UNIVERSIDAD DE QUINTANA ROO

División de Ciencias Políticas y Humanidades

The Relationship between Multiple Intelligences and ICT Resources in English learners from the Language Teaching Centre (CEI) at the University of Quintana Roo

TESIS

Para obtener el grado de:

LICENCIADO EN LENGUA INGLESA

Presentan:

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Melesio Ignacio Altunar Álvarez

Directora:

Mtra. María Isabel Hernández Romero

Chetumal, Quintana Roo, México, agosto de 2015

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Tesis elaborada bajo la supervisión del comité del programa de Licenciatura en Lengua Inglesa y aprobada como requisito para obtener el grado de:

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ABSTRACT

Today we are living in a world of technology and communication, a world where an explosion of knowledge is taking place and stepping into the modern technocratic age. Students have become more technological and professors have adopted these resources in order to help students. There are many new technologies being used in classrooms today such as social networking, online teaching, class blogs, wikis, and even mobile devices. Hence, there are many ways in which we can benefit from the new technologies being developed today. The last thing we can say is that the invention of the Internet only made the explosion of information even faster. Now we can tweet or post about anything and have it spread like wildfire in mere seconds.

Furthermore, it is necessary to take into account that not all students learn in the same way, using the same things or following the same instructions. A number of factors play an important role in the learning process. One of these factors is the multiple intelligences theory. The multiple intelligences theory claims that all humans have eight intelligences, to a lesser or greater extent, and that we each have a different intelligence profile. In short words, Gardner argues that people are intelligent in different ways. Taking into account these two research topics, we want to carry out the following research in order to find out the relationship between the Multiple Intelligences (MI) and the Information and Communication Technologies (ICT) when students are learning English.

The following research was carried out at the University of Quintana Roo campus Chetumal. The participants in this study were students who were taking an English course at the University Language Teaching Centre (CEI). The instrument used was a semi-structured questionnaire which was designed considering the frequency of use, and the eight different intelligences (Gardner, 1999), in the same way was considering the purpose of use of ICT and the four different English language skills. On the other hand, in order to create the section of the MI, a questionnaire used by Jennifer Mourad was adapted. All the results obtained with this questionnaire were analyzed in the SPSS program version 21.

In this research we expected to find out any findings that provide information about the multiple intelligences as a key element in the use of the ICT as a support at the moment of learning English. For doing this, nine main research questions and four secondary research questions stated in this research were answered. The findings will be useful for teachers and will have several implications in the educational field at the University of Quintana Roo.

The major findings of this study were that at least three of the eight intelligences proposed by Howard Gardner have a relationship whit the use of ICT resources, those intelligences are the musical, interpersonal, and the linguistic intelligence. In addition, results reported that there is not a relationship between age and level of English according to the MI. In the same way, older students reported feel intimidated on the use of ICT. Moreover, male students reported using more their kinesthetic intelligence as female students reported using more their linguistic intelligence. Another important aspect was that women have more contact with this kind of resources than men. Furthermore, the linguistic intelligence was the only intelligence that had a relationship with the four English language skills. Additionally, it was found that students tend to use more search engines in order to consult anything they want to look for. In the contrary, it was found that most of students reported not knowing or using certain kinds of resources such as multimedia programs to take notes. Likewise, it was found that the most predominant intelligence was the intrapersonal one as well as the least predominant intelligence was the linguistic one. Finally, students who participated in this study reported that basically they use the ICT for different purposes and not academics ones. The finding presented above gave detailed information about the use of MI and ICT at the moment of learning English; however, further research is required.

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CHAPTER 1 INTRODUCTION

Technology has changed the appearance and operation of modern society. Since many years ago our world has become digital, and must classrooms are steadily following suit; for instance, the use and implementation of computers and the Internet. Nowadays, both of them have become really important and part of our daily life. Technologies help us every day, everywhere, especially at school. We use tools like these in order to do homework and investigations.

On the other hand, it is necessary to take into account that students possess different kinds of minds and therefore they learn, remember, perform, and understand in different ways. In 1983, Howard Gardner, a Harvard university psychologist and professor of neuroscience, greatly crushed the educational world with his bold statement in his ground-breaking book, *Frames of Mind.* In this book he mentioned the theory of the multiple intelligences (MI). Gardner proposed that every human being possesses different intelligences that reflect different ways of interacting with the world.

Multiple intelligences and technology blend in the modern changing environment of education. To compete in the world marketplace, today's students must acquire twenty-first century skills, such as global consciousness and social responsibility. Technology allows these skills to be presented. The teacher's instruction must then focus on student achievement so that the technology integration is effective. One of the best ways to meet these needs is to differentiate instruction through the use of Gardner's MI. Each intelligence is broadly defined and permits flexibility when making adjustments to existing curriculum (McCoog, 2007, p. 25).

1.1 Background

Noreen and Nayyar (2014) pointed out that Information and Communication Technology (ICT) is the modern science of gathering, storing, manipulating, processing and communicating desired of information in a specific environment. One of the enduring difficulties of technology use in education is that educational planners and technology advocate think of the technology first and then investigate the educational applications of this technology later. Evidences prove that students who use ICT resources can increase learner autonomy. For instance, Shigemitsu (2004) carried out a study on an EFL classroom in Japan where ICT resources were used in order to learn English as a foreign language. In this research ICT was used as a tool that the students used to engage in higher order thinking: that it provides opportunities for them to construct their own understanding of the world in which they live. Another example is the study named *The Use of ICT in learning English as an International Language* carried out by Jung (2006). In this study Jung mentions that participants were highly motivated by this practical and also mentioned that both English and Computers as tools are necessary at the moment of learning.

1.2 Rationale

According to Walton (2014) "technology has been rapidly changing and expanding in every field imaginable". One of those fields is education, for example; nowadays, students use technology and electronic tools in order to learn. And also, teachers use these tools in order to teach and make classes more interesting and dynamics. One of those subjects is English; sometimes students realize that English is very difficult for them. Nonetheless, when they use any kind of technology resource for learning, they understand that English is not as hard as they think.

Howard Gardner (2003) shows in his theory of multiple intelligences that each people possesses different abilities and different intelligences, so it means that people can learn in different ways. Gardner chose eight abilities that he held to meet these criteria: musical, visual-spatial, verbal-linguistic, logical-mathematical, kinesthetic, interpersonal, intrapersonal, and naturalistic. Although the distinction between intelligences has been set out in great detail, Gardner opposes the idea of labelling learners to a specific intelligence. He mentions that each individual possesses a unique blend of all the intelligences. It can be truth; however, there is an intelligence that more predominates.

1.3 Objective

The objective of this study is to determine if there is any relationship between the Multiple Intelligences (MI) and the Information and Communication Technology (ICT) resources in students who are taking an English course at the University Language Teaching Centre (CEI) at UQROO, in the same way if there is a relationship between participant´s age and their reported MI and ICT resources, if there is a difference between participant's reported MI and ICT across their level of English, if there is a significant difference in the reported MI and ICT between females and males, if there is a relationship between students' language skill and the reported MI and the reported use of ICT resources, how often students use ICT resources for learning English, what is the main purpose of using ICT at the moment of learning English, what is the least and most developed intelligence and in which skill students use more ICT. Doing this, it will be easier to find out how students learn better by using their intelligences. Furthermore, it will help teachers to have a notion about how students can learn English in a better way through the use of ICT resources.

1.4 Research questions

The following research questions were designed in order to find out the relationship between the MI and ICT resources. Likewise, other variables such as age, English level, gender, type of intelligence and English skills were taking into account.

Main research questions

RQ-1. Is there a relationship between CEI students' multiple intelligences (MI) and their reported use of ICT resources?

RQ-2. Is there a relationship between CEI students' age and the reported use of ICT resources?

RQ-3. Is there a relationship between CEI students' age and the reported MI?

RQ-4. Is there a difference in the reported MI across levels of English?

RQ-5. Is there a difference in the reported use of ICT resources across levels of English?

RQ-6. Are there any gender differences in the reported MI?

RQ-7. Are there any gender differences in the reported use of ICT resources?

RQ-8 Is there a relationship between language skills and the reported MI?

RQ-9 Is there a relationship between language skills and the reported use of ICT resources?

Secondary research questions

RQ-10. How often do CEI students use ICT resources for learning English?

RQ-11. Which is the main purpose of using ICT resources when CEI students learn English?

RQ-12. Which is the least and the most developed multiple intelligence?

RQ-13. In which language skill do CEI students tend to use more ICT resources?

In sum, the 13 research questions were carefully formulated in order to explore the relationship between multiple intelligences (MI) and the use of Information and Communication Technology (ICT) resources. Also in this thesis, the contribution of personal variables are examined in relation to, not only MI, but also to ICT resources. Additionally, secondary research questions are stated to observe the frequency in the use of ICT resources and reported MI, the reasons for using such resources and the English language skill reportedly developed through the use of ICT resources.

CHAPTER 2 REVIEW OF LITERATURE

2.1 Definition of Information and Communication Technology (ICT)

To date, research in the use of the Multiple Intelligences and the Information and Communication Technologies on English learning (ICT) is a limited topic. For that reason, this investigation will be carry out in order to collaborate in this field.

There are many definitions about ICT resources such as ICT in telecommunications, tourism, and education. Information and communication technology (ICT) refers to all the technology used to handle telecommunications, broadcast media, intelligent building management systems, audiovisual processing and transmission systems. In the past few decades, information and communication technologies have provided society with a vast array of new communication competences. For instance, people can communicate in real-time, which is usually known as synchronous communication, with others using technologies such as instant messaging. In short, modern information and communication technologies have created a *global village,* in which people can communicate with other across the world. (See table 2.1).

Definitions of Information and Communication Technology (ICT)	
Alastair deWatteville & Lester Gilbert, (2000)	Define as the acquisition, analysis, manipulation, storage and distribution of information; and the design and provision of equipment and software for these purposes.
Margaret Rouse, (2005)	Defines as an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. ICTs are often spoken of in a particular context, such as ICTs in education, health care, or libraries. The term is somewhat more common outside of the United States.
Qiyun Wang and Huay Lit Woo, (2007)	Define that ICT can be hardware (such as computers, digital cameras), software (such as Excel, discussion forums) or both. In the educational context, it mainly refers to various resources and tools (software) presented on the computer"
Jaro Berce, Sam Lanfranco, and Vasja Vehovar, (2008)	Define as "a mixture of hardware (equipment), software (operating system, applications, etc.) and communication facilities (Local area Networks, wide area and backbone Networks, communication protocols, etc.)"
John Daintith & Edmund Wright, (2009)	Define as a branch of engineering dealing with the use of computers and telecommunications equipment to store, retrieve, transmit and manipulate data.
UNESCO, (2010)	Defines ICT as a plural term since it refers to a great many technologies and it is an all-encompassing term that includes the full gamut of electronic tools by means of which we gather, record and store information, and by means of which we exchange and distribute information to others.
Ifueko Omoigui Okauru, (2011)	Defines as the digital processing and utilization of information by the use of electronic computers. It comprises the storage, retrieval, conversion and transmission of information.
Daniel Chandler, & Rod Munday, (2012)	Define as the study, design, development, application, implementation, support or management of computer-based information systems. Moreover, the term is commonly used as a synonym for computers and computer networks, but it also encompasses other information distribution technologies such as television and telephones.
UNESCO, (2014)	Mentions that Information and Communication Technologies (ICT) can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development more efficient education management, governance and administration.

Table 2.1 Definitions of ICT

According to deWatteville and Gilbert, (2000) define the ICT as the acquisition, analysis, manipulation, storage and distribution of information as well as the design and provision of equipment and software. Furthermore, Rouse (2005) defines it as an umbrella term that includes any communication device or application. On the other hand Wang and Woo (2007) Berce,

Lanfranco, and Vehovar (2008) define that ICT is any kind of equipment, software or hardware. Daintith & Wright (2009) are the ones who define ICT as a branch of engineering. UNESCO (2010), Okauru (2011) as well as Chandler, and Rod, (2012) define ICT as the distribution of information, the utilization of information and as a study, design, development of computer. Finally UNESCO (2014) is the one who mentions that ICT can contribute to universal access to education.

Regarding with education, ICT has been a great helpful for students, and professors. UNESCO (2014) mentions that Information and Communication Technologies (ICT) can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development more efficient education management, governance and administration.

In short, technology in education seems to be the new era for students and professors. In the near future, it will be possible to turn to a mobile hand-set to answer most problems and questions on school tests, and to receive oral or written help or advice automatically in a few seconds (UNCESCO, 2005, p.121). Regarding to the field, UNESCO (2014) definition was chosen since it has more to do with education.

2.2 Multiple Intelligences according to Howard Gardner

"An intelligence is the ability to solve problems, or to create products, that are valued within one or more cultural settings."

Howard Gardner (1983)

The theory of multiple intelligences was developed by the psychologist Howard Gardner in the late 70's and early 80's. It pointed out that individuals possess eight or more relatively autonomous intelligences. According to Howard Gardner (1983) people possess different kind of abilities and intelligences. These abilities or intelligences allow people to improve their knowledge and learn in an easily way. As Shatokhina (n.d) mentions the use of multiple intelligences in the classroom is effective due to that it creates a comfortable atmosphere for students and it motivates students as well. Howard Gardner, professor from Harvard, has identified eight different intelligences that each individual has the capacity to possess. According to this theory, humans are able to know the world through language, logical-mathematical analysis, spatial representation, musical thinking; the use of the body to solve problems or to make things, as well as understanding of other individuals and themselves.

In the twenty-five year history of the theory, numerous researchers have proposed additional intelligences that range from moral intelligence (Boss, 2005) to humor intelligence and cooking intelligence (Goleman, 2006). In 1999 Gardner revised his model and adding another intelligence; naturalistic intelligence, the empathy for, and categorization of natural things (Waterhouse, 2006). In fact, Garner has speculated about an existential intelligence that reflects an individual's capacity for considering "big questions" about life, death, love, and being

(Davis, Christodoulou, Seider & Gardner, 2011). According to McKenzie (2004) this intelligence is seen in the discipline of philosophy and people who always ask themselves questions such as "Why are we here?" or "What is our role in the world?" In short, individuals with high levels of this hypothesized intelligence might be likely to be found in religious seminaries or philosophy departments (Davis at al., 2011). Existentialist was a candidate for inclusion as a ninth intelligence and Gardner evaluated its fit with the eight criteria needed to be considered an intelligence. Although Gardner asserted that existential intelligence fit well with the criteria, evidence was too sparse to endorse its addition as a multiple intelligence. Therefore the term existential thinking is used instead of existential intelligence (Allan & Shearer, 2012). Some years ago, Gardner (2004) proposed two additional intelligences, the *mental searchlight intelligence* and the *laser intelligence.* The *mental searchlight intelligence* allows people to scan wide spaces in an efficient way thus permitting them to run society smoothly, in the same way *laser intelligence* allows people to generate "the advances (as well as the catastrophes) of society (Waterhouse, 2006). Until now, Gardner has not yet theorized a connection between these both intelligences and his eight other intelligences.

The first eight intelligences proposed by Howard Gardner in 1999 were taking into account in this research. The existential thinking or the existential intelligence was omitted due to the fact that the first eight intelligences proposed previously are more known. Moreover, the ninth intelligence has not been taken into account for this study since existential intelligence has to do more with philosophy and religious stuffs. In short the first eight intelligences are the ones that prevalent the most in students.

2.3 Previous studies about Multiple Intelligences for Education

Intelligences have drawn the great attention of scholars and educators over the past two decades owing to its premise on individual difference of human beings and its rigid multi-dimensional theoretic foundation (Campbell, L., Silver, H., Strong, R., & Perini, M., 1997, p. 7).

Segal (2014) carried out a project called "Teaching English as a Second Language through Rap Music: A Curriculum for Secondary School Students" where musical instruction is based on Gardner's (2006) multiple intelligence theory and Bloom's (1978) learning domains were taken. Results showed that Rapping English is an alternative to teaching through lecture, reading a text, or doing practice exercises. With rap, youth learn through activities that they enjoy and find culturally relevant; moreover, musical intelligence increases memory retention.

Likewise, Arnold and Fonseca (2004) mentions that language learning tasks can be developed around different types of intelligences. For instance, an activity such as writing the lyrics of a song implies the use of linguistic and musical intelligence. Through this study, the authors mention and give examples about tasks that can be developed through the implementation of each intelligence. In conclusion, these authors point out that is possible to motivate learners in the second language classroom by activating multiple ways of meaning-making through the use of tasks relating to the different intelligences.

España (2013) quoted according to Howard Gardner what Musical intelligence is. Furthermore on his thesis The Pedagogical Application of Music in EFL Teaching, he demonstrated that the use of songs helped students to develop and enhance their listening skills and the repetition within the singing of songs provided the practice of speaking in a way students did not feel it neither imposed nor as a threat of being object of jokes.

Murphy (1989) says that it is clear that song's power stick is tremendous; this may be partially due to some similarities that they share with inner speech, moreover, he states that pop songs possess within their grammatical structure an algebraic formula in which anyone can put in the elements of their choice and it will mean something to them.

Mahdavy (2007) carried out a study based on the role of multiple intelligences (MI) in listening proficiency. In this study, the role of MI was investigated by giving one hundred and fifty-one junior and senior English language students an actual TOEFL listening comprehension test and a Multiple Intelligences Development Assessment Scales (MIDAS) questionnaire. The results suggest that although all the intelligences positively correlate with performance on TOEFL listening comprehension, only linguistic intelligence has a statistically significant but low correlation with TOEFL listening. Furthermore, the results of regression analysis indicate that linguistic intelligence is included as a predictor of listening proficiency while other intelligences are excluded.

As well as others researchers, Akbari & Hosseini (2008) presented a study where the objective was to determine whether exist any probable relationship between the use of language learning strategies by L2 learners and the construct of MI. The findings in this research indicated that such a relationship does exist, and the study also found that MI and second language proficiency are related. In short, this study shows how the learning strategies and the Multiple Intelligences can have a relationship at the moment of learning English as a second language.

BECTA (n.d.) on Using ICT to Support Students Who Have English as an Additional Language Guide for EMA Coordinators and Teachers shows different technology equipment for learning English such as laptops, tablets, PC, cameras, audios, videos as well as software such as

word processing, supportive learning process (E-lective) among others. Moreover, there are some characteristic of English learners in different stages of language development.

Lopez and Patron (2012) demonstrated the most dominant type of intelligence in their study denominated "Multiple Intelligences in Online, Hybrid, and Traditional Business Statistics Courses". A group of 128 students from four different courses in Business Statistics completed a survey to determine their types of intelligence. Results revealed that the most dominant type of intelligence is interpersonal with approximately 80% of the students, followed by musical with 67% and logical-mat" with 56%. On the other hand, the two categories with the lowest "strong" percentages are linguistic and spatial. In short, the least is spatial. Actually, spatial is less dominant (16%) for females than it is for males (20%) while interpersonal intelligence is the most dominant type for males and females.

Nasser, Singhal and Abouchedid (2008) in their research called "Gender Differences on Self-Estimates of Multiple Intelligences: A Comparison between Indian and Lebanese Youth" found out that women tend to use more their verbal and interpersonal intelligence that men. On the contrary, men reported using more their body-kinesthetic intelligence. The participants were 648 Lebanese and 252 Indian students, they estimated their intelligence based on Gardner's conceptualization.

Shangarffam and Zand (2012) investigated the relationship between Communicative Strategies (CS) with a special focus on three of the Multiple Intelligences (MI) namely linguistic, intrapersonal, and interpersonal intelligences. The main purpose was to discover whether those who were linguistically, intrapersonally, and interpersonally intelligent, would report more strategy use in communicative tasks while listening or speaking English. The participants were

senior English language students majoring either in Literature or Translation at Islamic Azad University in Iran. Reliable questionnaires on MIDAS as Multiple Intelligences inventory and OCSI as the inventory for Communicative Strategies were administered to all students, 102 students' responses were studied. This study indicated that there is a significant correlation between students' reports on using oral communication strategies and linguistic, intrapersonal, and interpersonal intelligences they possessed.

Boudraf (2014) proved on her study that there exist a significant relationship between the MI profiles and the reading ability. The research started by trying to identify the students' multiple intelligence profiles of fifty two English major students by using a reliable McKenzie's (1999) MI profiling survey to sort out the students' dominant intelligences. Moreover, all participants were asked to answer a TOEFL (2007) reading comprehension test to assess their reading ability.

According to Hajhashemi, Akefand and Anderson (2012), no significant difference exist between male and female and their reading proficiency score. These results were stated in their research called "The relationship between multiple intelligences and reading proficiency of Iranian EFL students". To find out the relationships among the naturally occurring variables, the researchers employed a descriptive and ex post facto design. The participants were 128 randomly selected pre-university students. Researchers used three instruments, namely: 1) a demographic questionnaire; 2) the Persian version of Mckenzie's MI Inventory; and 3) a standardized reading proficiency test retrieved from paper-based TOEFL® tests. As it was mentioned previously, no significant difference was found between the male and female students in their reading proficiency scores.

Similarly, Saibani and Simin (2014) proved that linguistic-verbal (both in males and females), interpersonal (in males), and intrapersonal (in males) intelligences are the main predictors of speaking ability in this study. The participants in this study were EFL sophomores majoring in translation at Bandar Abbas Islamic Azad University in Iran. The findings of the study revealed that there is a significant relationship between MI and speaking ability.

Nevertheless, Esmaeili, Behnam, &Esmaeili (2014) evinced in their research called "A Study of Relationship between Multiple Intelligences and Writing Ability of Iranian Female and Male Students" that there not exist a significant relationship between female and male students' MI and their writing ability. The participants in this study were forty students who were studying English language and literature at Azerbaijan Shahid Madani University. They were chosen without random assignment on the basis of non-probability sampling procedure. Twenty of the participants were female and twenty of them were male, and their age range was 19-26. The participants were given Armstrong's MI questionnaire as well as a writing test. Descriptive analysis of data indicated that although female and male students showed different preferences in each intelligence type, gender is not a significant factor in level of MI possessed by students. Regarding components of MI, there was difference between female and male students in intrapersonal intelligence; male students scored higher in this intelligence type.

Saeidi, Alizadeh and Hadidi (2014) conducted an investigation called "The Relationship between Iranian EFL Learners' Multiple Intelligences". 15 male students from a reputable institute in Tabriz participated in this study. They passed through a placement test to enter the course, yet, the researchers administered a Preliminary English Test (PET) to ensure the homogeneity of the group. Later, Multiple Intelligence Developmental Assessment (MIDAS) questionnaire was administered. Next, the learners were asked to read and write summaries of

the given text. Afterwards, the learners were asked to read and write summaries of the given text. The written texts were analyzed for general writing ability utilizing Jacobs, Zinkgraf, Wormuth, Hartfiel, & Hughey (1981) writing scale. The results for correlational analysis revealed a positive relationship between kinesthetic intelligence and general writing ability of the participants in the study.

As well, Ahanbor and Sadighi(2014) carried out a study called "The Relationship between Multiple Intelligences, Learning Styles and Gender" in order to examine whether a combination of them could improve students' learning or not. The underlining framework of this study was based on the Multiple Intelligences (MI) theory by Gardner (1983).Results indicated a significant difference was noticed between males and females with regard to intrapersonal intelligence.

Zarej and Afshar (2014) conducted a study to investigate the types of Multiple Intelligences as predictors of reading comprehension and vocabulary knowledge. A 60-item TOEFL test and a 90-item multiple intelligences questionnaire were distributed among 240 male and female Iranians studying English at Qazali and Parsian Universities in Qazvin. Data were analyzed using a multiple regression procedure. The result of the data analysis showed that musical, interpersonal, kinesthetic, and logical intelligences were predicators of reading comprehension. Moreover, musical, verbal, visual, kinesthetic and natural intelligences made significant contributions to predicting vocabulary knowledge.

Similarly, Arıkan and Sarıcaoğlu (2009) conducted a research to investigate the relationship between students' gender and intelligence types, the relationship between particular intelligence types and students' success in grammar, listening and writing in English as a foreign

language and the relationship between parental education and students' types of intelligences. Preparatory class students (n=144) attending Erciyes University's School of Foreign Languages participated and the data was collected through the Multiple Intelligences Inventory for Adults. Results revealed that logical mathematical intelligence (mean: 3.88) was the leading intelligence among the students who participated in this study. The other dominant intelligence types were spatial intelligence (mean: 3.67), bodily-kinesthetic (mean: 3.66), interpersonal intelligence (mean: 3.61), and intrapersonal intelligence (3.54). These were followed by a considerably less common intelligences, namely linguistic intelligence (mean: 3.19) and musical intelligence (mean: 3.18). Moreover, intrapersonal, linguistic, logical, and musical intelligences were more common among females.

In the same way, a research done by Hou (2010) about Multiple Intelligences and Foreign Language Learning revealed that only three intelligences are related to students' English listening scores. They are musical intelligence (t=3.672, sig=.000), verbal/linguistic intelligence (t=2.698, sig=.007), and universal/naturalist intelligence (t=-2.056, sig=.040) (negatively) and related to reading scores were musical intelligence (t=3.332, sig=.001), verbal/linguistic intelligence (t=3.079, sig=.002), and visual/spatial intelligence (t=-1.987, sig=.047) (negatively).

Having read all the studies, as a conclusion; most of the studies show that MI in education cause a great positive impact. According to some studies, interpersonal is the one that predominates the most in both genders. The ones that predominate in males are kinesthetic and intrapersonal intelligence while in females are linguistic and musical. Moreover, there is a significant relationship between interpersonal Intelligence and Oral Communication Strategies Listening (OCSL). In the study done by Mahdavy, all intelligences positively correlated with performance on TOEFL listening; especially the linguistic. Moreover, it is important to mention

that linguistic, intrapersonal e interpersonal intelligences have positive relationship with Speaking. Besides, the intelligences that have a significant relationship with reading comprehension are kinesthetic and interpersonal. Although most of the studies showed that there is no relationship between Multiple intelligences and writing, it was included a study about male Iranian EFL learners MI and Writing performance (Saeidi et al., 2014) that shows a positive correlation between bodily-kinesthetic intelligence and general writing ability. The curious thing is that English levels and MI studies were not found; perhaps, in order to use multiple intelligences in learning is not necessary to take into account the level of English of each students since MI is adaptable and basically is gifted by birth.

In short, the use of multiple intelligences for education change the way and the perspective of learning since this theory has brought a diversity and variety on learning languages. Moreover, it is well-known that the academic brilliance is not everything since at the moment to get along in life, there is not enough to have a big academic record, there are people who have great intellectual capacity but they are unable to choose their friends. On the contrary, there are people who are less brilliant at school that succeed in the work areas that they chose, or in their personal lives. As Palacios mentions (2005) in order to succeed in the work field, that has been chosen, or in the sports requires being smart but in each field we use a different type of intelligence, neither better nor worse but definitely different.

2.4 Previous studies about Information and Communication Technology resources for Education.

A US study of 160 undergraduates (Pearce, Johnson, & Barker, 1995) attempted to specify 17 aspects of writing that might be supported and developed by the use of ICT. Students were randomly assigned to a group writing by hand or one using computers. The computer-using

group was found to make fewer punctuation errors and their work was easier to read. However, they also used significantly more passive constructions and what the researchers described as 'trite expressions'. It is difficult to be sure, however, about the extent to which these outcomes are related to the technology intervention rather than to past and present teaching styles and expectations.

A study done by Allen and Thompson (1995) considered the use of word processing in a networked learning environment and how this might offer access to real audiences for writing. The project reported significant improvement in writing, although some of the measures used, such as word counts, may relate to text production rather than writing in a holistic sense as it would be understood by a teacher of English. The researchers also reported greater engagement in writing on the part of males in the networked group compared to those in the control.

The British Educational Communications and Technology Agency (BECTA) investigated about ICT resources, their objectives were to look for the processes, the nature, and the level of satisfaction obtained at the moment to have done the learning through the use of ICT resources. The study was carried on 60 schools (30 primary schools, 25 high schools, 5 college schools), 20 students per each level were taken as the sample, and the selection was taken in a suitable way since they were in a medium/high level of ICT resources. Results proved that ICT resources were associated positively with the improvement of the learning in the diverse studied areas, moreover, students know about informatics role in the real world. In short, the use and the knowledge of ICT resources have had a great impact in the hardware and software knowledge as well as the diverse variety of usage.

The Pew Research Center (2013) does annually a research about the social media usage among those adults that are online. Results prove that the older you are, the less usage of this

media tools. Those results are presented in the investigation called Older Adults Internet and Social Media Usage done by this Center.

Nowadays, students use internet for different purposes, Flores (2015) proved that the majority of students use internet for educational purposes. A study was carried out in a collage from Quito, Ecuador, 40 students participated in this study. Results revealed that most of students are interested on using ICT resources in the process of learning English. Furthermore, data analysis also showed that the majority of students use internet for educational purposes.

García, Rodriguez, and Alemán (2014) carried through a study the quality of teaching English and the use of ICT resources on freshmen students from Christian University of Panama. During the development of the project, several conceptual references, it can be found the meaning of the ICT, the implications these have in society and especially in the field of education. On the other hand, it refers to the teaching and learning of English mediated by information and communication technologies. The research hypothesis of this research determines that the use of technology can motivate English learning among these students. Moreover, the proposed solution aims: Contribute to improve the performance at first level student at Christian University of Panama in the area of language skills through the integration of New Information Technologies and Communication.

The study was carried out by the International Association for the Evaluation of Educational Achievement (IEA) in 2013; IEA is an independent, international cooperative of national research agency. For over 50 years, IEA has conducted large scale comparative studies of educational achievement, the study is known as ICILS 2013 and it was administered to 60,000 students in their eighth year of schooling in over 3,300 schools from 21 participating education

systems around the world. Results showed that across the ICILS (The International Computer and Information Literacy Study) countries, "listening to music" stood out as a very common activity. On average, 82 percent of students reported using ICT at least once a week to listen to music. Percentages exceeded the ICILS 2013 average by a statistically significant amount in Norway (91%), Croatia (90%), the Czech Republic (90%), Poland (90%), the Russian Federation (89%), the Slovak Republic (88%), and Slovenia (86%). These percentages were lowest in Korea (63%) and Turkey (67%). The percentages were significantly lower than the ICILS 2013 average not only in these two countries but also in Thailand (74%), Germany (78%), and Australia (80%). In addition, using computers to "watch downloaded or streamed video (e.g., movies, TV shows or clips)" was also a common activity. On average across the ICILS countries, about two thirds of students engaged in this activity on a weekly basis (68%). In two countries, the respective percentages were significantly greater than the ICILS 2013 average by more than 10 percentage points. They were the Russian Federation (83%) and the Czech Republic (78%). Other countries where the percentages were significantly greater than the ICILS 2013 average were Poland (78%), Norway (75%), the Slovak Republic (74%), Chile (73%), and Slovenia (73%). We recorded significantly less extensive engagement in this activity in a number of other countries, however. In Turkey (52%), Germany (54%), Korea (54%), and Thailand (56%), participation was more than 10 percentage points lower than the ICILS 2013 average. The percentage was also significantly lower than the ICILS 2013 average in Australia (65%).

An exploratory study done by Nguyen and Tri (2014) about the use of ICT in English language learning among EFL university students in Hoa Sen University shows that the majority of students spend more time employing ICT for general purposes than for language learning purposes. The research used a convenience sample of 149 English major students. These students

showed their positive attitudes towards ICT use to study English and expected that ICT should be used more frequently in the classroom in order to maximize language learning and teaching. In short, this study shows that most of the student prefer to use ICT resources for general purposes such as chatting, surfing on Internet or being in touch with their friends, no matter the major they are studying, they prefer having a good time instead of studying.

The rapid evolution and development in Information Communication Technology (ICT) has led to the diffusion of technology in education. It is believed that ICT would bring many advantages to students if it is used under the right circumstances. A research done by Yunus, Lubis, and Lin (2009) about Language Learning via ICT: Uses, Challenges and Issues proves that students are aware of the benefits of using ICT in learning language. Nevertheless, students did not spend much of their time for the purpose of learning. It is amazing to see that they only spend around 1 to 2 hours per week using ICT resources for learning activities. In short, this study shows that students are aware of using ICT, sometimes they prefer not to use them because of the lack of training on ICT or because they prefer to spend their time doing other things.

Younger, Warrington, Gray, McLellan, Bearne, Kershner, and Bricheno (2004) conducted a project known as The 'Raising Boys' Achievement Project' (RBA) , which focused on issues associated with the apparent differential academic achievement of boys and girls at key stage 2 and key stage 4 in schools in England. They realized that there were many significant aspects of the gender gap at the end of compulsory schooling, however, it relates to students' performances in different subjects. Those subjects perceived traditionally as 'boys'' subjects, subjects such as Mathematics, Science, Design and Technology, Information Technology, have been colonized by girls with increasing success, whereas boys have failed to engage to a similar degree with traditional 'girls'' subjects such as the Humanities and Modern Languages. Thus in

2004, as in every preceding year of the century, girls out-performed boys in every mainstream subject of the National Curriculum not only at the benchmark grade level, but (with the exception of Mathematics) also at the highest level of achievement at GCSE.

According to their results obtained in their research called "Learning and Living Technologies: A Longitudinal Study of First-year Students' Frequency and Competence in the Use of ICT", Hosein, Ramanau and Jones (2010) demonstrated that younger students used information and communication technologies (ICT) for social and leisure purposes more frequently than older students. On the contrary, older students were more likely to use it for study. The frequency of using ICT was related to students' perceived competence in the tool. University mode of study also influenced how students appropriated their ICT time. Data were analyzed from two similar surveys at the start and at the end of the academic year for students studying 14 different courses in five different universities (four place-based and one distance-learning) in England. These results might have an impact on the repurposing of living technologies for use as learning technologies.

Linda (2013) claimed the importance of information and communication technologies (ICT) in enhancing students' speaking skill in EFL classes. It was hypothesized in this study that if teachers integrate ICT in class then students' speaking skill will be improved and consequently they will be interested in learning. Also, if students make use of ICT as an aid in developing their oral proficiency, then they will be competent speakers of the target language. To confirm this hypothesis, it was administered a questionnaire to both third year students of English and teachers of oral expression in EFL classes. The study confirmed the hypotheses according to the interpreted results and suggests some recommendations that help in achieving a successful

implementation of ICT since the value of this study was to emphasize the tremendous role of ICT in improving students' oral performance.

Sun and Qiu (2014) evinced the effectiveness of applying wikis in tertiary-level English as a foreign language (EFL) classes. The use of wikis in English for specific purposes (ESP) course – Business English Writing – by undergraduate students in a university in China was investigated through data analysis of test results as well as interviews. Performance results on Business English Certificates (BEC) preliminary (pre-test) and BEC vantage (post-test) revealed that the experimental group significantly outperformed the control group in writing in the post-test. Interviews showed that students held a rather positive view towards the use of wikis in the ESP writing class and they favored the tool mainly for its effect of enhancing their learning motivation. Implications of the results are that wikis can benefit EFL learners by improving their writing skills in a collaborative environment.

Voogt and McKenney (2009) acknowledge that technology can support the development of emergent reading and writing skills in four- to five-year-old children. The research was conducted with PictoPal, an intervention which features a software package that uses images and text in three main activity areas: reading, writing, and authentic applications. This work reported on the effects of the PictoPal intervention on pupil literacy and communication skills. Two small-scale studies were conducted. Observation results from the first study showed that children are able to work independently with the program after a few instruction sessions. The second study showed a statistically significant learning effect of experimental versus control group scores after two months of using PictoPal in the classroom under the guidance of a parent volunteer. Further research is needed to arrive at a better understanding of these learning gains with a larger group of pupils.

The research conducted by Tyers (2012) indicated that gender inequalities in Bangladesh mean that although the women have high barriers to learning English, the use of ICT helps to break down some of these gendered barriers. However, the different ICT resources also carry different perceptions of educational value. Despite the web lessons having the highest gendered barriers to participation, they were perceived to carry the most educational value. Learning English through some ICT opened up access to the web lessons, giving the women more choices in their learning.

Jung (2006) carries through a study oriented about the use of ICT in learning English as an international language. The study investigated 591 Chinese university students in an inland city in relation to (a) their technology ownership, usage patterns, and levels of perceived ICT skills; (b) their motivational orientations to learn English; (c) their perceptions of English and technology; and (d) their perceived benefits of and barriers to using ICT in learning English. The current study revealed that the economic and sociocultural contexts in which the students found themselves greatly influenced their language learning experience through technology.

Ruiz (2014) on his work "Advantages of the Use of ICT to Teach Foreign Languages" analyzed the use of ICT as a tool for improving the quality of learning a second language since there has been an emphasis in the study of the aspects related to the acquisition of fluency and pronunciation skills. As well, Puebla (2015) conducted a study oriented on how do students of Psychology use ICT for the reading-comprehension of academic text written in English. To carry out this research, a random sample of 20 students enrolled in the above mentioned course of the School of Psychology, Faculty of Psychology, National University of San Luis was selected. Results show that most of the students have computers and Wi-Fi access but that the use they make of them is not for academic purposes but for social ones.

Becerra (2010) claims on his research about online reading strategies and their relationship with the printed texts used by students who are taking French that internet offers big opportunities to interact online texts since technology has changed the way of reading.

It is important to clarify that there is no much research done with ICT and English language skills in the university level since it was found, after a hazardous Literature Review researching, one work about the important role of information and communication technologies (ICT) in enhancing students' speaking skill in EFL classes due to the fact that most of the works are based on Primary and Secondary levels. However, a research done in children from four- to five-year-old about ICT with reading and writing skills was included in order to know that ICT resources do a great contribution with the language skills. Moreover, a study of the Wikis and writing skill is included in this section since Wikis are categorized as a type of ICT.

Furthermore, according to the previous studies ICT is used for general, personal and leisure purposes than for language learning purposes. ICT resources are commonly used for listening to music, watch videos and chatting. Some studies regarding to ICT with age have revealed that younger students use ICT for social and leisure purposes while the older ones were more likely to use it for study.

Moreover, the countries with more percentages of using ICT resources for listening to music according to ICILS 2013 study are: Norway, Croatia, The Czech Republic, Poland, the Russian Federation, The Slovak Republic and Slovenia and the countries that use ICT less for this activity are Korea, Turkey, Thailand, Germany and Australia. The countries that use ICT to watch downloaded or streamed video (e.g., movies, TV shows or clips) are: The Russian Federation, The Czech Republic, Poland, Norway, The Slovak Republic, Chile and Slovenia.

The countries that use less ICT for this activity are: Turkey, Germany, Korea, Thailand and Australia.

According to the study done by Younger, et al., (2004) Information technology has been colonized by girls with increasing success and not just IT, the subjects perceived as "boys" such as Mathematics, Science, Design are also included while most of the boys are failed with traditional "girls subjects" such as humanities and modern languages.

In addition, some studies have revealed that ICT and writing skill help students since they make few punctuation errors, therefore, their work is easier to read. Greater engagement in writing by using word processing on the part of males has revealed in some studies. Alonso (2013) states that ICT has demonstrated an advance for education; this research suggests that incorporating ICT into English can improve writing and reading skills, develop speaking and listening skills and support collaboration, creativity, independent learning and reflection.

2.4.1 Historical background

According to the article "History of Information Technology", there are four main ages that divided up the history of information technology. It is important to know a little bit about the history of information technology before continuing. What follows is a description of each of these four ages. ("History of Information Technology" n.d.)

- Pre-mechanical: It is the earliest age of information technology. It can be defined as the time between 3000 B.C and 1450 A.C. During this period were the first numbering system.

- Mechanical: It is the period when we started to see connections between our current technology and its ancestors. This age can be defined as the time between 1450 and 1840. Technologies like the slide rule were invented.

- Electromechanical: This age can be defined as the time between 1840 and 1940. These are the beginnings of telecommunications. Many intentions were created during that year such as the telegraph, Morse code, the telephone and the first radio were developed.

- Electronic: This is the age where we currently live in. It can be defined as the time between 1940 and right now. This is age that really affect us today.

In the same way, there exist 3 generations known as "X" "Y" and "Z" generations. Those generations are related to technologies (Ortiz y Alarcón, 2011). A briefly described will be presented below.

- Generation X refers to people born in the decade of the 60's and 70's, who lived their adolescence in a time of political changes, and cold war. This generation was the one that has seen the emergence of computers within households, the rise of videogames, the use of Internet as a business tool and for education, hence the "X"; because it was a whole "unknown" (Rhoffmann, 2009).
- The 80's gave way to the next generation, the "Y". It was the generation that rose with the advance of instant communication tools such as the e-mail, and the text messages. This generation is characterized by the delay for getting into the adulthood, to the point that, it has been the generation that longer lived with their parents. It is a generation that dominated the use of technology, adapting to their interests and needs. (De León, 2009).

- The latest generation was the Generation “Z”, which will lead the world order in twenty years and which belong most of our current students. This generation is developing coupled to the fast and constant changes, marked by tragic events and widely disseminated. Actually, this generation makes up about 18% of the world population and it is considered still in formation. Individuals belonging to this generation see the technology as fundamental and necessary element, to the point that access to information without the existence of Google or the development of Facebook is inconceivable. Impatience and its total and absolute dependence on technology have produced a wide breach between this generation and its predecessor. That is why for children and current youth, remove the opportunity of “being in touch with the world” through their laptops, cellphones or videogames consoles is almost a crime. (De León, 2009).

Today, a lot of children and young people live on a daily, constant and excessive way with new technologies. In fact they have lived with them almost from birth, so for them, the daily and constant symbiotic relationship between their beings and computers, video games, Internet, cell phones, etc., etc. It is "normal". Therefore, just as the ways of relating have changed, the ways of learning of children and youth have changed compared with the learning ways of past generations. Talking about generations "X", "Y" and "Z" is to discuss all facts and events that have marked a before, a during and after of an explosion of social and technological changes (Ortiz and Alarcón, 2011)

Additionally, there are societies from 1.0 to 3.0 (Moravec, 2008c). The followings are the three paradigms to understand the transformations that globalization, the knowledge society, and the rapids changes are causing in our society.

- Society 1.0 reflects the standards and practices that prevailed since pre-industrial society to the industrial society. The society 1.0 refers to the agrarian and industrial society that prevailed during much of the eighteenth century and lasted until the late twentieth century. At the beginning of this period family companies formed the basis of the economic activity. Children learned and worked at home. Adults and children remained a constant intergenerational relationship. In this context children not only contribute positively to the economy, but the adult-child relationship favoring mutual learning. This paradigm promoted "learning by doing". Then, with the arrival of the industrial economy, industrialization of education arose and children were displaced from the primary production and became part of an institutional mechanism in which they learned from the adults –not the other way around-.
- Society 2.0 refers to the huge social changes taking place in today's society and find its origin mainly on technological change. The emergence of society 2.0 is associated with the emergence of the knowledge society, which takes place in the twentieth century (Drucker, 1969, 1985). Advances in information and communication technologies facilitated the widespread production of socially constructed meanings. Many of these developments have arisen through the convergence of Internet, which has become the symbol per excellence of interconnection, whether personal or technologically and globalization.
- Society 3.0, which refers to a world that is "just around the corner" predicts enormous transformations product of rapid technological change. As technology evolves, the society also does (Morgan, 1877) and at the same time that transcends the current avant-garde, is driven by three main agents: social and technological accelerated change,

> continuing globalization and vertical redistribution of knowledge and relationships, and innovation society driven by knowmads. The term knowmad, Moravec (2008b) refers to those nomadic workers of knowledge and innovation. A knowmad is someone innovative, imaginative, creative, and able to work with virtually anyone, anywhere and anytime.

In a nutshell, Information and Communication Technology has been changing since much time ago. Also it has become part of people's life. ICT has changed the world and education's world as well. This is just the beginning of a new era. Information and Communication Technology (ICT) will continue changing and transforming people, students and teachers life since ICT is and it is going to be the most powerful tool that can ever exist in our life.

2.4.2 Information and Communication Technology in Education (ICT)

Globalization and technological change have created new global economy "powered by technology, fueled by information and driven by knowledge." Information and communication technologies (ICTs) have been touted as potentially powerful enabling tools for educational change and reform. The effective integration of ICT into the educational system is a complex, multifaceted process that involves not just technology but also curriculum and pedagogy, institutional readiness, teacher competences, and long-term financing, among others (Tinio, 2003:3)

It is well known that ICT resources are a useful tool for both managing education and for teaching and learning. However, for getting the best from ICT resources depends on several variables, including the appropriate design of software and hardware, as well as the realization that different students have different requirements.

Information and communication technology (ICT) in education is the processing of information and its communications facilities and features that variously support teaching, learning and a range of activities in education. Pulkkinen (2007) mentions that ICT has been changing the ways and forms that we are communicating and using information in education. In the same way White (2008) in his ICT in education mentions that ICT in education has been taken up by educators and educational researchers since the 1980's. On the other hand, Rivera (2012) says that ICT has been pioneers in the introduction of many technological innovations applied to education.

Besides, ICT in education is any hardware and software technology that contribute in the educational information processing (Okechukwu & Chogozie-Okwum, 2014). In the context of present era, ICT mainly comprises computer technology with its hardware, like, personal computer machine, infrastructure required for setting up Internet facility and also software like, CD ROM including various programmed packages, e-learning strategies, etc. ICT is being utilized in every part of life. In education, the use of ICT has become imperative to improve the efficiency and effectiveness at all levels and in both formal and non-formal settings.

Guzmán and Gisbert (2008) mention that University education in Mexico has to respond to new ways of learning that the university student needs, these new forms ranging from the modernization of conventional models. The university applicant demonstrates the need for new models of learning that allows to combine, university learning with the demands of the labor, social, political and cultural environment of the society which it must and will be the recipient of their performance.

In short, ICT has had a good impact on education. It has become important in students life and professors life since globalization and technological changes have created a new global economy powered by technology, fuelled by information and driven by knowledge.

2.4.3 Characteristics of Information and Communication Technology (ICT) resources for learning.

The IT is a means to learning and can be an effective way to achieve the educational objectives of the XXI century with various collaborative efforts and participation. The use of technology in schools is a tendency which is spreading ever more widely and speed in the educational systems in different parts of the world. Access to technology promotes the attention of learners towards learning and encourages contact with the extensive knowledge and intense search to which they have access, and because there is a huge possibility of extending cooperation between students of the same class or school and alien and distant places. Del Castillo (2003) states that learning to use technology helps students adapt themselves to the constant change that they are exposed, the development of criteria for using information and development of intelligence, reflection and critical thinking.

Besides, when considering learning in schools it is important to take into account the fact that all human action is mediated by tools (Cole & Engestrom, 1993; Säljo, 1999; Wertsch, 1991). The idea of `tool' includes a wide range of artefacts and semiotic systems. Tools could be digital, such as a word-processor, dynamic geometry software, music composition software, e-mail or an interactive whiteboard. They could be non-digital tools, such as a book, paper and pencil or a dictionary. A `tool' could also be another person who is supporting human action. This foregrounding of the tool using aspect of human action is of particular importance when considering the role which digital technologies can play in learning.

In some specific areas there is cumulative evidence of the positive impact of ICT on learning. One such area is word-processing. A systematic review (Goldberg, Russell and Cook, 2003) concluded that "on average, students who use computers when learning to write are not only more engaged and motivated on their writings, but they produce written work that is greater length and higher quality". The use of ICT as a support of an educative task has been much investigated. A difference can be made; ICT goes beyond of being just technological resources that just facilitate the information and communication. ICT can be used of an intentional way with intentional pedagogical purposes and this will impact meaningfully the reinforcement of the skills and competences in the university learning (Guzmán & Gisbert, 2008).

ICT resources are beneficial for learning and the majority of students are familiarized with ICT on their lives. As Beetham and Sharpe (2007) say, most young people in Western societies make routine use of internet and email, text messaging and social software, and their familiarity with these new forms of exchange is carried over into their learning.

2.4.4 Types of Information and Communication Technology

ICT can improve the quality of education by increasing learner engagement and motivation, by facilitating the acquisition of basic skills (Abbott, 2011:1). Some of those types of technology are shown in the figure 2.1.

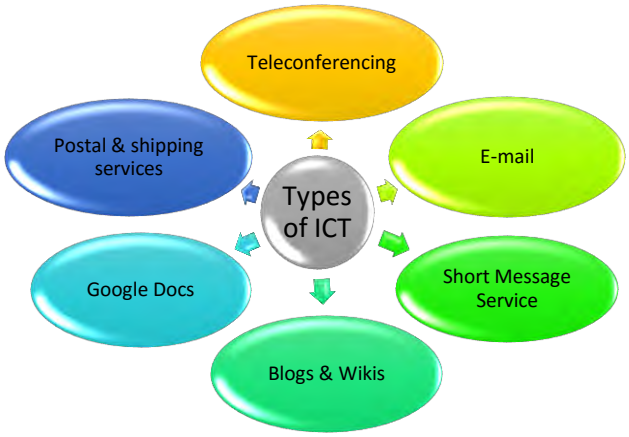

Figure 2.1 Types of Information and Communication Technology

Figure 2.1 shows some information and communication technologies. ICT has revolutionized the world, human beings use technology for everything. People can choose whatever ICT they want. These are some information and communication technologies used.

ICT has revolutionized the world, human beings use technology for everything. People can choose whatever ICT they want. The only thing that people have to take into account is that technologies tools are constantly changing because hardware and software are updating nowadays since education is forced to be modernized due to the globalization that we are living.

2.5 Relationship between Information and Communication Technology and Multiple Intelligences for learning

Technology has become an essential part for students' and professors' life. It has revolutionized the industry of education and many other industries around the world. Moreover, new studies have found that thanks to the new ways of communication students have a better understanding of what they are learning. However it is well known that each person learns in different ways. New technologies have helped many people to improve their knowledge through the time. Ahmad, Ahmad and Bthatti (2011) acknowledge that ICT has also enabled learning through multiple intelligences; the use of different information communication technologies has become inevitable for students in learning. By using modern information communication technologies, students can retrieve their required information within a short time. They can access and disseminate electronic information like e-books, e-journals and can improve their learning by using different modern ICT in form of wireless networks, internet, search engines, and others.

Gracious and Shyla (2012) conducted a research which showed the relationship between multiple intelligences and technologies. They mention that digital era is here and most students prefer to use technologies to accomplish tasks. They found in this research that students learn better depending on their intelligences. Marandino (2009) carried out a project based on Multiple intelligence and technology, she found that the use of MI and ICT resources bring positive results for learning. On her project she put suggestions of the possible ICT resources that can be used according to the type of MI. Moreover, there are many benefits of integrating MI with ICT, one of them is that students find topic more interesting when information is presented in a variety of ways.

Table 2.2 describes a list of computer programs that activate the MI according to Thomas Armstrong (1991).

Multiple Intelligences	Software
Linguistic Intelligence	Word processing programs, editing software (Publisher) electronic libraries, interactive books, word games.
Logical-Mathematical Intelligence	Games, science programs, mathematical skill tutorial programs and programming.
Visual/Spatial Intelligence	Animation, drawing, and painting programs, games on-line (chess master, Tetris), puzzle, geometric programs.
Kinesthetic Intelligence	Manual construction programs that connect to the computer (logo), motion simulation games (Flight Simulator), virtual reality software.
Musical Intelligence	Singing, composition, musical memory and tone recognition software, digital interfaces with musical instruments.
Intrapersonal/Interpersonal Intelligence	Electronic billboards, simulation games (Sims City), personnel decisions, career guidance, skills development programs (Reeduca).
Naturalist Intelligence	Design programs, visual scenarios, topographic analysis fields, cities, maps, etc.

Table 2.2 Computer programs to activate the MI (Thomas Armstrong)

In short, Del Castillo (2003) claims that the application of new information technologies to learning based on the theory of multiple intelligences of Howard Gardner has become a reality. In the same way, the use of new information technologies as tools for teaching/learning has become a reality in schools, but it still needs that teachers are prepared and trained in the use of the computer in order they can create educational activities that facilitate the learning process.

2.6 Characteristics and Types of Multiple Intelligences

'Let a hundred flowers bloom'

(Gardner, 1999b).

Having originally proposed seven intelligences in 1983, Gardner added an eighth in 1999, acknowledging that there may be more or fewer. Gardner maintains that each individual possesses a variety of intelligences in varying degrees and combinations leading to 'end- states' leading to diverse roles such as doctors, dancers, and farmers. Fitzpatrick (2004) insists on the term 'intelligence' as he realizes people are accustomed to hearing 'he's not very intelligent but he has a great aptitude for music.'

There are many types of intelligences; each one has its own characteristics and each one marks the difference between them (see table 2.3). In the same way, each person has a unique profile. Some people may be very strong in one or two intelligences, medium in a few, and perhaps, weak or empty in one or two. The following chart done by Hine (2008) is about descriptions that can be helpful to identify basic personal characteristics, traits, behaviors, and preferences for each of the eight intelligences.

Intelligence	Characteristics
Linguistic Intelligence	• Sensitive to the meaning, and sound of words. • Use of varied language
Logical-Mathematical Intelligence	• Quick to learn equivalences • Solves problem rapidly
Musical Intelligence	• Remember songs easily • Ability to sing or play instruments
Visual/Spatial Intelligence	• Active imagination • Enjoys decorating and designing
Kinesthetic Intelligence	• Commitment to comfort • Uses body to accomplish tasks
Interpersonal Intelligence	• Loves to talk and influences • Good communication skill
Intrapersonal Intelligence	• Enjoy self-discovery • Ability to think about thinking
Naturalistic Intelligence	• Enjoy gardening • Interest in subjects such as botany

Table 2.3 Multiple Intelligences and its characteristics (Hine, 2008)

Table 2.3 shows some characteristics. It had been taking into account that it can vary depending on the person. Not all people like to do the same things. And at the end people implement their own style on the things that they usually do.

Intelligence	
Linguistic	It allows people to understand meaning of words and to apply meta-linguistic skills.
Logical-Mathematical	It allows people to make calculations and create hypothesis.
Musical	It allows people to recognize, create, and reproduce music. Connection between music and emotions
Visual/Spatial	It allows people to think in three dimensions.
Kinesthetic	It has the capacity to use a variety of physical skills.
Interpersonal	It allows people to interact with others.
Intrapersonal	It allows people to understand oneself.
Naturalistic	Designated to humans with the ability to care environment.

Table 2.4 Types of Multiple Intelligences (Gardner, 1983)

Table 2.4 shows the intelligences and makes a briefly description of each intelligence. Any intelligence allows people to do different activities. Knowing what it can be done on each intelligence can do, it is easily to realize what kind of intelligence it is more predominant.

According to Gardner these intelligences have the following aspects in order to be considered and named with the word “intelligence”. There should be a human intellectual competence and this competence has to dominate a group of abilities to solve problems or difficulties as well as creating a new product in the correct moment but also it has to have the capacity to find and create problems in order to establish the acquisition of new, useful, and important knowledge in different cultural environments.

2.7 Invisible Learning

Invisible Learning is mainly based on a hard-working investigation done by Cristobal Cobo and John W. Moravec in 2011. Invisible Learning does not pretend to create a theory since it is considered as a metatheory because it is able to integrate different ideas and perspectives. Invisible learning is a conceptual proposal which is originating as a result of many years of investigation and it pretends to integrate different perspectives with regard to a new paradigm of learning since it takes into account the impact of technological advances and the transformation of the formal and informal education.

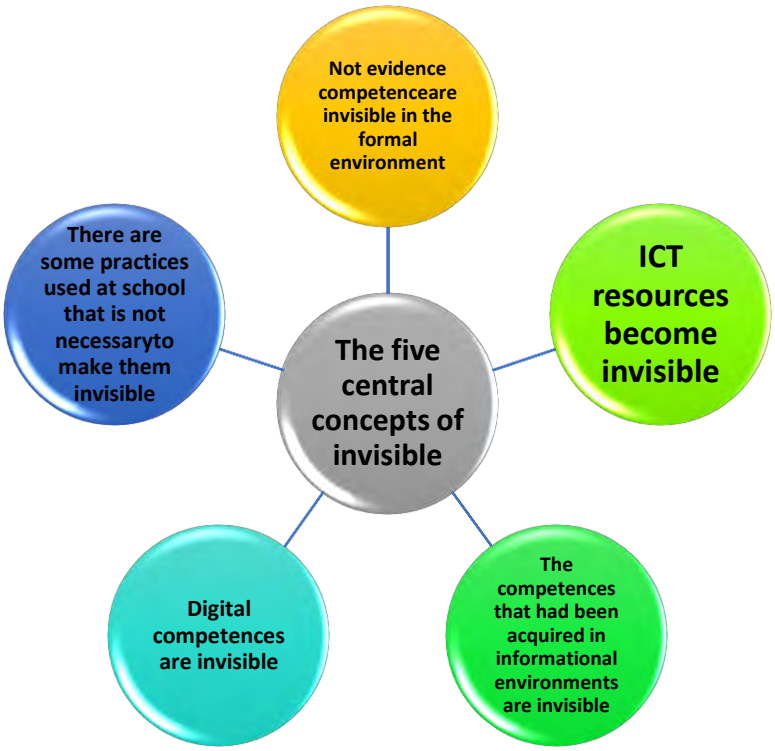

Figure 2.2 The Five Central Concepts of Invisible Learning

Figure 2.2 shows the five central concepts that the metatheory of invisible learning has taken into account. Invisible learning is also created as the search of looking for different ways of learning which includes huge amounts of creativity, innovation, and cooperative learning. Moreover invisible learning suggests new applications of the ICT resources for learning into a

spacious framework of abilities for the globalization; invisible learning is an alternative to see learning with another eyes. According to Seltzer and Bentley (2001) learning how to learn is not just a matter of cognitive ability, but also the self-confidence to face the challenge of learning something new, and the belief in learning as an incremental process.

This metatheory is important in this study since it includes a plethora of different standpoints and their five central points are the key for helping in the learning area since most of students do not take importance to ICT resources, students are used to technology. Therefore, they tend to forget invisibly since they adopt it as a part of their life and every resource is invisible in front or their eyes without realizing how important can be if they integrate it on their leaning processes. To make it crystal clear, the example of this is when a person has a new possession, as the times goes, this person becomes accustomed to have the object, therefore this object becomes "invisible" on their eyes since the object is there without giving them the importance that deserves.

2.8 Andragogy model

It is a concept introduced by Malcolm Knowles in 1973. This model has five assumptions considered in a formal learning environment. (Cercone, 2008).

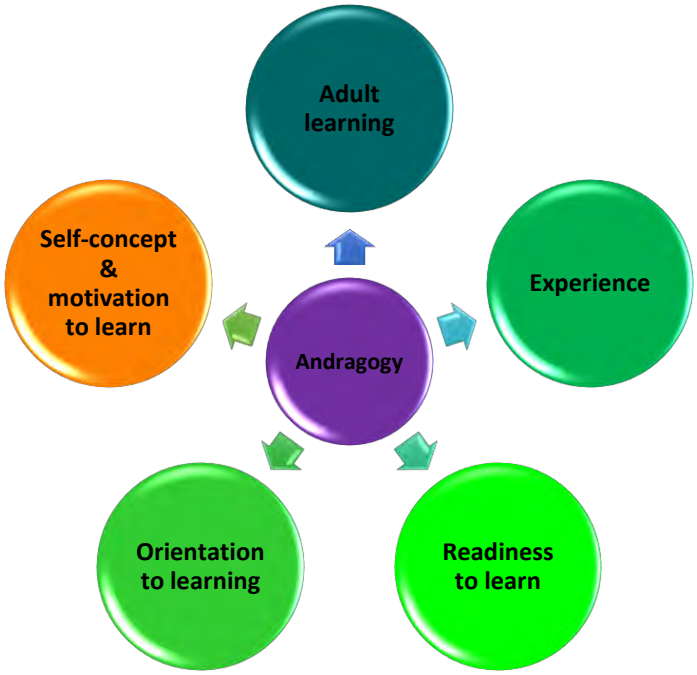

Figure 2.3 Andragogy model

Figure 2.3 shows the five assumptions that the andragogy model considers in a formal learning environment. This model is essential in this thesis since this study is based on university level; this theory includes the adult learning theory and other aspects that are important to take into account so that students can have a real and meaningful learning. Moreover, invisible learning is mainly based on students and ICT resources and that metatheory can work together with Andragogy model since it is focused on the student as the subject of learning.

2.9 Meaningful Learning theory according to Ausubel

In the early 60's the American psychologist and educator David Paul Ausubel, father of the called meaningful learning, introduced into the field of teaching the term meaningful learning. The theory of meaningful learning is a cognitive theory, this theory bases it success more in how to learn instead of how to teach. To this quality learning, Ausubel calls it meaningful learning, it is achieved by the interaction of prior knowledge that a student has about a subject or concept and the new information that s/he receives, so at the moment of linking them the student can learn and assimilate more easily new contents but to achieve a meaningful learning is not only useful to relate new knowledge with the previous ones, but also relate them with the previous experience, daily and real situations. Vázquez (2009) says that with this a new endowed greater sense of knowledge is built and most likely to be established in the long term memory of the student.

Having read what meaningful learning is, real and deep learning is essential for education since students, teachers, investigators need to have this kind of learning in order to succeed and contribute better by doing the best on their professional lives and it is amazing if we have this kind of learning through the use of Multiple intelligences and ICT resources, as Gardner (1983) states "learning is better if we learn by all our senses and by using all our multiple intelligences."

This theory is essential for the study since it is important not forget the importance of learning and it has a perfect relationship with Andragogy model since this theory from Ausebel takes some points of that since it is more focused on the individual learner process.

2.10 The implication of cognitive learning in MI

Cognitive learning is based on the theory of multiple intelligences, on the understanding that each individual has different innate abilities to develop some skills more than others and this should be recognized for the students according to her/his mental structure and s/he can manifest it naturally. Besides the open creativity is essential for the intellectual development. Every human being has different cognitive devices for each multiple intelligence and these are responsible for performing a specific function according to the type of intelligence (Gardner, 1994).

In short, Antunes (2002) mentions that multiple intelligences relate cognitive learning with cognitive competence and this theory understands it as a group of mental abilities, mental capacities and mental talents that are known as "intelligences" and every person possess all these with different levels.

2.11 The learning process according to Bloom's taxonomy

Bloom's Taxonomy is a taxonomy of activities and behaviours that exemplify Higher Order Thinking Skills (HOTS) and Lower Order Thinking Skills (LOTS). Bloom's taxonomy is a multi-tiered model of classifying thinking according to six cognitive levels of complexity ("Bloom's and ICT tools" n.d.). Throughout the years, the levels have often been depicted as a stairway, leading many teachers to encourage their students to climb to a higher level of thought.

In 1956, Benjamin Bloom headed a group of educational psychologist who developed a classification of levels of intellectual behaviour important in learning. During the 1990's a new group of cognitive psychologist led by Lorin Anderson updated the taxonomy reflecting relevance to 21st century work.The learning process according to Bloom's taxonomy says before

you can understand a concept or fact you must remember it, to apply a concept you must understand it first, to evaluate a process you must have analyzed it.

The revised Bloom's taxonomy of educational objectives in the cognitive domain (RBT) provides a complexity hierarchy that order cognitive process from simple remembering to higher order critical and creative thinking (Noble, 2004). The revised levels from simple to complex thinking are Remember, Understand, Apply, Analyze, Evaluate, and Create (Anderson & Krathwohl, 1999) (See figure 2.4). One of the most innovate additions to the revision is the inclusion of metacognition as a component of a two-dimensional matrix across all levels of cognitive process.

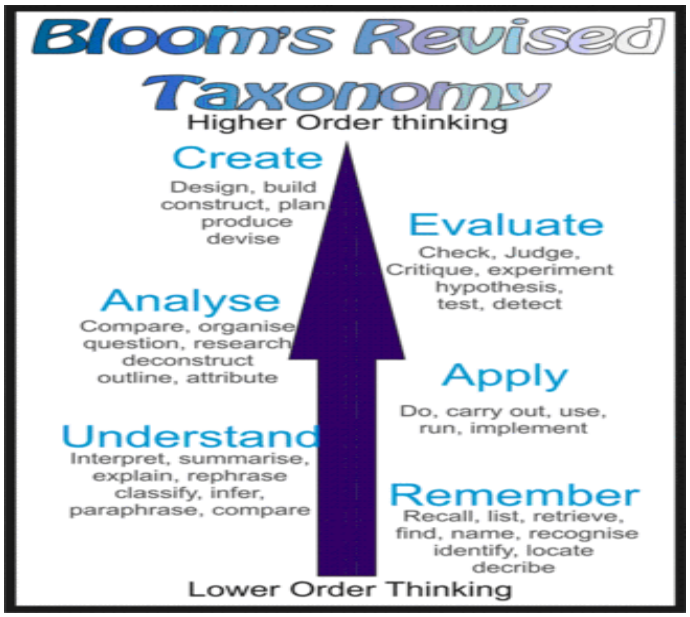

Figure 2.4 [The learning process according to Bloom's Taxonomy]

This theory is also important in the study since Bloom's Taxonomy can get along with Andragogy model, Meaningful learning and Multiple intelligences; those theories are focused on the learning process, students when they are learning they need to associate the new knowledge

with an experience in that way Andragogy model is present, and if students have a prior knowledge about the concept or the subject, they associate it; and if they learn it by using multiple intelligences, meaningful learning occurs in that way. Therefore it would be easier to remember the things and it will be easier to apply it, to evaluate it and to analyze it that is what Brown says on his taxonomy.

2.12 Connectivism theory according to Stephen Downes and George Siemens.

According to the web page "Education 2020", Connectivism is a learning theory promoted by Stephen Downes and George Siemens. It is called a learning theory for a digital age, it seeks to explain complex learning in a rapidly changing social digital world. In our technological and networked world, educators should consider the work of thinkers like Siemens and Downes. In the theory, learning occurs through connections within networks. The model uses the concept of a network with nodes and connections to define learning. Learners recognize and interpret patterns and are influenced by the diversity of networks, strength of ties and their context. Transfer occurs by connecting to and adding nodes and growing personal networks. According to George Siemens, "Connectivism is the integration of principles explored by chaos, network, and complexity and self-organization theories. Learning is a process that occurs within nebulous environments of shifting core elements – not entirely under the control of the individual. Learning (defined as actionable knowledge) can reside outside of ourselves (within an organization or a database), it is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of knowing. Connectivism is driven by the understanding that decisions are based on rapidly altering foundations. New information is continually being acquired. The ability to draw distinctions

between important and unimportant information is vital. The ability to recognize when new information alters the landscape based on decisions made yesterday is also critical.

2.12.1 Siemens' principles of connectivism.

The following table 2.5 presents the main principles of connectivism proposed by Siemens. These principle are based on learning, knowledge, nurture, decision-making skills, currency and the ability to intertwine fields, ideas and concepts.

Siemens' principles
Learning and knowledge rests in diversity of opinions
Learning is a process of connecting specialized nodes or information sources
Learning may reside in non-human appliances
Capacity to know more is more critical than what is currently known
Nurturing and maintaining connections is needed to facilitate continual learning
Ability to see connections between fields, ideas, and concepts is a core skill
Currency is the intent of all connectivism learning activities
Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision

Table 2.5 Siemens' principles

Connectivism is a vital theory that is taken into account for this thesis; it creates a stronger combination with invisible learning metatheory and ICT resources for learning. These give to the work the other important part of the framework since the previous ones are the ones focused more with MI and these are the ones focused to ICT. As a short conclusion, the framework of learning theories for this thesis are Invisible learning, Andragogy model, Meaningful learning, Bloom's Taxonomy and Connectivism.

CHAPTER 3 METHOD

The following chapter describes the characteristics of the students who took part in this study. Moreover, it will be described how the instrument used to collect data was developed and how it was applied to the participants. Finally it will be explained how data were analyzed.

The following study is a descriptive correlational research since the descriptive research attempts to describe explain and interpret conditions of the present and correlational studies typically investigate a number of variables expected to be related to a major, complex variable (Kinoti, 2014). As it was mentioned in the objective of this research, the purpose of this study is to show the relationship that may exist between MI and ICT resources at the moment of learning English as a second language. Students who were taking an English course at the University Language Teaching Centre (CEI) were the participants in this study.

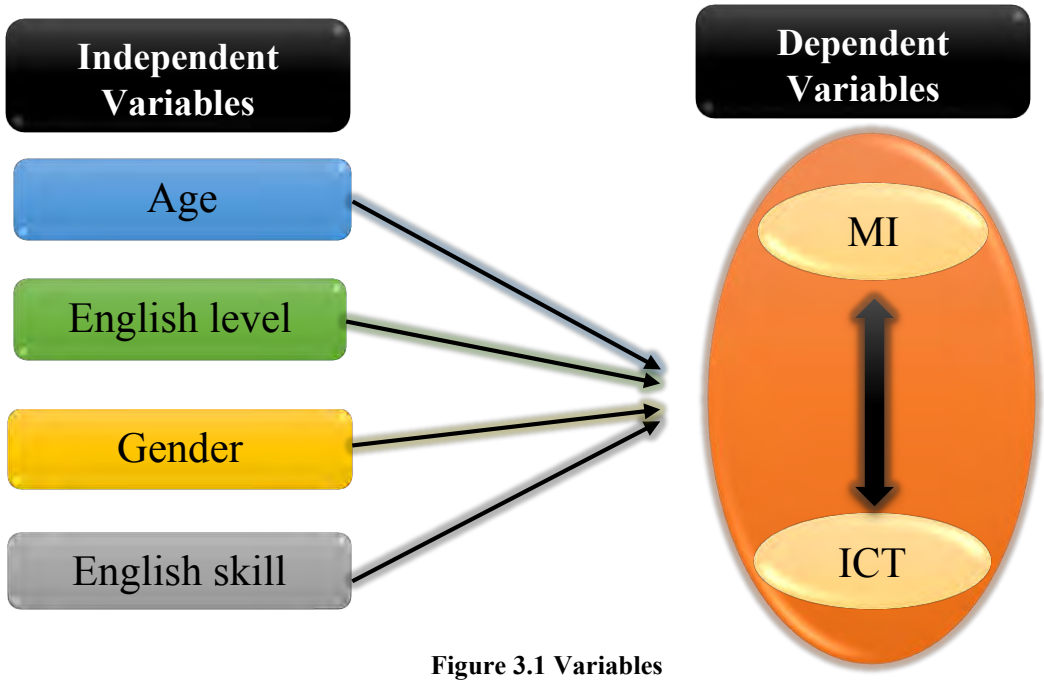

Figure 3.1 Variables

Figure 3.1 shows the variables that were used in this research. The dependent variables were two; ICT resources and Multiple Intelligences, ICT resources have a subcategory which includes frequency, time, and purpose. The Independent variables were four, which included age, English level, gender and English skill.

According to Kinoti (2014), in the selection of the problem, the variables to be included in the study need to be selected on the basis of a sound theory or prior research or observation and experience, it should have some logical connection between the variables in order to more meaningful, valid and scientific findings. In the selection of the sample and tools, Kinoti (2014) states that the sample is generally selected using one of the acceptable sampling methods. If the validity and the reliability of the variables to be studied are low, the measurement error is likely to be high and hence the sample size should be large (see figure 3.2).

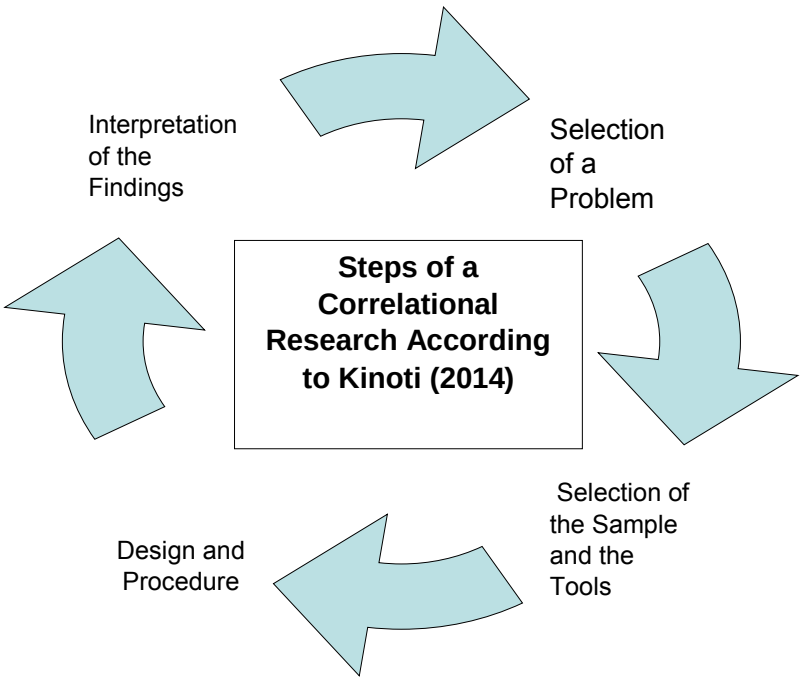

Figure 3.2 Steps correlational research according to Kinoti (2014)

Thus it is necessary to ensure that valid and reliable tools are used for the purpose of collecting the data. In the design and procedure, Kinoti (2014) points out that the basic design of a correlational study is simple. It requires scores obtained on two or more variables from each unit of the sample and the correlation coefficient between the paired scores is computed which indicates the degree and direction of the relationship between variables. Moreover, in a study designed to explore or test hypothesized relationships; a correlation coefficient is interpreted in terms of its statistical significance.

3.1 Participants

The population that examined comes from the Universidad de Quintana Roo (UQROO). They were students who were taking different courses of English at the University Language Teaching Centre. Moreover, it was taken into account that they were from different majors and different semesters. During this semester (Spring 2015), the CEI offered around 54 groups, which were distributed in this way; 9 groups for introductory level, 19 for basic level, 10 for pre-intermediate level, 14 for intermediate level and 2 groups for post-intermediate level. It makes a total of 1,087 students. For a better understanding see table 3.1.

Number of students	English level	Groups offered
156	Introductory	9
403	Basic	19
223	Pre-Intermediate	10
289	Intermediate	14
16	Post-Intermediate	2
1087	**Total**	**54**

Table 3.1 Distribution of groups and students per level

It is important to mention that at the beginning of the semester some students take a placement test. With this test they demonstrate their level of English and according to the results they are placed in the correct level. Taking into account the previous information, students' age varies and their ages are ranged from 18 to 30. According to the information mentioned previously 3 different levels were selected, which were basic, pre-intermediate, and intermediate. It was impossible to select the post intermediate level because the amount of students was not enough and the corresponding results could have not been reliable.

It is necessary to clarify that the instrument was intended to be applied to all students from the CEI; however, it was impossible to do it due to the fact they were in the last week of the semester. It was about to finish and some teachers had already given grades and feedback to their students. They were just waiting for the departmental test which was applied at the end of the semester. Hence, a sample of the whole students was taken.

According to the information described previously, the instrument was applied to ninety students. Surprisingly, the amount of the students was equitable: forty-five men who represent the 50 per cent of the population and forty-five women who represent the other 50 per cent. It is important to clarify that it was unplanned, it was discovered at the moment of seeking the percentage referred to gender. This information is illustrated in figure 3.3.

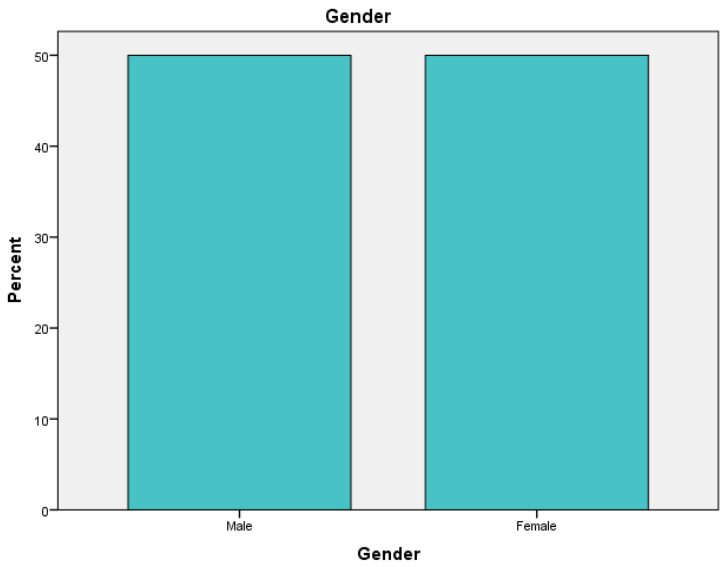

Figure 3.3 Gender

In this part the percentage is equitable due to the fact that the same amount of questionnaires to each level was applied. 33.3 per cent of the population took the basic level, 33.3 per cent took the pre-intermediate level, and 33.3 took the intermediate level. As it was mentioned previously, the amount of students on post-intermediate level was not enough. It was decided to take a sample of 30 students per level, of course more than 30 questionnaires were applied per level in order to have a support if a questionnaire was answered in a wrong way. Figure 3.4 represents the different English levels.

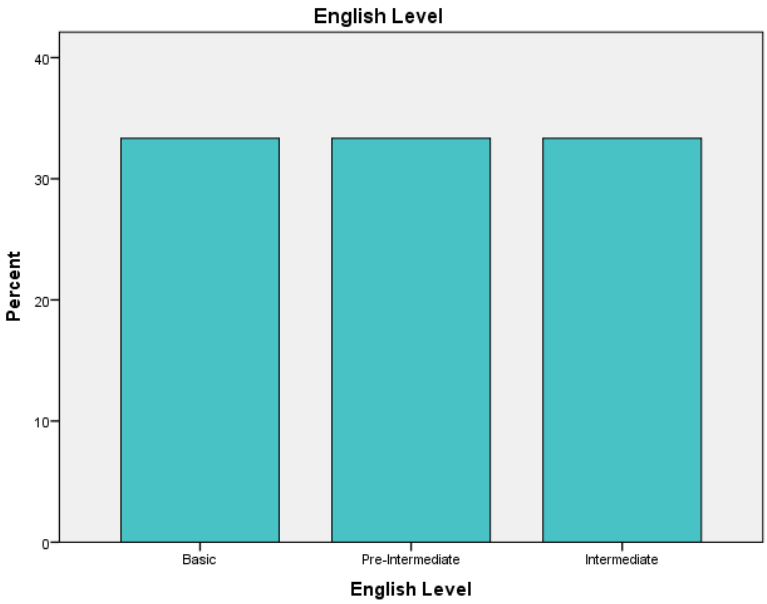

Figure 3.4 English Level

In the following figure, it is demonstrated that the average age of the population was 20.98 years old with the exception of two students who were thirty-one, one who was thirty, one who was twenty-seven, two who were twenty-six, two who were twenty-five, six who were twenty-four, two who were twenty-three, fourteen who were twenty-two, eight who were twenty-one and twelve who were eighteen years old (see figure 3.5).

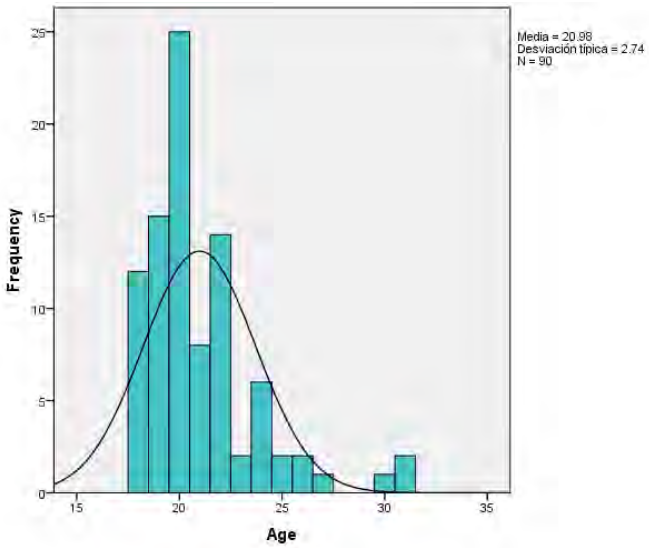

Figure 3.5 Students' age

Most recent thinking has divided language ability into four separate skills areas (see figure 3.6). Listening and reading are known as the receptive skills; while speaking and writing are known as the productive skills. The four basic skills are related to each other by two parameters: *the mode of communication:* oral and written, *the direction of communication:* receiving or producing the message.

Figure 3.6 English Language Skills

Oxford (2001) mentions that most teachers try to incorporate all four skills areas into their planning though some classes may focus more on one set of skills or the other, due to the course and learner objectives.

When learning a new language, it is necessary to follow the following order of acquisition.

Listening: The learner hears a new item (sound, word, grammar feature, etc.)

Speaking: The learner tries to repeat the new item.

Reading: The learner sees the new item in written form.

Writing: The learner reproduces the written form of the item.

For getting more information about the students, it was decided to include an item where the students could specify their place of birth. According to the collected information, it was

decided to distribute the information in five groups (see figure 3.7). Due to the fact that the majority of the students were from Chetumal (the capital city of the State of Quintana Roo located in the south-east region of Mexico in the Peninsula of Yucatan) Chetumal was placed as the first group.

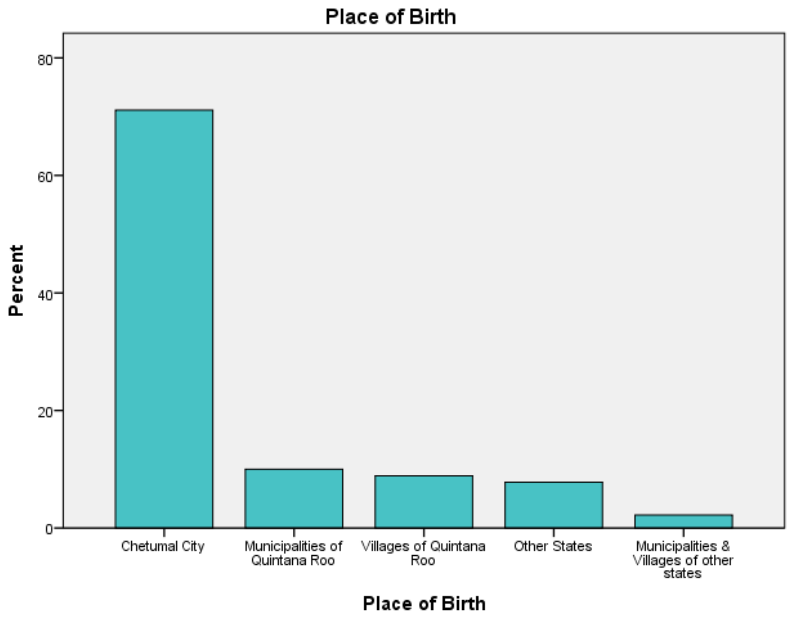

Figure 3.7 Students' place of birth

As it can be appreciated in figure 3.7, 71.1 per cent of the amount of students were born in Chetumal city, the 10.0 per cent were from other municipalities, the 8.9 per cent of the students were born in other states and finally only the 2.2 per cent were born in villages or municipalities of other states.

As it has been mentioning through this study, the participants in this study were students who were taking an English course offered by the University Language Teaching Centre (according to their level); however, most of the students belonged to different majors and different divisions. Figure 3.8 shows in a better way the amount of the students according to their major.

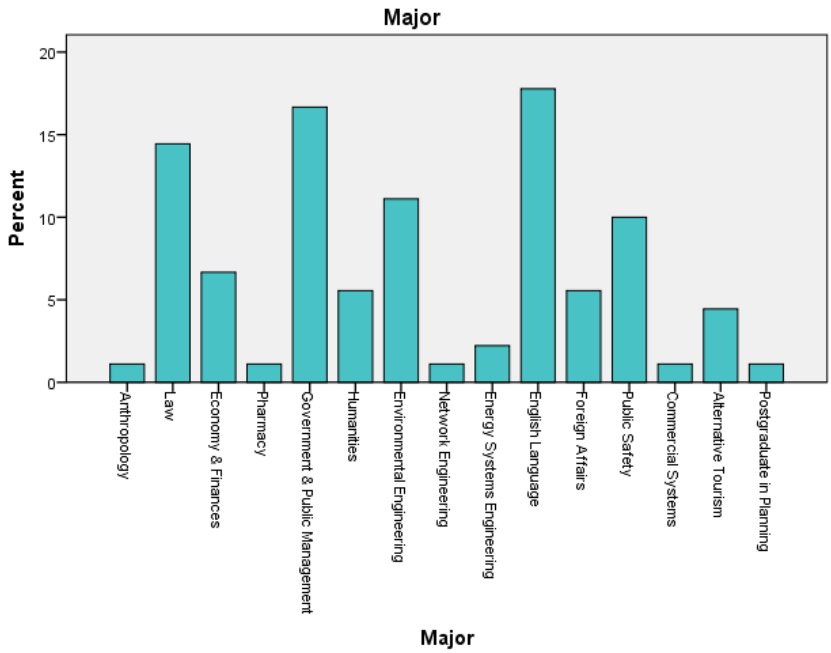

Figure 3.8 Students' major

It is important to mention that the majority (17.8 per cent) of the students belonged to the English Language major and it only was a case of a student who was taking a Postgraduate course.

Nowadays students are more familiarized with the technology and they spend certain time surfing on internet. Internet is a global linkage of computers that allows information transfer. Sometimes it is used for academic purposes such as searching information for doing their homework, or being in contact with their professors. On the other hand, students use internet for having fun, chatting with their friends or checking their social pages. Internet has become a vital tool for entertaining as well as learning process.

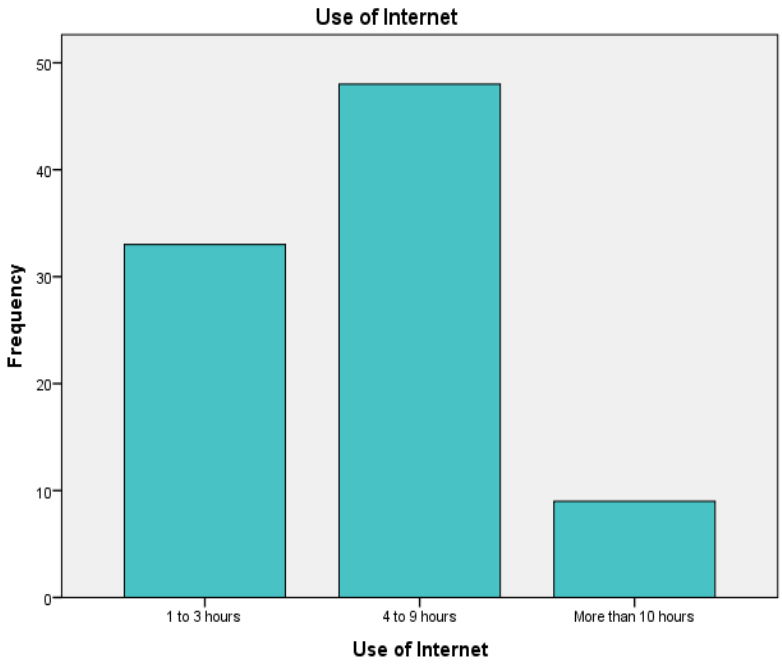

Figure 3.9 Time wasted by students on Internet

According to figure 3.9, the 53.3 per cent of the students spend around four to nine hours surfing on internet daily. The 36.7 per cent of the students spend around one to three hours surfing on internet daily, and just the 10.0 per cent of the students spend more than ten hours on internet. As could be noticed, most of the students spend more hours on internet as they think.

As it was mentioned previously, the participants in this study were students from different majors. These students were taking an English course at the CEI. A total of ninety students participated, forty-five men and forty-five women; this selection was unplanned. An important aspect is that most of the participants were in their twenties which is the average age of regular students who are at the university. Furthermore, it was observed that 71.1 per cent of the students were born in Chetumal and just 8.9 per cent of them come from other states. Another important aspect that could be found was that the majority of the students belonged to two different majors 16 students (17.8 per cent) belonged to the English Language major and 15 students (16.7 per cent) belonged to the Government & Public Management major. Finally, most of the students

reported that they prefer to spend around to four to nine hours on internet instead of being all day connected on Internet.

3.2 Instruments

In order to collect data a semi-structured questionnaire was used. This questionnaire was divided in four sections. Each section provided useful information for the investigation. In the two first sections the Likert scale was used. It is important to mention that each item was created and any of them was taken from any other questionnaire (see appendix A). In the first segment students have to answer how much they are familiarized with the use of technology, in this section it was used the eight different intelligences; however, the intelligences were implicitly. For this, a picture used by Roger Prats was used. This picture shows perfectly that any person can use any kind of technology according to their type of intelligence (see figure 3.10).

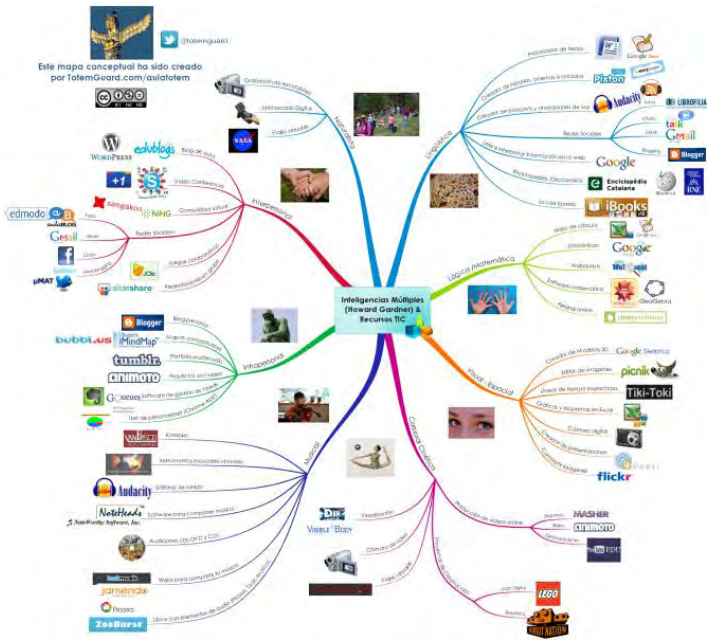

Figure 3.10 [Multiple Intelligences and ICTs]

In short the objective of this section was to determine if students use the technologies according to their intelligences. In the following section, it was decided to use the four different skills used for learning English. The purpose of this segment was to identify if students use the ICT in order to learn English and improve their skills at the same time. In the third segment, students identified what kind of intelligence they have. This section was adapted from a questionnaire that Jeniffer Mourad used in her investigation in 2014. It is important to mention that students answered just a part of this section and the sub-section was rated by the researchers. Finally, the last section was used to collect personal information.

3.3 Procedure

What follows is a description about how data was collected step by step. First, the on-line system of the University of Quintana Roo "Portal SAE" was consulted in order to check the groups offered by the University Language Centre in spring 2015, the number of the students enrolled in each curse, the number of the classroom and the name of the professors.30 students were selected from basic, pre-intermediate and intermediate English giving a total of 90 students. As it was mentioned previously, post-intermediate level was not taken into account because the number of students was not enough. Finally we organized our time to apply the questionnaires in order to guide students in the answering of the survey. The applied questionnaire was done in Spanish in order to avoid misunderstandings.

3.3.1 Pilot study

In order to validate the instrument, a pilot study was conducted. The main purpose of this was to validate the instrument and recollect basic data, such as the time used at the moment of answering the questionnaire, corroborate readability, identify ambiguities in the instructions, and

discover errors in the drafting. For this, 34 students from two different groups of intermediate class were surveyed (see table 3.2).

The first group involved 22 students, they belong to different majors but all of them have the same level of English. In the second group, 12 students were surveyed, they belong to different majors but they have the same level of English. They spent around 25 minutes solving the survey. Several observations were made; one of them was that students did not pay attention to the instructions. Similarly, there were some doubts with the item 5 in section 1. Each item has examples but that item contained just a sample so students understood that it was a specific one.

In the first group there were several students who needed help to carry out the questionnaire. However, in the other group assistance was not required. It could be noticed that some students were surprised to know what kind of intelligence predominates on them.

Men	Women
19	15

Table 3.2 Male and Female students in the pilot study

This group was not part of the original research. However the results of the pilot study were useful at the moment to carry out the project. After students answered the questionnaire, a database was created with the results. Subsequently, the reliability of the instrument was evaluated through an analysis using the Cronbach's Alpha; it was obtained a reliability of 0.88.

Reliability Statistics

Cronbach's Alpha	N of Items
.888	45

Table 3.3 Cronbach's Alpha Analysis

Based on the results of this analysis, it can be said that this questionnaire has a degree of internal consistency of reliability. Figure 3.11 shows the reliability of the questionnaire. The application of the pilot helped to the rewording and merging of some items. Likewise, some changes were made in the layout. With this it was tried to look into the coherence and the internal logic of the questionnaire which seems to be valid from the point of view of the research (Mourad, 2014).

3.4. Data analysis

In order to analyze the data collected via the questionnaire, both descriptive and inferential statistics were used with the help of the Social Package for the Social Sciences program (SPSS) version 21. The first type of statistics refers to the mean frequency ratings of the items of the questionnaires along with the frequency of other personal variables of the study. The second type is to do with exploring differences and relationships among variables and having the opportunity to make generalizations based on the findings (if statistically significant).

Hence, in order to statistically compute the results, Pearson r correlations, t-tests, and ANOVA were used to either establishing relationships among variables or stating differences between and among groups. Additionally, some frequencies were analyzed to explore how often students use ICT resources, the reasons for using them, the most and least frequently reported MI and the use of ICT resources across English skills.

What follows is a description of how data were collected and then analyzed. Firstly, it was given a value to each answer of the questionnaire. The answers were codified as follows: the answer *Nunca* (never) was given the value of 1, the answer *Casi nunca* (almost never) was given the value of 2, the answer *Regularmente* (regularly) was given the value of 3, the answer *Casi*

siempre (almost always) was given the value of 4, and the answer *Siempre* (always) was given the value of 5.

In the part of multiple intelligence there were answers that did not get a numerical value. This section was divided in two sub-sections, in the first part the students had to classify their answers making a scale from 1 to 8, each sentence was related to any intelligence, and any number could be repeated. Then according to the multiple intelligence a sum was done. The lower number corresponding to the intelligence that predominates the most in the student. According to this, each sum was done.

In the part of personal information there were answers that did not get a numerical value, such as the students' registration number and the age of the participants. However, a numerical value to each level in questions that made reference to the level of English was given. To make it crystal clear, in the same section gender, major and the time wasted on internet received a numerical value as well. Finally data was codified in order to be computed in an Excel program. After that, all the data was exported to the SPSS program version 21 (see appendix A).

In short, it is important to emphasize that a correlational piece of research explores the relationship between variables. It is relevant to understand that a correlational research does not tell us that variable A causes variable B, but rather that they are somehow related. It is what we will try to find out in this research.

When data was codified in the Excel program, a second test of reliability was done in order to corroborate if the reliability of the questionnaire was the same. This time the results were different, it was obtained a reliability of .934.

Reliability Statistics

Cronbach's Alfa	N of Items
.934	45

Table 3.4 Cronbach's Alpha Analysis

Figure 3.12 shows that the reliability of the questionnaire is really good. It was decided to put this information in order to clarify that the questionnaire has a degree of internal consistency of reliability.

During this chapter, the characteristics of the population who took part in this study and the process done to validate the instrument used to collect data were described. Correspondingly, the methodology followed to apply the instrument to English learners was presented. Furthermore, this chapter contained detailed information about how data analysis was done and what software was used in order to relate and compare the information reported by the participants.

The main objective and the thirteen research questions which embrace this study were answered through the analysis and the interpretation of the tables and charts that were created by the SPSS program. All the analysis and the explanation of each variable will be presented in the following chapter.

CHAPTER 4 RESULTS AND DISCUSSION

Having introduced the topic of the study, the review of literature, and have described the method used in this study. What follows is the analysis of each research questions, each research question will be described in a detailed way. Different tables were created by using inferential statistics to illustrate the frequency, correlation, and differences in the use of the ICT resources and the MI through the English learning.

4.1 The relationship between CEI students' MI and their reported use of ICT resources

To answer this question inferential statistics were used and an analysis was done in order to determine if exist or not a relationship between student's MI and their reported use of ICT resources. According to the analysis it was found that not all the intelligences have a positive relationship with the use of ICT. Before showing the results it is necessary to mention that the values are negative because of the reverse value used in the multiple intelligences. As it was mentioned previously in chapter 3, to determine the intelligence, a sum of the items were done and the lowest value correspond to the most predominant intelligence; on the contrary, the highest value correspond to the less developed intelligence. The intelligences which have a positive correlation were the musical intelligence, the interpersonal intelligence and the intrapersonal intelligence. The correlation found was (r=-.250) in which students who are more musical reported using more karaoke online than the students who are more kinesthetic. Likewise, students who are more interpersonal reported using more messaging programs. Similarly, linguist students reported using more search engines to look up exercises to develop their reading skill, as well as the use of bilingual encyclopedias and dictionaries to corroborate the spelling of a word. The results are presented in table 4.1

ICT	MI	Pearson Correlation	Sig. 2-tailed
Use of karaoke online	Musical	-.250	.017
Use of messaging programs	Interpersonal	-.243	.021
Use of search engines	Linguistic	-.281(**)	.026
Use of bilingual encyclopedias	Linguistic	-.245	.020
Use of dictionaries	Linguistic	-.240	.023

Table 4.1 Correlation between students' MI and their reported use of ICT

In general a significant relationship was found between (r=-.243, -.281, -.245, -.240) in which is showed a relationship between the multiple intelligences and the ICT resources. On the contrary, the other intelligences provided negative results or basically the results were inconsistent.

These results agree on what Marandino (2009) found, she claims since anytime three or more intelligences are used to introduce new material to students, there are greater chances of long term retention since the integration of ICT and MI give positive effects on students, and according to the results there were three multiple intelligences that correlated with the ICT resources as well as Gardner (2006) acknowledges that students develop a better and fuller understanding of a topic when it is explored using multimodalities since neural networks which produce long-term memory are activated when several areas of the brain are stimulated by targeting different intelligences. According to Hine (2008) on her table of the characteristics of MI and Armstrong on his table of computers programs according to each MI (1991), it can be said that musical intelligence in accordance with the use of Karaoke, interpersonal intelligence with the use of messaging programs and linguistic intelligence agree with the use of search engines, bilingual encyclopedias and dictionaries. Furthermore, Marandino (2009) states that technology is a way to allow the utilization of various intelligences that is why some ICT correlated with MI or vice versa since the use of both is important in learning English. In order to

come up with stronger significant correlation with all intelligences respect to ICT resources is necessary to have more population for a future study.

4.2 The relationship between CEI students' age and the reported use of ICT resources

Regarding to the relationship between students' age and the use of ICT, inferential statistics were used. The analysis done showing a negative correlation between the age of the students and the use of the ICT. The results show that older people prefer to do other things instead of being in front of a computer or in touch with any kind of technological resources. As it can be appreciated in table 4.2, older people use less online karaoke as well as less use of social networking websites. Perhaps the reason why this happens is because older people are intimidated by the technology since most adults learners were taught in a traditional and passive classroom (Cercone, 2008). Moreover, younger students are those who have had more contact with the technology since birth and are stated like digital natives (López, 2014).

		Age
Use of karaoke online (KaraFun, YouTube).	Pearson Correlation	-.219
	Sig. (2-tailed)	.038
	N	90
Use of social networking websites to share or post moods in English.	Pearson Correlation	-.239
	Sig. (2-tailed)	.023
	N	90

Table 4.2 Correlation between students' age and their use of ICT

Figure 4.1 illustrates more clearly that older students use less frequently the ICT resources. It means that the older people are, the less use of technologies.

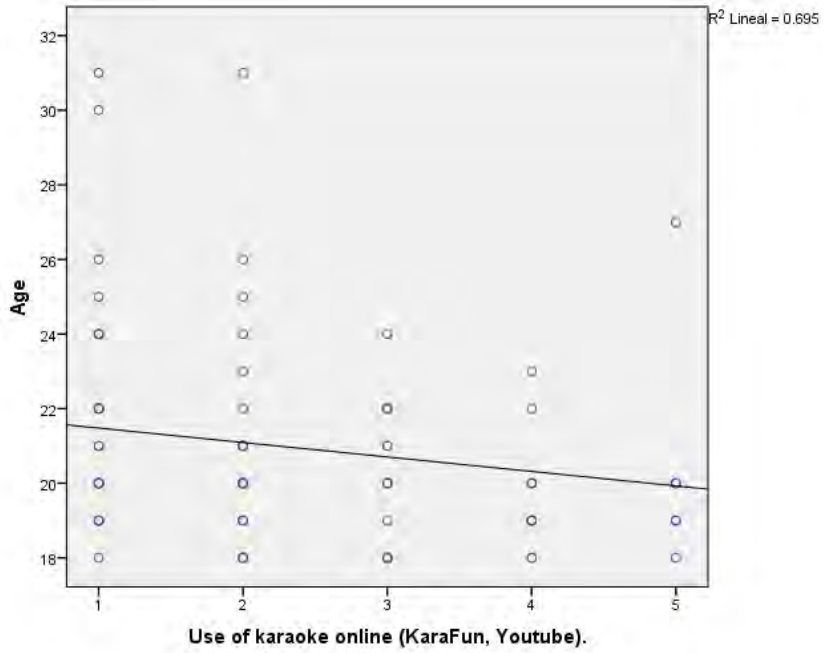

Figure 4.1 Age and use of technologies

According to the questionnaire, the second part consisted of determining the purpose of use of ICT. To determine if exist or not a correlation, Pearson r was used. The result was a negative correlation of (r = -.239, p. = .023). In this analysis older students reported using less social networking websites like Facebook, Twitter, etc. to share information basically in English. This information can be illustrated through figure 4.2.

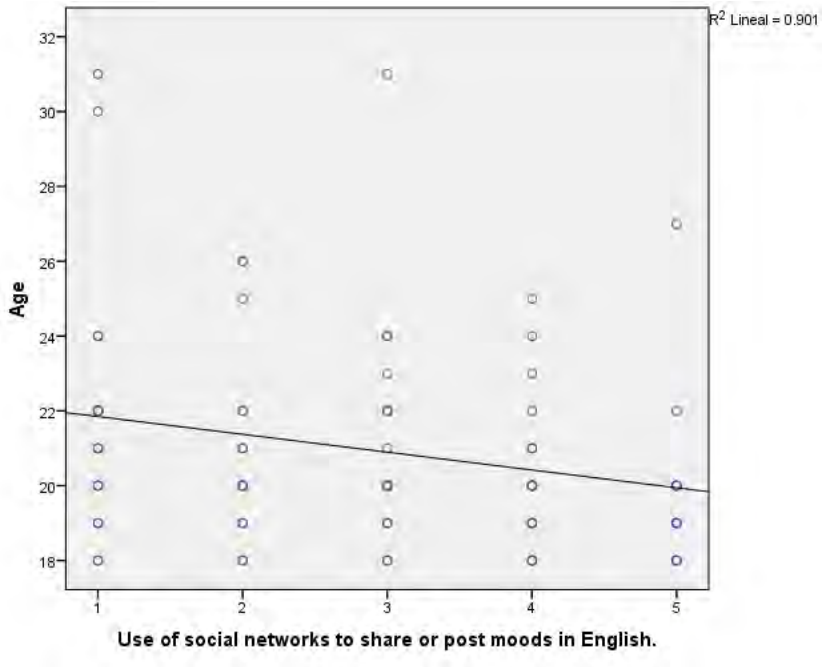

Figure 4.2 Age and the purpose of use of ICT

It can be said that when people get older, they are least interested in using karaoke, and social networking websites because they experiment different psychological and biological processes and sometimes it seems that everything that they had considered fun becomes boring now. Therefore, according to the Andragogy model (1973) adult learners are autonomous, independent, and self-reliant, and they are self-directed toward goals, it means, that as the years pass, adult learners tend to be busier and they focus more on their own priorities.

The Pew Research Center (2013) looked at US Adults' social media usage among those adults that are online and it was found that social media usage categorized by ages used in 2013 are the following percentages; 18-29 = 89%, 30-49= 78%, 50-64= 60% and 65 + = 43%. In short, the percentages of using social media have decreased through the ages.

4.3 The relationship between CEI students' age and the reported MI

To answer this question inferential statistics were used. The analysis indicated that there was not a correlation between the students' age and their reported MI. After an arduous search and investigation without positives results to show, it was concluded that there is not a relationship between age and multiple intelligences due to that the intelligences are brought since birth and during growth are developed.

Correlations		
		Age
Kinesthetic	Pearson correlation	-.040
	Sig. (2-tailed)	.709
	N	90
Interpersonal	Pearson correlation	.169
	Sig. (2-tailed)	.111
	N	90
Intrapersonal	Pearson correlation	-.144
	Sig. (2-tailed)	.177
	N	90
Logical/Mathematical	Pearson correlation	-.099
	Sig. (2-tailed)	.352
	N	90
Musical	Pearson correlation	.119
	Sig. (2-tailed)	.266
	N	90
Naturalistic	Pearson correlation	-.073
	Sig. (2-tailed)	.496
	N	90
Linguistic	Pearson correlation	.035
	Sig. (2-tailed)	.746
	N	90
Visual	Pearson correlation	.073
	Sig. (2-tailed)	.493
	N	90

4.3 Age and the multiple intelligences

According to Gardner (1983) all people possess different intelligences; however, one intelligence will predominate during growth. For a better understanding see table 4.3, it shows the analysis done in a more detailed way. It is important to state that Gardner opposes the idea of labelling learners to a specific intelligence.

4.4 Differences in the reported MI across levels of English

To answer this question, inferential statistics were used and a post hoc Bonferroni analysis was performed to determine the differences between groups. In general results of this investigation indicate that there was not a difference between the reported MI and the level of English of the students. As it was mentioned previously, after a laborious search of studies that prove the use of the multiple intelligences in certain groups of English the results were negative. It is important to clarify that the intelligences cannot be limited to a specific level or group of English students due to the fact that the multiple intelligences work together. For instance, a student who is learning English can use one or two intelligences at the same time; however, a specific group cannot use a specific intelligence at the same time neither a specific level of English. As it was clarified previously, the intelligences are developed during the life of any individual. Finally in order to prove these results, further investigations should be done with biggest groups.

4.5 Differences in the reported use of ICT resources across levels of English

In the same way, inferential statistics were used and a post hoc Bonferroni analysis was done as well in order to determine the differences between groups. In general, several differences were reported, the result will be presented in table 4.4.

		N	Mean	ANOVA results
Use of tabletas	Basic	30	3.03	F= 4.498, p.= .014, df = 2
	Pre-Intermediate	30	2.60	
	Intermediate	30	2.07	
	Total	90	2.57	
Use of voice memo program (audacity)	Basic	30	2.23	F= 5.793, p.= .004, df = 2
	Pre-Intermediate	30	1.90	
	Intermediate	30	1.40	
	Total	90	1.84	
Use of video calls program (Skype, Google Talk)	Basic	30	3.27	F= 4.483, p.= .014, df = 2
	Pre-Intermediate	30	2.60	
	Intermediate	30	2.27	
	Total	90	2.71	
Use of audio books online (Zooburst, Ivoox)	Basic	30	2.07	F= 4.667, p.= .012, df = 2
	Pre-Intermediate	30	1.63	
	Intermediate	30	1.37	
	Total	90	1.69	

Table 4.4 Differences in the reported use of ICT across levels of English

In this part, it was determined to divide the analysis in two parts, the first part is about the use of ICT and the second part on the purpose of use of ICT. As it can be noticed in table 4.4, students of the basic level reported that they use more frequently tablets than students of intermediate level (3.03 vs. 2.07). Likewise, another differences were observed, for instance students from basic level have more contact with voice memo program than students from intermediate level (2.23 vs. 1.40). Similarly, it was demonstrated that students from basic level use more video calls program than students from intermediate level (3.27 vs. 2.27). Finally, a last difference in this part was reported for students from basic level. What they reported was that they have more contact with audio books than students from intermediate level (2.07 vs. 1.37). Basically, it could be noticed that students from basic level reported having more contact with the technology than students from intermediate level.

Studies about ICT and levels of English were difficult to find out since most of them are focused in primary and secondary school, Flores (2015) carried out a study related to Social

Virtual Networking and it was done in a college school in Quito, Ecuador. It was decided to be included since the characteristics of the learners are similar to the Basic English level. Students reported to have good experience when they use on line video conferencing and 75% of students agree on using computers.

Moreover, García, et al., (2014) evinced that most of the freshmen students at the University Christian Panama like using ICT resources for learning English since in the study they pointed out they would like to use virtual courses, interactive programs to communicate with other students from different universities, and audiovisual courses.

In the second part, a specific group of students reported having more contact with the ICT resources then the other groups. It is necessary to mention that students use the technologies for different purposes. The results will be presented in table 4.5.

		N	Mean	ANOVA results
Use of conference programs (Skype, Facebook video calls) to discuss topics in English with others.	Basic	30	2.03	F= 3.905, p.= .024, df = 2
	Pre-Intermediate	30	1.70	
	Intermediate	30	1.33	
	Total	90	1.69	
Use of social networks (Facebook, Twitter) to share or post moods in English	Basic	30	3.37	F= 3.215, p.= .045, df = 2
	Pre-Intermediate	30	2.80	
	Intermediate	30	2.50	
	Total	90	2.89	

Table 4.5 Differences in the reported use of ICT across levels of English "purpose of use".

As it can be noticed in table 4.5, students from basic level reported using more conference programs such as Skype, Facebook video calls in order to discuss about random topics in English than students from intermediate level (2.03 vs. 1.33). Moreover, students from basic level reported using more social networking websites such as Facebook or Twitter to share or post moods in English than students from intermediate level.

In short, the result of this part shows that mostly students of a lower level of English prefer to spend leisure time; however, at the same time they are practicing an English skill thanks to the technologies. Similarly, it may be that students in higher levels of English are not interested or accustomed in using those programs since they are more focused to a more traditional learning. Students tend to not use ICT resources when they are in an advanced level maybe because they considered that being in a more advanced stage of language development is enough and they do not need reinforcement in the skills. As it can be noticed, in both section students from basic level tend to use more technologies than students from intermediate level.

Finally there were two different cases in the analysis done. It will be described in the following table.

		N	Mean	ANOVA results
Use of karaoke online (KaraFun, YouTube)	Basic	30	2.90	F= 4.833, p.= .010, df = 2
	Pre-Intermediate	30	2.10	
	Intermediate	30	2.00	
	Total	90	2.33	
Use of programs to read books in English (Ebook, CoolReader)	Basic	30	2.57	F= 2.965, p.= .057, df = 2
	Pre-Intermediate	30	1.80	
	Intermediate	30	1.97	
	Total	90	2.11	

Table 4.6 Differences in the reported use of ICT across levels of English

As it can be noticed in table 4.6, students from the three different levels reported differences in the usage of karaoke online. First of all, it was found a difference between students from basic level and students from pre-intermediate level (2.90 vs. 2.10) in the same way students from basic level reported differences across students from intermediate level (2.90 vs. 2.00). Similarly, students from basic level reported having more contact with the use of programs to read books in English than students from pre-intermediate level (2.57 vs. 1.80).

According to the analysis, this could refer that younger students tend to use more karaoke online unlike older students. As it has been previously shown, the older people are, the lower use of karaoke online; moreover, that result can be demonstrated in this section where students from basic level, which are the younger ones, use more online karaoke. Furthermore, it can be notice a difference in the use of programs to read books in English between basic students and pre-intermediate students. It could be referred that younger students are more accustomed to consult books online than going to the library and read a real book.

In short, students from Basic English level seems to be more engaged and interested on using ICT resources, it may be because they are in a level where they started being in contact with the language since they are developing their English language skills. As a study done by BECTA (n.d.) states that beginners of English will have limited skills in English although they may have well developed first language skills.

4.6 Gender differences in the reported MI

To answer this research question inferential statistics such as t-tests were used to determine the differences between students' gender and their reported MI. Firstly, an analysis was done using the different multiple intelligences reported by male and female students see table 4.7.

Multiple Intelligence	Gender	N	Media	Std. Deviation
Kinesthetic	Male	45	10.29	4.082
	Female	45	12.53	3.923
Interpersonal	Male	45	12.04	3.784
	Female	45	13.09	3.547
Intrapersonal	Male	45	10.84	3.574
	Female	45	10.87	4.224
Logical/Mathematical	Male	45	12.20	3.992
	Female	45	11.69	4.461
Musical	Male	45	13.49	3.794
	Female	45	12.98	3.732
Naturalistic	Male	45	15.91	3.443
	Female	45	15.38	3.768
Linguistic	Male	45	17.56	3.911
	Female	45	15.91	3.890
Visual	Male	45	15.67	4.123
	Female	45	15.56	3.428

Table 4.7 Multiple intelligences and gender

The results of this analysis demonstrated two significant differences in the development of two intelligences between male and female students. It is necessary to remember that in this part reverse value was used and the lowest value is the most prevalent intelligence and the highest value is the less prevalent intelligence; that is why some values are in negative. Then, an examination was done by analyzing the two different intelligences which revealed that there was a significant difference of ($t = -2.659$, $p. = .009$) in the use of the kinesthetic intelligence between male and female student. Table 4.8 describes that men reported to use more their kinesthetic intelligence than women.

Multiple Intelligence	Gender	N	Mean	Std. Deviation	t-test
Kinesthetic	Male	45	10.29	4.082	t = -2.659, p = .009
	Female	45	12.53	3.923	

Table 4.8 Kinesthetic intelligence and gender

On the contrary, the same analysis showed that women develop more their linguistic intelligence than men. The analysis revealed a significant difference of (t = 2.000, p = .049) in the use of linguistic intelligence (see table 4.9).

Multiple Intelligence	Gender	N	Mean	Std. Deviation	t-test
Linguistic	Male	45	17.56	3.911	t = 2.000, p = .049
	Female	45	15.91	3.890	

4.9 Linguistic intelligence and gender

According to the results found, there are two specific intelligences more developed in males and females. It is necessary to explain that these results were treated with caution because of the reverse value. Basically, it could be noticed that both genders can develop six of the eight intelligences; however, it is well-known that male tend to be more kinesthetic due to the fact they enjoy outdoor activities and they always are in movement. On the contrary, women are more linguistic and like to express what they think.

Arıkan and Sarıcaoğlu (2009) proved on their study "A Study of Multiple Intelligences, Foreign Language Success and Some Selected Variables" that linguistic was the most common intelligence among females. On the contrary, Nesser et al, (2008) proved that body-kinesthetic was common among males. In short, results of this study revealed that males rated the body kinesthetic component higher than females while females estimated their verbal-linguistic intelligence higher than males.

4.7 Gender differences in the reported use of ICT resources

As well as the previous question, to answer this research question inferential statistics were used to determine the difference in the use of the reported ICT resources between female

and male students. According to the analysis done there were significant differences in the use of the ICT resources. Table 4.10 describes that women reported to use more technologies than men.

Use of ICT resources	Gender	N	Media	t-test
Use of editor programs (Picnik, Photoshop, Paint).	Male	45	2.29	t = -2.762, p = .007
	Female	45	3.00	
Use of presentation programs (Prezi, PowerPoint).	Male	45	3.82	t = -2.268, p = .026
	Female	45	4.33	
Use of e-mail (Outlook, Gmail).	Male	45	4.24	t = -2.504, p = .014
	Female	45	4.67	
Use of online books programs (Ebook).	Male	45	2.07	t = -2.023, p = .014
	Female	45	2.62	
Use of karaoke online (KaraFun, YouTube) to sing on English.	Male	45	1.80	t = -2.926, p = .004
	Female	45	2.60	

Table 4.10 Use of ICT resources and gender (women)

The results of this analysis demonstrated that there were many significant differences in the use of the ICT resources between men and women students. As it can be noticed in table 4.10, the results reported that women students tend to use more technologies than men. There was a significant difference of (t = -2.762, p = .007) in the use of editor programs. This result shows that women are more careful when using editor images. Similarly, a difference was noted in using presentation programs such as Prezi and PowerPoint, the difference was (t = -2.268, p = .026). Clearly, it can be noticed that women are usually more perfectionist when doing presentations on PowerPoint. In the same way, the results proved that women use more email (t = -2.504, p = .014). Likewise, it was reported that women use more virtual books (t = -2.023, p = .014). Finally, it was found that women use more karaoke online for singing songs in English. Jung (2006), mentions on his research "Use of ICT in learning English as an international language" that females owned more technologies (e.g., desktops, cell phones, and music devices)

than males. Moreover, Tyers (2012) on her research showed that using ICT resources for learning English give the women access, bringing the lessons and the learning into the domestic sphere, allowing them to juggle domestic responsibilities with learning. It also made the women feel that they would be able to access and use the Internet. Learning English through an ICT open up access to the Internet by helping the women overcome the language barrier and at the same time increase their confidence in their own English ability and their own ability to use ICT. In short, females have gained confidence in their ability to learn English and their ability to use other ICT to learn English. Furthermore, Younger, et al., (2004) revealed on their research that Information Technology, have been colonized by girls with increasing success. Thus in 2004, as in every preceding year of the century, girls out-performed boys in every mainstream subject of the National Curriculum not only at the benchmark grade level.

However, a significant difference was found, it proves that men use ICT resources for specific purposes. Table 4.11 describes this information.

Use of ICT resources	Gender	N	Media	Std. Deviation	t-test
Use of video-sharing websites (YouTube, Vimeo) to upload videos about myself talking in English.	Male	45	1.71	0.991	(t = 2.647, p = .010)
	Female	45	1.24	0.645	

Table 4.11 Use of ICT resources and gender (men)

As it can be noticed in table, it was proved that male students tend to use more ICT resources for specific purposes. In this case, it was reported a significant difference in the use of video-sharing websites such as YouTube or Vimeo, to upload videos about themselves talking in English. This can happen due to the fact men tend to be less shy at the moment of recording themselves doing different things.

4.8 The relationship between language skills and the Multiple Intelligences

To answer this research, inferential statistics were used as well. The analysis indicated that there were some positives and negatives correlation between students' skills and their reported MI. As it has been mentioned throughout this research, it necessary to take into account the reverse value due to the fact the most prevalent intelligence has the lower score and the less prevalent intelligence has the higher score. That is why some results are positive and other ones are negative. The results are presented in table 4.12.

Skills		Kinesthetic
Writing	Pearson correlation	.254
	Sig. (2-tailed)	.016
	N	90
Reading	Pearson correlation	.311**
	Sig. (2-tailed)	.016
	N	90

Table 4.12 Language skills and multiple intelligences (Kinesthetic)

As it can be noticed, the kinesthetic intelligence has a significant correlation with writing (r = .254) and reading (r = .311). However, the reverse value shows us that people who are less kinesthetic tend to develop their writing skill. In the same way people who are less kinesthetic tend to develop their reading skill.

Equally, it was found a significant correlation between the linguistic intelligence and the four language skills, do not forget to take into account the reverse value. To have a better understanding the results are presented in table 4.13.

Skills		Linguistic
Speaking	Pearson correlation	-.209
	Sig. (2-tailed)	.048
	N	90
Writing	Pearson correlation	-.329**
	Sig. (2-tailed)	.002
	N	90
Listening	Pearson correlation	-.225
	Sig. (2-tailed)	.033
	N	90
Reading	Pearson correlation	-.384**
	Sig. (2-tailed)	.000
	N	90

Table 4.13 Language skills and multiple intelligences (Linguistic)

The results reported that the linguistic intelligence has a better connection with the four language skills. As it can be noticed, the results are negative; however, they prove that the more linguist a person is, the better developing of any language skill. The correlation between the linguistic intelligence and the four skills were distributed as follows (r = -.209) for speaking, (r = -.329) for writing, (r = -.225) for listening and (r = -.384) for reading.

These results demonstrated that the linguistic intelligence has a correlation with the four skills because linguistic people are more aware of the meaning of the words as well as the sound of them. Also, it is well-know that linguistic people use a variety of languages that is why they have to develop more language skills.

To strengthen this answer, there are some studies that confirm the correlation between kinesthetic with reading and writing skills as well as all skills with the linguistic one. According to Saeidi, et al., (2014) on there is a positive relationship between kinesthetic intelligence and

general writing ability while Zarei and Afshar (2014) proved that kinesthetic intelligence was one of the predicator of reading comprehension.

Moreover, Hou (2010) showed that verbal-linguistic intelligence (t=2.863, sig=.004) and students' English reading scores as well verbal-linguistic intelligence again (t=2.698, sig=.007) with students' English listening scores are related. Furthermore, Saibani and Simin (2014) revealed on their study that linguistic-verbal intelligence has significant correlations with speaking ability and all of its components in male and female participants ($p<0.01$) and Mahdavy (2007) showed that linguistic intelligence is included as a predictor of listening proficiency while other intelligences are excluded.

4.9 The relationship between language skills and the use of ICT resources

As well as the previous question, this research question was analyzed by using inferential statistics. In this case an analysis was done using the four language skills and the use of ICT resources. For a better understanding, the four different language skills are analyzed separately.

ICT resources		Speaking
Use of voice memo programs (Audacity)	Pearson correlation	.330**
	Sig. (2-tailed)	.002
	N	90
Use of messaging program (Skype, Google Talk)	Pearson correlation	.366**
	Sig. (2-tailed)	.000
	N	90
Use of blogs (Blogger, Blogia)	Pearson correlation	.308**
	Sig. (2-tailed)	.003
	N	90
Use of online discussion forum (El mundo, El país)	Pearson correlation	.316**
	Sig. (2-tailed)	.002
	N	90
Use of video calls programs (Skype, Facebook video calls)	Pearson correlation	.302**
	Sig. (2-tailed)	.004
	N	90
Use of karaoke online (KaraFun, YouTube)	Pearson correlation	.464**
	Sig. (2-tailed)	.000
	N	90

Table 4.14 Language skills and the use of ICT resources (Speaking)

According to the analysis done, table 4.14 shows a positive correlation between the use of the ICT resources and the speaking skill. As it can be appreciated, the results proved that exist strong correlations between the speaking skill and the ICT resources which are used by voice. For example, there exist a correlation of (r = .366) between the speaking skill and the use of messaging programs such as Skype or Facebook video calls, of course these programs or software are basically used for having an oral communication. In the same way, there exist a correlation of (r = .330) in the use of voice memo programs due to the fact this kind of programs are designed for recording voice. As well, a correlation of (r = .464) proves that students tend to use more karaoke for singing and with this they can practice their pronunciation. As España (2013) mentions, students can enhance their listening and pronunciation skill through the use of songs and improve their communicative abilities of English as well.

ICT resources		Listening
Use of voice memo programs (Audacity)	Pearson correlation	0.237
	Sig. (2-tailed)	.024
	N	90
Use of blogs (Blogger, Blogia)	Pearson correlation	.211
	Sig. (2-tailed)	.046
	N	90
Use of online discussion forum(El mundo, El país)	Pearson correlation	.298**
	Sig. (2-tailed)	.004
	N	90
Use of karaoke online (KaraFun, YouTube)	Pearson correlation	.336**
	Sig. (2-tailed)	.001
	N	90
Use of audio books online (ZooBurst, Ivoox)	Pearson correlation	.420**
	Sig. (2-tailed)	.000
	N	90
Use of books online programs (Ebook)	Pearson correlation	.364**
	Sig. (2-tailed)	.000
	N	90

Table 4.15 Language skills and the use of ICT resources (Listening)

Similarly, table 4.15 shows the significant correlation found between the listening skill and some specific ICT resources. Significant correlations were found such as the use of online discussion forum with a correlation of (r = 2.98). Moreover, students reported using more audio books online instead of reading a real one (r = .420). With the emergence of technology; nowadays, students prefer to do almost everything with this really helpful tool. As it can be appreciated, mostly of the ICT resources used for speaking skill are used for listening skill as well. It may be because these two skills are related to each other.

ICT resources		Writing
Use of tablets	Pearson correlation	.245
	Sig. (2-tailed)	.020
	N	90
Use of word processors (Microsoft Word, WordPerfect, OpenOffice.org_Writer)	Pearson correlation	.281**
	Sig. (2-tailed)	.007
	N	90
Use of database package (Microsoft Access, Excel)	Pearson correlation	.261
	Sig. (2-tailed)	.013
	N	90
Use of presentation programs (Prezi, PowerPoint)	Pearson correlation	.431**
	Sig. (2-tailed)	.000
	N	90
Use of search engines (Google, Yahoo, Bing)	Pearson correlation	.226
	Sig. (2-tailed)	.032
	N	90
Use of email (Outlook, Gmail)	Pearson correlation	.347**
	Sig. (2-tailed)	.001
	N	90
Use of blogs (Blogger, Blogia)	Pearson correlation	.277**
	Sig. (2-tailed)	.008
	N	90

Table 4.16 Language skills and the use of ICT resources (Writing)

Table 4.16 shows the result about the correlation between the use of the ICT resources and the writing skill. As it can be noticed, there are some specific ICT resources that allow the use of writing skill. Significant correlations were found such as the use of tablets (r = .311). As well, the use of word processors showed a significant correlation of (r = .281) which proves that software or programs such as Microsoft Word allows people practice their writing skill. Likewise a correlation of (r = .431) shows that mostly people use programs such Prezi or PowerPoint for doing their presentations. As well, the correlation of (r = .347) proves that people use email for communicating with others in written form.

ICT resources		Reading
Use of tablets	Pearson correlation	.311**
	Sig. (2-tailed)	.003
	N	90
Use of word processors (Microsoft Word, WordPerfect, OpenOffice.org_Writer)	Pearson correlation	.241
	Sig. (2-tailed)	.022
	N	90
Use of database package (Microsoft Access, Excel)	Pearson correlation	.302**
	Sig. (2-tailed)	.004
	N	90
Use of presentation programs (Prezi, PowerPoint)	Pearson correlation	.449**
	Sig. (2-tailed)	.000
	N	90
Use of email (Outlook, Gmail)	Pearson correlation	.379**
	Sig. (2-tailed)	.000
	N	90
Use of online discussion forum (El mundo, El país)	Pearson correlation	.362**
	Sig. (2-tailed)	.000
	N	90
Use of books online programs	Pearson correlation	.504**
	Sig. (2-tailed)	.000
	N	90

Table 4.17 Language skills and the use of ICT resources (Reading)

Finally, the reading skill demonstrated that there are significant correlations. As it can be appreciated in table 4.17, many significant correlations were analyzed for example a correlation of (r = .311) was found, which proves that tablets are used by writing purposes. Similarly, a correlation of (r = .449) proves that students develop more their reading skill by using presentation programs. It may be because sometimes students have to prepare presentations and they have to read what they are presenting. In the same way, it is well known that the email is a good tool for communicating with others, the results proved that there exist a significant correlation of (r = .379) between the use of emails and the reading skill. Of course it happens due to the fact students have to read what is writing in the document or email their received. Moreover, exist on-line forums where users have to read before writing their opinions, the

correlation was of (r = .362). Finally, it was proved that it is necessary to use the reading skill when they look for books online, the correlation in this case was of (r = 504).

As it can be noticed, most of ICT resources are similar to those that are used in writing skill. It may happen due to the fact these two skill have a correlation to each other. However, some of ICT are different due to the fact the ICT does not have sense with the skill mentioned. In short, it can be said that there are specific ICT for each language skill, and some of them can be repeated because the skills have a relationship to each other.

According to the research questions, the first nine questions were analyzed by using inferential statistics. What follows is the analysis of the secondary research questions. Despite of these questions were categorized as secondary research questions, these are as important as the other ones because they provide important results for this research.

In a nutshell, although there are no many studies including all the ICT tools with English language skills since most of studies are focused on an individual ICT tool for a specific purpose, this study shows that ICT have positive correlation with ICT. Furthermore, Ruiz (2014) states on his research that through the use of ICT; students can improve on speaking listening, writing, and listening. The results of his research revealed that the use of ICT resources are positive and gain easily students attention since the use of reading online books and the use of online karaoke helped students in the skills; Ruiz (2014) explains that using online books helped students in writing, listening and speaking since students can listen the correct pronunciation of the words while they follow mentally the reading at the same time they realized how to write and karaoke is useful for listening and speaking since students can improve and enhance their pronunciation skill (España, 2013).

4.10 Frequency of use of ICT resources for learning English.

The Information and communication technologies have been changed our lives. They have brought new tool for helping students, professors, and all people to develop new ways of doing daily things. In this analysis, students reported having more contact with the technologies. Descriptive statistics are detailed in table 4.18. This table shows that the search engines are the ICT most frequently used.

ICT	N	Mean
Use of search engines (Google, Yahoo, Bing).	90	4.68
Use of email (Outlook, Gmail).	90	4.46
Use of computers (Laptops).	90	4.37
Use of word processors (Microsoft Word, WordPerfect, OpenOffice.org_Writer).	90	4.34
Use of presentation programs (Prezi, PowerPoint).	90	4.08
Use of database package (Microsoft Access, Excel).	90	3.52
Use of messaging program (Skype, Google Talk).	90	3.50
Use of encyclopedias or dictionaries online (Wikipedia u others).	90	3.47
Use of digital cameras.	90	3.21
Use of storage programs (Dropbox, GoogleDrive).	90	2.91

Table 4.18 ICT resources most frequently used

This table shows the most frequently ICT resource used by students. Results reported that search engines were the resources more frequently used. These results may be due to that the majority of the students are accustomed to use Google or any other search engine and search any information. In second place, the students reported having a more contact with the email because they are always in touch with their friends, teachers and foreign people.

Surprisingly the use of desktops or laptops was classified in the third place. This result may be due to that students are accustomed to use more their mobiles, iPads, tablets because these gadgets are easier to use and manipulate and you can carry them with you to any place.

In contrast, as it can be observed in table 4.19 the resources that were reported with a lower frequency of use were voice memo programs, blogs, online discussion forum, audio books online and the last one was the use of multimedia software to take notes. It may be due to that these resources are not well known or popular. It means that there is a general lack of knowledge about these resources because there is an absence of training in digital competences.

ICT	N	Mean
Use of voice memo programs (Audacity).	90	1.84
Use of blogs (Blogger, Blogia).	90	1.80
Use of online discussion forum (El mundo, El país).	90	1.79
Use of audio books online (ZooBurst, Ivoox).	90	1.69
Use of multimedia software to take notes (Evernote, GQueues).	90	1.64

4.19 ICT resources less frequently used

Puebla (2015) showed on her research that students always use search engines for looking and trace for information. On the contrary, she found that students do not use internet for reading news to be up to date that could be the reason why the use of online discussion forum is one of the less ICT used. Moreover, Yunus, et al., (2009) on their study "Language Learning via ICT: Uses, Challenges and Issues" prove that students are aware of the benefits of using ICT in learning language. Nevertheless, students did not spend much of their time for the purpose of learning. Sometimes they prefer not to use them because of the lack of training on ICT or because they prefer to spend their time doing other things.

4.11 The main purpose of using ICT resources when learning English

To answer this research question, descriptive statistics were used. Regarding the purpose of use of ICT resources, students reported using more video storage programs such as YouTube to watch videos. However, it does not mean that students use the video storage programs for watching videos with academic purposes. The results have reported that mostly of students use ICT resources for non-academic purposes. Table 4.20 provides a clearer picture of this aspect. Murphy (1989) affirms that the chunking and intonation profiles with songs are more accessible to beginners in a holistic natural order of acquisition since the wide popularity of English Language Music worldwide may be having greater impact upon potential and actual English language learners.

ICT	N	Mean
Use of video-sharing websites (YouTube, Vimeo) to listening (conversation, songs) in English.	90	3.60
Use of dictionaries online to corroborate the meaning of a word in English.	90	3.28
Use of search engines (Google, Yahoo, Bing) to consult English exercises to help improve my speaking skill.	90	3.28
Use of search engines (Google, Yahoo, Bing) to consult English exercises to help improve my writing skill.	90	3.22
Use of word processors (Microsoft Word, WordPerfect) for writing texts in English my tasks in English.	90	3.10
Use of email (Outlook, Gmail) to communicate in written with my classmates / teachers.	90	3.09
Use of bilingual dictionaries or encyclopedias to confirm the spelling of a word in English.	90	3.07
Use of search engines (Google, Yahoo, Bing) to consult English exercises to help improve my reading skill.	90	2.93
Use of social networks to publish views or moods in English.	90	2.89
Use of search engines (Google, Yahoo, Bing) to consult English exercises to help improve my listening skill.	90	2.82

Table 4.20 Purpose of use with the highest frequency of ICT

As it can be noticed, the use of dictionaries is located in second place. As well as the use of search engines to consult English exercises to improve students' speaking skill is located in third place doing a tie with the second place. The results proved that the research engines are

used for searching English exercises to improve the four different language skills. This may be due to that students frequently want to corroborate answers or studying for a test, that is why students consult exercises for improving their skills. Surprisingly, most of the results were for academic purposes, specifically for learning English.

However, the purpose of use that was reported with a lowest frequency was basically the ones which are related with ICT that are unknown for students. These results can be consulted in table 4.21.

ICT	N	Mean
Use of conference programs (Skype, Facebook video calls) to discuss topics with others in English	90	1.69
Use of audio books online (ZooBurst, Ivoox) to listen to books in English.	90	1.58
Use of multimedia software (Evernote, GQueues) to take notes in English.	90	1.54
Use of podcast creators (Audacity, Gcast, Podomatic) to record audio voice in English.	90	1.54
Use of podcast creators (Audacity, Gcast, Podomatic) to record myself talking in English and then listen to the audio for improving my listening skill.	90	1.51
Use of video storage programs (YouTube, Vimeo) to upload videos of me talking/singing in English.	90	1.48

Table 4.21 Purpose of use with the lowest frequency of ICT

Students reported having a less frequency of use at the moment of using audio books online for listening to books in English. Moreover, a tie was visualized in the frequency of use between the use of multimedia software to take notes in English and the use of podcast creators to record audio voice in English. It may be due to that students are not familiarized with the use of these resources; it is because teachers usually do not use them. As well as students use less podcast creators to record themselves and listening to the audio to improve their listening skill. In the same way, the results may be due to that students are not familiarized with this type of technology. Finally, the lowest frequency of use was the use of video-sharing websites such as

YouTube for uploading videos about themselves talking or singing in English. It may be because many people feel ashamed of recording a video of them while they are doing something. Furthermore, without regardless that they know how to use YouTube, they prefer to watch videos instead of uploading videos of them doing any kind of performance. Puebla (2015) revealed as results on her research that effectively YouTube is one of the more popular social networking among undergraduate students for watching videos.

The majority of the studies done showed the following; Nguyen and Tri (2014) show that the majority of students spend more time employing ICT for general purposes than for language learning purposes. In short, this study shows that most of the student prefers to use ICT resources for general purposes such as chatting, surfing on Internet or being in touch with their friends, no matter the major they are studying, they prefer having a good time instead of studying. As well Puebla (2015) revealed on their study that most of the students have computers and Wi-Fi access but that the use they make of them is not for academic purposes but for social ones such as taking part in social networking websites, in chats or receiving or sending e-mail. This would imply that the training of these NET students is not in line with the new literacies needed to take full advantage of the ICT for academic training.

4.12 The least and the most developed multiple intelligence

In this question descriptive statistics were used. It is important to clarify that the lowest score correspond to the most prevalent intelligence and the highest score correspond to the lowest intelligence. In this case, it is taking into account the reverse value. This question wanted to know and identify the most prevalent intelligence in the study population as well as the least prevalent intelligence. Table 4.22 provides a clearer picture of this aspect. Firstly, it was reported

that the most prevalent intelligence was the intrapersonal intelligence, followed by the kinesthetic intelligence and the logical/mathematical intelligence.

	N	Mean	Std. Deviation
Intrapersonal	90	10.86	3.891
Kinesthetic	90	11.41	4.138
Logical/Mathematical	90	11.94	4.217
Interpersonal	90	12.57	3.684
Musical	90	13.23	3.751
Visual	90	15.61	3.771
Naturalistic	90	15.64	3.599
Linguistic	90	16.73	3.966

Table 4.22 The most and least developed intelligence

Secondly, the least developed intelligence was the linguistic intelligence. Despite the linguistic intelligence has a correlation with the four language skills not all students demonstrated having this intelligence. It is well known that women tend to be more linguists; however, the results were negative. It may be due to that the amount of women in the study.

Behman et al., (2014) revealed on their study "A Study of Relationship between Multiple Intelligences and Writing Ability of Iranian Female and Male Students" that regarding components of MI, there was difference between female and male students in intrapersonal intelligence; male students scored higher in this intelligence type while Arıkan and Sarıcaoğlu (2009) on their research showed that the less common intelligence was the linguistic intelligence (mean: 3.19).

4.13 Language skills and the use of ICT resources

To answer the last question, descriptive statistics were used as well. The results demonstrated that there is a language skill more used than others; however, the difference is not much. The results of this analysis are presented in table 4.23.

	N	Mean	Std. Deviation
Writing	90	2.6944	.94440
Reading	90	2.5574	1.07292
Listening	90	2.3778	.82724
Speaking	90	2.0378	.69663

Table 4.23 The language skill more used in ICT resources

The results presented showing that the skill more used by students across the use of ICT resources is the writing skill. Although the difference between writing skill and reading skills is not much, the difference between writing skill and listening skill is a little bit more extensive. On the contrary, it can be noticed perfectly that the skill less used is the speaking skill. It may be due to the fact some of the ICT resources can be manipulated by hands and it is not necessary to use voice.

In short, it is well noticed the difference between the writing skill and the speaking skill. These results were correct; however, with a larger population of study the result could be changed. Further investigations should be carried out in order to verify if the writing skill is the one that students tend to use more. Becerra (2010) points out that nowadays Internet gives big opportunities to interact with online texts, technology has changed the way of reading but the history of reading and writing have been tied to the emergence of new technologies and new supports as it was the press and the printed book in its moment which is the equivalence of the emergence of the computers and the hypertexts as new communication media of the written

language. In the internet era, there are more people that design activities of reading using the tool WWW (World Wide Web) as a way of the introduction of materials in learning a second language (Ridder, 2000) although, the relation between the characteristics of the reading in printed text and online texts have been least studied.

Sun and Qiu (2014) revealed on the results of their study that wikis can benefit EFL learners by improving their writing skills in a collaborative environment while Voogt and McKenney (2009) show that technology can support the development of emergent reading and writing skills in four- to five-year-old children. It is essential to point out that most of studies related to this research question are based mainly on primary and secondary schools.

In general the results of this study indicate that most of the students seemed to have a more contact with the ICT resources. Despite they tend to use ICT for different purposes and not academics, they reported have a better understanding of what ICT resources are. Unfortunately, most of them ignore that are certain types of resources that can help them to learn English and enhance their language skills. In addition, it could be observed that there exist a relationship between three multiple intelligences which were musical, interpersonal and linguistic with some of the use of ICT resources. However, further investigations should be done in order to have more correlations among multiple intelligences and ICT.

In this chapter, the nine main questions and the four secondary research questions were fully described and explained as the main core of this thesis. Several results were discussed and supported with the relevant literature. The most important findings, limitations and recommendations of this study will be presented in the following chapter.

CHAPTER 5 CONCLUSIONS

As it was stated in the introduction of this thesis, the main purpose of this study was to determine if exist or not a relationship between the multiple intelligences and the ICT resources at the moment that English learners from the Language Teaching Centre are learning English. In this chapter a summary of the major findings will be presented; then, some aspects about how this study could benefit students and professors will be described. Finally, suggestions to improve the quality of future research related to the use of multiple intelligences and the ICT resources in the process of learning a foreign language will be presented.

5.1 Summary of major findings

According to the information collected by the questionnaire, it was observed that students at the University of Quintana Roo reported not having knowledge about what the ICT resources are. Basically, they know the common ones such as social networking websites, database packages, or video-sharing programs such as YouTube. This may be due to that students not have a training formation in the use of this kind of resources (López, 2014). Resources such as podcast creators are mostly unknown for them. Furthermore, it was noticed that the only intelligences which have a relationship with the use of the ICT resources were the musical, the interpersonal and the linguistic intelligence. The results proved that the other five intelligences have not a correlation with the ICT. This may be due to that these intelligences are more adaptable to each kind of resource. However, it is necessary to do future studies because 90 students were taken for this study and it was noticed that despite the fact of having just 90 undergraduates, data analysis revealed three MI correlations what means that in future research with more students, results of MI correlations with ICT resources can increase and change positively. In the same way, the results proved that exist a negative correlation between students'

age and the use of ICT. It proved that the older you are, the less use of ICT resources. This may be due to that older students prefer to do other things than be in front of a computer or because they are intimidated by the new technology.

Furthermore, there was not found any relationship between students' age and their reported MI as well as the reported MI across levels of English. This may be due to that it is not necessary to have a certain age or being in a specific level of English for developing an intelligence, it is well known that during growth of a person the intelligences are developed (Gardner, 1983). Furthermore, students from basic level of English reported using more ICT resources than students who are taking English in the intermediate level. This may be due to that students from basic level are younger than the others, so that is why they have a more contact with these resources.

Additionally, it was found that an intelligence is more predominant in men and other one in women. In short words, men reported using more their kinesthetic intelligence as well as women reported using more their linguistic intelligence. Of course, it is well known that men are usually more dynamic and active and women have been more linguists since many years ago. Similarly, female students reported having a more contact with the technology resources than men. This may be due to the fact that women are more perfectionists and tend to use more resources such as presentation programs or picture editors. Conversely, it was found that the four English language skills had a correlation with the linguistic multiple intelligence due to the fact that people tend to be more linguists and some people like learn new languages, so that is why they need to practice and enhance their four language skills.

Equally, the analysis between language skills and the ICT resources proved that there is a correlation between these two variables. Basically, speaking and listening proved using almost

the same kind of resources as well as writing and reading. Furthermore, it was noticed that students use more frequently the search engines because this is the principal instrument for searching any kind of information as well as searching of English exercises that can help them to improve their English language skills. As well, the least used ICT was the multimedia software to take notes, it is well known that not all students know these resources and how to use it.

As it has been mentioned in the previous chapter, one of the purposes of using ICT was to use video-sharing websites such as YouTube for watching videos in English as well as the use of dictionaries online for corroborating meanings and spelling. As the main purpose was to watch videos the least purpose of use was to use these programs for uploading videos about themselves due to that they prefer to see other people instead of watching themselves singing or doing anything. In addition, it should be noted that the analysis proved that the most prevalent intelligence was the intrapersonal intelligence and the linguistic intelligence was the least prevalent one. Finally, students reported having used more their writing and reading skill at the moment of using any kind of ICT resources.

In general, this study revealed that students at the University of Quintana Roo seem to not have developed their digital competences for using different kind of technology resources. The analyzed results reported that students should learn how to use the ICT for learning purposes, not just for non-academic purposes. They should learn how to use ICT for improving their English skills as well as improving their digital competences. It can be suggested that students should be motivated intrinsically by themselves and their professors. Furthermore, it is important to mention that both professors and students should receive training with the purpose of developing the ICT as learning tools.

Finally, the main purpose of this research was to find out a relationship between multiple intelligences and the ICT resources; nevertheless, the results were not entirely positive due to the fact that not all the intelligences had a positive correlation with ICT. The only intelligences which had a positive correlation with ICT were musical, the interpersonal and the linguistic intelligence. It is necessary to have a largest group of individuals in order to have more correlations results. At the beginning of this investigation the idea was to survey the majority number of students; however, they were in their last week of the semester. For the purpose of having more positive results, further research should be done.

5.2 Limitations of the study

The results of this study were relevant; nevertheless, experimental and qualitative studies are required in order to further explore how students react while they use Multiple intelligences and ICT resources as well as improving their digital competences at the moment of using them for learning purposes

Another limitation of the study was related to the number of the students who answered the questionnaire. It was expected to apply this instrument to the whole population of the Language Teaching Centre (CEI) but it was not possible because they were in their last weeks of the semester and most of the groups just were waiting for the departmental test and no longer attended to classes.

5.3 Suggestions for future research

Taking as reference the results of this investigation in which it was found that not all the intelligences had a positive correlation with the use of ICT resources, it would be of interest for future research to make an analysis of the course and investigate if students have a training in the use of ICT as well as if teachers use technologies in their classes and if teachers know what the

multiple intelligences are and how to apply them. This is with the objective to know if some of these courses were designed to teach students using ICT according to their type of MI.

On the other hand, knowing that in this study data were collected through a semi-structured questionnaire in which it was found that search engines are the ICT more used by students as well as women are the ones who use more ICT. For future qualitative studies, it is suggested to use apart from the questionnaire other methods such as interviews that could allow students to describe and express what they feel at the moment of using ICT as well as express what they think about the use of multiple intelligences and the implementation of both variables which are MI and ICT in the learning process.

For future experimental studies, it is suggested for professors and investigators to take this study as a ground for knowing better the Multiples intelligences and ICT resources with respect of age, English level, gender and English skills in university undergraduates since according to the literature previously done there are no many studies done in the university level with these mainly variables. Moreover, it is important to make it crystal clear that most of national and international studies done just take MI or ICT resources individually but not together and they focused mainly in primary and secondary educational levels what means that this study could be one of the first that have focused on MI and ICT resources.

Furthermore, there are no studies that investigate about the multiple intelligences and the ICT resources at the University of Quintana Roo, having this as a reference, it can be said that this research was dedicated to analyze the use of these two variables at the moment of learning English, it can be suggested that more research needs to be developed in this area. In addition, it would be important to do other studies about the use of Multiple Intelligences in the classroom as

a tool for learning English as well as studies in the implementation of new technologies for learning purposes.

It is important to point out that education should be given and allowed to everyone without excuses, thinking in this, it is recommendable that some studies with MI and ICT resources must be carried out with impaired students or the ones who have disabilities to realize if results of the data analysis change or not since through the results of those studies teachers will be more empathy and will know more about their learners characteristics at the moment of teaching them.

In conclusion, the rise of new technologies has contributed to the universal access of education as well as the delivery of quality learning and teachers have developed more efficient education (UNESCO, 2014). Also the use of multiple intelligences in the class is effective because it creates more comfortable atmosphere by giving students an opportunity to think and gain information in the ways that are natural for them (Shatokhina, n.d.) . For that reason, it is expected that this study could be used as a reference to motivate students, professors and general researchers to investigate more about the benefits of implementing multiple intelligences and the ICT resources in the process of learning. In addition, the questionnaire applied to the participants of this study could be used by educators as a previous diagnostics to find out which are the resources that students use more at the moment of learning English as well as knowing which are the intelligences of each student. All is about seeing humans as their right measure. Humans are not just words and thoughts, also they are conformed by feelings, emotions, they live and they grow up in a determined historic time and they are influenced by a culture that covers them and gives them meaning to all the things they do and why they exist. (Colavito, 1995).

5.4 Pedagogical implications

This study is the first one at the University of Quintana Roo attempted to investigate the relationship between multiple intelligences and the Information and Communication Technology (ICT) resources at the moment of learning English. This study could be considered as part of empirical evidence related to the use of multiple intelligences and ICT resources in the process of learning a foreign language.

Language teachers can benefit from this study, they will find out important information about the advantages of using and implementing the ICT resources according to multiple intelligences. For instance, in this document they will find data about the most and least ICT resources used as well as what is the main purpose of using ICT resources. Moreover, they will find data about the most used skill as well as the most and least intelligence that can predominate in a group. In general, professors could use the results of this study to implement different teaching strategies and methods with the objective of motivating their students to use ICT at the moment of learning English. Furthermore, the results of this study will probably inspire would-be teachers of English to do more research about the use of multiple intelligences and the use of ICT that students could use to improve their English.

In the future through more experimental and qualitative studies in these topics, training guides on MI and ICT resources can be done in the area of teaching and learning English language, another languages or others subjects so that schools could take benefit and also they could change or adapt their educational model by adopting this.

Moreover, it is important to mention that although this study was focused on university level, this research can be useful and important for all educational levels including kindergartens, primary schools, secondary, college, university and higher levels since multiple intelligences and ICT resources can work at the same time and at the same moment in learning process without regardless to the educational level, the age and the English level. We are in the era where ICT resources are in the reach of our hands and multiple intelligences accompany us until the last day our lives. In short, multiple intelligences and ICT resources are part of us and learning experience become richer if we combine them with invisible learning, andragogy model, Meaningful learning theory, Bloom's taxonomy and Connectivism theory.

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APPENDIX A

Questionnaire

Hola compañero estudiante, el cuestionario está dividido en cuatro secciones. No existen respuestas correctas o incorrectas. La información obtenida con el cuestionario se usará exclusivamente con fines de conocerte mejor como estudiante. Es importante que tus respuestas reflejen lo que realmente haces, sean honestas y objetivas.

Instrucciones: Lee la oración y escoge una respuesta encerrando con un círculo el número (del 1 al 5) que más aplique.

1 = Nunca	2 = Casi nunca	3 = Regularmente	4 = Casi siempre	5 = Siempre

Sección I: Frecuencia de uso de las TIC (Tecnologías de la Información y Comunicación)	Nunca	Casi Nunca	Regularmente	Casi Siempre	Siempre
1. Uso computadoras y portátiles (Laptops).	1	2	3	4	5
2. Uso tabletas electrónicas (Tablets).	1	2	3	4	5
3. Uso procesadores de textos (Microsoft Word, WordPerfect, OpenOffice.org_Writer).	1	2	3	4	5
4. Uso programas de anotaciones de voz (Audacity).	1	2	3	4	5
5. Uso enciclopedias o diccionarios en línea (Wikipedia u otros).	1	2	3	4	5
6. Uso paquete de base de datos (Microsoft Access, Excel).	1	2	3	4	5
7. Uso software matemático (GeoGebra, WolframAlpha).	1	2	3	4	5
8. Uso juegos en línea (Cheeproblems “ajedrez en línea” u otros).	1	2	3	4	5
9. Uso editores de imágenes (Picnik, Photoshop, Paint).	1	2	3	4	5
10. Uso cámaras digitales.	1	2	3	4	5
11. Uso programas de presentaciones (Prezi, PowerPoint)	1	2	3	4	5
12. Uso motores de búsqueda (Google, Yahoo, Bing).	1	2	3	4	5
13. Uso programas de mensajería (Skype, Google Talk).	1	2	3	4	5
14. Uso el correo electrónico (Outlook, Gmail).	1	2	3	4	5
15. Uso blogs (Blogger, Blogia).	1	2	3	4	5
16. Uso foros de discusión en línea (El mundo, El país).	1	2	3	4	5
17. Uso programas de almacenaje (Dropbox, GoogleDrive).	1	2	3	4	5
18. Uso programas de videollamadas (Skype, Videollamada de Facebook).	1	2	3	4	5
19. Uso karaoke en línea (KaraFun, YouTube).	1	2	3	4	5

20. Uso audiolibros en línea (ZooBurst, Ivoox).	1	2	3	4	5
21. Uso software para tomar notas multimedia (Evernote, GQueues).	1	2	3	4	5
22. Uso programas de libros en línea (Ebook).	1	2	3	4	5

Sección II: Propósito de uso de las TIC en el aprendizaje del inglés. (Tecnologías de la Información y Comunicación)	Nunca	Casi Nunca	Regularmente	Casi Siempre	Siempre
Habilidad 1. Expresión Oral					
23. Uso creadores de podcast (Audacity, Gcast, Podomatic) para grabar audios de voz en inglés.	1	2	3	4	5
24. Uso programas de conferencia (Skype, Videollamada de Facebook) para discutir temas en inglés con otras personas.	1	2	3	4	5
25. Uso programas de almacenamiento de video (YouTube, Vimeo) para subir videos de mí hablando/cantando en inglés.	1	2	3	4	5
26. Uso karaoke en línea (KaraFun, YouTube) para cantar en inglés.	1	2	3	4	5
27. Uso los motores de búsqueda (Google, Yahoo, Bing) para consultar ejercicios en inglés que ayuden a mejorar mi habilidad oral.	1	2	3	4	5
Habilidad 2. Expresión escrita					
28. Uso los procesadores de texto (Microsoft Word, WordPerfect, OpenOffice.org_Writer) para escribir textos en inglés/realizar mis tareas en inglés.	1	2	3	4	5
29. Uso las redes sociales (Facebook, Twitter) para publicar puntos de vista o estados de ánimo en inglés.	1	2	3	4	5
30. Uso el correo electrónico (Outlook, Gmail) para comunicarme de manera escrita con mis compañeros/maestros.	1	2	3	4	5
31. Uso los programas de mensajería (Skype, Google Talks) para chatear en inglés con mis amigos.	1	2	3	4	5
32. Uso programas de gestión de tareas (Evernote, GQueues) para tomar apuntes en inglés.	1	2	3	4	5
33. Uso diccionarios o enciclopedias bilingües en línea para corroborar el deletreo de alguna palabra en inglés.	1	2	3	4	5
34. Uso programas de presentaciones (Prezi, PowerPoint) para hacer mis presentaciones escritas en inglés.	1	2	3	4	5
35. Uso los motores de búsqueda (Google, Yahoo, Bing) para consultar ejercicios en inglés que ayuden a mejorar mi habilidad escrita.	1	2	3	4	5
Habilidad 3. Comprensión auditiva					
36. Uso programas de almacenamiento de video (YouTube, Vimeo) para escuchar audios (conversaciones, canciones) en inglés.	1	2	3	4	5
37. Uso los creadores de podcast (Audacity, Gcast, Podomatic) para grabarme en inglés y después escucharme para mejor mi habilidad auditiva.	1	2	3	4	5
38. Uso audiolibros en línea (ZooBurst, Ivoox) para escuchar libros en inglés.	1	2	3	4	5

39. Uso los motores de búsqueda (Google, Yahoo, Bing) para consultar ejercicios en inglés que ayuden a mejorar mi comprensión auditiva.	1	2	3	4	5
Habilidad 4. Comprensión lectora					
40. Uso procesadores de textos (Microsoft Word, WordPerfect, OpenOffice.org_Writer) para abrir archivos en inglés y leerlos.	1	2	3	4	5
41. Uso diccionarios en línea (WordReference, OxfordDictionaries) para corroborar el significado de alguna palabra en inglés.	1	2	3	4	5
42. Uso programas para leer libros en inglés (Ebook, CoolReader).	1	2	3	4	5
43. Uso programas de almacenamiento (Dropbox, Google Drive) para almacenar textos en inglés y poder leerlos posteriormente.	1	2	3	4	5
44. Uso blogs para leer textos o noticias en inglés.	1	2	3	4	5
45. Uso los motores de búsqueda (Google, Yahoo, Bing) para consultar ejercicios en inglés que ayuden a mejorar mi comprensión lectora.	1	2	3	4	5

Sección III: Inteligencias Múltiples

Instrucciones: En el siguiente apartado hay 3 grupos de oraciones. Cada grupo/sección cuenta con 8 puntos. Enumera del 1 al 8 en cada grupo, de acuerdo a que tanto te gusta realizar la actividad mencionada en la oración. Donde **1 equivale a lo que más te gusta hacer** y **8 lo que menos te gusta hacer**. No puedes usar un mismo número más de una vez.

Ejemplo:

2. Me gusta escuchar diferentes puntos de vista.	**5**
3. Me doy cuenta de las distintas emociones que siento.	**2**
4. Me gustan los acertijos.	**3**
5. Me doy cuenta cuando un cantante o instrumento desafina.	**1**
6. Me gusta sembrar cualquier tipo de planta o vegetal.	**8**
7. Expreso fácilmente lo que siento y pienso por escrito.	**7**
8. Siempre distingo el norte del sur, esté donde esté.	**4**

Sección A: Enumera del 1 al 8 hacia el lado derecho de cada oración. **(1 lo que más te gusta y 8 lo que menos te gusta hacer)**

1. Me gusta vivir un estilo de vida activa.	
2. Soy parte de un equipo de trabajo.	
3. La justicia es importante para mí.	
4. Ser organizado me ayuda a tener éxito.	
5. Me gusta cualquier tipo de música.	
6. Tengo un sistema de reciclaje en casa.	
7. Llevo/escribo un diario.	
8. Me gusta construir rompecabezas en 3D.	

Sección B: Enumera del 1 al 8 hacia el lado derecho de cada oración. **(1 lo que más te gusta y 8 lo que menos te gusta hacer)**

9. Me gustan los juegos al aire libre.	
10. Aprendo más interactuando con otras personas.	
11. Los temas de justicia social me preocupan.	
12. Me desespero fácilmente con personas que son desorganizadas.	
13. He estado siempre interesado en tocar algún instrumento musical.	
14. Los animales son importantes en mi vida.	
15. Me gusta escribir por gusto/hobbie.	
16. Puedo recordar cosas en imágenes mentales.	

Sección C: Enumera del 1 al 8 hacia el lado derecho de cada oración. **(1 lo que más te gusta y 8 lo que menos te gusta hacer)**

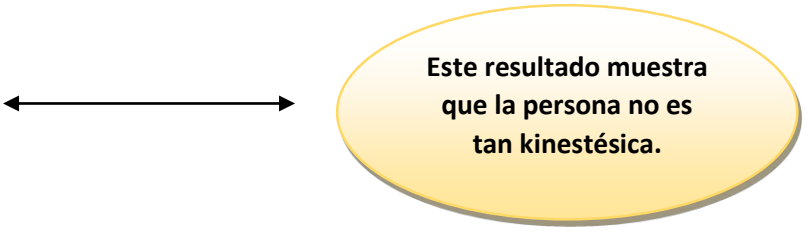
17. Me gusta trabajar con herramientas.	
18. Las actividades extracurriculares son divertidas para mí.	
19. Puedo aprender mejor cuando tengo una conexión emocional con el tema.	
20. Seguir las instrucciones paso a paso son de gran ayuda.	
21. Recordar letras de canciones es fácil para mí.	
22. El excursionismo es una actividad divertida para mí.	
23. Los idiomas (lenguas) me interesan mucho.	
24. Puedo crear ideas en mi mente.	

Mi puntaje

Instrucciones: ¡Ojo!, el siguiente apartado será llenado por los investigadores, es de suma importancia que pongas mucha atención en la sección anterior para que los investigadores puedan recabar tus datos de forma satisfactoria.

Ejemplo:

Kinestésica	
Punto 1	6
Punto 9	4
Punto 17	8
Total	**18**



Kinestésica	
Punto 1	
Punto 9	
Punto 17	
Total	

Interpersonal	
Punto 2	
Punto 10	
Punto 18	
Total	

Intrapersonal	
Punto 3	
Punto 11	
Punto 19	
Total	

Lógico/matemático	
Punto 4	
Punto 12	
Punto 20	
Total	

Musical	
Punto 5	
Punto 13	
Punto 21	
Total	

Naturalista	
Punto 6	
Punto 14	
Punto 22	
Total	

Verbal/Lingüística	
Punto 7	
Punto 15	
Punto 23	
Total	

Visual	
Punto 8	
Punto 16	
Punto 24	
Total	

Sección IV: Datos demográficos

Instrucciones: Para cada enunciado encierra o escribe la opción que mejor describa tu caso.

1. **Nivel de inglés que cursas actualmente:**

   a) Introductorio b) Básico c) Pre-Intermedio d) Intermedio e)Post-Intermedio

2. **Número de matrícula:**

3. **Género:** **a) Masculino** **b) Femenino**

4. **Edad:** **Lugar de nacimiento:**

5. **Carrera:**

6. **¿Cuantas horas te conectas a internet diariamente?**
   a) Entre 1 a 3 hrs. b) Entre 4 a 9 hrs. c) Más de _____ hrs.

¡Gracias por tu colaboración!