majority of students viewed themselves as very skilled in the use of such software. However, in the end of the semester, the majority of the students regarded themselves as experts, leaving only three students in the very skilled area. After using Prezi for their presentations and listening to their colleagues' presentations, students perceived Prezi to be a very helpful tool. They liked the interactivity it offered and the playfulness which is completely opposite of PowerPoint, which they perceived as overused and restrictive.

As for LIBRI, at the beginning of the semester students didn't see themselves as particularly skilled in using this LMS. They didn't use it for other subjects and they weren't keen on using it for English either. However, once they started using it and saw how easy it was, students' perceptions of their skill for using LIBRI changed. The materials for the course were uploaded there, the homework was given, and the discussion forum as well. Students had to learn how to use it and navigate through it easily. They didn't particularly like it, as it will be shown afterwards, but they learned how to use it.

- **Students mostly prefer courses that have effectively integrated IT in their syllabus.**

The majority of the students agreed that they get more actively involved in courses that use IT and such courses improve their learning. The question referred to other subjects that were not connected directly to computer sciences but were elective, such as languages (English, Italian, Macedonian, and Albanian) and others: intercultural studies, academic writing, professional career development etc. However, most of the students reported that they don't skip classes when materials from course lectures are available online. The students identified two reasons for not skipping classes. The first one was that they find these courses interesting and want to learn new things. The instructors in these courses realize the benefit of integrating IT in and out of classes thus making the classes effective and interesting for students. The other reason was that due to the strict class attendance policy imposed by the university, they need to be present in every class. Otherwise they won't be able to register for the final exam and therefore will increase the chances of failing the course. Consequently, for some students even classes that integrated IT will still be uninteresting and not motivating. They might skip

classes if the instructors didn't require attendance, signalizing that they are not so interested in the class or in-class material but only in passing the course. This is information that instructors should realize as motivation to learn rather than mandatory attendance leads to a better learning environment.

- **The most effective tasks were the ones that required social interaction, presentation skills and online writing.**

The question that relates to this finding is: *9a. Of all the things done this semester which one was the most effective in learning English?*

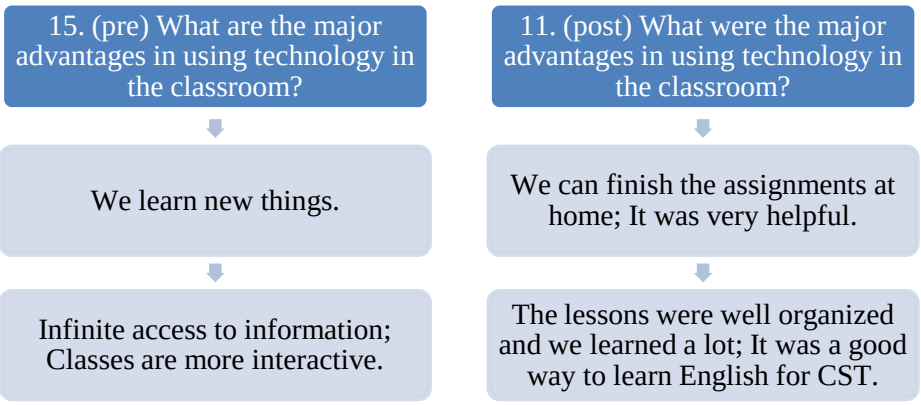
Students opted for the in-class debate as the most effective assignment. The reason behind the choice was the direct interaction they had with their peers and the exchange of ideas during the debate. Even in this era, students still put a lot of emphasis on the social interaction that happens within the classroom. They also highly appreciate the physical presence of the instructor, who is not just a teacher, but a guide and facilitator.

The debate was followed by the Prezi presentations. Here the common explanation was that this presentation tool was different than the commonly used Power Point. By learning how to use Prezi they also learned English better because that they learned to select the most precise terms in English and gained better expression skills. The third of the most effective assignments was writing the online blog. Again the reason was experiencing new things in a new environment. Even students who don't particularly enjoy writing indicated that blog writing was interesting and helpful. Students' generally don't like writing and they don't see its value in an ESP context. But, by creating more dynamic writing environment where they could exchange ideas and still be somewhat 'protected', students recognized the potential strength of blog writing.

5.2.1.b Open-ended Questions

The next types of questions on the questionnaire were the open-ended questions. They were used to obtain findings based on students' unique views on a given issue. The most significant interpretations are presented below.

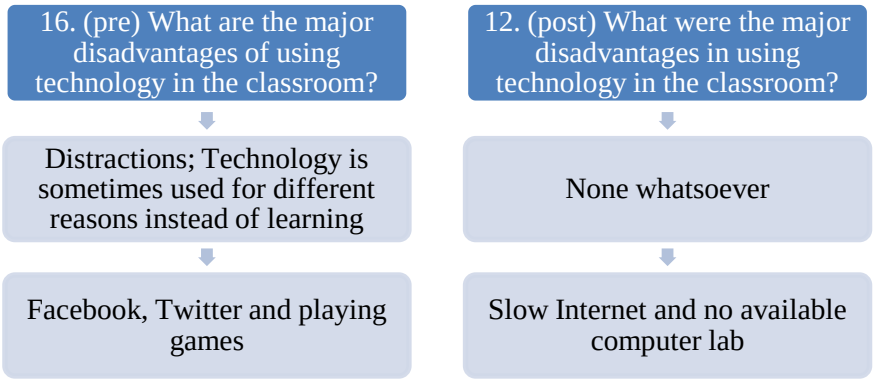
- **Students perceive technology as beneficial to their learning.**



In both pre and post-learning questionnaire students indicated many benefits of using technology in the classroom. These findings were anticipated and there was nothing surprising in the fact that students verified the significance of technology in the classroom. However, this finding does point to the value that students place on technology. Such a finding is important for instructors to realize, and for students to articulate to educators. This also means that students should take responsibility for seeking ways to use technology as often as possible as they learn.

Their responses indicate that students appreciate the autonomy and flexibility of learning outside the classroom environment. Being able to choose one's own learning space is important to students in the digital age. Also, their comments show that they appreciate well-organized lessons and recognize good ways to learn English for CST. They see that technology empowers them.

- **Students don't see major potential weakness in using technology in the classroom.**

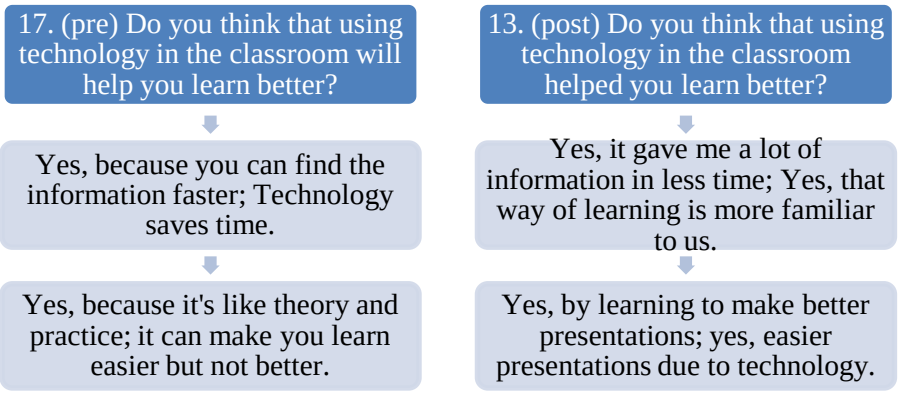


The majority of the students replied there were no disadvantages in using technology in the classroom. The only concern expressed by the students regarding this question was the distractions they face when learning at home or even in class. Due to the 24 hours access to Internet and technology in general, students feel a constant need to check their phones fearing that they might have missed out something important. If students do not learn to control this urge, they will face a substantial disadvantage while studying in a digital environment. Further, instructors will be constantly frustrated by what seem to be inattentive students.

These responses should indicate to instructors that part of their lessons should include suggestions or specific conditions that help students stay on task while learning in the digital world. Because the students in this study reported that, after taking this course, they had no distractions, the ways this instructor managed the distractions could be shared with other instructors. Students learn better and more effectively when they not only consume the digital content but create it as well. The collaborative learning, problem solving tasks and content curation lead to more attentive and engaged students who don't see technology as having any major weakness when used in the classroom.

Also, students do get frustrated when they cannot get the access they need, such as slow Internet or no availability to use the computer lab. Such issues can and should be rectified. Having slow Internet can get in a way of downloading necessary materials for class use, it can interfere with the learning objectives and it can hinder the learning process.

- **Technology is ubiquitous in students' lives and its use as a learning tool has become crucially important.**

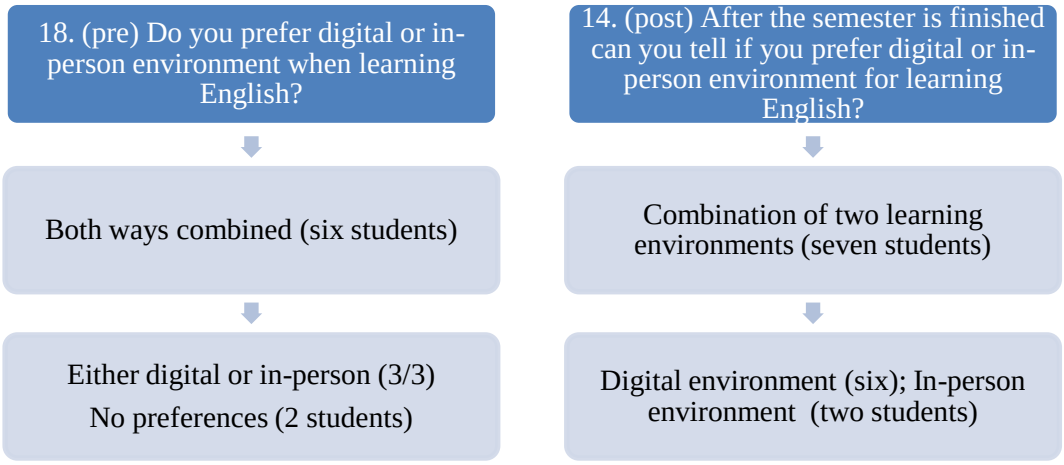


Pre and post-learning answers don't differ in their essential form. Students recognized the importance of learning better through technology at the beginning of the semester. The end of the semester only confirmed their previous perceptions.

The use of technology in the classroom depends mainly on the instructor's preferences and his/her teaching style. However, due to technology, students' learning cannot be longer confined within the classroom walls. Learning is happening outside of academic settings as well. The sooner the instructors acknowledge this and find a way to transfer students' insatiable desire to be online all the time into their learning in the academic environment, the better learning environments can be created.

In addition, students report that the way instructors are using technology in the classes has a great impact on the way students learn. If technology is used to promote and enhance collaborative learning and learner autonomy students tend to learn better.

- **Students identify a need for a combination of both learning environments as their preferred environments for learning English.**



As stated in chapter 4, if one compares the results here, it is clear that again there was slight change of mind in favour of the digital learning. The findings suggest that students were aware that some tasks work better in class and some at home. They recognized the value of having a teacher in class, but at the same time, they perceived themselves as capable of learning at home and not being physically present in class. Having interesting and challenging assignments had a significant positive impact on students' preferred learning environment.

In summary, students agree that the choice of the learning environment is based on their individual learning styles and the type of assigned tasks. In addition, they need to be exposed to different learning environments for a longer period of time in order to understand what suites them better. As students indicated they don't want to be told how to learn. Imposing one learning style or one mode of instruction delivery will not work in the classroom. Students want to have a say in what is learned and how the instruction is delivered. Different students have different ways of retaining and processing information. By letting students choose the instructors secure better learning environments and more effective learning.

Such findings imply that students want to take charge of their learning and know when a digital environment could work for them, especially if they have guidance from instructors who also understand when to include both types of learning environments. In addition, having different learning environments that cater to different learning styles leads to one of the biggest advantages of technology, that is the *personalized learning*.

Personalization in learning is achieved through instructional approaches that address the various learning needs and preferences of individual students.

5.2.1.c Emerging themes from the coding

- **Five themes emerged in the explanations that students gave for their preferred way of learning: lack of social interaction, easy/fast access to information, time-saving, quicker feedback and students' motivation.**

As explained in chapter three, a system of coding was used to determine conclusions. Each of the five themes that emerged is interpreted below. The coding system is presented in chapter 4, p.88.

Lack of social interaction. Before being fully exposed to the two modes of instruction, students indicated the lack of social interaction as one of the reasons why in-person instruction is superior to digital instruction. They appreciated the presence of the teacher and relied heavily on her explanations and direction in class. Students believed that the digital learning environment will lack social interaction and will be impersonal. They didn't regard discussion forums as equivalent to class discussions. However, after being exposed to learning in a digital environment, students changed their perception. From *in-person environment is better because you can talk to the teacher and not everything will be clear in a digital environment,* there was a change of mind to *learning in a digital environment is the best way to learn English and the instructor was guiding us all the time.*

The change occurred because the instructor made sure that her online presence is corresponding to the class presence, making the digital learning environment as interactive as possible. Students realized that they could "talk" to the instructor and other students in an online environment, perhaps in a way similar to a chat on Facebook. Not only students, but also instructors, should realize that social interaction means something quite different today than ten years ago.

Easy/fast access to information. Students agreed that the most positive characteristic of technology is fast and easy access to information. There was no change noted here from pre to post responses. The only slight difference was that students felt

more enthusiastic about finding relevant resources to learn from online, because they had consistent although not intensive training throughout the course. They felt more self-confident in choosing the best possible digital tools. Autonomy and speed are really important components of learning that instructors should integrate into their instructional environment.

Time saving. This factor is connected to the fast access to information. Getting information quickly meant saving time for other things. If planned appropriately, in-person and digital learning could lead to less time-consuming tasks, such as long explanations, writing on the board, checking homework and grading. In such cases technology is of great assistance, not only to the students but also to instructors.

Quicker feedback. This is one theme where students were a bit skeptical. They doubted that feedback can be provided in a digital learning environment the same as it is done in face-to-face environment. Once again, the perceptions changed because students reported emails as an effective way of constantly communicating with the instructor. Help and assistance was provided when needed, without waiting for the class or the office hours. Students discovered that they appreciated the immediate feedback received online, whereas in a classroom, maybe not everyone would get immediate feedback. Further, the feedback online can give students a better chance to think about a criticism and have time to make adjustments that may not happen in the classroom.

Students' motivation. Motivation was one of the most important factors that influenced students' preference for learning. Related to motivation was students' perception that they can stay more focused in a face-to-face environment. Even at the end of the semester, students reported that the greatest disadvantage of learning in a digital environment was their inability to fully concentrate while being online. This is a challenge in the digital world, as often is reported in studies. The Z Generation is constantly moving from one resource to the other, imagining that multi-tasking is really possible. Many recent studies have shown that multi-tasking is not really possible and leads to errors and distraction. It has been proven that it's impossible for the brain to process more than one string of information at a time. That is the reason why students believe they can do many tasks at once, when actually lot of information is slowing them down. An important part of

instruction in any classroom today is to demonstrate to learners that they must manage their time efficiently and concentrate on one task at a time

Overall, students indicated that they felt more motivated when learning in a digital environment. This is most likely because students "feel at home" in the digital world. They don't have to move to a desk and chair but can stay in the comfortable zone they are used to.

Students' motivation was connected to the tasks they were assigned to do. The more challenging task led to more increased motivation. The obvious conclusion is that instructors should think carefully about how to motivate a digital learner by creating challenging tasks that can be accomplished in a comfortable zone or space they are used to.

5.2.2 Observation notes and interviews interpretation

- **The findings from the observations and the interviews suggest that different assignments in different learning environments led to better learning, increased students' critical thinking skills and boosted their self-confidence.**

The next theme emerged from the observations and interviews of students. The observation focused on the interest and engagement of the students when faced with a particular assignment in a specific study environment, their participation and reaction to a given situation. The majority of the students reacted positively about having two different learning environments. For the more shy and introverted students the ability to work from home was perceived an option worth exploring. Not all of the students enjoy having presentations in front of the class or participating in a class debate, so the opportunity to participate in discussion forums, to learn vocabulary using mobile apps was openly welcomed. At the end, students were excited for being able to experience both modes of learning English and not relying solely on a course book. Even if not everyone participated equally in the beginning there was a progress as students switched back and forth between in-person and digital learning at home.

The answers given on the interviews were complementary to the observations. The interviews were done in a positive and friendly atmosphere where students could freely

express their ideas and opinions. The overall conclusion was that students felt they learned a lot by being exposed to different assignments in different environments. They enriched their vocabulary, learned new digital tools for learning and most importantly worked a lot in completing the assignments in both environments. The outcome was improving their autonomous learning and increasing their self-motivation, hence, being more able to regulate and direct their own learning. This skill was acquired due to the work they were assigned to do. They learned to better utilize their strengths and work on improving their weaknesses. In summary, students' perception was that they learned a lot from both environments, and that a combination of the two modes of instruction would work best for learning English.

This theme is very important because it demonstrates that students do value learning but they value it and enjoy it when they feel confident and have variety. Apparently, when students experience variety in learning, they value the challenge to think critically.

5.2.3. DIGITAL AND IN-CLASS ACTIVITIES

The most significant interpretations from the digital and in-class activities that were used throughout the semester are shown below:

- **Students believe that blogs are a powerful tool in learning English**

When asked, at the end of the semester, if the instructor should keep in the syllabus writing blogs as part of the grading criteria all of the students answered with ***yes***. This is an indicator of their satisfaction with blogging. The instructor could tell about the enthusiasm because students expressed genuine interest when told about the blog writing. Firstly, their excitement was mainly because the first entry from the first group was assigned for homework. Students were supposed to write at home as opposed to the ones that stayed and did the same work in class. Their enthusiasm was closely related to the fact that they don't have to come to class. However, students who stayed and did the writing in class, although not that happy at the beginning, reported that the assignment was nevertheless

interesting. The entries were shared and there was an in-class discussion on the writing. This proved to be appealing to students because they were writing individually and were competing about which person will have the best written and the most striking design. This was easily noticed as the instructor moved around the classroom and observed students' reactions.

- **Students' "not-so-good" experience with the use of LMS translates into a "not-positive" opinion about the discussion forum.**

The in-class debate proved to be the most effective assignment according to students' opinions. The reason behind that is that the debate provided social interaction and ability to express and share their thoughts. As opposed to that, they felt a lack of interactivity during the discussion forum on LIBRI. The forum was regarded as impersonal and not interesting.

This is due to the fact that LIBRI proved to be too cumbersome for students to use effectively so they didn't have positive experiences in using LIBRI. LIBRI as a LMS in no longer in use as of September 2017 and is replaced by Google Classroom (GC). GC is now used by all the lectures at SEEU and all the students also. The use of GC is integral part of students' grading criteria, the same as LIBRI was. The ESP course now has its class on GC and different tasks are assigned throughout the semester. Students can use Google Classroom during class time, or they can complete their assignments outside the classroom. So far, and based on students' opinions, GC has proven to be a powerful tool in enhancing students learning outside the classroom, thus increasing their autonomous learning. This is the part where LIBRI had failed to perform.

Because LIBRI was used in this study, one should not interpret the finding as reliable. Probably if the students could have used GC, this result would have been more positive.

- **Individual learning styles and personality are deciding factors in the choice between traditional lecture and Open Educational resources.**

Based on students' comments and their attitudes towards traditional lectures and OER, the instructor concluded that students' individual learning styles and personality play

the biggest role in deciding on the mode of instruction in this case. Students that have a solitary/logical learning style would prefer learning from OER and the ones that have social/verbal learning style would opt for the traditional lectures. Also, those students that like to choose exactly what and how to study would choose OER and the ones that prefer direction from the instructor would more likely choose traditional lectures.

- **Reading in class and reading in a digital environment requires different set of skills, although the purpose of the reading stays the same.**

The in-depth reading in a physical environment has been upended by the superficial reading in a virtual environment. Students recognize the difference between the two types of reading and they indicate that when given the chance they would choose reading in a digital environment always. But this mainly refers to when they read for pleasure. When it comes to reading materials for class, however, things differ. The formality of the learning process requires that they attain the skill of reading deeply, thoughtfully and critically. Having acknowledged that fact, students don't find a big difference in whether the reading is done in class or outside of it.

The conclusion was that regardless of the reading environment, choosing motivating and challenging texts to read will make them think, explore and enhance their desire to learn. Therefore, here it was more about the types of texts chosen to read rather than the environment where the reading happened.

- **A combination of both face-to-face and video-based activities works best for the students. Also, vocabulary learning is best done in a blended learning environment.**

Students can learn vocabulary on their phones while they are on the go. The convenience of the phones combined with the Internet enables them to study wherever they want. They can watch videos, revise vocabulary using different apps and all of this adds to their learning experiences. However, for all of this to be effective and successful, there is the need for constant feedback from the side of the teacher. Students reported that they

weren't always sure if they learnt the correct words. They needed an official assessment in a quiz form that would increase their self-confidence.

In summary, students' comments indicated that the best environment for learning vocabulary would be combination of both environments, for instance using smartphones in class for definitions or explanations. Watching interactive videos also worked better in the class, due to the instant follow up that such activities have. Students need additional trainings in using phones as educational tools. Phones can be powerful tools used in the classroom, but students don't fully realize their value and potential.

5.2.4 Summary of Interpretations

The students that were part of this study belong to the generation of 'digital natives', whose main characteristic is being skillful at using technology, always connected, social and in a constant need for interactivity. They were also students who study Computer Sciences and Technology, thus making them even more adept at technology use. The main purpose of the study was to discover whether students' widespread contact with digital literacy can be transferred into the learning environment. This study aimed at finding out whether the extent to which students use technology in their everyday life relates to their preferences for their use of technology at the University.

Having these questions and students' characteristics in mind, the researcher has made the following conclusions:

1. Students will opt for greater use of technology in teaching and learning English.
2. Learning English at a University level — regardless of whether it is ESP or EFL — should be enhanced by technological tools to appeal to students' preferences and their learning styles.
3. Students already have good IT skills and will require little training in using technology for learning English.
4. A carefully planned syllabus and specially selected assignments will lead to higher students' motivation.

These conclusions were arrived at by a careful examination throughout the study that relied on different research methods. In addition, conclusions about the study were drawn based on the proposed research questions. Below, the researcher provides answer to each and every research question.

According to Khampusaen (2014), many academic professionals have been looking for the answer to whether foreign languages can and should be taught online (p. 90). However, teachers are still the most important factor in online teaching. He further indicates that social learning environment can significantly increase teachers-students' engagement (p.91).

The current trends in higher education impose adopting online education even for language courses. According to Garrison (2009), one of the primary reasons for this is the balance between self-directed and collaborative learning. In addition, research shows that when online courses are designed according to pedagogical principles and suit students' preferences for learning, students perform as well as in face-to-face classes. And, students are just as satisfied with the instruction as with the in-person instruction. (Driscoll, Jicha, et.al, 2012).

This study tries to identify students' preferred ways of learning, thus adding evidence and providing guidance in the decision about what is best done online and what works best in a face-to-face environment. The study demonstrated that the so-called 'digital natives' prefer to learn as well as 'play' in a digital environment when studying in the ESP classroom. The preference is mainly connected to their learning styles and the types of assignments provided. Also, students' responses of the pre and post-learning analysis indicate that students' perception about learning in the digital environment changed. In the first questionnaire their preferences are based on their own perceptions of digital learning, while in the latter, their preferences are based on the actual experience in learning in the digital environment. However, students still highly value the presence of the teacher in the classroom and the social interaction that the in-person instruction provides. They value the whole experience of being at a university, not just attending classes. Also, digital tools cannot be simply transferred from one learning environment to the other automatically. In

order for their use to be successful they need to be adapted and modified according to students' needs.

Furthermore, based on students' responses and instructor's observations it can be confirmed that students consider online activities to be an effective and efficient way to learn course content. The effectiveness of the assignments is validated through the use of different online tasks that were used throughout the semester and that were highly rated by the students. The efficiency is indicated by students' responses that they were able to learn the course content at their own pace in their preferred setting. In addition, students find online activities to be a satisfying component of the course. Learning in a digital environment can be successful only when it contains stimulating and motivational tasks. Assignments should be carefully planned and chosen to stimulate students' needs for learning. Digital tools that they use in their everyday life (mobile apps, social media, even games) can be transformed into learning tools, but only when they are systematically embedded in the syllabus. This can increase students' engagement and enhance their motivation for learning.

In summary, ESP/EFL learning can be enhanced by the use of digital devices. Due to technology, ideas and individuals can connect and collaborate anytime, anywhere. Failing to recognize that simple fact is failure on the part of the instructor and the institution. The goal of the ESP instructor in the classroom should be to fully maximize the potential of the mobile phones and teach students how to take advantage of the digital devices. These devices can be used to support the dialog between instructors and learners, thus reducing the advantage that face-to-face instruction has with having teachers present in class. This can be done as simply as using tools that provide immediate feedback, such as by a taking quick and live poll of students' opinions, or engaging students in discussion forums on Google Classroom, using phones for doing quick class research and by using various communication platforms to offer personal tutoring to students worldwide. Students have infinite access to information and little knowledge and few skills what to do with that information. This is where learning opportunities in the digital environment find their biggest potential.

5.3 Implications

The analysis of the qualitative and quantitative data in this study can be used for developing a contemporary syllabus for teaching ESP that will be based on students' preferences for the learning environment. Such a syllabus will be responsive to students' learning needs and their learning expectations. English learning syllabi need to continuously respond to change, because language is reshaping and evolving together with technology. Furthermore, the findings from the study can also be transferred to learning different languages aside from English.

Based on the study's findings, students' perceptions and the author's observations, there are three areas that need to be taken into consideration for further development:

1. ***Integration of technology in the English language curricula*** –even though the merits of technology use in learning English are widely recognized, the syllabi both for ESP and EFL courses at universities in Macedonia are still too heavily based on course books. Little if no time is assigned for digital tasks that can be done in a face-to-face environment. As a current educational trend, various SEE University stakeholders are intervening in the curricula to redefine the competencies required with some professions. Along with different competencies, English proficiency is the highest required skill. This should be carefully taken into consideration when creating a new ESP/EFL syllabus at SEEU and Macedonian university nationwide.
2. ***Students' trainings on developing digital skills and digital literacy*** – the study has demonstrated that students lack the skills and knowledge to evaluate valid online materials. Apart from using phones and laptops for writing documents and creating presentations, they lack formal training for further development of various digital skills. Once the necessary set of skills is recognized the SEE University has to find a way to implement that in the curricula.
3. ***Creating learning environments where students are effective learners*** – instructors should be able to identify their students' learning preferences and respond accordingly. Students should have access to learning resources outside the classroom and it is the instructors' responsibility to help them make the most of these resources. Having different authentic materials for learning English will not

only increase students' motivation, but it will also improve learner autonomy. Having this combined with a preferred learning environment can have a positive impact on promoting successful and effective learners.

5.4 Recommendations

This qualitative study explored the different learning environments and the tools that can help improve the quality of English language learning. The researcher took an in-depth look at students' preferences for learning and their perceptions about how a high quality educational setting should look. The study recognizes the value and the potential of technology and the way it is and will continue to reshape the educational landscape. As Barbour (2000) points out, many qualitative studies are funded as separate stand-alone projects, rather than being linked to large trials or multi-site interventions. It is probably more common for them to make their reports and/or recommendations without having the opportunity to gauge their effect.

Based on the most significant findings, this study makes recommendations for:

- **Instructors** – instructors should provide the best learning environment for their students. With many different technological tools at hand, the classroom learning should and must be extended to and moved into the outside world. Creating an effective learning environment that is not constrained to classroom walls is not a simple task. But, once done, it will prove to be very beneficial for the students and the instructors as well. Technology can connect students to each other and to different students worldwide more easily, providing setting for exchange of ideas and experiences. Some of the learning activities will still best be done in the classroom, but there is a great potential in turning the outside world in a learning place.

  They also need the find a way to teach students the skills they need to become more self-regulated and autonomous learner. This is where the course syllabus intertwines with the faculty curricula in establishing a set of digital skills

necessary for the students to fully function in the outside world. It is very reasonable to suggest that a blended model combining self-study in a digital environment (online) with face-to-face instruction would be one of the best choices for ESP/EFL. In a world where technology is widely accessible, the teaching and learning process need to be reshaped and redefined.

Instructors need to: embed the use of some technological tools they are familiar with in their ESP/EFL courses; provide students' with various literature and support material; encourage students in making effective use of the technological tool; –integrate various online activities and OER resources; encourage students to self-explore and develop their critical thinking skills.

- **Students** – students should make greater use of variety of learning materials; they must actively ask for support from academic and professional staff in using different technological tools for learning. They should actively seek a diverse range of materials and activities that will reflect their immediate need for learning English. They should furthermore develop their digital skills and thus become more competitive on the labour market. They should acknowledge the idea that learning happens everywhere and lasts for a lifetime, thus prepare themselves for lifelong learning.
- **Higher education institutions –** The study aims at helping higher education in the field of ESP/EFL meet the challenges of today and tomorrow. By having information always accessible and at hand, teaching and learning will inevitably change. Higher education institutions should embrace that change first by offering contemporary courses that incorporate technology, and then by making resources available to students everywhere. Institutions should recognize the fact that the education of the future will require students' competencies and skills, not just credits and diplomas. Having a degree is not enough anymore. Higher education institutions should prepare for the future to come by providing innovative models for education with technology at its core.

Institutions should offer the workshops and/or courses for instructors that help them understand the digital-age students of the Z generation. Further,

institutions should offer the training that instructors need to feel comfortable using digital tools themselves, so they can find a way to use those tools in their classes.

5.5 Limitations

The limitations of this research are influences that are out of control for the researcher and may suggest potential weakness of the study. The limitations to be considered for this study are focused on the following:

- the utilized instruments
- the sample number of participants
- the constantly-changing digital environment

It is difficult to prove a statement that digital learning is always as effective as in-class instruction is. The majority of the offered evidence in this study suggests that digital learning is as effective as the face-to-face instruction. However, the evidence based on students' perceptions also confirms digital learning as a successful alternative to in-class instruction in certain cases. The utilized instruments were a combination of both qualitative and quantitative methods for ensuring both validity and reliability. The qualitative research was based on an ethnographic model, with the emphasis on the micro-ethnology, were the focus is on the direct interaction with the studied group. To further check validity triangulation was used, meaning the researcher employed several ways to check that the findings can be trusted.

The potential limitation of these methods is that qualitative data is a lot more open to personal bias and the final results need to be carefully presented as observation that is substantiated by several different ways of looking at the situation, but not a complete confirmation that relies on statistical analysis. That is the reason why qualitative methods were combined with quantitative which incline towards generating only proved or unproven results, with little space for uncertainty.

The number of participants in the study was rather small. Only 15 full time students were involved in the research, but the significance of the study is supported by the qualitative methods used and the constant feedback both on the side of the instructor and the students. However, given the context, there was substantial sample size of students. Namely, all of the second year students that studied CST faculty were included in the study. While these students are demographically similar to students from different faculties, there is still potential for selection bias. CST faculty may attract a different type of students than other faculties based on students' preferences for use of technology. This might not be the case for law students, for example. Also, there is a question of gender balance because of 15 students only three were females. This issue was addressed in chapter 3 with a recommendation of having a similar research including more female students. In addition, two female students were included in the interview thus having more thorough understanding of their learning preferences should resolve the issue of the gender bias.

The study was carried out in the academic year 2015. At the time, all the technological learning/teaching tools that were at disposal of the researcher were used. However, since three years have passed since the study was carried out, there is a potential risk of outdated data. This is especially true when it comes to the use of the LMS which was mentioned beforehand. Moreover, some of the learning tools that were free at the time are no longer free or some of them are obsolete due to the rapid development of technology. The essence of this study, though, does not rely on specific digital tools, but on the way a new group of students, the Z generation, prefers to use in academic learning what they use daily in other aspects of their lives.

5.6 Conclusion

Chapter 3 in its overview of the study methods, introduced questions posed by Kuper (2008) that offered guidance for readers on how to assess a study that uses qualitative research methods by providing six key questions to ask when reading qualitative research. Here answers will be provided for the questions.

One of the most important decisions in a qualitative study is whom or what to include in the sample, whom to interview, whom to observe, what to analyse. This study used convenient and purposeful sampling using CST students for a study on technology and thus obtaining the data that would purposefully meet the objectives. For a qualitative study as this one it is of a great importance that the methods used in the collecting data are meticulously described. As presented in chapter 4, the methods used in this study were used methodically and in a consistent manner. The data was analyzed appropriately and the topic of the study was clearly presented along with what was done to examine the topic, how it was done and who did it. The results of this study are potentially transferable to other educational settings. In that sense, the study' thick description has provided evidence that the research findings could be applicable in other contexts as well. In a qualitative study there is a possibility of research bias and the question of reflexivity arises. The researcher should be able to recognize the influence he/she brings to the research process. In this study reflexivity was carefully handled having in mind that it could shape the collected data because of the power relationship between the participants being the students and the researcher being the instructor. Overall, the study provided clear descriptions of the methods used (both qualitative and quantitative), clear explanations of the chosen study sample and the complete analysis process.

This chapter has presented the interpretations of the findings, answered the research questions posed in chapter 3, provided future recommendations and considered the limitations of the study. Without any doubt, the major benefit of technology is that it can be used in various learning environments. However, the particular benefits of certain digital tools (smartphones for instance) cannot be just simply transferred from one environment to another. Just because students are online all the time, does not mean that they use the online time for learning, as this study shows. Digital instruction has been regarded as most effective when the course includes problem solving and critical thinking skills. Nevertheless, better students' performance is a combination of technology, students' control of learning and their learning objectives, and not because of the type of instruction per se. This study tries to demonstrate that the blended learning (a combination of both types of learning environments) should be regarded as the normal learning environment

when it comes to learning English. Technology together with in-person and online learning should seamlessly be combined to provide the best possible learning environment for the students.

Only few years ago educators worldwide could see the potential of emerging technologies and how they would change the education. Now, what technology can do when it is applied to almost all situations is everywhere. The potential is even bigger than anyone could have anticipated. Various technological advancements emerge everyday and they pave their way into education. The inability to recognize this will mean failure on the side of the institution. The instructors need to focus on providing an effective framework in which students can not only learn, but also collaborate, interact and support each others' learning. The learning itself should be focused on students' needs and preferences thus creating long-term educational value for the student and for the society.

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Open Source Initiative: https://opensource.org/

Open Content Initiative: http://opencontent.org/

Connexions: https://cnx.org/aboutus/faq

MERLOT: https://www.merlot.org/merlot/index.htm

APPENDICES

APPENDIX A

PRE – LEARNING EXPERIENCES QUESTIONNAIRE

Name and Surname:

Gender: F/M

Faculty:

Years of studying English:

1. Do you know what the term '*digital natives'* means? Please write your definition:
2. How do you evaluate the reliability of the materials you find on the Internet? Please explain.
3. Digital learning will bring new opportunities of learning.

Strongly Agree	Agree	Neither Agree nor Disagree	Strongly Disagree	Not Applicable

Comment:

4. Digital learning will improve communication between student and teacher.

Strongly Agree	Agree	Neither Agree nor Disagree	Strongly Disagree	Not Applicable

Comment:

5. Digital learning is a quicker method of getting feedback in learning.

Strongly Agree	Agree	Neither Agree nor Disagree	Strongly Disagree	Not Applicable

Comment:

6. Digital learning will motivate me more to learn English.

Strongly Agree	Agree	Neither Agree nor Disagree	Strongly Disagree	Not Applicable

Comment:

7. Table 1: Questions showing how often students use computer based technologies

THE COMPUTER	**Daily**	**Weekly**	**monthly**	**over monthly**	**not used**
I use a computer for writing documents (e.g. using *Word, Google Docs*)					
I use a computer to create graphics or manipulate digital images (e.g. using *Photoshop, Flash*)					
I use a computer for creating multimedia presentations (e.g. *PowerPoint, Prezi*)					
I use a computer for general study, without accessing the web, such as writing a paper, studying notes taken in class…					
I use a computer to play games, without accessing the Internet					

(adapted from Kennedy, Judd,etc. Australasian Journal of Educational Technology, 2008, 24(1), 108-122)

8. Table 3: Questions showing how often students use mobile phone based technologies

THE MOBILE PHONE	**Daily**	**Weekly**	**monthly**	**over monthly**	**not used**
I use a mobile phone to call people					
I use a mobile phone to text/ SMS people					
I use a mobile phone as a personal organizer (e.g. diary, address book)					
I use a mobile phone to access information/ services on the web					
I use a mobile phone to send or receive email					

(adapted from Kennedy, Judd,etc. Australasian Journal of Educational Technology, 2008, 24(1), 108-122)

9. Table 3: Questions showing how often students use web based technologies

THE INTERNET	Daily	Weekly	monthly	over monthly	not used
I use the web to access the SEEU website or LIBRI					
I use the web to look up reference information for study purposes (e.g. online dictionaries)					
I use the web to browse for general information					
I use social networks (Facebook, Twitter)					
I use the web to send or receive email					
I use the web to make phone calls (e.g. *Skype, GoogleFi*)					
I use the web to keep my own blog					
I use the Internet for general study					

(adapted from Kennedy, Judd,etc. Australasian Journal of Educational Technology, 2008, 24(1), 108-122)

10. What is your skill level for the following?

	Not at all skilled	Not very skilled	Very skilled	Expert
1. Using LIBRI				
2.Using Presentation Software (PowerPoint, Prezi)				
3. Using the Internet to search for information				

11. Are you using the following for any of your courses this semester? Check all that you are using.

Spreadsheets (Excel, etc.)

Presentation software (PowerPoint, Prezi, etc.)

Social networking websites (Facebook, Twitter, etc.)

Instant messaging (Viber, WhatsUp, etc.)

University library website

LIBRI

12. How often do you use LIBRI?

Never

Once a year

Once a semester

Once a week

Several times a week

Daily

13. Describe your overall experience using LIBRI.

Very negative

Negative

Neutral

Positive

Very positive

14. What is your opinion about the following statements?

	Strongly disagree	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
1. I get more actively involved in courses that use IT.					
2. The use of IT in my courses improves my learning.					
3. I skip classes when materials from course lectures are available online.					

(Adapted from ECAR, Research study 6, 2009)

15. What are the major advantages in using technology in the classroom? Please comment.
16. What are the major disadvantages in using technology in the classroom? Please comment.
17. Do you think that using technology in the classroom will help you learn better? Explain how.
18. Do you prefer digital or in person environment for learning English? Please explain your choice, or explain why you prefer one or the other in different situations.

APPENDIX B

POST – LEARNING EXPERIENCES QUESTIONNAIRE

Name and Surname:

Gender: F/M

Faculty:

Years of studying English:

1. The digital learning brought new opportunities of learning.

Strongly Agree	Agree	Neither Agree nor Disagree	Strongly Disagree	Not Applicable

Comment:

2. The digital learning improved communication between the students and the teacher.

Strongly Agree	Agree	Neither Agree nor Disagree	Strongly Disagree	Not Applicable

Comment:

3. Learning in a digital environment provided quicker feedback.

Strongly Agree	Agree	Neither Agree nor Disagree	Strongly Disagree	Not Applicable

Comment:

4. Digital learning motivated me more to learn English.

Strongly Agree	Agree	Neither Agree nor Disagree	Strongly Disagree	Not Applicable

Comment:

5. Table 1: Questions showing how often students use computer based technologies

THE COMPUTER	**Daily**	**Weekly**	**monthly**	**over monthly**	**not used**
I use a computer for writing documents (e.g. using *Word, Google Docs*)					
I use a computer to create graphics or manipulate digital images (e.g. using *Photoshop, Flash*)					
I use a computer for creating multimedia presentations (e.g. *PowerPoint, Prezi*)					
I use a computer for general study, without accessing the web, such as writing a paper, studying notes taken in class…					
I use a computer to play games, without accessing the Internet					

(adapted from Kennedy, Judd,etc. Australasian Journal of Educational Technology, 2008, 24 (1), 108-122)

6. Table 3: Questions showing how often students use mobile phone based technologies

THE MOBILE PHONE	**Daily**	**Weekly**	**monthly**	**over monthly**	**not used**
I use a mobile phone to call people					
I use a mobile phone to text/ SMS people					
I use a mobile phone as a personal organizer (e.g. diary, address book)					
I use a mobile phone to access information/ services on the web					
I use a mobile phone to send or receive email					

(adapted from Kennedy, Judd,etc. Australasian Journal of Educational Technology, 2008, 24(1), 108-122)

7. Table 3: Questions showing how often students use web based technologies

THE INTERNET	Daily	Weekly	monthly	over monthly	not used
I use the web to access the SEEU website or LIBRI					
I use the web to look up reference information for study purposes (e.g. online dictionaries)					
I use the web to browse for general information					
I use social networks (Facebook, Twitter)					
I use the web to send or receive email					
I use the web to make phone calls (e.g. *Skype, GoogleFi*)					
I use the web to keep my own blog					
I use the Internet for general study					

(adapted from Kennedy, Judd,etc. Australasian Journal of Educational Technology, 2008, 24(1), 108-122)

8. What is your skill level for the following?

	Not at all skilled	Not very skilled	Very skilled	Expert
1. Using LIBRI				
2.Using Presentation Software (PowerPoint)				
3. Using the Internet to search for information				

9a. Of all the things done this semester which one was the most effective in learning English? Please explain your choice.

- On-site classes
- Learning from home
- Writing the in-class report
- Writing the online blog
- Prezi presentations
- Website evaluations
- In-class debate
- Discussion forum on LIBRI

9b. Of all the things done this semester which one was the most challenging in learning English? Please explain your choice.

10. If you can rank the previous assignments in terms of their successfulness, how would you rank them on a scale from 1-8 (1 being the most successful, 8 being the least)?

11. What were the major advantages in using technology in the classroom? Please comment.

12. What were the major disadvantages in using technology in the classroom? Please comment.

13. Do you think that using technology in the classroom helped you learn better? Explain how.

14. After the semester is finished can you tell if you prefer digital or in person environment for learning English? Please explain your choice, or explain why you prefer one or the other in different situations.

APPENDIX C

LEARNING PREFERENCES INTERVIEW QUESTIONS

1. What are my strengths for study when I am using a digital environment?
2. What are my weaknesses for study when I am using a digital environment?
3. What are my strengths for study when I am using a paper environment?
4. What are my weaknesses for study when I am using a paper environment?
5. How do I use my strengths?
6. How can I correct my weaknesses?
7. Discuss what you would do when faced with a specific study task in digital or paper based environments.
8. When you are learning in a digital environment, how do you manage your time? Do you schedule enough time for the task? Do you rely on the objectives stated by the instructor in class?
9. Did you have a realistic study plan and enough time to study when learning in a traditional (class) environment?
10. Did you have a realistic study plan and enough time to study when learning in a digital environment?
11. Were the designated assignments helpful? Why or why not? (give suggestions to help students answer fully)

APPENDIX D

WRITING A REPORT/BLOG GUIDELINE

Dear students, your in-class report and blog writing are assigned as "an honest reflection". They are meant to serve as an informal record of opinions and events. There you can tell what you liked and didn't like in class. You can write why you did better learning on-site or at home. You are expected to write down your thoughts on the following questions:

- What have I learnt?
- What is still unclear?
- What do I need to follow up on?
- Where to from here?
- What other stuff I have read or accessed to help me make sense of it all?

This assignment will be given as a bi-weekly task and you are expected to follow the listed criteria in order to get the highest possible points. You will be evaluated on the basis of the following: ideas, comprehension, and intellectual engagement with the course, critique, reflection, analysis, creativity, data gathering, and writing quality.

The language of the blogs and the in-class writing was kept at informal level, thus creating a more motivating learning environment. The informality of the language also ensured spontaneity and liveliness in the writing process.

APPENDIX E

BLOGGING /IN-CLASS REPORT RUBRIC

Student:_____

Week:_____

POINTS	5	10	15	20
CONTENT & CREATIVITY	Postings show no evidence of insight, understanding or reflective thought about the topic.	Postings provide minimal insight, understanding and reflective thought about the topic.	Postings provide moderate insight, understanding and reflective thought about the topic.	Postings provide comprehensive insight, understanding, and reflective thought about the topic by ...building a focused argument around a specific issue or ...making an oppositional statement supported by personal experience
POST FREQUENCY	The post frequency is well below course expectations.	The post frequency is slightly below average.	The post frequency is slightly above average.	The post frequency greatly exceeds course expectations.
WRITING QUALITY	Posts are of very poor quality. There is little to no evidence of reading other information in	Posts show a below average, overly casual writing style with a lack of attention to style.	Posts show above average Writing style. The content demonstrates	Posts are well written, and are characterized by elements of a strong writing style. The content demonstrates

	order to form new meaning of the topics at hand.	Students pay little Attention to other Reading and mostly Regurgitate previous personal views.	that the student reads moderately, and attempts to synthesize information and form new meaning.	that the student is well read, synthesizes learned content and constructs new meaning.
PROOFREADING	Written responses contain numerous grammatical, spelling or punctuation errors. The style of writing does not facilitate effective communication.	Written responses include some grammatical, spelling or punctuation errors that distract the reader.	Written responses are largely free of grammatical, spelling or punctuation errors. The style of writing generally facilitates communication.	Written responses are free of grammatical, spelling or punctuation errors. The style of writing facilitates communication.

APPENDIX F

THE ONLINE READING TASK

Dear students,

As we agreed yesterday, tomorrow's class will be split in half again. All of you who receive this e-mail are suppose to stay at home and do your assignment online. The other half of the group will come regularly to class.

Once again, Thursday is not a free day for you, it is a day when you stay and learn from home. Please follow my guidelines on the task and respect the deadline. Otherwise, you will be considered absent for the day.
Here is the information on the assignment:

1. Go to http://www.english4it.com/
2. Create a free account
3. Click on 'Join the Class' link
4. Enter my **email - d.kiroska@seeu.edu.mk** and the **class key - 12345**
5. After you do this, you will be register in the online class and I can monitor your individual progress.
6. Go to the home page and choose IT CAREERS. Study the unit vocabulary first and then complete the activities below.
7. You should also choose one topic from the writing part and write about it as a final task.

I hope the task is clear and you understand what you need to do. Of course, for any questions you might have, please contact me on my email.
The deadline for completing the task is Thursday (tomorrow) by 20:00. Any later assignments won't be considered as valid.

Again, please reply back to this email so that I'm sure all of you read it.

Appendix G

ONLINE READING/WRITING TASK

Dear students,

As we agreed in class, tomorrow you are expected to work from home and get the assigned task done.

To make sure you take the task very seriously I will set a deadline and you are expected to submit your task by then, otherwise you will be considered absent for the class.

Please read the following information very carefully.

1. Go to www.khanacademy.org and choose the subject **Computer Programming**.
2. Choose the last section **Meet the Professional**.
3. Everyone will be assigned one reading as follows:

E - Sara Northway, game maker and nomad

A - Yann Dauphin, researcher and bass player

F - Brenda Jin, mobile prototyper and DJ

B - Tom Heinan, mobile developer, pilot and zombie

N - Philip Guo, phyton tutor and writer

E - Bill Mills, physicist and interdisciplinary programmer

F - Carrie Cai, researcher and dancer

4. Write one paragraph (3-5 sentences) on what strike you the most when reading about these people, what is it that you liked the best.
5. Create an imaginary interview with your future self using the questions from your assigned reading. Imagine you have a cool job and you do interesting things in the future and answer the questions.

Send both tasks to my email by Thursday, 16:00. Any later assignments won't be considered as valid.

APPENDIX H

THE ONLINE WEB QUEST

Dear students,

Inspired by the last class discussion that we had, I will assign a task that hopefully will be interesting and challenging for you to do.
Please read the following guidelines carefully:

1. Find the top 100 universities in the world according to the Shanghai ranking for 2015
2. Choose 5 that have Computer Science Department or a Department similar to that but differently named
3. Find their undergraduate degrees and the programs they offer
4. Search their curricula and the offered courses
5. Compare the courses they offer with the ones you are offered in your field of study
6. Make a list of 5 different subjects you would like to have as a part of your curriculum and explain your choice (why those subjects, why those faculties...)
7. Send this to me by **Thursday, 10 December**.

APPENDIX I

THE SYLLABUS

FACULTY: Faculty of Languages, Cultures and Communications

SYLLABUS

ENGLISH FOR SPECIFIC PURPOSES

For

COMPUTER SCIENCES AND BUSINESS INFORMATICS I

DEPARTMENT: Language Center

COURSE CODE: CCS3040

ACADEMIC YEAR 2015 FALL SEMESTER

LEVEL & STATUS:	6 ECTS Credits Elective Undergraduate/ FALL 2015 2h Lecture
COURSE CONVENOR:	Daniela Kirovska-Simjanoska Office: 1002.23 E-mail: d.kiroska@seeu.edu.mk Tel: +389 44 356 000
OFFICE HOURS:	Campus Tetovo: Campus Skopje: Monday: 12:00-14:00 Tuesday:12:00-14:00
LEARNING SCHEDULE:	Lecture: Tuesday: 14:00-16:00 / 2.05 Thursday: 10:00-12:00 / 3.05

Prerequisites

Successful completion of two higher levels of Basic Skills English (starting from level 3).

Libri (learning management system)

We will utilize Libri as the main course management system. The assignments, resources, grade book, test tool and other will all be used throughout the Libri.

For Libri Help visit office 701.03 or contact as via email: m.apostolova@seeu.edu.mk

Webmail

We will use the webmail as main communication tools. Mandatory check in the email.

Myseeu

Exam dates and other important news and events about faculties will be published in **mySeeu** portal.

Course outline and objectives

Course Information

The English for Specific Purposes for CS/BI I course is a one semester course which includes four class hours per week. The number of credits awarded is 6 (six). The full length of the course is 15 weeks and it is designed according to students' needs and interests.

General Course Content

The course will focus on the four main language skills: reading, writing, listening and speaking. Although the content of the course materials is related to computer science and computer technology, the emphasis of the course is on acquiring and enhancing students' vocabulary and language skills, critical thinking skills and grammar skills. Attendance is expected and required. The students will be also expected to participate in class and online discussions, as well as use other useful sources (electronic and printed materials).

Learning objectives:

- *Study vocabulary related to computer components, phubbing phenomenon, the difference between activism and slacktivism,, IT careers, different types or corporate culture, programming languages, networks, marketing and online presentations and videoconferencing*
- *Discuss controversial issues related to the Internet*
- *Read texts related to IT topics*

- *Listen to excerpts in the respective field*
- *Talk and write about computer applications in everyday life*
- *Discuss the impact of IoT on our lives,*
- *Learn how to use a variety of phrases for opening and closing presentations effectively as well as phrases for structuring the main body of a presentation and dealing with questions*

Learning outcomes

Description of descriptors for learning outcomes for this course:

CATEGORY	LEARNING OUTCOMES	ASSESMENT METHODOLOGY	%
Knowledge and understanding	1. Final Exam	1. /	30
Applying knowledge and understanding	1. Website evaluation 2. Writing report/blog in wordpress	1. / 2. /	10 20
Making judgment	1. LIBRI discussion forums 2. In-class debate	1. /	5 10
Communications skills	1. Prezi Presentation	1. /	10
Learning skills	1. Post presentation feedback (self-evaluation) 2. Post presentation feedback (peer evaluation) 3. Blog/report revising (peer evaluation)	1. / 2. / 3. /	5 5 5
Total			**100**

Attendance and Regulations

Attendance is expected and required. If a situation arises that will cause you to miss a number of classes (for example, because of illness) you must notify me as soon as possible. Each student MUST attend at least 70 % of the total number of the classes of the course (Lecture and Practical), in order to enter the exam. Any student who doesn't fulfill these criteria will NOT have the right to enter the exam, make-up exam nor the Summer School and will need to retake the course. All students should buy the Course Reader from the Campus Copyshop by Week 2 of class. You should bring the Course Reader with you to each and every class.

Plagiarism, Academic Ethics and Standards of Conduct

Plagiarism of any kind whatsoever will not be tolerated in this class. Any work submitted by a student that is plagiarized (which attempts to use somebody else's ideas/arguments as one's own) will be given a '0'. Students who copy/paste answers from the internet will receive a zero grade, no exceptions. I reserve the right to orally examine a student on the contents of his/her work if I suspect that the project/assignment has been copied or plagiarised and is not the work of that student. Students are expected to conduct themselves in a professional and courteous manner. Students may discuss laboratory assignments in a general way with other students, but the solutions must be done independently. Graded work should be unmistakably of each particular student. Students may not transcribe or copy a solution taken from another person, book, or other source. The same rule applies to graded homework assignment. Copying other's work will not be tolerated. Professors will report academic dishonesty and any other violation of the Standards of Conduct to the Faculty Plagiarism Committee.

Facebook/ web/ computer/ cell phone use

For the entire class period, your attention is expected to be on lecture or classwork. Although we are aware that you are quite adept at multitasking, we ask that you focus on one thing during class. We would like to eliminate distractions during class. As a matter of courtesy, mobile phones should be switched off during classes and exams.

Grading scale table

GRADE SCALE	DESCRIPTION	GRADE
95% - 100%	Outstanding	10 (Ten)
85% - 94%	Excellent	9 (Nine)
75% - 84%	Very Good	8 (Eight)
65% - 74%	Good	7 (Seven)
51% - 64%	Satisfactory	6 (Six)
0% - 50%	Failing	5 (Five)
	Incomplete *	IN
	No Record *	NR

* Incomplete (IN)

An incomplete grade may be assigned if a student has not finished all course requirements by the end of the semester, but has completed a substantial amount of the work.

* No Record of Grade Being Issued (NR)

This designation will be added to a student's transcript in cases when a student has registered for a class and no grade is assigned by the teacher. This has no effect on the student's overall grade point average and may be changed to a letter grade when the teacher submits a formal grade.

Bibliography

Background reading - basic texts

1. ***Business Result upper intermediate***

Author: Michael Duckworth/ Rebecca Turner

Publisher: OUP

Year:2008

ISBN: 978-0-19-476810-8

Supplementary materials

Online resources

1. www.khanacademy.org
2. www.learnenglish.britishcouncil.org/en/business-magazine
3. www.alison.com/courses/Introduction-to-Business-and-Travel-English-Language/content/scorm/5770/module-1-business-english-language-skills
4. www.english4it.com
5. www.prezi.com
6. www.fluentu.com/english
7. www.wordpress.com

Tentative schedule

Week 1: **14 – 18 September**	**Orientation Week 1**
Week 2: **21 – 25 September**	**Orientation Week 2**
Week 3: **28 September – 02 October**	Unit 1 **Learning outcomes**: By the end of this week Ss will be given a chance to use the vocabulary presented to discuss the importance of first impressions that individuals and companies make. They should also be able to distinguish between and use present simple and continuous in a simulated meeting of a networking organization (group work). FIRST IMPRESSIONS Materials Source: Business Result upper-intermediate, OUP
Week 4: **05 – 09 October**	**Learning outcomes**: By the end of this week Ss will be introduced to a variety of strategies and techniques for opening and closing oral presentations, grabbing and keeping the audience's attention, involving the audience in the presentation and dealing with questions from the audience. Ss should also be able to use a variety of phrases for opening and closing presentations effectively as well as phrases for structuring the main body of a presentation and dealing with questions. **EFFECTIVE PRESENTATIONS AND PRESENTING IN PREZI** **Materials Source:** Business Vocabulary Builder intermediate-upper intermediate, OUP www.prezi.com
Week 5: **12 – 16 October**	**Learning outcomes**: Ss should also be able to evaluate a website against a set of criteria in groups of 4 (group work) **WEBSITE EVALUATION** (individual project)
Week 6: **19 – 23 October**	**Learning outcomes**: By the end of this week Ss will be given a chance to use the vocabulary presented to discuss the phubbing phenomenon and how it affects their lives and relationships **PHUBBING** Website evaluation **Presentation: Impact of smartphones on society** **Materials Source**: http://www.digitaltrends.com/mobile/what-is-phubbing-and-is-it-ruining-your-relationships/ 1. **Welcome to English for IT–**www.english4it.com (in-class vs. digitally)

Week 7: **26 – 30 October**	INDIVIDUAL REPORTS' /BLOGS EVALUATION/COMPARISON LIBRI DISCUSSION FORUM **Material Source:** www.wordpress.com Website evaluation **Presentation topic: Evolution of mobile phones**
Week 8: **02 – 06 November**	**Learning outcomes**: By the end of this week students should be able to use the vocabulary for discussing the diference between activism and slacktivism. They will join up to work on a group project on solvin a loca, national or global problem using the online resources and the technology they have (Twitter, Facebook, online brochures…)Ss answer questions such as: What digital tools and resources would you use within your project? How would the use of that technology make your project successful? **ACTIVSM OR SLACKTIVISM?** Website evaluation **CLINICAL TEACHING** **Materials Source**: http://news.stlpublicradio.org/post/activism-or-slacktivism-how-social-media-hurts-and-helps-student-activism https://www.youtube.com/watch?v=0EQFKKJBjwE http://paulgordonbrown.com/2014/08/27/3-tips-for-turning-student-social-media-slacktivism-into-activism/ **IT Careers** - www.english4it.com (in-class and digitally)
Week 9: **09 – 13 November**	Unit 4 **Learning outcomes:** By the end of the week students should be able to understand the concept of IoT and use the vocabulary to discuss the impact of IoT on our lives and how it will grow in the future. **THE INTERENT OF THINGS** **Material Source:** **http://www.fluentu.com/english/home/content/653/what-is-the-internet-of-things-mashable-explains/** **http://www.slideshare.net/ValaAfshar/internet-of-thingsslideshare?qid=147d67e0-52c8-48e3-8a16-f2ce6ea131a9&v=qf1&b=&from_search=4** Website evaluation **Presentation: Influence of robots on society**
Week 10: **16 – 20 November**	**BLOGS/ IN-CLASS REPORTS** **Presentation: Emojis** Website evaluation

	Materials Source: **Programming Languages – www.english4it.com** (in-class and digitally)
Week 11: **23 – 27 November**	**Learning outcomes**: By the end of this week Ss should be able to use appropriate vocabulary to discuss why selfies have become so popular and the reasons behind taking selfies. **THE SELFIE REVOLUTION** **Presentation: How will computers change in 5 years?** Website evaluation **Materials Source: https://vimeo.com/106807552** **http://blog.marketo.com/2014/01/evolution-of-the-selfie-obsessed-generation-infographic.html** **http://www.visualistan.com/2014/06/selfie-boom-good-bad-and-ugly.html**
Week 12: **30 November – 04 December**	**Learning outcomes**: Ss should be able to use relevant vocabulary related to Cultural differences in the workplace. They will also be able to distinguish between different types or corporate culture. Ss will be informed about their individual progress and achievement. **WORKING ACROSS CULTURES** Website evaluation **Presentation: Technology in the movies** **Materials Source:** Business Result, upper intermediate, OUP
Week 13: **07 – 11 December**	**IN CLASS DEBATE** Website evaluation Materials Source: Infotech English for computer users, CUP; Professional English in USE, ICT; www.cambridge.org/elt/ict **Presentation: Android vs Apple** **Computer Programming: Meet the professionals –** www.khanacademy.org (in-class and digitally)
Week 14: **14 – 18 December**	**Learning outcomes**: By the end of this week Ss should be able to use the vocabulary presented in order to discuss the advantages and disadvantages of using networks as well as to discuss LANs (Local Area Networks) and WANs (Wide Area Networks) (group work). Ss should be able to use common phrasal verbs in computing (such as set up, plug in, try put, break into, type in, look up; take up; fill in, make up, log on/off, sign up, etc,) to describe a network **NETWORKS** Website evaluation **Materials Source**: Infotech English for computer users, CUP; Professional English in USE, ICT;

	www.cambridge.org/elt/ict **Presentation: Artificial Intelligence** **IT SLANG 1/2** - www.english4it.com (in-class and digitally)
Week 15: **21 – 25 December**	**Learning outcomes**: By the end of this week Ss should be able to use the vocabulary presented in order to discuss markets and marketing, products promotion and price. **MARKETING MANAGEMENT** **Materials Source**: Business Vocabulary Builder intermediate-upper intermediate, OUP; English for Business Studies, CUP **FINAL EXAM**

APPENDIX J

VOCABULARY QUIZ

1. Machines identifying emotions: this can be dangerous because:

- They can steal and use our credit card information
- They can recognize us in an outdoor setting
- They can falsely predict our possible actions preemptively
- They can identify whether we are attracted to someone

2. Anyone with programming abilities can make improvements to …….. source software.

3. Having a better understanding of …….. can increase customer satisfaction.

4. Behind a simple website are thousands of lines of ……..code.

5. We wanted a ……website that lets our customers interact with us.

6. A major problem for self-driving cars would be:

- To locate humans walking in front of them
- To verify the identity of the car driver
- To decide what to do in an unknown situation
- To find its way in an unknown neighborhood

7. **Hardware** is

- any device internal to the computer, such as a primary hard disk drive or motherboard
- an external computer add-on, such as a printer or a scanner; also known as an 'accessory'
- physical things that make up a computer, such as a component or a peripheral

8. An '**app**' or '**application**' is

- an electronic, digital device that stores and processes information
- a software program which allows a user to perform specific tasks such as word processing, email, accounting, database management
- literally meaning 'that which is given', this term refers to raw information of any kind

9. A **component** is

- any program designed to run on a computer
- any device internal to the computer, such as a primary hard disk drive or motherboard
- literally meaning 'that which is given', this term refers to raw information of any kind

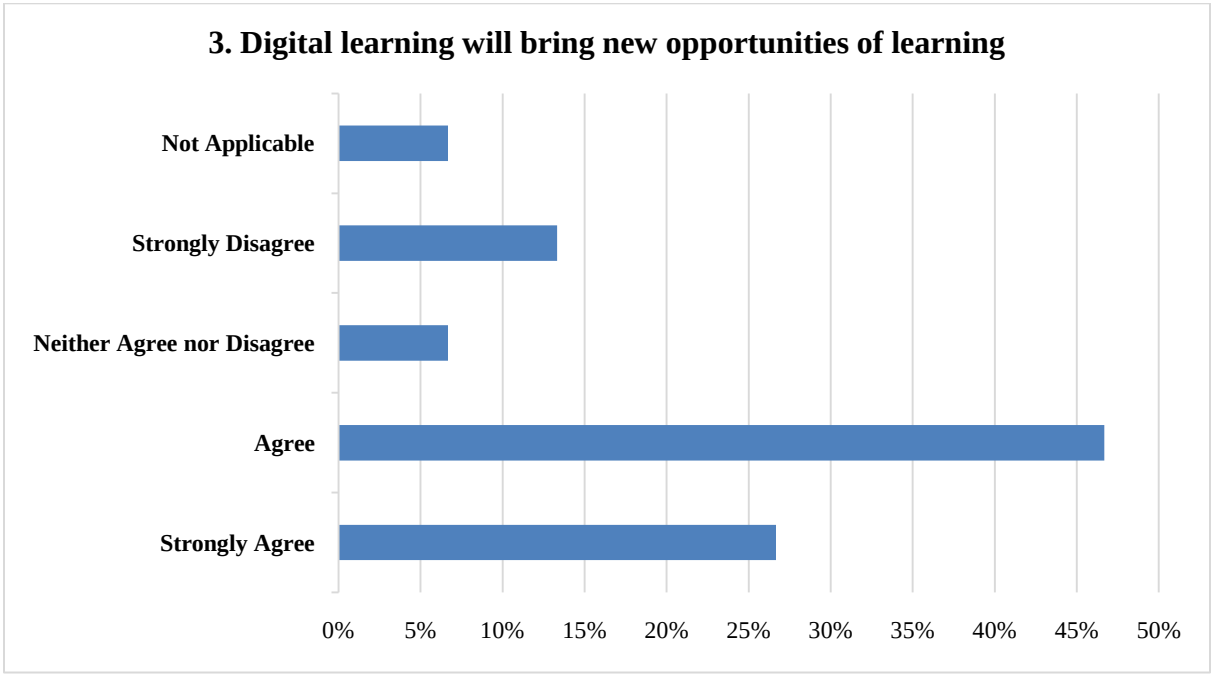
10. A **peripheral** is

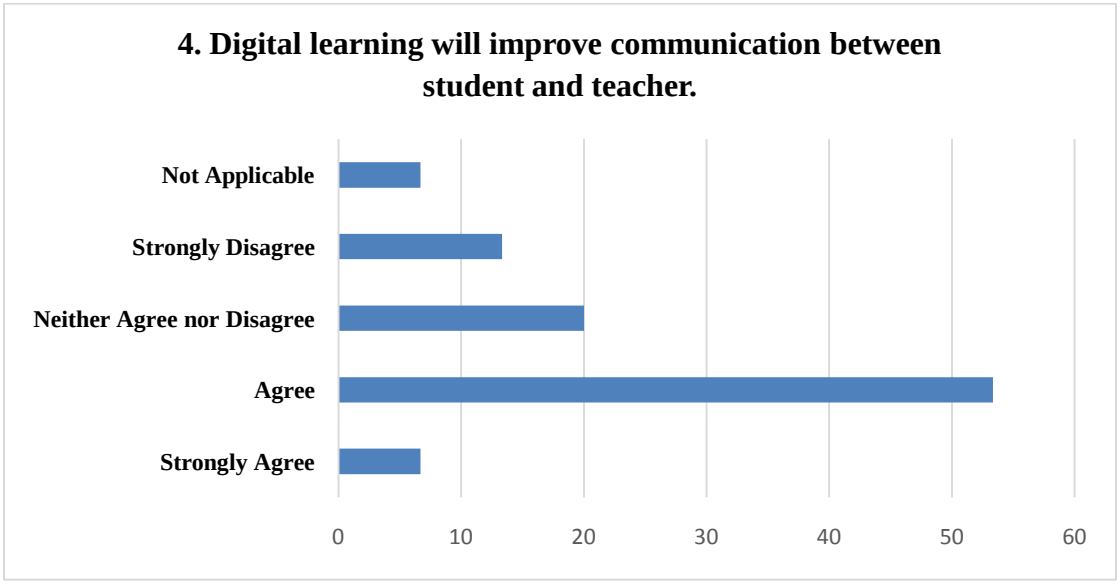
- an electronic, digital device that stores and processes information
- an external computer add-on, such as a printer or a scanner; also known as an 'accessory'
- a software program which allows a user to perform specific tasks such as word processing, email, accounting, database management

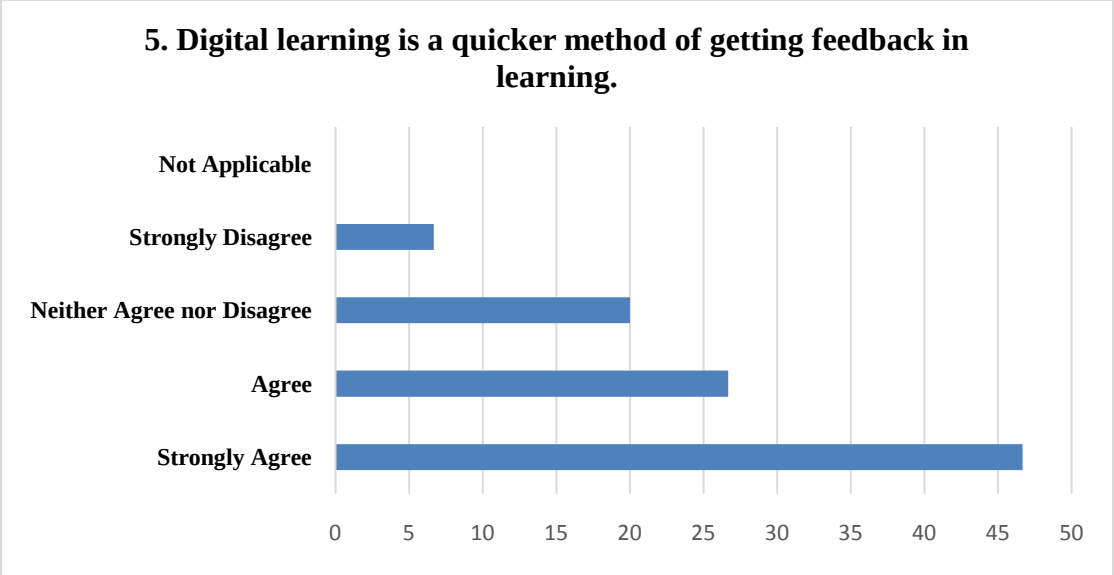
The quiz is adjusted and modified from the following webpage:
https://quizlet.com/181557925/english-4-it-vocabulary-lesson-1-flash-cards/

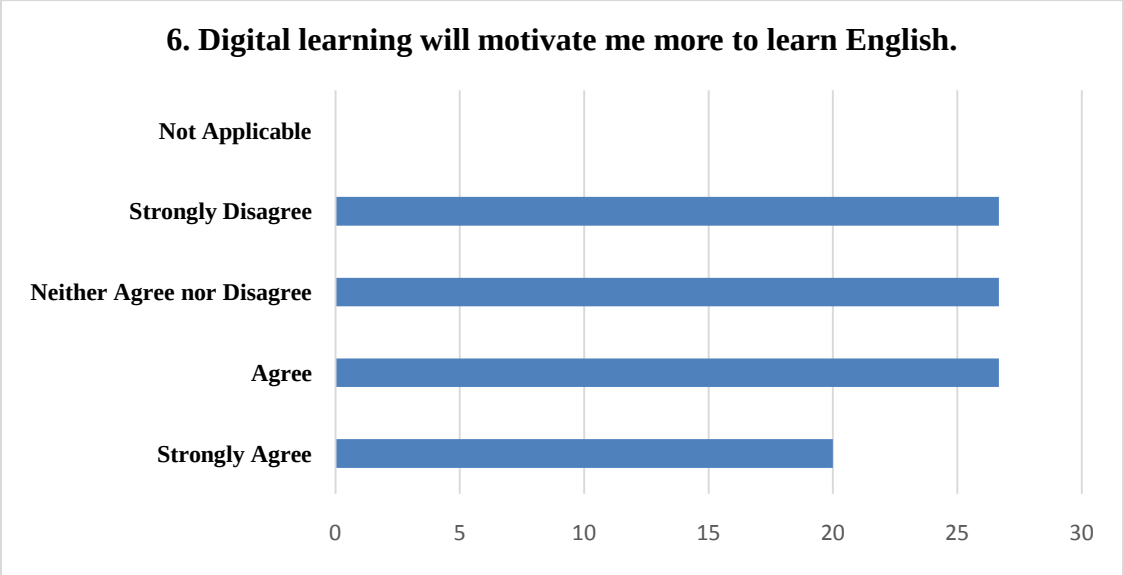
APPENDIX K

PRE-LEARNING QUESTIONNAIRE TABLES AND CHARTS






5. Digital learning is a quicker method of getting feedback in learning.
Not Applicable
Strongly Disagree
Neither Agree nor Disagree
Agree
Strongly Agree
0
5
10
15
20
25
30
35
40
45
50


6. Digital learning will motivate me more to learn English.
Not Applicable
Strongly Disagree
Neither Agree nor Disagree
Agree
Strongly Agree
0
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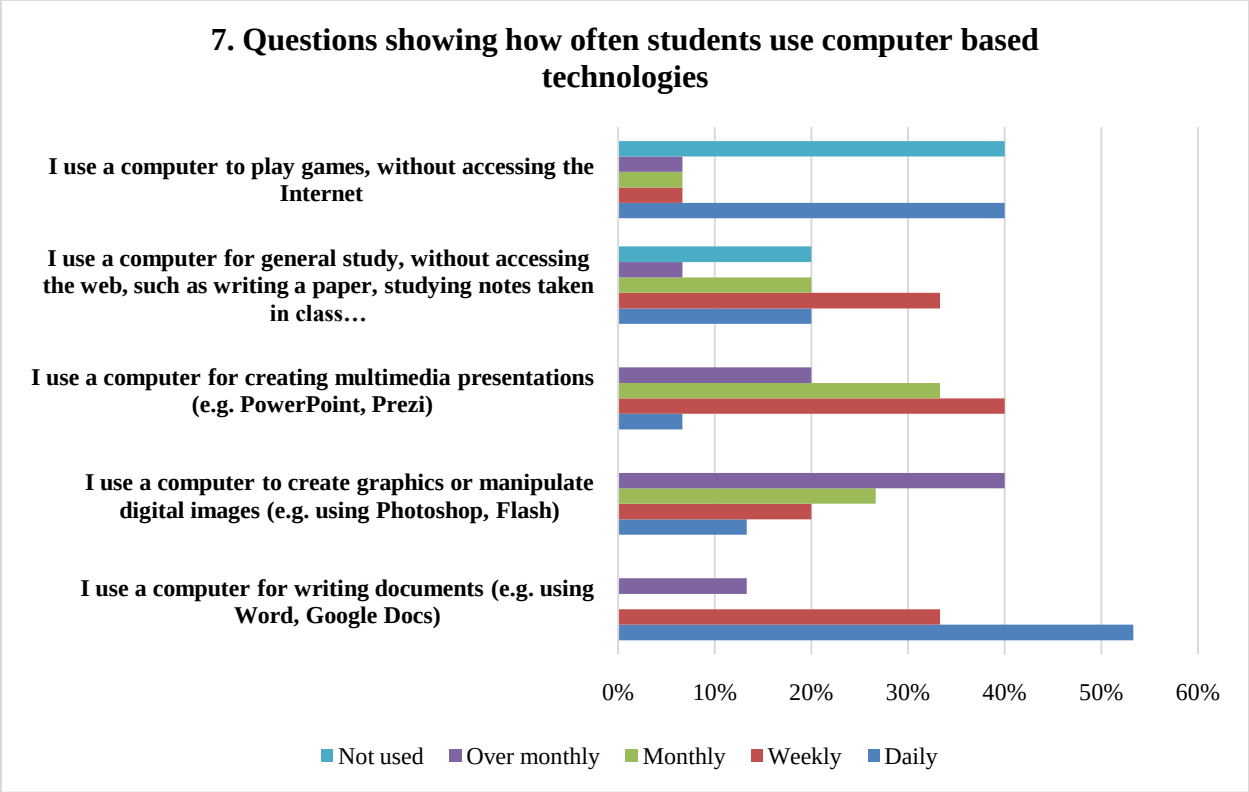
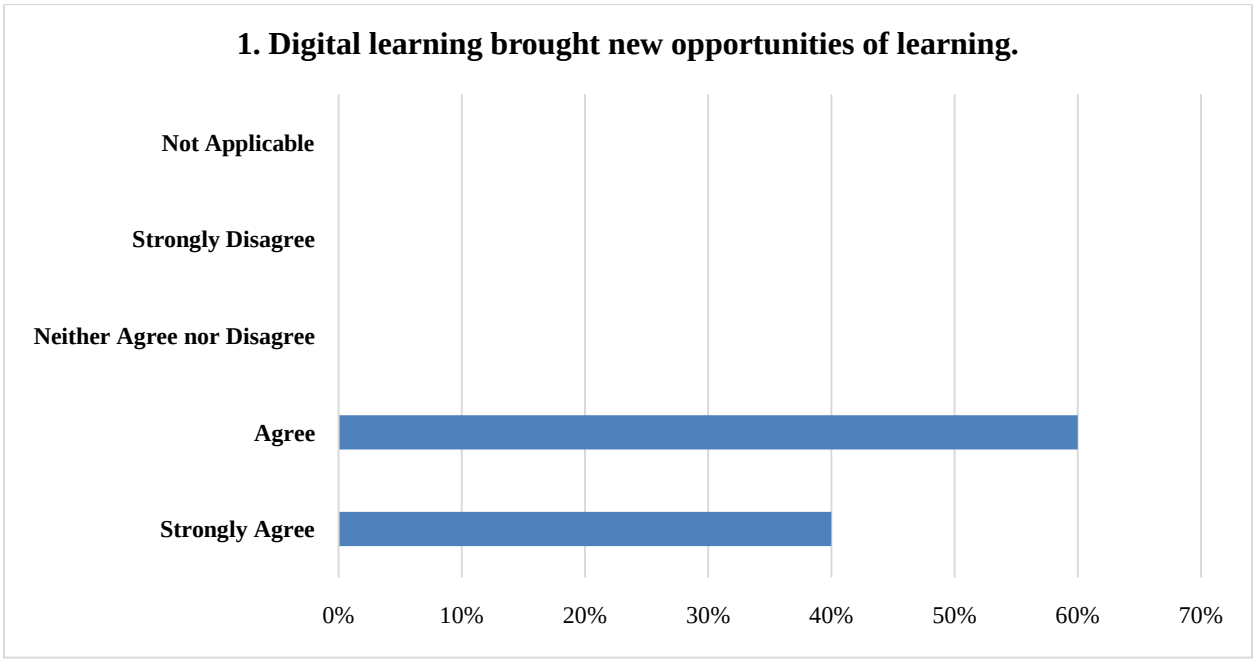
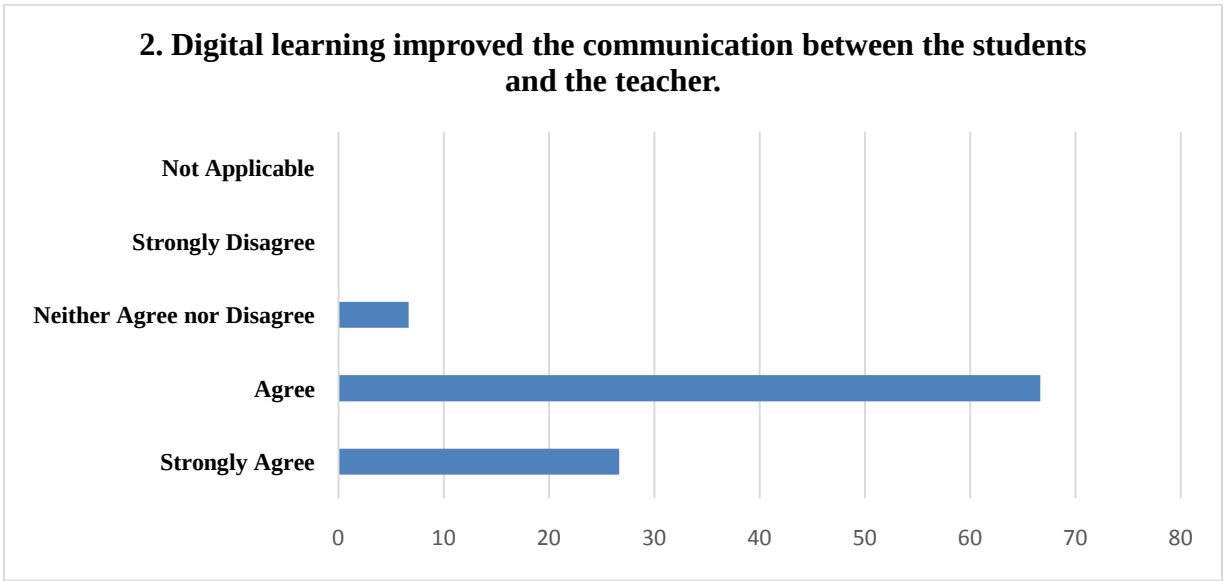
25
30

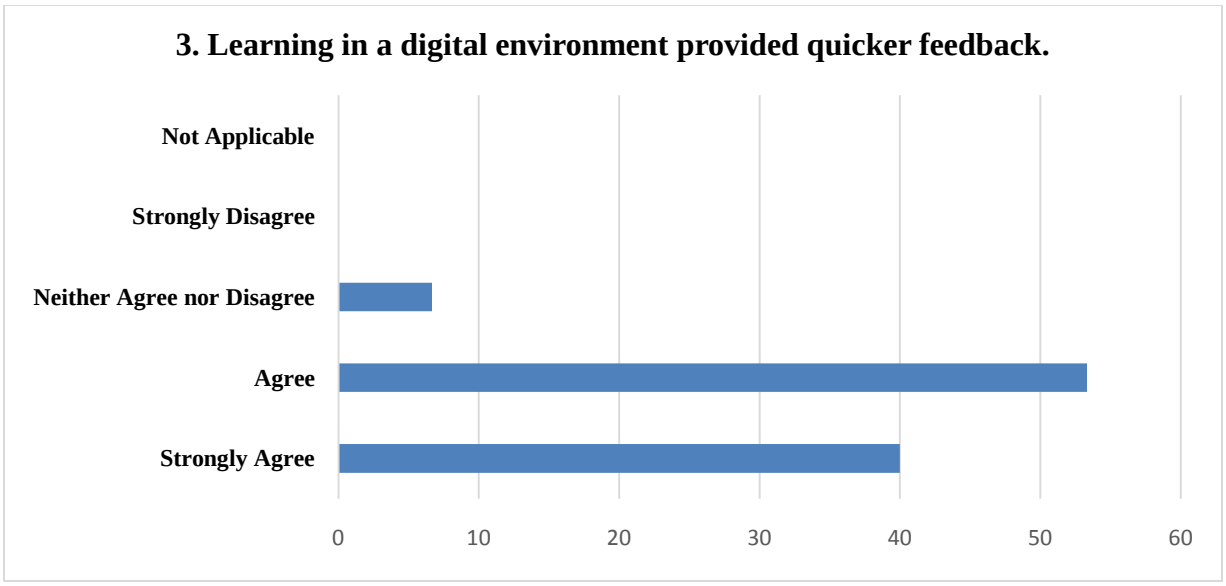

7. Questions showing how often students use computer based technologies
I use a computer to play games, without accessing the Internet
I use a computer for general study, without accessing the web, such as writing a paper, studying notes taken in class…
I use a computer for creating multimedia presentations (e.g. PowerPoint, Prezi)
I use a computer to create graphics or manipulate digital images (e.g. using Photoshop, Flash)
I use a computer for writing documents (e.g. using Word, Google Docs)
0%
10%
20%
30%
40%
50%
60%
Not used
Over monthly
Monthly
Weekly
Daily

APPENDIX L

POST-LEARNING QUESTIONNAIRE TABLES AND CHARTS






3. Learning in a digital environment provided quicker feedback.
Not Applicable
Strongly Disagree
Neither Agree nor Disagree
Agree
Strongly Agree
0
10
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30
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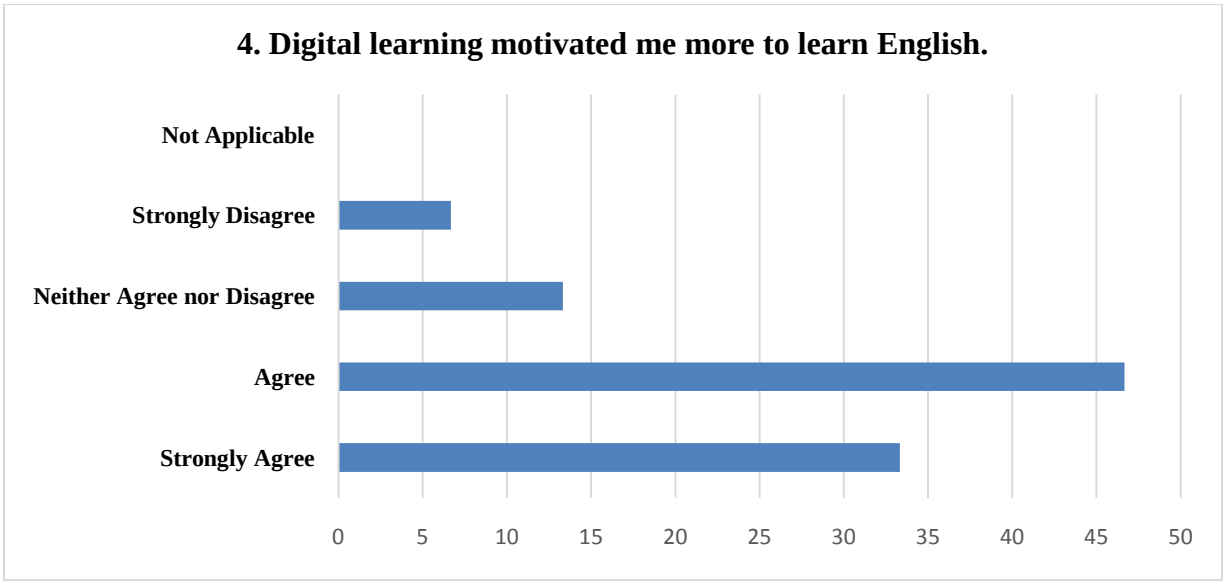
50
60


4. Digital learning motivated me more to learn English.
Not Applicable
Strongly Disagree
Neither Agree nor Disagree
Agree
Strongly Agree
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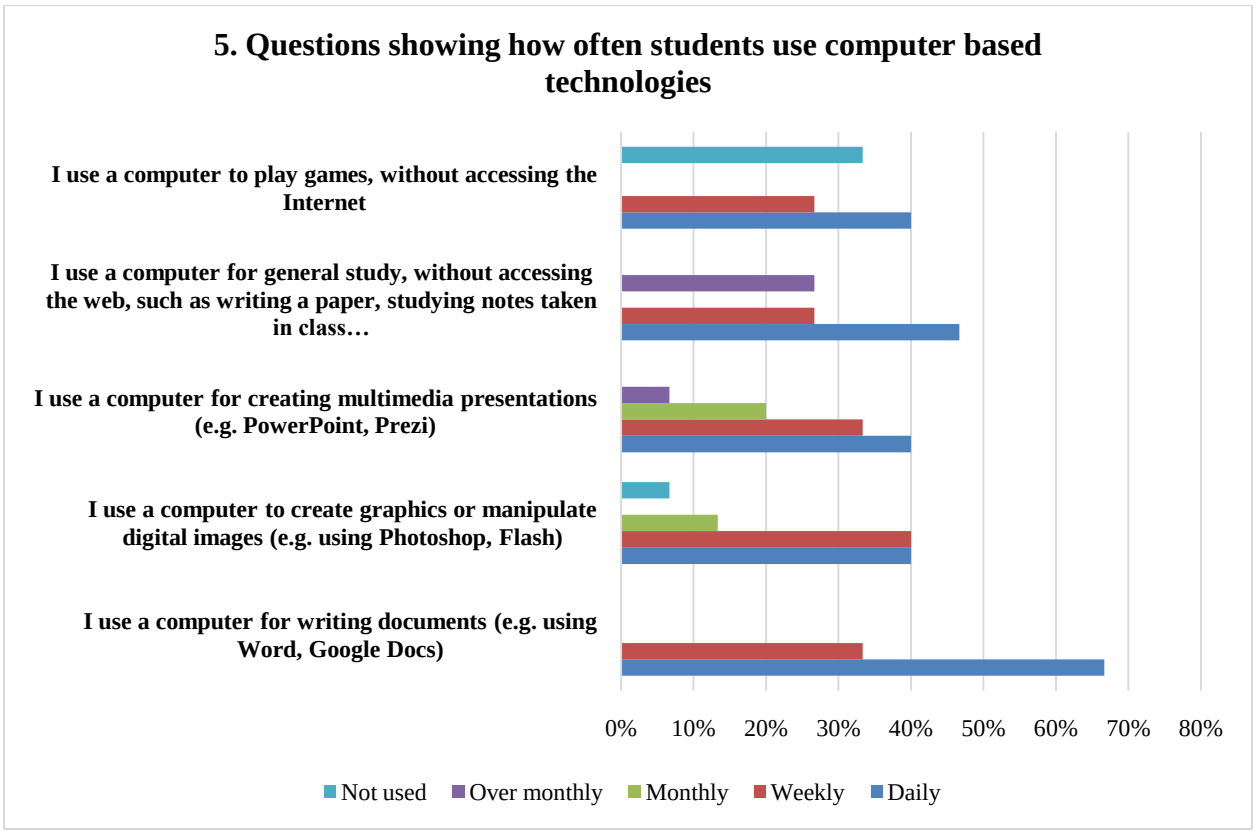
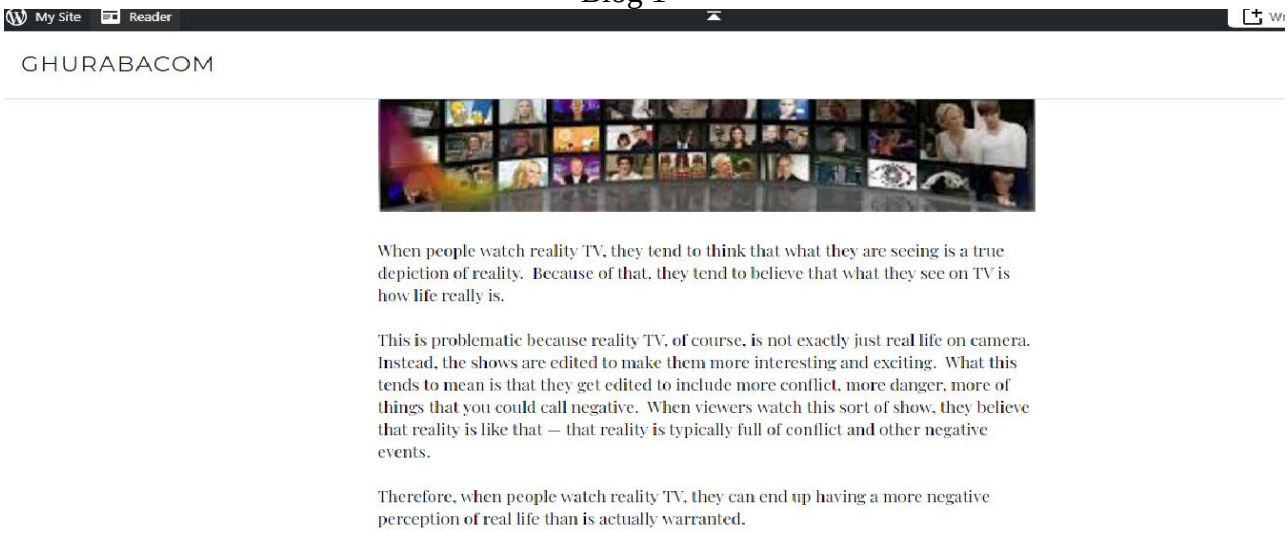
35
40
45
50


5. Questions showing how often students use computer based technologies
I use a computer to play games, without accessing the Internet
I use a computer for general study, without accessing the web, such as writing a paper, studying notes taken in class…
I use a computer for creating multimedia presentations (e.g. PowerPoint, Prezi)
I use a computer to create graphics or manipulate digital images (e.g. using Photoshop, Flash)
I use a computer for writing documents (e.g. using Word, Google Docs)
0%
10%
20%
30%
40%
50%
60%
70%
80%
Not used
Over monthly
Monthly
Weekly
Daily

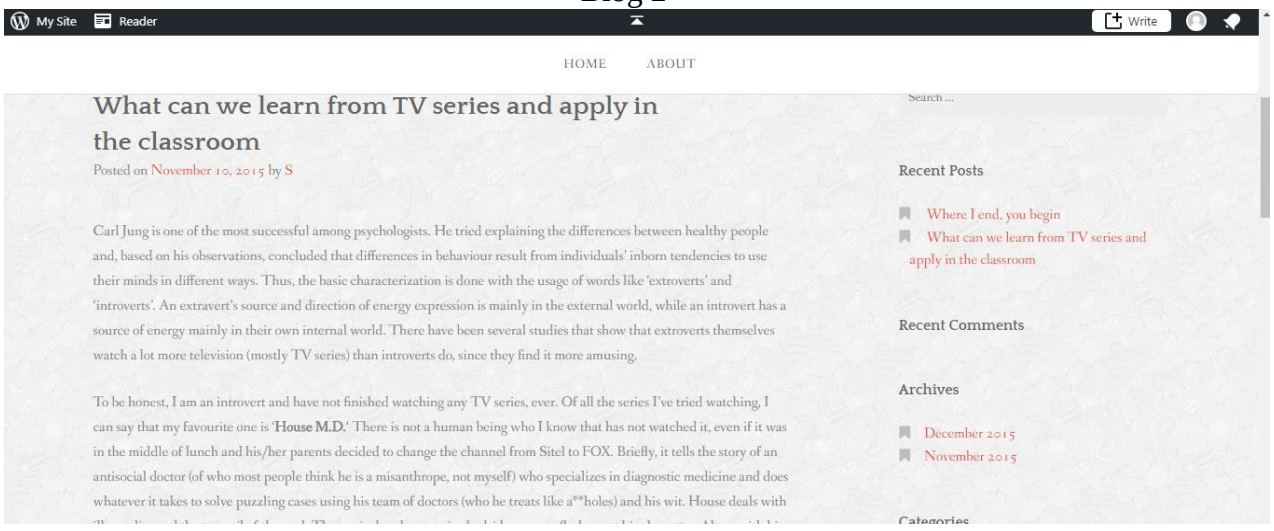
APPENDIX M

STUDENTS' BLOGS

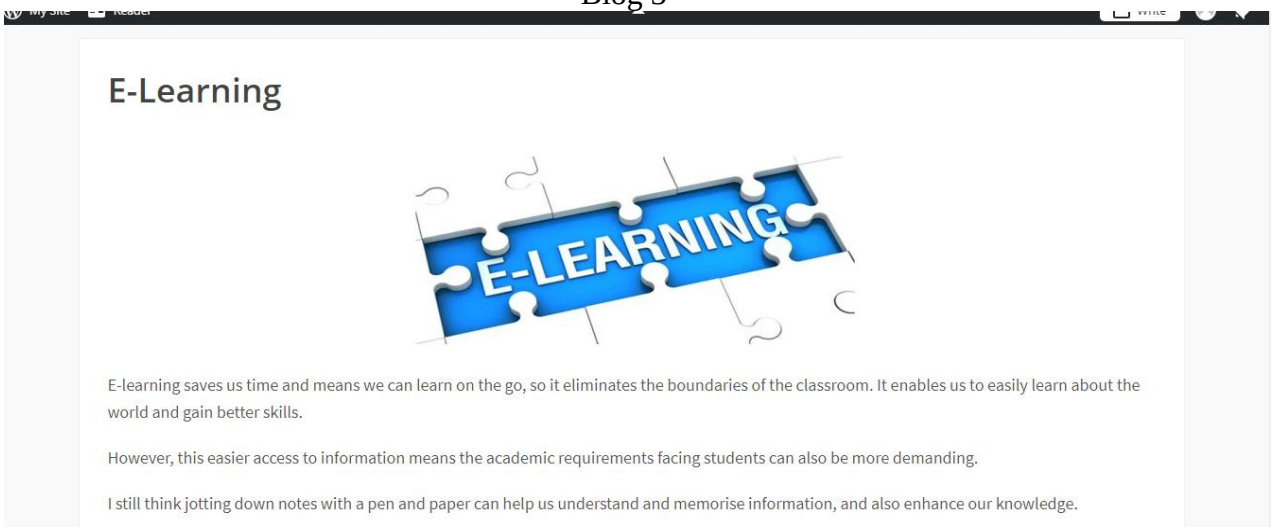
Blog 1



Blog 2



Blog 3



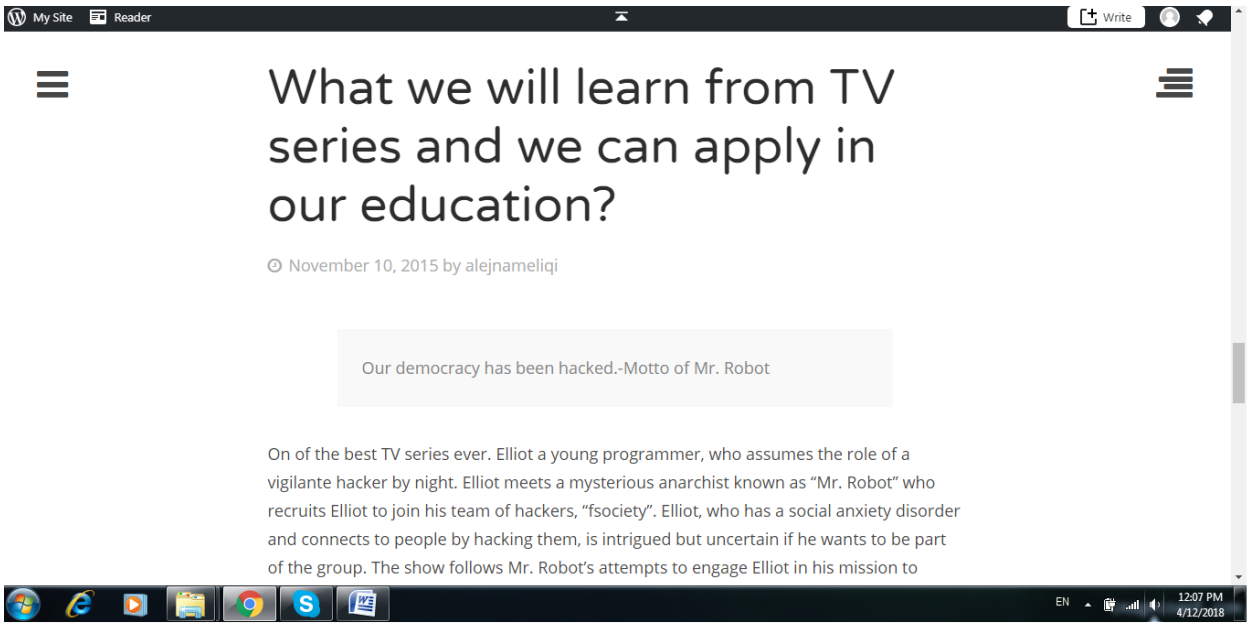
E-Learning

E-learning saves us time and means we can learn on the go, so it eliminates the boundaries of the classroom. It enables us to easily learn about the world and gain better skills.

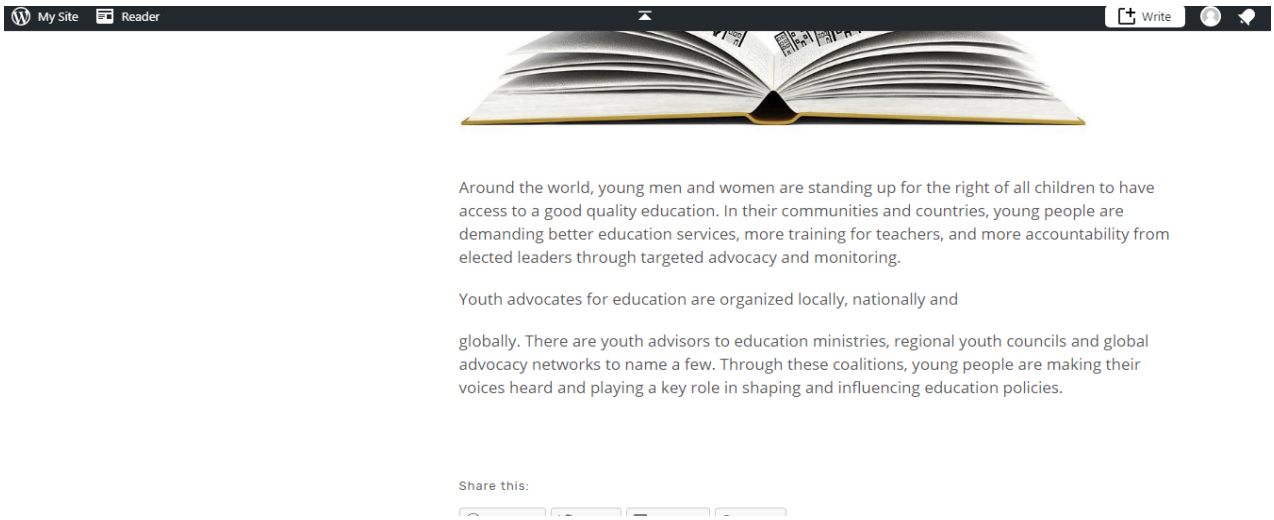
However, this easier access to information means the academic requirements facing students can also be more demanding.

I still think jotting down notes with a pen and paper can help us understand and memorise information, and also enhance our knowledge.

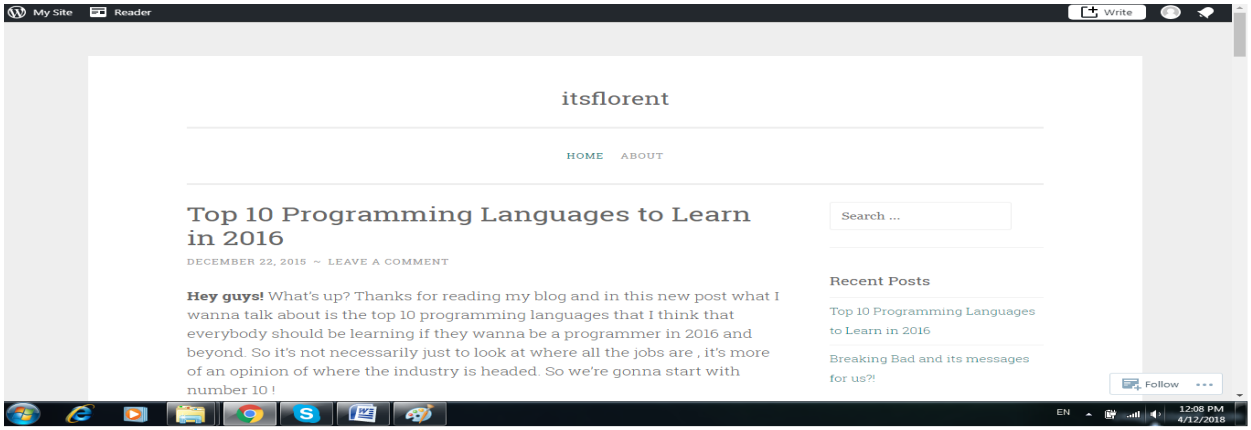
Blog 4



Blog 5


My Site
Reader
Write
Around the world, young men and women are standing up for the right of all children to have access to a good quality education. In their communities and countries, young people are demanding better education services, more training for teachers, and more accountability from elected leaders through targeted advocacy and monitoring.
Youth advocates for education are organized locally, nationally and
globally. There are youth advisors to education ministries, regional youth councils and global advocacy networks to name a few. Through these coalitions, young people are making their voices heard and playing a key role in shaping and influencing education policies.
Share this:

Blog 6


My Site
Reader
Write
itsflorent
HOME
ABOUT
Top 10 Programming Languages to Learn in 2016
DECEMBER 22, 2015 ~ LEAVE A COMMENT
Hey guys! What's up? Thanks for reading my blog and in this new post what I wanna talk about is the top 10 programming languages that I think that everybody should be learning if they wanna be a programmer in 2016 and beyond. So it's not necessarily just to look at where all the jobs are , it's more of an opinion of where the industry is headed. So we're gonna start with number 10 !
Search ...
Recent Posts
Top 10 Programming Languages to Learn in 2016
Breaking Bad and its messages for us?!
Follow
EN
12:08 PM
4/12/2018

APPENDIX N

OBSERVATION NOTES

	Interest	Engagement	Participation	Reaction
Student 1, female	Seems excited to try new learning environments	Diligent and hard-working	Very involved in class, online tasks done on time	Thrilled when first task was assigned for home
Student 2, male	Shows particular interest	The online tasks were done in timely manner, shy during class presentations	Quiet in class	Interested, but keeps it to himself
Student 3, male	Very interested	Highly engaged in class learning	Very active in class	Enthusiastic about the tasks
Student 4, female	Somewhat interested, not too enthusiastic	Shy in class	Encouraged to speak in the discussion forum	Somewhat cautious, not knowing what to expect
Student 5, female	Pretty excited	Very active and involved in class and online	Enthusiastically participates in everything, tasks done on time	Eager to try different instructional modes
Student 6, male	Interested but reserved	Somewhat active in class, more online (he dislikes talking in front of the class)	Reserved in class, but participates in all the tasks	Somewhat doubtful, nor knowing what to expect
Student 7, male	Seems pretty interested	Energetic in class but sluggish in the online tasks	Tasks not done on time, different excuses	Attention seeker, over-reacting to different tasks
Student 8, Male	Curious and attentive	Hardworking, punctual in both learning environments	Motivated to participate	Intrigued and positively surprised
Student 9, male	Not particularly interested in the beginning/ more interested as learning progressed	Idle, but engaged when something is interesting	Involved in certain tasks that seem appealing to him	Somewhat interested but careful
Student 10, male	Interested and excited	Focused and attentive	Engaged and motivated to complete all the tasks	Enthusiastic
Student 11,	Curious to see	Reports	Well stimulated	Focused and

male	what will happen	distractions in online environment that cause him to procrastinate	and collaborative	willing to try new things
Student 12, male	Seems keen and excited	Reports having stimulating learning environments	Very active and eager to participate	Positively confident and optimistic
Student 13, male	Bored and uninterested	Not only ESP, dislikes coming to classes in general	Does tasks because he ”has to”, otherwise unwilling to participate	Indifferent
Student 14, male	Shows somewhat enthusiasm in the beginning, increases it the end	Engaged and motivated to learn	Participates actively and shows great deal of interest	Interested and curious
Student 15, male	Not interested at all	Disruptive behavior in class	Does the tasks only because of points	Not very willing to participate

APPENDIX 0

WEBSITE EVALUATION GUIDELINES

---

6 Criteria for Websites

These six criteria focus on the content of Websites and not so much on the graphics or the design. These criteria should be applied when you research online.

1. AUTHORITY - the person or the institution responsible for a site has the qualifications and knowledge to do so. Authority refers to the following:

• It should be clear who developed the site. • Clear contact information should be provided: e-mail address, phone number, and fax number. • The author should state qualifications and credentials, that gives them authority to present information. • Check to see if the site supported by an organization or a commercial body

2. PURPOSE - the purpose of the information should be clear – whether it is for informational, persuasive, opinion or other purposes. Evaluating a web site for purpose:

• Does the content support the purpose of the site? • Is the information geared to a specific audience (students, scholars, general reader)? • Is the site organized and focused? • Are the outside links appropriate for the site? • Does the site evaluate the links? • Check the domain of the site. The URL may indicate its purpose.

3. COVERAGE - It is difficult to assess the extent of coverage since depth in a site, through the use of links, can be infinite. One author may claim comprehensive coverage of a topic while another may cover just one aspect of a topic. Evaluating a web site for coverage:

• Does the site claim to be selective or comprehensive? • Are the topics explored in depth? • Compare the value of the site's information compared to other similar sites. • Do the links go to outside sites rather than its own? • Does the site provide information with no relevant outside links?

4. CURRENCY - Currency of the site refers to: 1) how current the information presented is, and 2) how often the site is updated or maintained. It is important to know when a site was

created, when it was last updated, and if all of the links are current. Evaluating a web site for currency involves finding the date information was:

• first written • placed on the web • last revised Then ask if: • Links are up-to-date • Links provided should be reliable. Dead links or references to sites that have moved are not useful. • Information provided so trend related that its usefulness is limited to a certain time period? • the site been under construction for some time?

5. OBJECTIVITY - Objectivity of the site should be clear. Beware of sites that contain bias or do not admit its bias freely. Objective sites present information with a minimum of bias. Evaluating a web site for objectivity:

• Is the information presented with a particular bias? • Does the information try to sway the audience? • Does site advertising conflict with the content? • Is the site trying to explain, inform, persuade, or sell something?

6. ACCURACY - There are few standards to verify the accuracy of information on the web. It is the responsibility of the reader to assess the information presented. Evaluating a web site for accuracy:

• Reliability: Is the author affiliated with a known, respectable institution? • References: do statistics and other factual information receive proper references as to their origin? • Does the reading you have already done on the subject make the information seem accurate? • Is the information comparable to other sites on the same topic? • Does the text follow basic rules of grammar, spelling and composition? • Is a bibliography or reference list included?

(taken from:

https://cdn.dal.ca/content/dam/dalhousie/pdf/library/CoreSkills/6_Criteria_for_Websites.pdf)