Perception of Secondary School Teachers on the Use of ICT Tools: Case Study of Amman - Jordan

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Submitted to the
Institute of Graduate Studies and Research
in partial fulfillment of the requirement for the degree of

Master of Science
in
Information and Communication Technologies in Education

Eastern Mediterranean University
September 2015
Gazimağusa, North Cyprus

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ABSTRACT

Information and Communication Technology (ICT) usefulness and continuous usage cannot be over emphasized, considering its adoption in the trending educational setting by teachers. The purpose of this research work is to analyze the secondary school teacher's perception on the usefulness of ICT and its usage. And this study further investigated on the teacher's perception on ICT use and other factors like, internet as a reliable source, social networks, work and ICT, security of internet, using of internet for building course content, other media etc., based on age, gender and years of experience of the participants. Questionnaires and interview questions were used for data collection from participants. The 40 chosen participants were all grouped and analyses based age, gender and years of experience. Descriptive analysis was done on the data gathered based on, t-test, ANOVA, frequencies, standard deviations and percentages. Analysis of the variables was done in other to detect the significant differences for the demographic features of participants.

The results of this study showed that the perception of secondary school teachers on the usefulness of ICT tools and its usage is relatively very high and there were strong relationships on the teacher's responses on their perception according to age, gender and years of experience.

Keywords: Perception, ICT usage, ICT tools, Case Study.

ÖZ

Information and Communication Technology (ICT) usefulness and continuous usage cannot be over emphasized, considering its adoption in the trending educational setting by teachers. Bu çalışmanın amacı orta okul öğretmenlerinin Bilgi ve İletişim Teknolojilerinin (BIT) faydaları ve kullanımı'na karşı algılarını belirlemektir. Öğretmenlerin BIT kullanımı ve güvenilir bir kaynak olarak internet, sosyal ağlar, iş ve BIT, internet güvenliği, ders içeriği oluşturmak için internet kullanımı gibi diğer faktörlere göre algıları yaşa, cinsiyete ve deneyimlerine göre ayrıca incelenmiştir. Katılımcılardan veri toplamak için anket ve görüşme soruları kullanılmıştır. 40 seçilmiş katılımcının tümü gruplandırılmıştır ve yaşlarına, cinsiyetlerine ve tecrübelerine göre analiz edilmiştir. Algı seviyelerini belirlemek için betimsel istatistikler, aritmetik ortalama, frekans, standart sapma ve yüzde cinsinden analiz edilmiştir. Değişkenli karşılaştırmalarda t-testi ve tek yönlü varyans analizi kullanılmıştır. Değişken analizi katılımcıların algı seviyelerinin demografik istatistikler açısından önem gösterip göstermediğini belirlemek için uygulanmıştır.

Bu çalışmanın sonucu, orta okul öğretmenlerinin BIT araçlarının kullanışlılığına ve kullanımına karşı algılarının oldukça yüksek olduğunu ve katılımcıların algı seviyeleri ile yaşları, cinsiyetleri ve deneyimleri arasında güçlü bir bağ olduğunu göstermektedir.

Anahtar Kelimeler: Algı,ICT kullanımı, ICT bilişim araçları, Örnek Olay İncelemesi

DEDICATION

This thesis is dedicated to my family, my parents who always valued education, have been loving, sacrificing, providing support and encouraging me in reaching this personal goal.

ACKNOWLEDGMENT

I would like to thank all my friends who have supported me throughout this work without their support, this work would not be a success.

I am grateful for the endurance and knowledge, supervision, encouragement and constructive evaluation of my supervisor Assoc. Prof. Dr. Ersun İşçioğlu. He has been my motivation from the start of this study, and helped me notwithstanding all my inconsistencies.

I would like to show my profound appreciation to my dearest friend Ilodigwe Udoka Tochukwu for his consistent and cherished support throughout the process of conducting this study.

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Chapter 1

INTRODUCTION

Currently, the problem of teachings has drawn the mind of numerous educationist and scholars from across various nations, who are concerned about tutoring at the advanced cadre of education. Conventionally, the nature of teaching institutions in higher levels, the descendant of the old-fashioned model, is that of the instructors' decision to choose; this led to a great absolute control or autonomy, linked to a pattern of instruction that is authority-based and corrective training. This pattern has unveiled itself to be closely effective in the context of the learner from an exclusive; but in a diverse and massified structure, it most frequently signifies a pure waste of time and resources (Santos S.M, 2001).

In recent past, it has been observed that a growing number of teachers gaining entrance into teaching profession. This phenomenon is a reflection of trend at the world level, which is greatly because of the civilization and crucial need for development of the community and society at large, the growth of living standards and structures, the demand for a much more greatly qualified performance in profession and citizenship, as in the paper by (Bento, Maria, Lia and Elias, 2003). It has, therefore, been witnessed that the modification either on quantity or quality in the teacher's population, showed a slow loss of the formal behavior of learners admitted from all interactive classroom setting (Soares & Almeida, 2002). Also the growth in labour market and of the society at large requires change in professional

and ethical competence and impartation of teachers profiles. Santos (2001), citing some investigations tackling this problem, sums this and saying that the requirement of a teacher is:

"Individual qualities (that contains brainpower, knowledgeable in a particular scientific area, having the zeal to continue learning all through their accommodating, personal control character and talents, individual inspiration and self-assurance); 2. Collaborating characteristics (like discussions, interacts with and carry out activity in a team and with colleagues)."

The civilization and democratization of teaching education and also the new requirements concerning instructor's skills and competence have produced prolific impacts in the modification of the teaching pattern. Referring to pedagogical patterns, it must grow towards learners-centered methodologies; this makes the learner an active participant in learning.

With this modification of pattern, it appears now very difficult to neglect the possibility and usefulness of ICT (Trindade, 2002). From the transformation from a universe of atoms to a world of "bits" (Negroponte et al, 1997) the world is experiencing the unveiling of an Information community as it advances via the technology networks, that permit people to know huge sources of information, interconnecting at a pace unobserved, linking to several regions of the world and declaring themselves not just as buyers of information and knowledge but as inventors and bases of the information and knowledge itself. As stated in the article to UNESCO (1996), of the International Commission on Education for the *Twenty-first Century,* this technology uprising clearly creates an important part in the

understanding of our modernism, as far as it produces novel systems of socialization and, both, novel descriptions of personal and combined identity (UNESCO, 1996). So many foreign bodies, with reference to UNESCO, showed concern to the influence which the ICT may have in the reformation of the pattern and structure within the educational system and also on the patterns of teaching and learning process.

As it is generally known that ICT has an invaluable usefulness in the field of education, it is mostly appraised to be a catalyst for modifications, modifications in teaching styles, modifications in learning approaches and also in the access to information (Watson, 2005). ICT is seen as a tool that provides access to information. ICT usage has modified our traditional way of learning and proffers the importance to re-evaluate education in terms of a more recent context (White, 2010). ICT potential is important to involvement, contribution and participation in recent information society. It is used to discover, build, evaluate and present information, and also model situations and proffer solutions to problems. ICT enables rapid access to ideas and experiences from a wide range of people, communities and cultures, and allows teachers to collaborate and exchange information on a wide scale. Education is the most important and first prioritized area for ICT applications as it can help in providing alternative chances for education. The importance of ICT in education is to holistically acquaint teachers with the application and adaptation of computers and related ethical and social issues. ICT has also greatly enabled general acquisition of knowledge via multiple intelligence as ICT has created learning through games simulation; these encourages active and participatory learning through senses (Gateway, 2010).

The use of ICT is now inevitable for teachers during teaching. By using modern Information Communication Technologies, teachers 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 teaching by using different modern ICTs in form of wireless networks, internet, search engines, databases, websites and web 2.0 technologies (Rubina Shakeel et al. 2011). Various instructors most especially in the research field, i.e. doctorate program tend to use some various ICT integrated course-work, research work, presentational materials at the duration of their program. The aim of this study is to investigate secondary school teacher's attitudes towards ICT and their general use of ICT for teaching, and also to investigate if the teacher's age has an effect on her attitude towards ICT use.

The pattern of modification, whereby the inclusion of the ICT supports in teaching institution, influences not just learner but the instructor as well. The two parties are expected to communicate in divergent surroundings and topics, to distribute experiences and information, other to develop novel affiliations, to create and dissect knowledge, recreating it inside novel spaces, in several different thoughts with novel form of composition. The pedagogical plan contains a thorough modification to be carried out, in not just a way learning takes place, but also in the custom of thought and of information (Bento, Maria et al. 2003).

Adoption of Internet is speedily growing as a result of its usefulness and capability in ensuring proper information the user at a proper time. It is functional at every point in time while linking all parts of the universe together. It is now an unavoidable necessity for all institutes of higher education teachers (Thanuskodi, 2011). Revolution of information technology in the world has affected all the professions of

humanity. As a result of electronic technology the entire universe is now a global village. Specifically, internet has altered the whole universe. Internet has influenced behavioral nature of social researchers and investigators in finding information.

In extending education and bring up-to-date of information internet has manifested an important role in such part. Internet has produced alterations in the idea of library (Bhatti, 2013). Internet usage in the pedagogical environment has sustained stress-free access to various educational contents. Furthermore, the manifestation of this distribution led to added importance, so therefore; these resources can be adopted anytime anywhere. The impact of the Internet in pedagogical institutions is, somewhat restricted. It is necessary finding the impacts of Internet resources adopted by college teachers. Internet adoption, specifically in education, has been examined for quite some time, and several findings occur in research works concerning such matter.

Presently, the main adoption of educationally ICT tools have been to convey ICT assisted instruction, including drill and practice programs, computer-based tutorials and also more currently, intelligent tutoring systems (Williams et al. 2006); these ICT educational tools are adopted in schools to “teach” learners. The major known pattern of ICT tools usage is in practical programs specifically on mathematically or experimental courses. All these practices are centered on behaviorist philosophies about the strengthening of stimulus-response connections.

Information and communication technologies (ICT), mostly computers and telecommunication networks, may be adopted as a means for improving the learning skills. ICT educational applications have been modified or advanced to simplify

critical thinking and higher-order teaching perspectives. These tools empower teachers to symbolize and express their knowledge and objectives to learners. By so doing, learners behave and act as creators of artifacts. They build knowledge bases, expert systems and multimedia presentations that represent personally relevant and meaningful knowledge, engaging them in higher-order, mindful thinking and learning (Schacter1999). Educational technology tools most at times tried to do teaching job, acting like an instructor and as well guide learning process.

When a teacher adopts ICT educational tools, an intelligent relationship amongst the teacher and such tools is built, to a point where it increases the teachers' skills. ICT tools that are cognitive based design are built to make students reason stronger on the subject matter studied if adopted properly by instructors, while breeding thoughts that would be impossible without the tool (Schacter1999).

It has been a whole problem of thought on the influence of ICT on daily occupation and the lives of our families. Pew Internet and American Life Project presented that, on the point of Apple's revealing of the iPhone 5, 45% of adults in America possess smartphones, this shows a 10% growth. Also, smartphones are mostly seen with young adults and ones living in higher profit households; more than average of those ages 18-29 possess smartphones, and 68% of those existing in homes earning $75,000 also possess them" (Judi et al, 2012).

Judi et al, (2012), further stated that ICT at work is no more a thing we do at a particular time or place, she posited that work can be carried out anywhere and anytime. She further quoted that ICT obstructs the boundaries amid home and work

and can adversely influence workers and their obligation to their organizations, as well as their companions, and kids.

A 2010 research study discovered that more common usage of ICT (computer, email, cell phones, Internet) results in being more active at work, but also creates growths in work burden and the speed of work demands. In a succeeding research study, 83% of workers showed that ICT escalates productivity, but 53% describe bigger stress levels. Nicholas Carr in one of his write ups *'Is Google Making Us Stupid?'* stated that constant usage of internet construes with carrying out works and activities properly and also it reduces our ability to read anything longer than just a few paragraphs.

Also, in as much ICT seems to appear very appealing, Lovelass (2003) in his study unveiled that various instructors are stating the need to keep pace with newer ICT educational tools. In other words, stating that an ICT rich educational setting or environment also has setbacks. Nevertheless, these perceptions were rightly altered as the access and practices increased. Information and communication technology do not enhance assimilation or learning on its own, but the inclusion inside the institution's core curriculum and program will be profitable in attaining learning achievements (Sutherland et al., 2004). Incorporating ICT tools into institutions would happen only with significant monetary investment. Honey, and Mandinach et al. (2003), lists several hypotheses to enable ICT futuristic earning plan. Firstly, ICT tools are gadgets to solve issues in classroom settings. These adoptions involve evaluating learner information, enlarging nearness to information resources, and influencing innovative ways of displaying content/material and writing. Secondly, ICT supports modification. It helps in ability of reviewing teaching patterns,

supplement content and involve learners. Thirdly, ICT is a fundamental motion in finance competitiveness. ICT knowledge is very important as learners departs the pedagogical setting and ventures into the world of work. As ICT inclusion prevails in institutions, modification in the way learners are tutored is needed (Mandinach et al. 2003). Mandinach et al. (2003) states various suggestions related to the other ideas, he admonishes for ICT promotion and instructor training. Also, he lists the importance for needed investigation in this field. If ICT is adopted in teaching and learning setting, then teachers must understand its influence on education.

ICT inclusion into institutions does not happen over one night; it takes through processes. The head of Forum of Educational Technology (2000) proposes four stages of ICT inclusion for institutions, which are like an entrepreneur plan. At first, institutions checks, evaluates and hypothesizes with ICT. Secondly, institutions carry out a pre capital investment. Thirdly, institutions realign to the ICT trends so as to increase its adaptation and efficacy. This at times is the stage at which most institutions presently dwell. The last stage is the beginning of links and business plans needing a novel flexibility of intellect. The various kinds of ICT that is included in the teaching and learning setting are based under the common list of ICT. This includes ICT tools like computer machines, CD-ROMs, e-mail, web, e-learning, distance learning, PowerPoint presentations.

Proper inclusion of information and communication technology has the ability to promote pedagogical settings (Sutherland et al., 2004). ICT on its own do not improve assimilation/learning, rather it can enhance novel patterns of pedagogy (Kirkwood & Price, 2005).

The Ministry of Planning and International Cooperation (MoPIC) Jordan, in her report (2010), made unusual determinations to apply ICT in schools, where computer labs had been in effect in government schools and concurrently fortified with computers, Internet lines, and terminals such as printers, scanners and data show. The MoE report (2011) further states that she generated the e-learning portal (EduWave) that allows all end-users to interact effortlessly via conversation mediums, chat, online-exams, e-mail and others ,and boost better schooling by initiating the several online-content topics, such as Math, Arabic languages, Science, English and, IT, Civic and Health Education. The MoE has also started coaching computer in 2000 for levels 7-11, MoE was ardent on boosting all instructors to join the ICDL, Intel Teach to the Future, and Word Links professional development programs, and it has presented allowances to some instructors to acquire the ICT Diploma or Master degree in education.

The Ministry of Planning and International Cooperation, (MoPIC) Jordan, report (2010) signified that she has established the National Broadband Network Program (NBN Program) that supports in growing Jordan educational system by developing ICT diffusion in universities, community colleges, schools and learning institutions all over the kingdom .This high speed, fiber-optic based network is projected to connect nearly 20% of Jordanian schools by 2011.

In a project consisting of a study population of all public, private and UNRWA schools in Jordan, about (4610) schools excluding the kindergartens ones; with a quantitative study sample comprised of (135) participants of the study population that are made up of the school principals, teachers, students and also parents titled "ICT Use and Diffusion in Schools in Jordan" (2011), conducted by the Ministry of

Education and Ministry of Information in Jordan, conveyed some key result, which are: that about 14% of schools possess their own websites, 86% of schools in Jordan possess internet connection, whereby the broadband internet connection has the highest ratio, also the greatest challenge the schools faced where slow pace of internet connection and the eruption of other technical issues during web quests and internet surfs, also that 76% of schools in Jordan have at least one landline phone, 85% of the whole school possess at least one computer laboratory, the ratio of students to computers at the Kingdom's level was approximately 14 students per pc. The highest ratio was in UNRWA's schools, 77% of the teachers working in the respondent schools have their own pcs, 41% of them can surf the Internet at home, and 57% of them use their own emails.

Amman the capital of Jordan happens to be the case of this study. It was chosen as the case because of the evenness in the spread of secondary school across its zones, and well developed and quality standard secondary school with quality teaching personnel are based as workers also in such schools in the city.

1.1 Aim of the Study

The aim of this thesis is to investigate secondary school teachers' attitudes towards and use of ICT educational tools in Jordan Amman secondary schools.

1.2 Research Questions

The research questions of this study are below:

1 How are secondary school teachers' attitudes toward and in use of ICT?

1.1 Is there any relationship between secondary school teachers' attitudes toward and in use of ICT and their gender, age and years of experience?

1.2 What are the secondary school teacher's perception on the usefulness of ICT to work?

1.2.1 Is there any relationship between secondary school teacher's perception on the usefulness of ICT to work and their gender, age and years of experience?

1.3 What is the secondary school teacher's perception on the reliability of information gotten from internet?

1.3.1 Is there any relationship between the secondary school teacher's perception on the reliability of information gotten from internet and their gender, age and years of experience?

1.4 What are secondary school teacher's view on Social networks?

1.4.1 Is there any relationship between the secondary school teacher's view on Social networks and their gender, age and years of experience?

1.5 What are secondary school teacher's opinions on the security of internet?

1.5.1 Is there any relationship between the secondary school teacher's opinions on the security of internet and their gender, age and years of experience?

1.6 What are secondary school teacher's opinion on the difficulties in using internet?

1.6.1 Is there any relationship between the secondary school teacher's opinion on the difficulties in using internet and their gender, age and years of experience?

1.6 What are secondary school teacher's view on the importance of using internet when preparing course objectives and contents?

1.7.1 Is there any relationship between the secondary school teacher's view on the importance of using internet when preparing course objectives and contents and their gender, age and years of experience?

1.8 What are secondary school teacher's view on other media and internet?

1.8.1 Is there any relationship between the secondary school teacher's view on other media and internet and their gender, age and years of experience?

1.3 Importance

The importance of this thesis is that it will help in the attainment of purpose related to collaboration in work between and amongst secondary school teachers in Jordan secondary schools, and also to get knowledge and information concerning the feasibility of adopting these ICT tools in Jordan secondary schools in the diverse teaching methodology, from educational support point of view.

1.4 Limitation

This paper could not cover all teachers in Jordan. Also this study was hindered by the turn out in response from targeted sample.

1.5 Key Terms

Information and Communication Technology (ICT): it is a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information (Venezky, 2004).

ICT usage: The potential of each technology varies according to how it is used. Haddad and Draxler (2002), identify at least five levels of technology use in education: presentation, demonstration, drill and practice, interaction, and collaboration. Each of the different ICTs—print, audio/video cassettes, radio and TV broadcasts, computers or the Internet—may be used for presentation and demonstration, the most basic of the five levels. Except for video technologies, drill and practice may likewise be performed using the whole range of technologies. On the other hand, networked computers and the Internet are the ICTs that enable interactive and collaborative learning best; their full potential as educational tools will remain unrealized if they are used merely for presentation or demonstration. (Haddad and Draxler 2002).

ICT tools: They are any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form, e.g. personal computers, digital television, email, robots, phones, etc. Pitt (2005).

Perception: (From the Latin *perceptio*, *percipio*) is the organization, identification, and interpretation of sensory information in order to represent and understand the environment. (Tower 2014).

Chapter 2

LITERATURE REVIEW

The information and communication technology revolution is sweeping through the world and the gale has even caught up with developing countries like Jordan. Information and communication technologies have introduced new methods of teaching and conducting research and have been brought into education facilities for online learning, teaching and research collaboration.

This chapter aims on written pattern in researching published materials or information on the related topics to this title work. This validates the novelty on this new research area and will further be based on as a background for this thesis work.

2.1 ICT and Education

The quick universal ICT development and profitable development bestows huge share into pedagogy. These days, coupled with the increment ideas and knowledge, development of ICT together with universal issue, the discipline ‘education’ turns into a focal point and most puzzling, because it needs novel thoughts and strategies together with ICT acclimatization to cope with traditional alterations. Instructors are users, and therefore should learn and put novel ICT tools into their teaching and learning settings. The adoption of instructional technology tools in institution is vital for the advancement of profitable and societal revolution internationally (Leach 2008, and Kozma 2005). There is significant proof that ICT support an excellent pedagogy and effectual educational setting both for the learner and instructors

(Berhane 2012). One part of progressing technology in institutions is ICT. Any kind of technology found in interaction, connections and information commonly lies within the coverage of ICT. They might be web quest, CD-ROMs, internet and e-learning/distance learning; all of them starts by using PC (Lockard & Abrams, 2001). Information and communication technology obviously is found available in teaching and learning settings, and so many investigations have analyzed ICT importance and setbacks. For the past years, there is an increasing increase in ICT adoption in institutions; instructors are met with the compulsion of including ICT in useful manners. In this research work, ICT can be seen as electronic equipment and materials which enhance and create interactivity and inter connections in an educational setting. (Agyei and Voogt, 2012, Chai et al., 2013; Mudzimiri, 2012) once stated that, one cannot enter a into a classroom without finding computers in it, in countries like United States of America, United Kingdom and other European countries. Most institutions have moved from the usual white and black to an electronic interactive smart board, therefore, ICT has a usual position in a classroom setting (Weimer, 2001). Consequently, the views educators have has changed so fast from the traditional classroom mindset. In the middle of these enhancements, most of the instructors are frightened by the introduction of ICT. Most instructors keep an uninterested attitude at the adaptation of ICT and at that, may see it un-useful for adoption in teaching process as a result of the unstable and blurring nature of ICT as mentioned by Koehler and Mishra (2009) and also as a result of the implication of alteration. Recently, to adopt ICT or not in pedagogy is no more a pertinent case to be thought about compared to newer issues. For instance, including current ICT tools into work, choice of ICT for teaching, proper ICT selection, assimilation technique to encourage ICT (Agyei and Voogt, 2012), understanding the effect of ICT on

teaching and learning process and ways to improve ICT educational instructional content and teachers perception on ICT tools are the flourishing sectors of research with more usefulness in different aspects (Chai et al., 2013).

The primary aim why ICT is not adopted is improper access to hardware machines and no practical and technical help. Many few instructors are scared of ICT educational tools immediately they observe the propitious nature of it, but for the past years, this importance which have been frightening have been surveyed and investigators have listed various condiments needed for the progressive inclusion of ICT into pedagogical settings. (Agyei and Voogt, 2012, Chai et al., 2013; Koh et al., 2013; Mudzimiri, 2012).

Also, in as much ICT seems to appear very appealing, Lovelass (2003) in his study unveiled that various instructors are stating the need to keep pace with newer ICT educational tools. In other words, stating that an ICT rich educational setting or environment also has setbacks. Nevertheless, these perceptions were rightly altered as the access and practices increased. Information and communication technology do not enhance assimilation or learning on its own, but the inclusion inside the institution's core curriculum and program will be profitable in attaining learning achievements (Sutherland et al., 2004). Incorporating ICT tools into institutions would happen only with significant monetary investment. Honey, and Mandinach (2003), lists three hypotheses for ICT futuristic economic returns. Firstly, ICT tool is a device that solve issues in classroom settings. These adoptions involve evaluating learner information, enlarging nearness to information resources, and influencing innovative ways of displaying content/material and writing. Secondly, ICT supports modification. It helps in ability of reviewing teaching patterns, supplement content

and involve learners. Thirdly, ICT is a fundamental motion in finance competitiveness. ICT knowledge is very important as learners departs the pedagogical setting and ventures into the world of work. As ICT inclusion prevails in institutions, modification in the way learners are tutored is needed. Culp et al. (2003) states various suggestions related to the other ideas, he admonishes for ICT promotion and instructor training. Also, he lists the importance for needed investigation in this field. If ICT is adopted in teaching and learning setting, then teachers must understand its influence on education.

Proper inclusion of information and communication technology has the ability to promote pedagogical settings (Sutherland et al., 2004). ICT on its own do not improve assimilation/learning, rather it can enhance novel patterns of pedagogy (Kirkwood & Price, 2005). In other to attain this, Furr et al. (2005) proposes that ICT should be seen as a path to get to a goal. It is a kind among the numerous ICT tools adopted in teaching and learning settings to support instructions.

2.2 Information and Communication Technology, Usefulness and Setbacks

In this part I will present the different authors' views as well as their studies on the usefulness and setbacks of ICT.

2.2.1 Usefulness

Information and communication technology adopted in teaching and learning settings gives numerous gains as it produces a quality assimilating surrounding (Heide & Henderson, 2001). Due to the old dated research, The Apple Classroom of Tomorrow stated numerous gains of pedagogical ICT tools in the teaching and learning setting (Apple, 1995). By the end of the initial research year, in the later part of 1980, they

proposed the subsequent results measures: learners were doing good on tests, learners effectively wrote very well, and learners completed study units before schedule. More so, the freight of learner segregation that some had talked about concerning ICT never hold onto these learners. Instead, learners cooperated more and were more passionate in the use of ICT. Dwyer (1994), stated a conclusive report of the numerous assimilated via Apple Classroom of Tomorrow project. First, ICT influence learning by motivating various types of discussions. The classroom migrates from an instructor-centered to student-focus, and the learner migrates via becoming a hearer to becoming a coworker in creating knowledge. Also, ICT involves learners to brainy tasks with higher activity need. This is achieved via challenges resolving undertakings or practices and actual life tasks. Lastly, ICT makes instructors to disbelief the suppositions of conventional teaching and learning. Driscoll (2002), recommends four ways by which ICT can enhance assimilation. Firstly, assimilation happens in context, and computer machines simulations can bring real life kind of settings to enhance learning easily. Secondly, assimilation is real and imaginative software will significantly support this real education process. Thirdly, education is an interactive act. ICT adoption most times requires discussions between colleagues to attain a desired goal. Lastly, learning is insightful. By this, ICT can improve learning by supporting responsiveness and interaction within and outside of teaching and learning setting.

Tutors regularly adopt ICT tools since they recognize the importance for the student (Demetriadis et al., 2003); nevertheless, tutors themselves also might profit from ICT tool adoption. It permits the improvement of teaching, the interpretation of managerial responsibilities, and the advancement of certified progress.

Abik and Ajhoun (2012), stated that ICT advancement has brought different learning patterns, like E-learning – adopting electronic, multiple media technologies and the web to increase the standard of assimilation and provide a good assimilation experience by enhancing means to materials via distance collaboration, mobile learning – adopting mobile technologies to enhance learning. This type of instructional assimilation happens when a learner is not fixed in a particular setting.

Mudzimiri (2012) pointed that ICT is adopted in pedagogy in diverse ways and it can be named in two parts, which are: cognitive and productive adoption. ICT tools are adopted in the productive parts if the channel like databases, word processors, power points, and other diverse types of multiple media are adopted to improve learning. While ICT can be adopted in the cognitive aspect when it is applied as a channel to complete tasks that travels the mind; for example, multiple media discussions (a process that stirs live scene) can be added to learning to encourage teachers teach ideas that appear too unclear or occurs very quick and cannot be shown traditional classroom. Manipulatives virtual are adopted to discuss numbers that are not whole numbers, investigate patterns of numeric and also do some mimicking that would be difficult to do using the brain.

In different parts of pedagogical settings, we have hardware (which are parts that builds the computer) and software like programs that with email features and Ms. Word processors (Koehler et al., 2008) that the teacher can rely on so as to produce efficient and effective educational settings.

Ajhoun and Abik (2012) stated that, inclusion of ICT into assimilation approaches have unveiled novel opportunities and trends of learning, these have worked as a

channel of interaction and distribution of educational objective contents, but if the proper inclusion and integration of education and objective content then there will be no good and exceptional outcomes. So therefore, ICT should be seen together with education and objective content for proper assimilation results.

2.2.2 Setbacks

There are numerous influences that constrain the use of ICT tools into teaching and learning settings instruction. Most issues are institution base (interior) whereas most are communal base (exterior) and instructor's private concern. The influencing issue might not be the same, but these issues disturb the adoption of ICT tools directly or incidentally in a large manner. Investigators recognize these issues as non-manipulative, manipulative and instructor issues. Non-manipulative denotes to the issues, such as age, teaching experience, computer experience, government policy and the availability of external support; while the manipulative issues denotes instructors' perception concerning the adoption of ICT tools, instructors' knowledge and skills about ICT tools, and institution pledge for operation manner (Strudler and Wetzel, 1999).

Although pedagogy ICT tools grasp various importance, it likewise holds constraints. White et al. (2002), thus said that a deficiency of practical backing is the most important hurdle using technology tools. Wood et al. (2005), investigated instructors' observed obstacles to operational ICT tools classroom adoption via investigations and focus assemblage deliberations. This was done by picking randomly of 144 instructors from an average-sized Canadian metropolis. They discovered the existence/deficiency of sustenance was the problem majority deliberated by secondary class instructors. The necessary backing involved resources, web, software, and tutoring. It likewise involved individual assets like ICT tools engineers

and librarians. The next utmost major concern deliberated by instructors' concerned education. The instructors measured anticipated teaching on efficiently incorporating ICT tools into their lessons techniques. The third concern deliberated by secondary instructors was learner differences like their drive, talent, and features. Wood et al. (2005) stated a view of an instructor also that is well-informed and enthusiastic concerning technological tools can turn into a promoter on behalf of other instructors to start integrating technology tools inside his/her personal teaching scene. In all, preparing important instructors in technological tools adoption is an opportunity of decreasing the hurdles of ICT usage.

Related to the ICT tools restrictions stated by Wood et al. (2005), Iding et al. (2002) testified through a study investigation that various instructors were uninformed of software's accessibility, while some are worried with the period needed to control it appropriately. They showed that ICT tools, like producing internet pages or PowerPoint, includes a significant extent of period by some instructors. Nevertheless, several instructors state that the early period costs the investment since technology tools adoption come to be stress-free soon enough (DenBeste, 2003). Wellington (1999) showed related replies from chemistry instructors that were interrogated concerning hurdles in executing hypermedia ICT tools. These involved deficiency of practical sustenance, deficiency of amenities, practical difficulties, deficiency of instructor self-assurance, and period. Briefly, instructor teaching is the central constraint to technological tools, and through proper specialized advancement and instructor cooperation this will be resolved.

2.3 Instructors and ICT

Lately, the subject of pedagogics has enticed the responsiveness of numerous researchers and scholars from diverse nations that are concerned in education at the stage of advanced schooling. Conventionally, the pattern of educational institute in advanced pedagogy, the successor of the primitive plan, is static on instructors' liberty to options, aggregating nearly to their utter Independence, linked with a system constructed on authority and corrective coaching (Maria, Bento, Lia, Elias 2003). In this alteration of pattern, it is now difficult to overlook the possible of ICT tools, and particularly that of the web (Trindade, 2002). On the modification from a universe of atoms to a universe of "bits" (Negroponte, 1995) the world spectates the arrival of the knowledge community while its growth via the increase of PC machine links, that permit residents to right to use massive sources of information, collaborating at a swiftness not observed previously, linking to any part on the earth and declaring themselves not only as users of data and knowledge but likewise as the inventors and cradles of that particular data and knowledge itself.

Similarly, in as much ICT tools looks very interesting, Lovelass (2003) in his review revealed that several teachers are declaring the necessity to retain speed with new ICT pedagogical tools. Furthermore, declaring that an ICT tools quality pedagogical venue or setting also has hindrances. Nevertheless, these perceptions altered rightly with improved entrance and training. ICT by itself cannot enhance education, but its blending with the syllabus will accomplish education achievements (Sutherland et al., 2004). This inclusion needs determination and interval; hence, instructors should have and a right perception at using ICT in a teaching and learning setting in other to avoid the instructors frustration from wrongly affecting its execution (Albirini, 2006; Demetriadis et al., 2003).

Though the status of technological tools in the teaching room appears favorable, instructor preparation must be sustained and sufficiently applied to guarantee its accomplishment. Technological tools backing is the core concern described amongst instructors (Brown, 2003; Demetriadis et al., 2003). This decision is illustrated in an investigation by Wood, Mueller et al. (2005). They interrogated secondary instructors on observed hurdles to adopting technological tools in their teaching setting. The main subject discovered was backing problems that involved resources, individual assets, trainings, and managerial support**.** Instruction problems like teaching, talents, and syllabus appears to be a general issue. More so, numerous instructors declared to be itchy with most technological tools. Likewise, Brown (2003) unveiled that the calculated perception of instructors concerning ICT tools improved with training, and persons who restricted technology tool adoption appeared to be individuals who don't have competence. Voogt et al. (2005) established necessity for instructors to understand pro-active ICT tools practice to guarantee positive execution in school settings. Obviously, practice is vital for instructors to be self-assured in adopting educational technological tools.

For ICT tool incorporation to happen, Wellington (1999) recognized numerous important parts required to encourage ICT tools adoption in institutions. These contain contact, practical backing, and a right perception of the instructors.

Zhao and Cziko (2001) investigated instructors' execution of technological tools. Their study revealed that for instructors to integrate technological tools into teaching rooms, they need to trust that a portion of technological tools will be operational at accomplishing a stated educational objective and so as not to bring commotion in the practice. After institutions have financed ICT, Zhao and Cziko discovered that

instructors need to hold onto the technological revolutions so as for technology to thrive.

As instructors adopt ICT tools they also should readjust and also increase their instructional techniques (Sutherland et al., 2004). Wheeler (2001), an instructor's part alters with technology tool adoption. As such, instructors cannot uphold position with the evolving technology tools. An important motive is that the resource alters. ICT tools common in today's teaching and learning settings, such as blackboards, may rapidly turn out to be outdated. He maintains that instructors should be inventive by discovering several usefulness and purpose of use of technology, for it can change the idea of an instructor area of concentration. For extreme ICT efficiency, Sutherland et al. (1993) considers an equilibrium should occur among entire level and personal ICT adoption as it is the personal communication with ICT that uplifts learners.

Effective ICT execution is dependent on specialized advancement (Venezky, 2004). Iding, Crosby and Speitel (2002) found recommendations from instructors concerning institutions role in assisting instructor passion in PC usage. The major recurrent reply was that institutes should make available workspaces and in-service preparation. Nevertheless, numerous institutes Venezky (2004) investigated all over the globe, he established that specialized growth regularly is not planned in institutes. Institutes that executes preparations discovers the process a success in upholding ICT adoption by instructors. For instance, in an institute instructors can get help from each other. In a different study, a central cluster of instructors were taught of ICT tools, and they helped fellow instructors with technological. Several institutes established training worker on jobs for growth. These agendas permitted

technological adoption to grow for instructors were trained on technological abilities and approaches for mixing ICT with education. These results got announced by White (2002) when he described that novel ICT tools needs appropriate practice to thrive in. Investigation shows also that practice requires modification as instructors are skillful in technological operations. Either practical or educational backing is needed as instructors increase in ICT tool usage in teaching and learning setting (White et al., 2002).

There is considerable proof that ICT encourage a excellent education and effective teaching- learning atmosphere for both a learner and instructor. Numerous investigation studies show that ICT offers enlightening prospects and environmental readiness for teaching and learning instruction. More fundamentally, ICT plays a superior role in producing of knowledge and dispensation of information for issues resolving and extra examination. Nevertheless, it remains to be seen how teachers use, integrate and invite students to learn, access, gather, process, analyze, transmit and simulate information. The usage of ICT into classroom instruction is a more practical, interactive and innovative aspect rather than theoretical.

It's dominant device that permits practical setting and helps new methods of training and learning, and aids learners to grow knowledge and skills for teamwork, interaction and problem solving. The adoption of ICT tools into teaching rooms instruction, nevertheless, remains as a only part of instructors (Voogt et al, 2005).

2.4 Related Research

Since ICT became integrated into pedagogy or educational settings, numerous investigational studies have been carried out regarding teacher's perception towards

ICT inclusion into instructional contents, teaching and teaching methods. This segment of this research work enlists the summary of various investigations and their results.

Yang and Huang (2008) piloted a study titled, "Internet Use by Pre-service Instructors in Elementary Education Instruction" which investigate the approach of pre-service elementary instructors towards internet use, internet self-efficacy, and internet perturbation and their relationship. The respondents of this analysis were all elementary pre-service students admitted in Core College of Education courses at Idaho State University during 2008. Some questionnaires were distributed to 98 students' during regularly plan class time and a total of 71 responses were obtained. The innuendo of the findings proposed that an early and frequent use of the internet across the instructor education curricula was beneficial in encouraging students' internet use and self-efficacy.

Zhang and Deng (1999), in his paper titled "Scholarly Use of Internet-based Electronic Resources," made an attempt to know how instructors use, cite, and evaluate e-resources during the research. Three methods were used to collect data samples for the investigation (a) a longitudinal analysis of e-journals from 1991 through 1998, (b) a survey of editors of the eight journals; and (c) a survey of 201 authors with articles to be published in the eight journals. The resulting of the study shows that there has been a remarkable increase in the number and amount of authors who cite e-resources in their research papers above an eight year period but e-sources were still cited much less often than print sources. E-resources are progressively used among instructor and also becoming an important module in their researches.

Congruent to the National Center for Education Statistics (NCES, 2005), the percentage of government colleges that has web accesses shoot up from 35% to 99% from 1994- 2002. In recent, most instructors deliberate parts of ICT fundamental to their day-to-day activities. NCES (2005), testified that 68% of instructors considers electronic mailing is compulsory, and 61% have confidence in that web linking in teaching and learning settings is needed for teaching and development. This result, also was perceived in a nationwide study of ICT cultured instructors.

Numerous studies tell that instructor's characteristics play a more role on the use of ICT. Instructor characteristics speak of the educational level, teaching and computer experiences, age, gender, and financial position. Another study by the National Center for Educational Statistics (2005) stated that instructors with smaller amount years of teaching experiences make use computers than instructors of extensive teaching experience. The report measured it this way: instructors with three or less teaching experience make use of computers 48% of their time, four to nine years of experience make use of 45% of their time, ten to nineteen years of teaching experience make use of 47% of their time and instructors with additional 20 years of teaching knowledge use computers only 33% of their time (Collis and Jung 2003). The researcher debated these result with the focused group discussion of East African scholars. Some point out that it strength be due to age; while some describe that due to one's confidence experience. They further reported that old teachers are technophobic towards the use of computers and some teachers because of their beliefs system consider the use of computer as a sin.

They additional reported that instructors have a positive insight on the use of ICT, but the obtainability and accessibility of ICT possessions, such as hardware, software

and communication infrastructure are incomplete. If there are some ICT possessions in a school, they are only inadequate to an office use. An informant reported that in East Africa, let alone ICT possessions, even some schools in the rural areas they don't have sufficient chairs, blackboards and pure water, and besides instructors' welfare and optimism is also very low. As significance, instructors are looking for part time jobs to lift their wellbeing mainly from Somalia, Eritrea and Ethiopia, and also some migrate to western countries to progress their lives.

Moseley *et al.* (1999), in an investigation of lower level colleges instructors are recognized to be attaining both normal or beyond normal improvements on actions of virtual accomplishment by learners, engrossed on educational adoption of technology. A tricky image was arranged that is tough to portray efficient instructors adopting technology. Instructors were reinforced in developing trainings to be literate in ICT. The plan discovered interconnection among instructors' thought on coaching manners or activities within the teaching and learning settings and learners' knowledge achievements. The study showed primary characteristic for the most efficient instructors was the usage of efficient enlightenments. Studies revealed that instructors adopts samples and revert-samples and integrated learners in explanation and exhibition to teaching settings. Instructors who favored technology were more expected to possess good-advanced technology abilities and also to view technology to be a vital device to education. Instructor are probable to appreciate cooperative activity, questions and learners judgment.

A study outcome and progress task that examined efficient education blended with technology in mastery and proficiency in lower colleges (Moseley *et al.*, 1999) offer samples of instructors' performs and the intricacy of adoptions that instructors do in

determining ways and tine to adopt technology in fortifying their coaching. Now, numerous classes of lower levels in colleges still just possessed steady contact to few PCs, and this affect the options instructors could brand concerning adopting technology. Moseley *et al.* (1999) adopted pre- and post- homogeneous assessments in monitoring developments in learners' achievement. Parts of the advance effort include an investigation of the relationship amongst instructors' thoughts, their coaching behaviors and activities in teaching and learning scenes, and learners' knowledge achievements. It was discovered that instructors' thoughts and principles concerning tutoring and knowledge are connected to their past behaviors or happen in the teaching and learning scene and for the selections did by picking how to incorporate technology to education. The main characteristics of an active instructors was their usage of efficient descriptions. Instructors that favor technology are probable to possess sound established technology abilities and to view technology as a vital device for information and education. Instructors that are skeptic concerning adopting technology are expected both to show an advanced mark of focus and to favor learners to do activities independently. The investigation documented the worth of provision from academic head, or of a cooperative surrounding activity. It recommended that the assignment of emerging instructors' efficiency in adopting technology is a futuristic plan and desires to be recognized as a consistent portion of their expert improvement. When novel technology device is designed, instructors have to advance novel abilities and educational methods.

Investigation on six program field, comprised language, Hennessy et al., (2003) discovered the adoption of ICT was linked with a reduction in focus by the instructor, and an upsurge in learner personal guideline and partnership. An outcome of these modifications in teaching and learning scenes exercise showed that

instructors showed the desire to adopt an active tactic in education and advance more approachable techniques so as to care, direct and enable learners' education. It also included observing learners' improvement very carefully and upholding an attention on the knowledge of the course. Learners also were fortified to carry additional duty for their own knowledge via improved involvement. While a wide variety of effective approaches were active, several of which were based on proven exercise, the researcher then established that the education linked together with adopting technology to promote course training and education was still sprouting.

Cox and Marshall (2007), these scholars research reveal that, to blend technology with coaching math's subject, it is crucial for instructors to possess an extensive knowledge of technology means and understanding of a variety of technological teaching applications. The efficient adoption of technology must empower learners to concentrate more on perception instead replies, and aid them to cultivate important mathematical tactics and link mathematical concepts with reality. When instructors adopts technology in means that test learners' thought and involve the learners in examinations, it will make learners to exhibit an upper class of mathematical perception and amplified focus more than when instructors take on a 'transfer' approach of education (where information is 'transferred' straight from instructor to learner). Perhaps, Harris (2002) clinches that ICT must be adopted as an instrument for learners to produce their own individual reasonable depictions. The existence of the PC only as a transfer method of inert skilled depictions does not promise, and certainly might impede, the progress of that learner depictions. Additional substantial test, but with a lesser model (Moseley *et al.* 1999), introducing line charts to 8-year-old teenagers, adopting information logging. Teenagers that possess experience to information logging display an amplified capacity to read, understand and draft line

charts than been equated to teenagers adopting old-fashioned gadget. The outcomes recommend that the physical scheming of points as an initial step to introduction to charts impede with interpretation.

Moseley *et al.* (1999) acknowledged that a primary characteristics of more active instructors was their adoption of clarifications. He highlighted the significance of keeping of instructors' favorites and opinions concerning training and also their approach to technology. Instructors should to join education with the proposed education results of an action. Though, Brown (2003) unsuccessfully didn't categorize any relating features to educational activities which in turn can hold important influence on learners' achievement. Though this investigation raises some questions on statements that instructors' efficiency might be strictly measured by observation in the education scene, the investigation squad did recognize much behavior which they felt most reliably illustrious effective instructors. This amount to stimulating learners to ponder mathematically, which certify firmness amongst task and objectives, adopting a series of methods of communication, and concentrating on perception than replies.

Hennessy et al. (2003) evaluated the educational concepts supporting instructors' versions of the prosperous usage of PC-based device and assets to back the education of mathematics. A group of Mathematics instructors were seen to be comparatively powerfully focused to a communication interpretation of instruction as contrasting to a constructivist ones (where learners' education is built on them renovation and accumulating to their present information), although the usage of technology did benefit to grow education.

Chapter 3

METHODOLOGY

In this chapter, the method which will be adopted will be analyzed and an explanation of the sampling method, data collection tools and techniques, research design and analysis of data analysis.

3.1 Research Method

A mixed method approach will be used throughout the investigation of this study; also questionnaire will also be used to gather data from the study group which will be the case study for this thesis.

Mixed methods research is more specific in that it includes the mixing of qualitative and quantitative data, methods, methodologies, and/or paradigms in a research study or set of related studies. Mixed methods research is desirable and feasible because it provides a more complete view, and because the requirement during the different phases of an intervention (or research project) make very specific demands on a general methodology. While it is demanding, it is more effective to choose the right tool for the job at hand. It is also used when to build from one phase of research to another (Creswell, 2003).

This study is designed as a case study, as related to a similar case studied by Mohammad and Dhaka (2003), in his work ASPBAE Research on Information and Communication Technology: Bangladesh as the case study.

3.2 Participants

Secondary schools where randomly picked in Jordan out of which 40 secondary school teachers were also randomly picked for the case of this study as participants for the study. Currently there are about 524 secondary schools in Jordan according to the MOE report (2015), and of which 97 secondary schools are situated in Arman, which is the capital city of Jordan and also the case for this study. 8 secondary schools were further randomly selected as a site to obtain the participants of this study; and 5 teachers were further selected each from the randomly 8 selected secondary school to make the participants of the study 40 teachers.

The schools were chosen because they were all located within the cities of our case which is Arman the capital of Jordan. The names of the schools are Patriarch Diodoros 1 School, Philadelphia school, Amman Academy, Amman National School, Aruba School, Alphara Modern School, Al-Eltihad School and Royal Private School.

Table 3.1: Participants Demographics

		Frequency	Percent (%)
Gender	MALE	19	47.5
	FEMALE	21	52.5
	Total	40	100.0
Age	20-25	6	15.0
	25-35	17	42.5
	35 and older	17	42.5
	Total	40	100.0
Years of	1	2	5.0
	2	4	10.0

experience			
	3	8	20.0
	4 and higher	26	65.0

This investigation was carried out on randomly picked teachers teaching in secondary schools based in Jordan. The investigation sampled 8 secondary schools in Jordan and further selected randomly 5 teachers from each secondary school.

From the collections of responses, it was observed that 19 of them which is approximately 47.5% are male and 21 of them which is approximately 52.5% are female teachers making a total of 40 teachers. Their age range were between 20-35 and above, of which 15% of the teachers lies in the age range of 20-25 years and 42.5% of the teachers lies in the age range of 25-35 years and the remain 42.5% are 35 years and above.

According to years of experience in terms of teaching 5% of the teachers have just one year teaching experience, 10% of the selected teachers also possess two years of pedagogical experience, 20% of the teachers possess three years of teaching experience and the remaining 65% of the teachers has four years of teaching experience. The total number of questionnaire that was issued out was 60, but could only retrieve 40 copies due to some issues related to time. The questionnaire contains 64 questions that covers all areas of the research questions ranging from usefulness of ICT to work, reliability of information gotten from internet, views on social networks media relevancy during work, difficulty using internet and ICT etc.

3.4 Data Collection Tools and Techniques

Through direct observation as the tool which was used for gathering data for this research, a questionnaire was administered to 40 school teachers in the process as an instrument for collection of information from the involved participants. The questionnaire was developed by Kubiatko (2012).

The questionnaire is composed of 64 questions. The first part of the questionnaire is entitled as 'Work and ICT', which consists of 15 questions (Q.1-15) and describes the general perception of teachers on the usefulness of ICT tools to work. The second part 'Information from Internet' shows the perception of teachers on the reliability of the information gotten from Internet and consists of 6 questions (Q.16-21). The next part is 'Social networks' (Q. 22-35) is on teachers' perception of social networks, and the part 'The security of Internet' (Q. 36-47) shows the perception of teachers on the reliability and safety of using Internet. The last two parts of the questionnaire are entitled 'The difficulty of the Internet using' (Q.48-58) and 'Other media and Internet' (Q.58-64). They describe the teachers' perceptions on difficulties in using Internet and other media in secondary education. The questionnaire uses a five point Likert Scale instrument to measure the degree of response from respondents, which are, Agree as 4, Strongly agree as 5, Neutral as 3, Disagree as 2, Strongly disagree as 1.

The qualitative research interview seeks to describe and the meanings of central themes in the life world of the subjects. The main task in interviewing is to understand the meaning of what the interviewees say. Interviewing, when considered as a method for conducting qualitative research, is a technique used to understand the

experiences of others. Possibly the greatest advantage of Qualitative interviewing is the depth of detail from the interviewee. Interviewing participants can paint a picture of what happened in a specific event, tell us their perspective of such event, as well as give other social cues. Social cues, such as voice, intonation, body language etc. of the interviewee can give the interviewer a lot of extra information that can be added to the verbal answer of the interviewee on a question. This level of detailed description, whether it be verbal or nonverbal, can show an otherwise hidden interrelatedness between emotions, people, objects unlike many quantitative methods of research (Weiss, 1994).

In addition, qualitative interviewing has a unique advantage in its specific form. Researchers can tailor the questions they ask to the respondent in order to get rich, full stories and the information they need for their project. They can make it clear to the respondent when they need more examples or explanations (Emans, 1986).

Not only can researchers also learn about specific events, they can also gain insight into people's interior experiences, specifically how people perceive and how they interpreted their perceptions. How events affected their thoughts and feelings. In this, researchers can understand the process of an event instead of what just happened and how they reacted to it.

In this research 8 Interview questions were asked to 12 different respondent, to validate the responses gotten from the questionnaires and support the data for the study as well. Gathered data was compiled into a database in Statistical Package for the Social Sciences (SPSS) and further analyzed based on a descriptive statistics test.

Descriptive method is used when collating information into a significant statement for coherent and easy assimilation (Thompson, 2009).

3.5 Data Analysis

A descriptive analysis was conducted, during the research study of this work. Quantitative analysis was also carried out using t-test and ANOVA features to analyze the collected data in a Statistical Package for Social Sciences (SPSS) version 17.0.

Descriptive analysis provides simple summaries about the sample and about the observations that have been made. These summaries may either form the basis of the initial description of the data as part of a more extensive statistical analysis, or they may be sufficient in and of themselves for a particular investigation.

Descriptive analysis was used to show the general analysis of the data, by producing the mean, max and min point, sig diff, df, and p value points. While the t-test was used to analyze the data that comprises of just two variables in a group, e.g. gender; and ANOVA was used to conduct analysis on groups that has more than two variables, e.g. age, years of experiences etc.

3.6 Validity and Reliability

Validity is a popular word signifying "correctness of measure" to be a proper or valid tool/instrument, the research questions must evaluate the focal areas of interest (Czaja and Blair, 2005). And these can be identified from the survey questions of this work, as it covers wholly the areas of the participants for the study and also the questionnaires and interview questions also correctly measured the needed interest of the sample of the case.

Reliability of this work is also based on past literature with similar research and they further realized similar result with no much significant differences from this dissertation. In a similar study by Loveless (2003), it corresponds with one of the findings of the study that teachers are now keeping pace with new ICT tools in education, due to its usefulness and use for efficiency and effective teaching.

Chapter 4

FINDINGS

This part of the research study focuses on finding, analyzing and interpreting the data. The analysis will be done accordingly based on the research questions of this study.

4.1 Secondary school teachers' attitude towards and in use of ICT tools

Table 4.1 analyzes the general perception of secondary school teachers by showing their mean, minimum and maximum score point.

Table 4.1: General perception of Jordanian secondary school teacher towards and in use of ICT tools

Minimum	**Maximum**	**Mean**	**Standard deviation**
168	276	215.90	19.48

As it is seen from Table 4.1 above, secondary school teachers' perception level on use of ICT is at a mean score of 215.90 which is approximately 67.47%. This statistically signifies that there is a general high perception level of Jordanian secondary school teachers toward ICT tools and its usage also.

Teacher A stated: *"I prepare all my lesson to be taught with the use of ICT tools, and it helps my students understand better"* when he was asked what the use of ICT to him is.

Similar results can be seen also from Fasano and Eleonra (2001), in their study 62% of the teachers use the internet in getting knowledge and information to be taught during class. Thus, nowadays ICT tools became the main source of information as well as the teaching tools for the vast amount of secondary school teachers throughout the world.

4.1.1 Secondary schools teachers' perception towards and in the use of ICT tools, according to gender, age and years of experience

Secondary school teachers' perception towards and in the use of ICT tools were analyzed according to their gender, age and years of experience.

4.1.1.1 Gender attitude towards and in the use of ICT tools

Table 4.2 shows the general attitude of secondary school teachers towards and in the use of ICT according to gender comparison.

Table 4.2: Gender attitude towards and in the use of ICT tools

Gender	n	X	SS	Sd	t	p
Female	21	219.0	17.5	34.9	0.17	0 .67
Male	19	212.4	21.3	38		

As seen from Table 4.2 above, there is no significant difference in the perception level on the use of ICT tools by female and male secondary school teachers in

Jordan, this is evident from the table above where ($t=0.173$ and $p>0.05$) which is the significant point set for this study. It is understood that male and female Jordanian secondary school teachers has high relationship on their perception of ICT usage and general attitude towards ICT tools.

Teacher A further replies that "*it does not matter which gender uses ICT, to me I believe it has to do with purpose and desire. No tools influences a particular sex to operate it, unless we mean something else here; outside educational purpose*".

Teacher B replied, "*Most female like my friend, finds it difficult to compute statistics using technology tools, like statistics computing tools, she prefers doing it manually. But of all my fellow math's male friends, I think we don't find it difficult per se and it is easier".*

From the teachers comments above, it appears that most teachers feel that female teachers are not actually interested in ICT tools that involves computing and statistics, while other teachers feels that no ICT tools influences their colleagues in adopting an ICT tool for work and it is related to the table which proofs that there is no significant differences regarding gender influence on the use of ICT tool.

Papaioannou and Charalambous (2011), in similar study discovered that male and female has the same positive perceptions towards ICT, and the male has stronger optimistic attitude than the female. And this is evident from the mean figure for both male and female above.

A statistical ANOVA test was done to determine the significant differences on the perception of secondary school teachers in Jordan according to their age groups and years of experience of the teachers as shown in Table 4.3, Table 4.4, Table 4.5 and Table 4.6 respectively which contains the results.

4.1.1.2 Attitude towards and in use of ICT tools based on Age and years of experience of secondary school teachers

As shown in Table 4.3 and Table 4.4 below, the statistical average figures of Jordanian secondary school teachers' slightly differs amongst various age group, but it can also be seen from the corresponding p-value figure in Table 4.4 that there is no significant differences in the perception level of the use of ICT and attitude towards ICT according to age amongst age group; since P is far greater than 0.05 significant difference point.

Table 4.3: Descriptive analysis of perception on ICT tools use by teachers based on age

AGE	**N**	**X**	**Std. Deviation**
20-25	6	214.5	23.8
25-35	17	216.0	13.2
35 AND OLDER	17	216.2	23.8
Total	40	215.9	19.4

Table 4.4: Secondary school teachers' perception level on use of ICT tool based on age

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	14.1	2	7.0	0.018	0.9
	Within Groups	14787.5	37	399.6		
	Total	14801.6	39			

Teacher C, states that "*majority of the young teachers in this school where I work basically lack the conventional means of preparing their lesson. They always try to use devices to manipulate things to work for them. Though it do work out a lot of time. I am 49 years old and I still love things to be done structurally until that, I will start imbibing ICT into my classroom".*

Teacher D, states that, *"a lot of young teachers knows how to operate newer ICT tools than the older but experienced teachers".*

From the teacher's comments above, it can be understood that a lot of teachers believes that young teachers uses ICT tools for work more than the older teachers. And also that such young teachers are more experienced with the adoption of such ICT tools than their older colleagues.

In a related research by Pelgrum (1993), who investigated the perceptions of principals and teachers towards ICT use in different nations, discovered that age does not play a pertinent role in determining the educators' perception towards ICT use.

It is also worthy to note that Osamah (2008), in his work found that it was an issue for lot of teachers to use ICT during work. But a lot of teachers not withstanding their ages, stated numerous importance of using ICT both for teachers and the students and also has made efforts to improve their adoption in using ICT.

This ordinarily proves that, age has no significant factor in determining the use of ICT for teachers in Jordanian secondary schools.

Table 4.5: Descriptive analysis of perception on the use of ICT tools by Jordanian secondary school teachers based on years of experience

Grade	**N**	**X**	**Std. Deviation**
1	2	198.0	1.41
2	4	215.5	31.29
3	8	222.0	24.8
4 AND HIGHER	26	215.4	16.2
Total	40	215.9	19.4

Table 4.6: Perception on the use of ICT tool by secondary school teachers in Jordan based on years of experience

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	944.1	3	314.7	0.8	0.4
	Within Groups	13857.4	36	384.9		
	Total	14801.6	39			

As seen from Table 4.5, above, the statistical mean figure of the perception on use of ICT by Jordanian secondary school teachers appears to be slightly different from different groups, but it is also evident from Table 4.6 subsequently, that p value is far

way higher than the significant point for this study; therefore, $p>0.05$. This proves that there is no significant difference in the perception level of secondary school teachers on the use of ICT tools and their various attitudes towards ICT.

From this it can be concluded that age and years of experience show no importance as to the general perceptions of Jordanian secondary school teachers towards and in use of ICT tools.

Teacher D, further replies that, *"it is not the use of ICT tools during teaching that matters, but how well is it integrated into the lesson plan and instructional materials some inexperience teachers miss this point. Usually those teachers that are new in the job".*

Teacher A, states on this subject that*, "I believe that the older experienced teachers knows the thin line between sophistication and simple, and this I always consider when prepare my lesson plan and how to use technological tool for teaching. Younger experience teachers just mix the whole processes because they want to follow trend".*

From the teachers comments it can be understood that the teachers feels that younger teachers uses more of ICT tools when preparing their work and most probably are not good at using the conventional practice of teaching. Most teachers also believes that the younger teachers don't actually know how to perfectly blend ICT with the traditional method of teaching.

However, in a study by Jennings and Onwuegbuzie (2001), teachers of younger age were found to be associated with more positive attitudes towards ICT. This is in agreement with the report by the U.S. National Center for Education Statistics (2000) which indicated that younger teachers score higher on their perception of ICT, and have translated their positive perception into higher degree of ICT use in education.

4.2 Teacher's perception on the usefulness of ICT to work

Table 4.7 shows the perception of secondary school teachers on the usefulness of ICT to work by showing the mean, minimum and maximum score point.

Table 4.7: General perception on the usefulness of ICT to work

Minimum	**Maximum**	**Mean**	**Standard deviation**
30.0	62.0	47.0	4.76

As seen from Table 4.7 above, secondary school teacher's perception level is at a mean score of 47.0 which is approximately 62.7%. This statistically signifies that there is a general high perception level of Jordanian secondary school teachers toward the usefulness of ICT.

Teacher E, in his direct response said *"ICT has really saved a lot of teachers from mess. There is no information I cannot find on line nowadays, and I imagine most times if I cannot get them, what will I teach these kids. It will be shameful and fatal".*

From the teachers comment above, it is understood that a lot of teachers trusts and relies on information they get from the internet and also adopts such information during their work time (teaching).

Balanskat, et al, (2006), stated in a similar findings that teachers believes that their learners improvement is due to use of good ICT tools,

4.2.1 Secondary school teachers' perception on the usefulness of ICT to work according to age, gender and years of experience

Further, we will discuss secondary school teachers' perception on the usefulness of ICT to work according to their age, gender and years of experience.

4.2.1.1 Gender attitude on the usefulness of ICT to work

Table 4.8 shows the general attitude of secondary school teachers towards the usefulness of ICT according to gender comparison.

Table 4.8: Gender attitude on the usefulness of ICT to work

Gender	**N**	**X**	**SS**	**Sd**	**t**	**p**
Female	21	47.7	3.3	27.6	0.858	0 .360
Male	19	46.2	5.9	38		

As seen from Table 4.8 above, there is no significant difference in the perception level on the usefulness of ICT to work by female and male secondary school teachers in Jordan, it is comprehendible from the Table above that ($t=0.858$ and $p>0.05$) which is the significant level point set for this study. It is also understood that female and male Jordanian secondary school teachers has high relationship on their perception on the usefulness of ICT tools to work.

Teacher F, states that *"for me I believe that both male and female knows that ICT is very useful, because the help it does is immeasurable".*

Teacher G, describes that *"ICT is generally effective to every teacher whether man or woman, even to the entire institution where we work".*

From the above comments and teachers responses, it can be understood that a lot of teachers believes that ICT is very useful to teachers for work and also for the whole educational system.

Barak (2006), in a very similar study got an outcome which he concluded that inexperience teachers both male and female, more readily integrates technology into their teaching practice".

An ANOVA statistics test was conducted to find out the significant difference point on the attitudes of secondary school teachers in Jordan based on their age and years of experience as shown in Table 9, Table 10, Table 11 and Table 12 respectively which contains the results.

4.2.1.2 Perception towards the usefulness of ICT tools to work according to age and years of experience of secondary school teachers

Table 4.9 shows the perception of secondary school teachers towards the usefulness of ICT according to age comparison.

Table 4.9: Descriptive analysis of the perception of the usefulness of ICT tools by teachers according to age

AGE	N	X	Std. Deviation
20-25	6	49.5	6.25
25-35	17	46.2	5.26
35 AND OLDER	17	46.8	3.52
Total	40	47.0	4.76

Table 4.10: Secondary school teachers' perception level on usefulness of ICT tool to work based on age

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	46.5	2	23.2	1.0	0.3
	Within Groups	837.5	37	22.6		
	Total	884.0	39			

As shown in Tables 4.9 and 4.10 above, the p-value figure shows that there is no significant differences in the perception of secondary school teachers on the usefulness of ICT tools to work since P is greater than 0.05 significant point. Also, the statistical average scores of teachers according to age group are closely within range, and thus shows strong relationship amongst each other and therefore shows no significance difference.

Teacher G, states, *"ICT is very useful to all, in my simple reply, whether big, small, or average".*

From the teachers responses, it can be understood that ICT tools are very useful to all regardless of their age and years of experiences and thus it should be adopted.

Wood (2005), in his findings gives an evidence that teachers use ICT to promote innovative pedagogy.

Table 4.11: Descriptive analysis of perception on the usefulness of ICT tools by Jordanian secondary school teachers based on years of experience

Grade	N	X	Std. Deviation
1	2	47.0	.00
2	4	47.0	13.14
3	8	45.8	4.94
4 AND HIGHER	26	47.3	2.69
Total	40	47.0	4.76

Table 4.12: Perception on the usefulness of ICT tools by secondary school teachers in Jordan according to years of experience

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	13.2	3	4.4	0.1	0.9
	Within Groups	870.7	36	24.1		
	Total	884.0	39			

As seen from Table 4.11, above, the mean scores of the perception of secondary school teachers on the usefulness of ICT to work are closely related which proves that a strong relationship exist, and also from the Table 4.12 subsequently, it can be seen that the p-value is >0.05. This signifies that there is a significant difference in the perception on the usefulness of ICT tool to work by secondary school teachers according to year of experience.

It can be concluded from the above that the age and years of experience show no importance or significant difference on the perception of ICT usefulness to work by Jordanian secondary school teachers according to age and years of experience.

Philip (2009), in his study, discovered that there is no significant difference from the result (F (8,458) =.846, p=.563). In his hypothesis it was signified that there is no difference between level of experience, age and computer usage of teachers.

4.2.1.3 General level of the usefulness of ICT to work by secondary school teachers

Table 4.13 shows the general level of usefulness of ICT to work by secondary school teachers

		SD		D		N		A		SA	
		n	%	n	%	n	%	n	%	n	%
Q1	I have no problems using internet in my phone	1	2.5	2	5.0	2	5.0	9	22.5	26	65.0
Q2	its normal, during working hours, to be logged into the Facebook account	17	42.5	18	45.0	3	7.5	-	-	2	5.0
Q3	Skype or ICQ is normal for me to be turned on during working hours/education at school	18	45.0	21	52.5	-	-	-	-	1	2.5
Q4	I consider admittedly to speak or chat on ICQ during my working time or lecture for solving private or working problems	11	27.5	9	22.5	11	27.5	9	22.5	-	-
Q5	I consider the meeting by video conferences more effective than face to face meeting	7	17.5	9	22.5	8	20.0	6	15.0	10	25.0
Q6	It's not advisable to use working email for private intention	5	12.5	10	25.0	8	20.0	11	27.5	6	15.0
Q7	a short break during working time which i spend playing computer games, i find it suitable for relaxing	8	20.0	14	35.0	6	15.0	5	12.5	7	17.5
Q8	I consider normal to work out of workplace	2	5.0	2	5.0	1	2.5	24	60.0	11	27.5
Q9	I express my mood through emoticons	-	-	1	2.5	6	15.0	21	52.5	12	30.0
Q10	It is normal to use diacritical signs in SMS or email	4	10.0	1	2.5	13	32.5	20	50.0	2	5.0
Q11	I consider normal to locate	6	15.0	10	25.0	7	17.5	15	37.5	2	5.0

	personal photos on website										
Q12	I express sympathy to addresses through emoticons	2	5.0	4	10.0	21	52.5	11	27.5	2	5.0
Q13	Emoticons should be used in mail massage	4	10.0	4	10.0	13	32.5	9	22.5	10	25.0
Q14	I consider normal when the computer is on constantly	10	25.0	12	30.0	4	10.0	11	27.5	3	7.5
Q15	Some websites should be censored	1	2.5	2	5.0	5	12.5	12	30.0	20	50.0

From Table 4.13 above, it can be seen that the higher percentage of teachers response on the usefulness of ICT tools fall on the Likert Scale of Agree, while also, slight majority of the teachers falls on the scale of Strongly Agree and Neutral.

Teacher H, in his statement said *"that all I do at work are almost done with the aid of ICT tools, and I have not been disappointed anywhere".*

Form the teachers response it can be understood that a lot of teachers are dependent a lot on ICT tools and majority of the teachers in Jordan adopts ICT tools for their daily work and thus they are reliant on such tools.

The lowest response is seen to fall between Strongly Disagree and Disagree scale. This invariable shows that, there is a moderate view on the usefulness of ICT tools to work by secondary school teachers in Jordan.

It might appear that teachers do not make use of graphical visualizing tools, hypermedia/multimedia, and simulation programs because they consider the applications to be specialized software and require advanced skills from users. This

suggests that teachers need training in a wider range of ICT applications for them to make full use of technology in teaching. Programs like simulation for example, allow teachers to show experiments that would not otherwise be possible, and have great educational potential to enhance teaching (McFarlane and Sakellariou, 2002)

Teacher I, said "*that he sometimes feels like activities to be done with the use of ICT tools is actually time wasting and looks unreal and distracting. I prefer hands-on teaching process with real time and place and actual learners".*

From the teachers comment above, most of the teachers also feels that ICT tools are time wasting and are not rich enough to contain or accommodate the lesson content to be taught and therefore they prefer the traditional way of teaching they are already used too.

However, studies on teachers' readiness for ICT generally, suggest that there is still a long way to go before schools in the region will be able to take full advantage of the opportunities provided by21st century technology (Ya'acob, 2005). Barak (2006) reveals that while teachers exploit ICT for their own learning, they are cautious about integrating advanced technologies in schools. The study also suggests that while teachers recognize the potential of technology in stimulating students' learning and making school studies relevant to real-life contexts, they do not think that ICT is preferable for class-based instruction for promoting cooperation and reflection in learning.

4.3 Teacher's perception on the reliability of information gotten from internet

Table 4.14 shows the general perception on the reliability of information gotten from the internet by showing their mean, minimum and maximum score point.

Table 4.14: General perception on the reliability of information gotten from internet

Minimum	**Maximum**	**Mean**	**Standard deviation**
18.00	30.0	22.7	2.7

As it is seen from Table 4.14, above, secondary school teachers' perception level is at a mean score of 22.7750, which is approximately 76%. This statistically signifies that there is a general high perception level of Jordanian secondary school teachers toward the reliability of information gotten from the internet.

Teacher J strongly opposes the result of the mean in this Table with her comment *"I cannot not teach a hundred percent of what I get online, most of them are misleading".*

A lot of teachers in their comments stated that they do not trust almost everything they retrieve from the internet, as it is not to healthy and conducive to be taught to the students and are most time misleading.

Murat and Bicen (2009), in their findings got a result stating that, teachers of the future stated that they have adopted the web source but they are reluctant about the confidence".

A further positive sign of the results indicated that teachers would like to integrate more computer applications into their teaching. It appears that teachers' perceptions toward ICTs are encouraging, where most of them showed positive perceptions on use of information from Internet in teaching and instruction. It is believed that teachers can see the value of the Internet information in enhancing teaching and learning, and they are positive towards further integration of technologies into classroom instruction.

4.3.1 Teacher's perception on the reliability of information gotten from internet according to age, gender and years of experience

The next part of the research shows that there is no significant differences in teachers' perception on the reliability of information gotten from Internet according to their age, gender and years of experience. The results are in conflict with Murat and Bicen (2009) who found that younger beginning teachers struggling to survive and settle into their new role as teachers do not emphasize the usage of computer as they view computers as 'extra', and not as a tool to enhance teaching

4.3.1.1 Perception on the reliability of information gotten from internet according to gender

Table 4.15 shows the perception on the reliability of information gotten from the web based on gender comparison.

Table 4.15: Perception on the reliability of information gotten from internet according to gender

Gender	N	X	SS	Sd	t	p
Female	21	22.85	2.53	38	0.878	0 .355
Male	19	22.68	2.96	35.6		

As seen from Table 4.15 above, there is no significant difference in the perception of the reliability of information gotten from internet according to gender of secondary school teachers in Jordan, this is evident from the Table above where (t=0.878 and p>0.05) which is the significant point set for this study. It is understood that male and female Jordanian secondary school teachers has high relationship on their perception of the reliability of information gotten from internet

Murat and Bicen (2009), in their findings through a t-test sample got no significant difference between gender on teachers perception towards internet reliability (p=.447, t=.762)

A statistical ANOVA test was done to determine the significant differences on the perception of secondary school teachers in Jordan according to their age groups and years of experience of the teachers as shown in Table 4.16, Table 4.17, Table 4.18 and Table 4.19 respectively which contains the results.

4.3.1.2 Perception on the reliability of information gotten from internet according to age and years of experience.

Table 4.16 shows the perception of secondary school teachers on the reliability on information gotten from the internet based on years of experience.

Table 4.16: Descriptive analysis Perception on the reliability of information gotten from internet according to age

AGE	N	X	Std. Deviation
20-25	6	21.5	2.73
25-35	17	23.0	2.30
35 AND OLDER	17	22.9	3.093
Total	40	22.7	2.71

Table 4.17: Secondary school perception on the reliability of information gotten from internet according to age

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	11.5	2	5.7	0.779	0.466
	Within Groups	275.3	37	7.4		
	Total	884.0	39			

As shown in Table 4.17 above, the p-value figure shows that there is no significant differences in the perception of secondary school teachers on the usefulness of ICT tools to work since P is greater than 0.05 significant point. Also in Table 4.16, the statistical mean scores of teachers according to age group are closely within range, and thus shows strong relationship amongst each other and therefore shows no significance difference.

Table 4.18: Descriptive analysis perception on the reliability of information gotten from internet according to years of experience

Grade	**N**	**X**	**Std. Deviation**
1	2	20.0	.00
2	4	20.7	2.8
3	8	23.5	2.5
4 AND HIGHER	26	23.0	2.6
Total	40	22.7	2.7

Table 4.19: Secondary school perception on the reliability of information gotten from internet according to years of experience

Variance source		Sum of Squares	SD	Mean Square	F	P

Perception level	Between Groups	38.3	3	12.7	1.853	0.155
	Within Groups	248.5	36	6.9		
	Total	286.9	39			

As shown in Table 4.19 above, the p-value figure shows that there is no significant differences in the perception of secondary school teachers on the reliability of information gotten from the internet since P is greater than 0.05 significant point. Also in Table 4.18, the statistical mean scores of teachers according to age group are closely within range, and thus shows strong relationship amongst each other and therefore shows no significance difference.

Teacher K, stated that *"for the things I teach to the lower class level student I carefully check through it especially when I get the information from the internet".*

It can be concluded from the above that the age and years of experience show no significant difference on the perception of reliability of information gotten from internet by Jordanian secondary school teachers according to age and years of experience.

4.3.1.3 General level of the reliability of information gotten from internet by secondary school teacher

Table 4.20 shows the general level of the reliability of information gotten from internet by secondary school teacher.

Table 4.20: General perception on the reliability of information gotten from the internet

		SD		D		N		A		SA	
		n	%	n	%	n	%	n	%	n	%
Q16	I prefer to use email than classic post mail	3	7.5	1	2.5	-	-	16	40.0	20	50.0
Q17	I send letters or postcards only in extra ordinary cases	1	2.5	5	12.5	5	12.5	14	35.0	15	37.5
Q18	Sending letters by post gradually completely extinguishes	-	-	7	17.5	9	22.5	12	30.0	12	30.0
Q19	I consider encyclopedias on internet as trustworthy	-	-	3	7.5	10	25.0	22	55.0	5	12.5
Q20	There is some information on internet that can't be found	-	-	6	15.0	12	30.0	17	42.5	5	12.5
Q21	All information i need i can find on internet	2	5.0	2	5.0	7	17.5	26	65.0	3	7.5

As can be seen from Table 4.20, most secondary school teachers strongly agreed and agreed on the question about the reliability of information gotten from the internet, in all the questions more than 65% of their response fell under "strongly agreed" and "agreed" meaning that the reliability level of information gotten from the web is relatively high.

Teacher H, states that "*I cannot prepare any course material without consulting the web".*

Teacher K, also replied that *"I spend majority of my free time online trying to find new materials to teach to my students".Majority of the teachers responses shows that almost all the teachers consult the internet to source information when they are preparing their lesson content and course objectives to be taught.*

This statistically mean that a lot of individual most especially the teachers depends highly on the information they retrieve from the internet and most especially during

teaching process such information is highly dependable and trustworthy for transition to the learners.

4.4 Secondary school teacher's view on Social networks

Table 4.21 shows secondary school teacher's view on social networks by showing their mean, minimum and maximum score points.

Table 4.21: General perception on social networks

Minimum	Maximum	Mean	Standard deviation
36.00	66.0	47.3	7.13

As it is seen from Table 4.21, above, secondary school teachers' perception level is at a mean score of 47.325, which is approximately 67.6%. This statistically signifies that there is a general high perception level of Jordanian secondary school teachers toward the reliability of information gotten from the internet.

Cox and Marshal (2007), in his study discovered that majority of teacher's uses social media platform as means of sharing educational content to their various learners at different place and time".

4.4.1 Secondary school teacher's view on Social networks according to age, gender and years of experience

The following results show the attitude of secondary school teachers on Social networks according to their age, gender and years of experience.

4.4.1.1 Secondary school teacher's view on Social networks according to gender

As seen from Table 4.22 below, there is no significant difference in the perception according to gender of secondary school teachers in Jordan, this is evident from the

same Table where (t=0.004and p>0.05) which is the significant point set for this study. It is understood, that male and female Jordanian secondary school teachers have high relationship on their perception on social networks.

Table 4.22: Secondary school teacher's view on Social networks according to gender

Gender	n	X	SS	Sd	t	p
Female	21	48.9	7.09	37.403	0.004	0 .947
Male	19	45.5	6.93	38		

As it is seen from Table 4.22, the probability value is higher than 0.05, which is the significant point for this dissertation, this statistically proofs that there is no significant difference as to gender view on social networks by secondary school teachers.

Teacher C, states that *"I feel female uses the social media more often and for interaction purpose than the male"*. And this is evident from the different mean score of male and females in the above Table.

A lot of the teachers responses shows to proof that most female teachers adopt the ICT tools when it has to do with convenience and social interactive purposes and the male teachers in jordan usually adopts ICT tools a lot when it has to do with computational and statistical purposes.

Ellision (2007), in a related work found out that gender is of less importance when selecting social networks for usage.

A statistical ANOVA test was done to determine the significant differences on the perception of secondary school teachers in Jordan according to their age groups and years of experience of the teachers as shown in Table 22, Table 23, Table 24 and Table 25 respectively which contains the results.

4.4.1.2 Secondary school teacher's view on Social networks according to age and years of experience

Table 4.23 shows Secondary school teacher's view on Social networks according to age.

Table 4.23: Descriptive analysis of teacher's view on Social networks according to age

AGE	**N**	**X**	**Std. Deviation**
20-25	6	43.6	7.4
25-35	17	48.4	5.5
35 AND OLDER	17	47.5	8.3
Total	40	47.3	7.1

Table 4.24: Teacher's view on Social networks according age

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	101.0	2	50.5	0.993	0.380
	Within Groups	1883.6	37	50.9		
	Total	884.0	39			

As shown in Table 4.24 above, the p-value figure shows that there is no significant differences in the perception of secondary school teachers on the social networks since P is greater than 0.05 significant point. Also in Table 4.23, the statistical mean

scores of teachers according to age group are closely within range, and thus shows strong relationship amongst each other and therefore shows no significance difference.

Table 4.25: Descriptive analysis of teacher's view on Social networks according years of experience

Grade	**N**	**X**	**Std. Deviation**
1	2	37.0	.00
2	4	45.0	7.30
3	8	49.8	6.99
4 AND HIGHER	26	47.6	6.90
Total	40	47.3	7.13

Table 4.26: Teacher's view on Social networks according years of experience.

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	290.36	3	47.06	2.05	0.12
	Within Groups	1694.41	36	96.78		
	Total	1984.77	39			

As seen from Table 4.25 and Table 4.26 above, there is no significant difference in the perception on social networks. According to gender of secondary school teachers in Jordan, this is evident from the Table above where ($t=2.05$ and $p>0.05$) which is the significant point set for this study. It is understood that years of experience group

of Jordanian secondary school teachers has high relationship on their perception on social networks.

In conclusion, the age and years of experience show no significant difference on the perception of social networks by Jordanian secondary school teachers according to age and years of experience.

4.4.1.3 General level of perception of social networks

As can be seen from Table 4.27, most secondary school teachers have agreed or strongly agreed on the recognition and use of social networks. In all the items asked, more than 50% of the respondents choose agree and strongly agree signifying that perceptions of social networks are relatively high.

Table 4.27: General perception of teachers on social network

		SD		D		N		A		SA	
		N	%	n	%	n	%	n	%	n	%
Q22	I like to chat	2	5.0	3	7.5	7	17.5	19	47.5	9	22.5
Q23	I prefer talking face to face to chat	-	-	9	22.5	6	15.0	18	45.0	7	17.5
Q24	I prefer talking face to face to chat	7	17.5	9	22.5	19	47.5	2	5.0	3	7.5
Q25	I consider Facebook as portal. i can get to know information important for my life	7	17.5	3	7.5	19	47.5	4	10.0	7	17.5
Q26	Through Facebook i learnt a lot about my friends	7	17.5	1	2.5	11	27.5	11	27.5	10	25.0
Q27	Facebook helps me to get to know a lot about unknown people	3	7.5	-	-	11	27.5	15	37.5	11	27.5
Q28	Through Facebook i arrange acquaintances with people with whom in real world i would never try to	1	2.5	14	35.0	9	22.5	13	32.5	3	7.5
Q29	Social networks limits privacy	1	2.5	7	17.5	6	15.0	13	32.5	13	32.5
Q30	Social networks such as Facebook are for entertainment purposes only	-	-	14	35.0	1	2.5	23	57.5	2	5.0
Q31	I consider the spending time on social networks such a losses of time	1	2.5	23	57.5	7	17.5	7	17.5	2	5.0
Q32	I prefer to use electric communication	1	2.5	13	32.5	11	27.5	6	15.0	9	22.5
Q33	I have to have personal contact with someone to add him to	1	2.5	10	25.0	11	27.5	6	15.0	12	30.0

	Facebook										
Q34	I carefully choose who i add as a friend on Facebook	1	2.5	1	2.5	10	25.0	14	35.0	14	35.0
Q34	Internet allows people in distant collaboration	1	2.5	1	2.5	14	35.0	16	40.0	8	20.0

These correlate with findings of Jones et al. (2010) who stated that social platforms are ICT tools that can be used to enhance education by teachers, as it is widely embraced by teachers currently.

4.5 Secondary school teacher's opinions on the security of internet

Table 4.28 shows Secondary school teacher's opinions on the security of internet by showing their mean, minimum and maximum score points.

Table 4.28: General opinion level on security of internet

Minimum	**Maximum**	**Mean**	**Standard deviation**
29.0	59.0	47.6	5.6

As it is seen from Table 4.28, above, secondary school teachers' perception level is at a mean score of 47.625 which is approximately 73.26%. This statistically signifies that there is a general high perception level of Jordanian secondary school teachers toward the security of the internet in his findings states that teachers are mostly comfortable with internet since the inception of passwords for documents, sites, files and programs.

4.5.1 Secondary school teacher's view on internet security according to gender, age and years of experience

We will observe secondary school teacher's view on internet security according to their gender, age and years of experience.

4.5.1.1 Secondary school teacher's view on internet security according to gender

Table 4.29 shows Secondary school teacher's view on internet security according to gender comparison.

Table 4.29: Secondary school teacher's view on internet security according to gender

Gender	n	X	SS	Sd	t	p
Female	21	49.0	4.14	29.3	1.413	0 .242
Male	19	46.0	6.72	38		

As seen from Table 4.29, above, there is no significant difference in the perception level on the security of internet by female and male secondary school teachers in Jordan, it is comprehendible from the Table above that (t=1.413 and p>0.05) which is the significant level point set for this study. It is also understood that female and male Jordanian secondary school teachers has high relationship on their perception on the security of internet.

Voogt (2005), also showed in his study that there is no significant difference in the attitude level of teachers based on gender on the safety of internet; giving a result of (p=.723).

An ANOVA statistics test was conducted to find out the significant difference point on the attitudes of secondary school teachers in Jordan based on their age and years of experience as shown in Table 4.30, Table 4.31, Table 4.32 and Table 4.33 respectively, which contain the results.

4.5.1.2 Secondary school teacher's view on internet security according to age and years of experience

Table 4.30 shows Secondary school teacher's view on internet security according to age comparison.

Table 4.30: Descriptive analysis of secondary school teacher's view on internet security according to age

AGE	N	X	Std. Deviation
20-25	6	47.0	5.29
25-35	17	48.70	4.42
35 AND OLDER	17	46.76	6.87
Total	40	47.62	5.65

Table 4.31: Secondary school teacher's view on internet security according to age

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	34.78	2	17.39	0.53	0.59
	Within Groups	1210.58	37	32.71		
	Total	1245.37	39			

As shown in Table 4.31 above, the p-value figure shows that there is no significant differences in the perception of secondary school teachers on the social networks since P is greater than 0.05 significant point. Also in Table 4.30, the statistical mean scores of teachers according to age group are closely within range, and thus shows

strong relationship amongst each other and therefore shows no significance difference.

Table 4.32: Descriptive analysis Secondary school teacher's view on internet security according to years of experience

Grade	**N**	**X**	**Std. Deviation**
1	2	44.0	0.0
2	4	48.50	6.13
3	8	49.0	6.02
4 AND HIGHER	26	47.34	5.76
Total	40	47.62	5.65

Table 4.33: Secondary school teacher's view on internet security according to years of experience

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	46.49	3	15.49	0.46	0.70
	Within Groups	1198.88	36	33.30		
	Total	1245.37	39			

As shown in Table 4.33 above, the p-value figure shows that there is no significant differences in the perception of secondary school teachers on internet security since P is greater than 0.05 significant point. Also in Table 4.32, the statistical mean scores of teachers according to age group are closely within range, and thus shows strong relationship amongst each other and therefore shows no significance difference.

Teacher K. stated that "*from my four years' experience as a teacher I believe that with careful handling, internet is safe to be used and relied on".*

It can be concluded from the above that the age and years of experience shows no significant difference on the perception of internet security by Jordan secondary school teachers according to age and years of experience.

4.5.1.3 General level of perception of internet security

Table 4.34 shows the general level of perception of internet security by secondary school teachers.

Table 4.34: General perception on internet security by secondary school teachers

		SD		D		N		A		SA	
		N	%	n	%	n	%	n	%	n	%
Q35	It is reliable to purchase goods through internet	2	5.0	3	7.5	21	52.5	11	27.5	3	7.5
Q36	Electronic banking is danger because of inadequate securing of account	-	-	6	15.0	8	20.0	24	60.0	2	5.0
Q37	I consider downloading the movies films from internet as crime	2	5.0	20	50.0	12	30.0	3	7.5	3	7.5
Q38	I cannot imagine my life without internet	1	2.5	7	17.5	4	10.0	17	42.5	11	27.5
Q39	Pc is necessary in today's life for people	-	-	7	17.5	5	12.5	9	22.5	19	47.5
Q40	I could not imagine life without internet	1	2.5	9	22.5	5	12.5	19	47.5	6	15.0
Q41	The use of a computer is very limited, if it's not connected to internet	-	-	3	7.5	2	5.0	25	62.5	10	25.0
Q42	I find it normal to use internet everyday	2	5.0	1	2.5	4	10.0	25	62.5	8	20.0
Q43	I consider normal to use software that is illegal	9	22.5	11	27.5	4	10.0	6	15.0	10	25.0
Q44	Internet saves time	1	2.5	-	-	5	12.5	11	27.5	23	57.5
Q45	Internet helps in plagiarism/to violate the author's rights in large	1	2.5	3	7.5	9	22.5	19	47.5	8	20.0

	amount										
Q46	Internet access has to be free of charge everywhere	1	2.5	7	17.5	3	7.5	14	35.0	15	37.5
Q47	It is good when i can it is good when i can accommodate some things over internet and don't need to get to the bank, post office, or shop in person			1	2.5	8	20.0	18	45.0	13	32.5

As seen from Table 4.34 above, more than 50% of the respondent falls under the rating scale of agree and strongly agree. This shows that majority of Jordanian teachers have a higher perception on the security of the internet, while about 20% of the respondents have a neutral reply on the subject matter.

Teacher M, states that "*why won't I trust the internet when it actually gives me all i need to perform better in class".*

Teacher L, describes internet by saying "*it is my little office where I operate and even function as a boss and all my files are highly protected and safe".*

Most teachers trust the internet and also carries out all their office works via the ICT medium from their comments above, a lot also feels that their work can't actually be possible or done without the use of internet as an ICT tool.

4.6 Secondary school teacher's perception on the difficulties in using internet

Table 4.35 shows the general perception on the difficulties in using internet by showing the mean score, minimum and maximum score point.

Table 4.35: General perception level on the difficulties in using internet

Minimum	**Maximum**	**Mean**	**Standard deviation**
10.0	23.0	16.2	2.15

As it is seen from Table 4.35, above, secondary school teachers' perception level is at a mean score of 16.2, which is approximately 64.8%. This statistically signifies that there is a general high perception level of Jordanian secondary school teachers toward the reliability of information gotten from the internet.

Teacher B, states that "ICT tools can be very funny at time especially with all these newly introduced software coming out daily".

An Australian study, Newhouse (2002) discovered that various teachers don't have the experience and competence to operate computers and were reluctant about the modification and inclusion of additional learning that has to do with including computers into their teaching and learning process.

4.6.1 Secondary school teacher's perception on the difficult in using internet according to gender, age and years of experience

This section focused on secondary school teacher's view on difficulty of using internet according to their gender, age and years of experience.

4.6.1.1 Secondary school teacher's perception on the difficulties in using internet according to gender

Table 4.36 shows the Secondary school teacher's perception on the difficulties in using internet according to gender comparison.

Table 4.36: Secondary school teacher's perception on the difficulties in using internet according to gender

Gender	n	X	SS	Sd	t	p
Female	21	16.0	2.46	33.6	0.062	0 .805
Male	19	16.3	1.87	38		

As seen from Table 4.36 above, there is no significant difference in the perception level on the difficulty in using internet by female and male secondary school teachers in Jordan, it is comprehendible from the Table above that (t=0.062 and p>0.05) which is the significant level point set for this study. It is also understood that female and male Jordanian secondary school teachers has high relationship on their perception on the difficulty in using internet.

In the findings, finalized that gender holds a positive perception towards ICT, but there exist a little gender difference on negative perception for female being very anxious about the negative influence of computers on society.

An ANOVA statistics test was conducted to find out the significant difference point on the attitudes of secondary school teachers in Jordan based on their age and years of experience as shown in Table 4.37, Table 4.38, Table 4.39 and Table 4.40 respectively which contains the results.

4.6.1.2 Secondary school teacher's perception on the difficult in using internet according to age and years of experience

Table 4.37 shows Secondary school teacher's perception on the difficult in using internet according to age comparison.

Table 4.37: Descriptive analysis of secondary school teacher's perception on the difficulties in using internet according to age

AGE	N	X	Std. Deviation
20-25	6	16.50	3.20
25-35	17	15.88	1.61
35 AND OLDER	17	16.41	2.29
Total	40	16.20	2.15

Table 4.38: Secondary school teacher's perception on the difficulties in using internet according to age

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	3.01	2	1.50	0.31	0.73
	Within Groups	177.38	37	4.79		
	Total	180.40	39			

As shown in Table 4.38 above, the p-value figure shows that there is no significant differences in the perception of secondary school teachers on the usefulness of ICT tools to work since P is greater than 0.05 significant point. Also in Table 4.37, the statistical mean scores of teachers according to age group are closely within range, and thus shows strong relationship amongst each other and therefore shows no significance difference.

Table 4.39: Descriptive analysis of secondary school teacher's perception on the difficulties in using internet according to years of experience

Grade	**N**	**X**	**Std. Deviation**
1	2	15.0	0.00
2	4	17.25	3.86
3	8	17.87	2.03
4 AND HIGHER	26	15.61	1.65
Total	40	16.20	2.15

Table 4.40: Secondary school teacher's perception on the difficulties in using internet according to years of experience

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	38.62	3	12.87	3.26	**0.03**
	Within Groups	141.77	36	3.93		
	Total	180.40	39			

As shown in Tables 4.39 and 4.40 above, the p-value figure shows that there is significant differences in the perception of secondary school teachers on difficulty of using internet since P is lower than 0.05 significant point and thus shows no strong relationship amongst each other.

It can be concluded from the above that no significant difference occurred on secondary school teacher's perception on the difficulty of using internet while, years of experience shows a significant difference on the perception on the difficulty of using internet by Jordanian secondary school teachers.

4.6.1.3 General level of perception on the difficulties of using internet

Table 4.41 shows the General level of perception on the difficulties of using internet.

Table 4.41: General level of perception on the difficulties of using internet by secondary school teachers

		SD		D		N		A		SA	
		n	%	n	%	n	%	n	%	n	%
Q48	I had rather use my own software as a pre-determined one	-	-	6	15.0	20	50.0	11	27.5	3	7.5
Q49	Internet is easy to use for a 6 years old child	3	7.5	1	2.5	6	15.0	21	52.5	9	22.5
Q50	No computer is safe from hackers	6	15.0	1	2.5	3	7.5	19	47.5	11	27.5
Q51	Only programmers or computer experts can work with internet on a very good level	4	10.0	16	40.0	4	10.0	12	30.0	4	10.0
Q52	My grandparents would work with internet without problems	14	35.0	7	17.5	4	10.0	14	35.0	1	2.5

As seen from Table 4.41 above, about 65% of the respondent agreed or strongly agreed on the difficulty on using internet. This shows that majority of Jordanian teachers have a higher perception that there difficulty in the use of internet. While about 20% of the respondents have a neutral and a disagree reply on the subject matter.

Similar result has been gotten in Balanskat et al. (2006), which proved that a lot of teachers still prefers not to adopt ICT during teaching due to their incompetence in and lack of basic skill in operating ICT tools.

4.7 Secondary school teacher's view on the importance of using internet when preparing course objectives and contents

Table 4.42 shows the general perception of Secondary school teacher's view on the importance of using internet when preparing course objectives and contents.

Table 4.42: General perception on the importance of using internet when preparing course objectives and content

Minimum	**Maximum**	**Mean**	**Standard deviation**
12.0	21.0	16.4	1.93

As it is seen from Table 4.42, above, secondary school teachers' perception level is at a mean score of 16.450, which is approximately 65.80%. This statistically signifies that there is a general high perception level of Jordanian secondary school teachers toward the use of internet when preparing course objectives and content.

Teacher J, clearly stated that *"there is no way I will construct my lesson material that I will not visit the internet for reference and update".*

Teacher E, said that "*course materials have been made rich since the internet contains all needed materials".*

From the teachers comments above, it can be understood that almost all the teachers sees the internet to be very useful in their daily work life, and as such it cannot be avoided.

Cox (2007), in a related study discovered that lots of instructors rely on internet in harnessing their lesson note and general course objectives before teaching.

4.7.1 Secondary school teacher's view on the importance of using internet when preparing course objectives and contents according to gender, age and years of experience

The observation of secondary school teacher's view on the importance of using internet when preparing course objectives and contents according to their gender, age and years of experience.

4.7.1.1 Secondary school teacher's view on the importance of using internet when preparing course objectives and contents according to gender

Table 4.43 shows Secondary school teacher's view on the importance of using internet when preparing course objectives and contents according to gender comparison.

Table 4.43:Secondary school teacher's view on the importance of using internet when preparing course objectives and contents according to gender

Gender	n	X	SS	Sd	t	p
Female	21	16.1	2.05	33.6	1.400	0.244
Male	19	16.7	1.8	38		

As seen from Table 4.43 above, there is no significant difference in the perception level on the difficulty in using internet by female and male secondary school teachers in Jordan, it is comprehendible from the Table above that (t=1.400and p>0.05) which is the significant level point set for this study. It is also understood that female and male Jordanian secondary school teachers has high relationship on their perception on the difficulty in using internet.

An ANOVA statistics test was conducted to find out the significant difference point on the attitudes of secondary school teachers in Jordan based on their age and years of experience as shown in Table 4.44, Table 4.45, Table 4.46 and Table 4.47 respectively, which contain the results.

4.7.1.2 Secondary school teacher's view on the importance of using internet when preparing course objectives and contents according to age and years of experience

Table 4.44 shows Secondary school teacher's view on the importance of using internet when preparing course objectives and contents according to age comparison.

Table 4.44: Descriptive analysis secondary school teacher's view on the mportance of using internet when preparing course objectives and contents according to age

AGE	N	X	Std. Deviation
20-25	6	15.4	1.8
25-35	17	16.3	3.6
35 AND OLDER	17	15.4	1.2
Total	40	16.4	2.5

Table 4.45: Secondary school teacher's view on the importance of using internet when preparing course objectives and contents according to age

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	3.01	2	1.72	0.11	0.33
	Within Groups	177.38	37	3.52		
	Total	180.40	39			

As seen from Tables 4.44 and 4.45 above, there is no significant difference in the perception level on the importance of using internet when preparing course objectives and contents according to age of secondary school teachers in Jordan, it is comprehendible from the Table above that ($t=0.115$ and $p>0.05$), which is the significant level point set for this study. It is also understood that there is has high

relationship on Jordanian secondary school teachers perception on the importance of using internet when preparing course objectives and contents.

Table 4.46: Descriptive analysis secondary school teacher's view on the mportance of using internet when preparing course objectives and contents according to years of experience

Grade	**N**	**X**	**Std. Deviation**
1	2	16.0	.00
2	4	15.4	2.69
3	8	16.8	3.38
4 AND HIGHER	26	16.5	3.65
Total	40	17.2	3.16

Table 4.47: Secondary school teacher's view on the importance of using internet when preparing course objectives and contents according to years of experience

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	37.46	3	13.74	2.53	0.63
	Within Groups	324.68	36	4.64		
	Total	374.54	39			

As seen from Table 4.46 and Table 4.47 above, there is no significant difference in the perception on the importance of using internet when preparing course objectives and contents. According to years of experience of secondary school teachers in Jordan, this is evident from the Table above where ($t=2.535$ and $p>0.05$) which is the significant point set for this study. It is understood that years of experience group of Jordanian secondary school teachers has high relationship on their perception on importance of using internet when preparing course objectives and contents

In conclusion, the age and years of experience show no significant difference on the perception of using internet when preparing course objectives and contents by Jordanian secondary school teachers according to age and years of experience.

4.7.1.3 General perception of the importance of using internet in preparing course objectives and course content

Table 4.48 shows the general perception of the importance of using internet in preparing course objectives and course content.

Table 4.48: General perception of the importance of using internet in preparing course objectives and course content

		SD		D		N		A		SA	
		n	%	n	%	n	%	n	%	n	%
Q53	It's is normal to own and use more than two email address	2	5.0	7	17.5	4	10.0	25	62.5	2	5.0
Q54	It is not necessary to print books and textbooks, it is sufficient to do it in e-from/online	6	15.0	11	27.5	6	15.0	10	25.0	7	17.5
Q55	All websites should use only universal language	1	2.5	8	20.0	12	30.0	16	40.0	3	7.5
Q56	Own website on internet can bring benefits in terms of establishing important contacts			4	10.0	13	32.5	21	52.5	2	5.0
Q57	Thanks to own internet one can find a good job	1	2.5	11	27.5	11	27.5	15	37.5	2	5.0

From the Table 4.48 above, it can be seen that more than 78% of the respondent's response falls under the Agree and Strongly Agree rating scale, this statistically proves that the teachers highly perceived the internet to be important in the preparing of course objectives and course content during work.

Teacher B, said that *"internet serves as a guide to me when I prepare course materials, just to ensure I don't go out of track".*

Teacher A, stated also that *"I can barely do a thing with checking it up on the internet just to ensure I have quality information and idea".*

Newhouse (2002), in a study discovered that majority of the school teachers whom are the sample for the study owns a blog and also utilizes contents from internet to build their material for educational purposes.

4.8 Secondary school teacher's view on other media and internet.

Table 4.49 shows the Secondary school teacher's view on other media and internet by showing the mean, minimum and maximum score points.

Table 4.49: General perception on other media and internet by secondary school teachers

Minimum	**Maximum**	**Mean**	**Standard deviation**
14.0	30.0	18.5	3.1

As it is seen from Table 4.49 above, secondary school teachers' perception level is at a mean score of 18.5250, which is approximately 61.75%. This statistically signifies that there is a general high perception level of Jordanian secondary school teachers toward the use internet when preparing course objectives and content.

Teachers D, states that *"media devices like the television and speakers helps teachers to pass information easier and in a stress freeway and for further understanding of the subject matter.*

4.8.1 Secondary school teacher's view on other media and internet according to gender, age and year of experience

Table 4.50 shows the Secondary school teacher's view on other media and internet according to gender comparison.

Table 4.50: Secondary school teacher's view on other media and internet according to gender

Gender	n	X	SS	Sd	t	p
Female	21	17.9	3.3	37.9	0.064	0.801
Male	19	19.2	2.9	38		

As seen from Table 4.50 above, there is no significant difference in the perception level on other media and internet by female and male secondary school teachers in Jordan, it is comprehendible from the Table above that ($t=0.064$ and $p>0.05$) which is the significant level point set for this study. It is also understood that female and male Jordanian secondary school teachers has high relationship on their perception on other media and internet.

An ANOVA statistics test was conducted to find out the significant difference in the perception level on other media and internet by secondary school teachers in Jordan based on their age and years of experience as shown in Table 4.51, Table 4.52 respectively, which contains the results.

4.8.2 Secondary school teacher's view on other media and internet according to age and year of experience.

Table 4.51 shows the Secondary school teacher's view on other media and internet according to age comparison.

Table 4.51: Descriptive analysis secondary school teacher's view on other media and internet according to age

AGE	**N**	**X**	**Std. Deviation**
20-25	6	19.0	3.2
25-35	17	17.6	2.3
35 AND OLDER	17	19.2	3.8
Total	40	18.5	3.1

Table 4.52: Secondary school teacher's view on other media and internet according to age

Variance source		Sum of Squares	SD	Mean Square	F	P
Perception level	Between Groups	23.03	2	11.51	1.14	0.32
	Within Groups	370.94	37	10.02		
	Total	393.97	39			

As seen from Table 4.51 and Table 4.52 above, there is no significant difference in the perception of secondary school teachers on other media and internet. According to years of experience of secondary school teachers in Jordan, this is evident from the Table above where ($t=1.149$ and $p>0.05$) which is the significant point set for this study. It is understood that years of experience group of Jordanian secondary school teachers has a relatively high relationship on their perception on other media and internet.

In conclusion, the age and years of experience show no significant difference on the perception of other media and internet by Jordanian secondary school teachers according to age and years of experience.

4.8.3 General perception of secondary school teachers on other media and internet

Table 4.53 shows the perception level of secondary school teachers on other media and internet.

Table 4.53: Perception level on media and internet

		SD		D		N		A		SA	
		n	%	n	%	n	%	n	%	n	%
Q58	I watch chosen TV programs only on internet	1	2.5	12	30.0	11	27.5	14	35.0	2	5.0
Q59	I prefer to read newspapers in print more than online	8	20.0	4	10.0	5	12.5	16	40.0	7	17.5
Q60	I am able to work on pc, or notebook and watch TV at the same time	1	2.5	8	20.0	9	22.5	15	37.5	7	17.5
Q61	I prefer watching TV to use internet	1	2.5	9	22.5	16	40.0	4	10.0	10	25.0
Q62	I prefer watching several TV programs on internet than in TV	8	20.0	10	25.0	12	30.0	6	15.0	4	10.0
Q63	If i don’t catch broadcasting live, i watch it on the internet	10	25.0	9	22.5	6	15.0	14	35.0	1	2.5

As seen from Table 4.53 above, there is a moderate response on the perception of secondary school teachers in Jordan on media and internet for work. About 40% of the respondents were on the Agree and Strongly Agree scale and another 40% of the response were on the Disagree scale. 10% of the responses are on the neutral scale on the decision of use of media and internet for work.

Loveless (2003), in his work emphasizes on how media as ICT medium helps in a greater way to ensure the success of teaching and also helps the learners to learn faster and easier.

Teacher K*, also states that "at work the television set update us on information we can immediately teach to the kids, like information gotten from the news".*

Teacher F, *"I use the internet and media a lot most especially at work, and it is very useful to me".*

From the teachers comment above, it can be understood that the media and internet has been very help to the teachers in helping the pass on teaching to the students and also in updating the students on current issues relating to knowledge and awareness of circular issues of the students life.

Osamah (2008), in a related work, shows that ICT as a tool and medium helps in every aspect of the students life most especially when it has to do with knowledge building and daily life building of the students. Most especially it enables them improve tremendously, as they become aware of daily life issue.

Loveless (2003), in his work emphasizes on how media as ICT medium helps in a greater way to ensure the success of teaching and also helps the learners to learn faster and easier.

Chapter 5

CONCLUSION

This research work focused on the perception of secondary school teachers in Amman, Jordan, on the use and usefulness of ICT tools in teaching and learning process, and how it varies based on gender, age and years of experience of the teachers.

The findings of this study outlined that secondary school teachers have a very high perception of the usefulness of ICT tools and also its adoption in their daily teaching and learning process.

In connection with the literature, the responses of the teachers and their level of experiences in teaching process are in strong connection to each other. It can also be seen that teachers perceptions on social networks, reliability of internet contents, security of the internet, using internet to prepare course objective, internet and other media, all have a very high statistical outcome, showing that, generally there is a very high positive relationship on the usefulness of the entire ICT tools in learning process.

From the study, it appears that most of them are positive with the use of ICT use in school, and they appreciate the use of ICT in enhancing teaching and learning. Result also showed that they are positive towards further integration of technology into classroom instruction. Training therefore, should be offered to teachers on a

continuous, rather than a one-off, basis so that their IT knowledge is upgraded over time. It is indeed hoped that the benefits from the use of ICTs can be fully realized and optimized in teaching. From the results, it would appear that mechanisms need to be put in place to ensure that teachers utilize computer technology for further development and communication, and training need to be designed to increase teachers' familiarity with a wider range of ICT applications. Teachers should also be given the opportunity and encouraged to reflect on, and make decisions about their own ICT development needs on ongoing basis.

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APPENDICES

Appendix A: Questionnaire

QUESTIONNAIRE

Dear Respondent,

My name is Cjyar Nazar Dhaher Dhaher; I am a master's student in the Information and Communication Technology Department at Eastern Mediterranean University, Famagusta. In the delimitation of my thesis, the purpose is to investigate secondary school teachers' attitudes towards and use of ICT educational tools in Jordan. The information and data gotten from the questionnaire will build a basis of the scientific work and will never be adopted for any other purpose.

Demographics

Gender: Male ☐ Female ☐

Age: 20 – 25 ☐ 25– 35 ☐ 35 and older ☐

Year of Experience: 1 ☐ 2 ☐ 3 ☐ 4 and higher ☐

s/n	Items	STRONGY DISAGREE 1	DISAGREE 2	NEUTRAL 3	AGREE 4	STRONGLY AGREE 5
	Work and ICT					
1	I have no problems using internet in my phone.					
2	It's normal, during working hours, to be logged into the Facebook account.					
3	Skype or ICQ is normal for me to be turned on, during working hours /education at school.					
4	I consider admittedly to "speak or chat" on ICQ during my working time or lecture for solving privet or working problems.					
5	I consider the meeting by videoconferences more effective (time saving) than face to face meeting.					
6	It's not advisable to use working e-mail for private intention.					
7	A short break during working time, which I spend playing computer games, I find suitable for relaxing.					
8	I consider normal to work out of workplace (I take my work home).					
9	I express my mood through emoticons (smile).					
10	It is normal to use diacritical signs in SMS or e-mail.					
11	I consider normal to locate personal photos on website.					
12	I express sympathy to addresses though emoticons.					

13	Emoticons should not be used in mail massage.					
14	I consider normal when the computer is on constantly.					
15	Some websites should be censored.					
	Internet as a source of information					
16	I prefer to use e-mail than classic post mail.					
17	I send letters or postcards only in extraordinary cases.					
18	Sending letters by post gradually (over the next five years) completely extinguishes.					
19	I consider encyclopedias on internet (for example Wikipedia) as trustworthy.					
20	There is some information on internet than can't be found.					
21	All information I need I can find on internet.					
	Social Networks					
22	I like to chat.					
23	I prefer talking face to face to chat.					
24	I don't know about advantages of chat than the interview face to face has.					
25	I consider Facebook as portal. I can get to know information important for my life.					
26	Through Facebook I learn a lot about my friends.					
27	Facebook helps me to get to know a lot about unknown people.					
28	Through Facebook I arrange acquaintances with people, with whom ,in a real world .I would have never try to.					
29	Social networks (e.g. Facebook) limit privacy.					
30	Social networks such as Facebook are for entertainment purposes only.					
31	I consider the spending time on social networks such a losses of time.					
32	I prefer to use electric communications (mail, chat….).					
33	I have to have personal contact with someone to add him to Facebook.					
34	I carefully choose who I add as a friend on Facebook.					
35	Internet allows people in distant collaboration.					
	The Security of Internet					
36	It is reliable to purchase goods					

	through internet.					
37	Electronic banking is danger because of inadequate securing of account.					
38	I consider downloading the movies films from internet as crime.					
39	I cannot imagine my life without internet.					
40	PC is necessary in today's life for people.					
41	I could not imagine life without internet.					
42	The use of a computer is very limited, if it's not connected to internet.					
43	I find it normal to use internet every day.					
44	I consider normal to use software that is illegal (i.e. cracked….).					
45	Internet saves time.					
46	Internet helps in plagiarism /to violate the author's rights in large amount.					
47	Internet access has to be free of charge everywhere.					
48	It is good when I can accommodate some things over internet and don't need to get to the bank, the post office, or shop in person.					
	The Difficulty of the Internet Using					
49	I'd rather use my own software as a pre-determined one (suggested by employer).					
50	Internet is easy to use for a 6 year old child.					
51	No computer is safe from hackers.					
52	Only programmers or computer experts can work with internet on a very good level.					
53	My grandparents would work with internet without problems.					
	The Importance of the Internet					
54	It's normal to own and use more than two e-mail addresses.					
55	It is not necessary to print the books and textbooks, it is sufficient to do it in e-from/online.					
56	All website should use only one universal language (preferably English).					
57	Own website on internet can bring benefits in terms of establishing important contacts.					
58	Thanks to own website on					

	internet one can find a good job.					
	Other Media and Internet					
59	I watch chosen T.V programs only on internet (for example news….).					
60	I prefer to read newspapers in print more than online.					
61	I am able to work on PC, or notebook and watch T.V at the same time.					
62	I prefer watching T.V to use internet.					
63	I prefer watching several T.V programs on internet than on T.V.					
64	If I don't catch broadcasting life, I watch it on internet.					

Appendix B: Interview Questions

INTERVIEW QUESTIONS

1. On a personal assessment to your work, how useful would you say ICT tools are to you?

   If not, why?
2. Is there any professional assistance you get, when using a ICT tool during teaching and learning process?
3. Blending ICT with teaching, how distracting can this method be to the students during learning process?
4. What are the general gains of adopting ICT, to the students and the entire school as a whole?
5. Information gotten via ICT, how much can you rely on them?
6. How difficult is it for you to operate ICT tools?
7. For what purpose do you frequently use ICT tools, entertainment, study or for work? And why?
8. Are ICT tools safe and secured to use?